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THE ROLE OF CORPORATE HR POLICY IN FACILITATING AND STIMULATING SELF-DIRECTED LEARNING: AN EXPLORATORY RESEARCH

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The Role of Corporate HR Policy in Facilitating and Stimulating Self-Directed Learning: An Exploratory Research

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Keywords Corporate HR, self-directed learning, policy, support, high-tech sector

Abstract

Due to the unpreceded rapidity of change in society and working life in recent decades, self-directed learning (SDL) has become increasingly important for both employees and their organisations. Although it has been argued that developing the workforce's SDL behaviour is an inseparable part of the increasingly strategic role of corporate HR, there is a lack of scientific and practical understanding of how corporate HR policy can actually facilitate and stimulate SDL. Therefore, the twofold purpose of this research is to investigate which employee characteristics, contextual conditions, and perceived HR practices influence SDL, and to clarify the found relationships. To achieve these research goals, an exploratory research approach with a sequential mixed method design was conducted within a corporate high-tech organisation. The first quantitative cross-sectional survey study, conducted on 593 participants, resulted in a multiple regression analysis revealing that a *proactive personality* is the biggest predictor of SDL, although contextual conditions (i.e. *feedback from others* and *growth potential*) and perceived HR practices on *training development education* also exert a considerable influence on SDL. Subsequently, 10 participants were subjected to qualitative focus group interviews to clarify the quantitative findings. A conventional content analysis of HR- and employee-utterances confirmed the found relationships, showed the direction of these relationships, and provided examples behind it. Additional insights stem from the finding of more complex relationships, revealing for example that contextual conditions are also influenced by employee characteristics and perceived HR practices. Future research could contribute to this exploratory foundation by further investigating mediation and moderation effects using structural equation modelling. The paper concludes by outlining implications for practice.

Keywords: Corporate HR, self-directed learning, policy, support, high-tech sector

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I have to say that writing these final words of my Master's thesis is a strange but comfortable feeling. That said, it has been a great self-directed learning experience! As you may learn in this research, self-directedness in learning can only partly be explained by individual characteristics ☺. Recognising that is why I really want to show my gratitude to all those who supported me during this journey. A couple of people played a very important role, and I want to thank them in particular.

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"A company that cannot self-correct cannot thrive" (Dweck, 2017, ch. 5).

1. Problem statement

Traditionally, the definition of "learning" was exclusively related to formal education that takes place in classrooms (Tynjälä, 2008), guided by a teacher. Work and learning used to be two separate things, in which learning occurred away from work (Ellinger, 2004). An unprecedented change in recent decades in both society and working life in terms of globalisation, rapid development of technology, growing production of knowledge, organisational change, and increased competition resulted in a gap between needed and acquired knowledge at work by means of formal education (Tynjälä, 2008). At knowledge-intensive workplaces in particular, formal learning approaches are no longer appropriate or effective to keep up with the pace of change (Littlejohn & Margaryan, 2013).

Anticipating these changes is challenging but imperative for both employees and the organisations they work for. Employees are challenged to take responsibility for their own lifelong learning process in order to adapt to the increasingly complex and changing work environment (Bednall, Sanders & Runhaar, 2014) and remain employable (Ellinger, 2004). Organisations face the challenge of addressing the learning needs of their employees (Ellinger, 2004) and empowering them to act and learn quickly to keep up with competitors (Kyndt, Dochy & Nijs, 2009).

As a response to these challenges, learning has increasingly shifted towards the workplace itself (Eraut, 2004). The concept of self-directed learning (SDL) is a commonly used form of workplace learning that has achieved a central role in organisational learning (Ellinger, 2004). Within the field of education nowadays, it is widely understood that people learn better when they control their own learning (Gureckis & Markant, 2012), preferably at moments and places when the learner chooses to learn (Kyndt et al., 2009). Moreover, SDL has been found to improve job performance, saves in training cost (Ellinger, 2004), and even affects organisational performance (Ho, 2008).

In short, it can be concluded that SDL has become increasingly important for both employees and their organisations. These developments entail that corporate Human Resources (HR) departments will have a more influential role in global organisations than they had in the past (Novicevic & Harvey, 2001). The traditional focus of HR used to be on administration, compliance, and service (i.e. operational) (Beer, 1997), while currently, it is critical to identify strategic corporate HR roles (Farndale, Scullion & Sparrow, 2010) in order to develop organisational and employee capabilities (Novicevic & Harvey, 2001). This is manifested by, for example, the recent emphasis on strategic HR practices such as talent management (Farndale et al, 2010) which consist of the proactive identification, development, and deployment of high-potential employees (Collings & Scullion, 2008). For this reason, the training, development, and performance of employees have several times been stated as a responsibility of strategic HR (Vosburgh, 2007). Corresponding to HR's increasing strategic accountability regarding employee development and the stressed importance of SDL for both

employees and organisations, it can be argued that the development of employees' SDL behaviour is an inseparable part of the strategic role of HR.

Although HR practitioners are generally well-disposed towards the SDL development of their workforce (Smith, Sadler-Smith, Robertson & Wakefield, 2007), to date there has been a lack of scientific research on how they can actually support SDL. Most research investigating SDL predictors has focused on individual employee characteristics (Raemdonck, 2006), while the conditions that can be supported by HR are somewhat neglected. In particular, the influence of contextual conditions on SDL has been investigated much less (Song & Hill, 2007), is often underestimated (Raemdonck, 2006), but it is important to take it into account (Confessore & Kops, 1998; Straka, 2000). Moreover, there is a paucity of studies that have examined the influence of HR policies on SDL, despite their influence on employees' attitudes towards learning (Theriou & Chatzoglou, 2009) and their tendency to elicit certain (learning) behaviours (Purcell & Hutchinson, 2007). This lack of insight limits corporate HR departments' ability to identify their strategy and priorities regarding the facilitation and stimulation of SDL. To illustrate, ASML – the high-tech multinational where this study took place, which has more than 14,000 employees and achieved an annual revenue of almost 7 billion euros in 2016 – has acknowledged the importance of SDL within their organisation to maintain business growth. Nevertheless, the lack of insight into the facilitators of SDL behaviour makes it difficult for their corporate HR department to support accordingly. Therefore, this study aims to investigate how corporate HR policy can influence the degree of SDL among a company's employees, within a typical knowledge-intensive sector: the high-tech industry.

2. Theoretical framework

2.1 Self-directed learning

The concept of SDL plays an important role in "andragogy" (Merriam, 2001; Owen, 2002); this is described by Knowles (1975) as "the art and science of helping adults learn" (cited in Owen, 2002, p. 2), since "people who take initiative in learning learn more things and learn better than do people who sit at the feet of teachers, passively waiting to be taught (i.e. reactive learners) … They enter into learning more purposefully and with greater motivation" (Knowles, 1975, p. 14). Although not all individuals are self-directed to the same degree (Knowles, 1975), learners become increasingly self-directed as they mature (Merriam, 2001). There is a variety of interpretations about the definition of SDL because it can be approached both as a process and as an outcome. In the outcome-oriented conceptualisation, SDL is seen as an end-state, a personal characteristic in which an individual's beliefs, attitudes, intentions, and behaviour predisposes them to influence the personal learning process (Brockett & Hiemstra, 1991). This differs markedly from the prevailing definitions, according to which SDL is approached as a process (Raemdonck, 2006), like in Knowles' (1975) widely cited definition:

> *"Self-directed learning is a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes" (p. 18).*

The core of most process-oriented definitions of SDL is the idea that that "individuals set goals, compare their progress against the goals, and make modifications to their behaviours or cognitions if there is a discrepancy between a goal and the current state" (Lord, Diefendorff, Schmidt & Hall, 2010, p. 545). This is conceptualised by Zimmerman (2006), who distinguishes three phases within the SDL process: forethought, performance, and self-reflection. Because the focus in this conceptualisation was primarily on learning in formal settings, it was slightly revised to make it applicable to the workplace context (Milligan, Fontana, Littlejohn & Margaryan, 2015). Although it should be noted that these phases were described as part of self-regulated learning (SRL), which is not completely interchangeable with SDL, research has showed that the mentioned phases are similar in both SRL and SDL (Loyens, Magda & Rikers, 2008). To be more specific, the forethought phase entails processes that enhances an employee's effort to learn, practice, and perform (Zimmerman, 2006). In the context of the workplace, this includes processes such as task analysis (i.e. goal setting, strategic planning) and self-motivation to accomplish a task (Milligan et al., 2015). Secondly, in the performance phase, the

learner makes use of processes to improve both the quantity and the quality of their learning, practice, and performance (Zimmerman, 2006). In a workplace setting, this may manifest itself in critical thinking about one's own learning and the use of strategies such as help-seeking (Milligan et al., 2015). The third phase, self-reflection, involves a learner's cognitive and behavioural reactions to a learning experience (Zimmerman, 2006) in terms of self-evaluation and self-satisfaction (Milligan et al., 2015). Although all learners direct their own learning to some extent, during the forethought and performance phase, a self-directed learner proactively focuses on their learning, instead of merely reacting to learning experiences during the self-reflection phase (Cleary & Zimmerman, 2001). Unlike some researchers (e.g. Knowles, 1975; Zimmerman, 2006) who approach SDL as a linear process, SDL in the workplace – the focus of the present study – has no fixed sequence between phases (Margaryan, Milligan, Littlejohn, Hendrix & Graeb-Koenneker, 2009). This is visualised in Figure 1. Finally, it is important to recognise that although the individual guides his/her own learning process, SDL is not a synonym for "learning in isolation" (Ellinger, 2004). In fact, the process is much more socially mediated, rather than individually based, because self-directed learners have been found to draw from and contribute to collective knowledge (Margaryan et al., 2009).

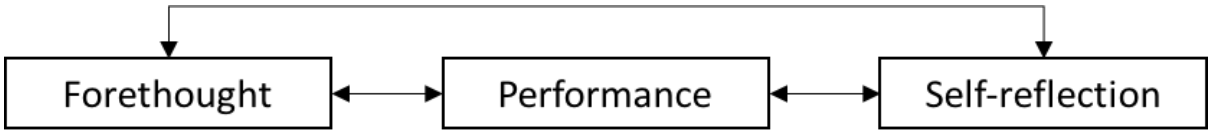

Figure 1. The phases of SDL in the workplace

2.2 Factors influencing SDL

To investigate how a company's corporate HR policy can influence their workforce's degree of SDL, *employee characteristics, contextual conditions, and perceived HR practices* will be discussed because they are expected to influence SDL behaviour. The scope of this section is on the most important factors.

2.2.1 Employee characteristics

Taking into account the characteristics of individual employees is important since these relatively stable variables have been found to have a cumulative influence on employees' degree of SDL (Raemdonck, 2006). In order to achieve some clarity, this study classifies employee characteristics (EC) into *demographics* and *psychological variables*.

Demographics. Demographic factors affect many behavioural patterns, including SDL (Raemdonck, 2006), and it is therefore important to take them into account as control variables when

investigating SDL predictors. In addition, they provide insight into the composition of the sample. Overall, *age* and *gender* are influential demographical factors. However, research has yielded diverging results regarding their effect on SDL, since older employees are presumed to be more self-directed because of their work experience, or less self-directed due to reduced career development goals (Raemdonck, Van der Leeden, Valcke, Segers & Thijssen, 2012). Regarding gender, it is argued that women are more oriented towards learning behaviour while men show more networking behaviour at work (Raemdonck et al., 2012). Furthermore, the relationship between SDL and *educational degree* seems to be relatively divergent. Research has found that people's educational degree is associated with offered opportunities to participate in non-formal and informal learning (Kyndt et al, 2009). This could imply that higher levels of education are related to a higher degree of SDL, since there are simply more possibilities to learn in a self-directed way. However, research by Raemdonck (2009) acknowledges this relationship between educational degree and SDL but only found it when a third variable is present: job satisfaction. Furthermore, since employees with different functions are exposed to different learning conditions (Kyndt et al., 2009), employees' *department* and *job/salary grade* (i.e. level in an organisation's hierarchy) might affect their degree of self-directedness. The relationship between *job/salary grade* is expected to be positive as low qualified employees (i.e. without a diploma for higher education) show low learning intentions (Illeris, 2006). In addition, someone's *nationality* is expected to influence SDL because it could be reasoned that, for example, an employee with non-Dutch nationality working in the Netherlands would need to undertake more self-directed learning to adapt to a different culture and way of working. In closing, demographics as *working hours* per week and *working years* at the company are also considered in this research because the length of time spent within the company may have a positive or negative impact on SDL behaviour due to the time an employee has been exposed to SDL influencers.

Psychological variables. In addition to demographics, other influential psychological variables are discussed in this research. First, an employee's degree of *proactive personality* is a significant predictor of SDL. A proactive personality has been described as "a disposition to take personal initiative in a broad range of activities and situations" (Raemdonck et al., 2012, p. 572). Based on past research within the context of low qualified employees, (e.g. Raemdonck, 2006; Raemdonck et al., 2012), proactive personality is expected to be the most influential employee characteristic because proactive people tend to actively shape the situation they are currently in and are therefore more likely to initiate their own learning. Although research has found that an individual's personality slowly changes over time (at least as much as economic factors such as income and marital status) (Boyce, Wood & Powdthavee, 2013), a proactive personality is considered a relatively stable variable.

In addition, employee motivation is an important influencer of SDL behaviour; previous research has shown it to be a predictor of SDL-willingness (Boyer, Edmondson, Artis, & Fleming, 2013). This corresponds to research revealing a positive relationship between employees' levels of self-motivation and achievement orientation, and time spend on completing SDL projects (Livneh, 1988). This motivation could be either extrinsic or intrinsic (Artis & Harris, 2007). In this research, *achievement motivation* is included and defined as intrinsic or extrinsic "motivation or drive to excel or attain goals" (Achievement motivation, 2017). "Expectancy-value theory" helps in understanding the influence of achievement motivation on SDL. It shows that "individuals' choice, persistence, and performance can be explained by their beliefs about how well they will do on the activity and the extent to which they value the activity" (Wigfield & Eccles, 2000, p. 68). As such, it can be argued that employees who are intrinsically or extrinsically driven to attain goals show more SDL behaviour because they see SDL activities as contributing to their goals. Finally, it is expected that employees with high levels of *job satisfaction* will be more self-directed in their learning. According to Cranny, Smith, and Stone (1992), *job satisfaction* is usually described as "an employee's affective reactions to a job based on comparing desired outcomes with actual outcomes" (cited in Egan, Yang & Bartlett, 2004, p. 283). Previous studies have found that employees with higher degrees of job satisfaction tend to leave organisations less quickly, have more motivation to transfer learning (Egan, Yang & Bartlett, 2004), and show more engagement with informal learning activities (Berg & Chyung, 2008). Because SDL can be approached as a usual form of informal learning (Marsick & Watkins, 2001), it could be argued that *job satisfaction* influences SDL because it promotes employees' dedication to share and learn within the company.

2.2.2 Contextual conditions

Regarding contextual conditions (CC) within organisations, both *job characteristics* and *learning opportunities* have been found to influence SDL behaviour.

Job characteristics. Jobs differ from each other. The characteristics of the job the individual is performing have been found to affect employees' self-directedness (Raemdonck et al., 2012) and should encourage and support learning to take place (Billet, Harteis, & Eteläpelto, 2008). Previous research has indicated certain characteristics that should be present to stimulate SDL. In the first place, an employee whose job requires high *task variety* shows increased levels of SDL (Raemdonck et al., 2012). Task variety means conducting a variety of different activities or need for different skills or talents. In line with this finding, it is expected that high levels of routine, for example, will limit the self-direction of employees because it lowers their ability to make choices regarding their own

learning in terms of activities and goals (Raemdonck et al., 2012). Furthermore, people whose job leaves room for *autonomy* are more likely to engage in SDL behaviour because people who have the impression they control their own learning can learn in a more self-directed way (Straka, 2000). This can be explained by self-determination theory, according to which autonomy is a psychological need which, when satisfied, enhances people's self-motivation (e.g. to undertake SDL activities) (Ryan & Deci, 2000). Moreover, research has revealed that the greater the *growth potential* in an employee's job, the higher the degree of their SDL behaviour, since both low-skilled work and a high degree of job specialisation reduce mobility and restrict opportunities to learn, which has a negative influence on efforts in SDL (Raemdonck et al., 2012). In this research, therefore, *growth potential* is understood as both opportunities to learn and mobility opportunities (e.g. internal or external possibilities for job promotion) (Raemdonck et al., 2012), which are expected to positively predict employees' SDL behaviour.

Learning opportunities. Research in the finance industry has found that SDL mediates the relationship between learning opportunities and actual learning activity (Milligan et al., 2015), which indicates that certain learning opportunities have an impact on SDL. Learning opportunities can take the form of formal learning opportunities, such as offering fixed-classroom training (Tynjälä, 2008), or informal learning opportunities, which mainly take place in the workplace (Berg & Chyung, 2008). Because this research is predominantly focused on SDL in the workplace, it emphasises how learning opportunities with a predominantly informal nature might relate to SDL. Previous research states that "fostering collaboration, interaction, and teamwork" (Rana, Ardichvili, & Polesello, 2016., p. 178) promotes SDL in organisations. Moreover, another study has indicated that asking for and receiving feedback and support, and interactions with colleagues and supervisors, are among the greatest organisational drivers stimulating informal learning because they trigger employees' further engagement with informal learning activities (Schürmann & Beausaert, 2016). Because SDL can be considered a common form of informal learning (Marsick & Watkins, 2001), learning opportunities such as *feedback from others* and *collaboration* are expected to influence employees' SDL behaviour. Accordingly, in this research, *feedback from others* is understood as both giving feedback to and seeking it from others such as colleagues or managers (Schürmann & Beausaert, 2016) in order to improve performance, a task, or a product, while *collaboration* is defined as "united labour or co-operation" (Collaboration, 2017).

2.2.3 Perceived HR practices (PHRP)

As stated previously, there is a lack of research investigating the influence of corporate HR policies on SDL. Therefore, this section will argue how distinctive corporate HR policies are expected to influence employees' SDL behaviour.

Corporate HR policies. As outlined in the problem statement, the strategic role of corporate HR is becoming increasingly important nowadays (Farndale et al, 2010). In this trend, corporate HR policies (CHRP) play an important role, and can be defined as an "organisation's stated intentions regarding its various employee management activities" (Paauwe & Boselie, 2005, p. 7). To be effective, these CHRP need to be aligned with the business strategy and can therefore differ between organisations (Chênevert & Tremblay, 2009). Nevertheless, Demo, Neiva, Nunes, and Rozzett (2012) defined six main CHRP present within organisations: (1) *training development education*; (2) *involvement*; (3) *performance appraisal*; (4) *compensation and rewards*; (5) *recruitment and selection*; and (6) *work conditions*.

Magnitude of employees' perceptions. When attempting to investigate the actual influence of CHRP on employees' SDL behaviour, gaining insight into the "black box" of intermediate processes is a necessity. The people-management performance causal chain (Purcell & Hutchinson, 2007) opens this box, and shows that intended HR practices (i.e. CHRP) differ from actual, implemented HR practices, which in turn are perceived differently by each individual, according to a number of factors. Subsequently, these perceptions are antecedents of employee reactions (Nishii & Wright, 2007), which can be divided into attitudinal and behavioural components (Purcell & Hutchinson, 2007). Following this line of reasoning, the implication is that CHRP have the potential to affect SDL behaviour through employees' perceptions of actual, implemented HR practices (i.e. PHRP), as visualised in Figure 2.

Figure 2. From CHRP via PHRP towards SDL behaviour. Adapted from Nishii & Wright (2007) and Purcell & Hutchinson (2007).

Impact of PHRP on SDL. Guest and Conway (2011) found that to realise effective PHRP, HR needs to ensure both (1) the presence of HR practices and (2) the effectiveness of these practices, although the latter has the greatest impact on outcomes. Therefore, for each of the six main CHRP (Demo et al., 2012), the following section discusses (1) how they could manifest themselves within organisations, and (2) whether they are expected to influence SDL. In the following section, it is argued that PHRP related to (1) *training development education*, (2) *involvement*, (3) *performance appraisal*, and (4) *compensation and rewards* can influence employees' SDL behaviour. Because there are no specific expectations regarding the influence of (5) *recruitment & selection* and (6) *work conditions* on SDL, these variables are also included in this research. Moreover, previous research has revealed significant correlations between all six PHRP (Uysal, 2012), which likely indicates that they mutually reinforce each other.

Training development and education. The aim of a CHRP in terms of training development education can be defined as "to provide for employees' systematic competence acquisition and to stimulate continuous learning and knowledge production" (Demo et al., 2012, p. 400). It is important to state that such a policy is not merely restricted to classroom training; organisations should provide employees with different resources to enable their development (Sessa & London, 2008). In this section, it is argued that PHRP, which aims to promote employee-development, positively influence SDL behaviour in the workforce. Two reasons can be distinguished for this.

In the first place, influence on SDL is expected because the presence of development practices enhances engagement by employees. Research indicates that employees' perception of their organisations' learning climate is a predictor of employee-engagement (Eldor & Harpaz, 2016). An engaged employee is expected to undertake more SDL behaviours because he will have (1) high levels of energy and willingness to invest effort in his (SDL) task, (2) is dedicated to the (SDL) task, and (3) is fully concentrated on the (SDL) task (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). The argument that an engaged employee learns more self-directed is supported by research stating that engagement is beneficial for someone's growth and flourishing (Eldor & Harpaz, 2016) and stimulates proactive behaviour (e.g. to undertake SDL activities) (Salanova & Schaufeli, 2008).

Secondly, it is plausible that there are influences on SDL because training development education PHRP likely affects the contextual conditions within a company. That is, HR practices that support continuous learning are essential to create the appropriate conditions in which SDL at the workplace can occur (Rana et al, 2016). This implies that, as discussed earlier in this research, contextual conditions mediate the relationship between training development education PHRP and

SDL. In sum, training development education PHRP are expected to positively influence SDL due to their impact on employee engagement and the contextual conditions enhancing SDL.

Involvement. As stated by Demo et al. (2012), CHRP contribute to employees' "well-being at work, in terms of acknowledgement, relationship, participation and communication" (p. 400). An involved employee is expected to learn in a more self-directed way. This is substantiated by research asserting that involvement-practices are integral to promoting SDL. To be more specific, there are reasons that employees who are empowered to (1) build and communicate a shared vision, and (2) collaborate, interact, and work in teams are more self-directed in their learning (Rana, Ardichvili & Polesello, 2016). Regarding the first point, the relationship with SDL can be explained because it "provides focus and energy for learning" (Senge, 2006, p. 192); moreover, individual goal-setting (due to a shared vision) is also an important aspect of the SDL process (Milligan et al., 2015). Moreover, when information is shared among employees and they are empowered to participate in the decision-making process, this leads to enhanced engagement towards employees' (SDL) tasks (Rana, 2015). For the latter, the relationship with SDL is explicable since teamwork, collaboration, and associated shared responsibility elicits interactions such as listening, supporting team members, consensus-seeking, being respectful of others, and making concessions. This allows both groups and individuals to grow and enhance their degree of SDL (Costa & Kallick, 2004). Thus, it is expected that PHRP regarding involvement will positively influence the workforce's degree of SDL.

Performance appraisal. The focus of the performance appraisal CHRP is "to evaluate employees' performance and competence, career planning, supporting decisions regarding promotion, and development" (Demo et al., 2012, p. 400). Performance appraisal is often a part of an organisation's performance management (Fletcher, 2001), which has the broader purpose of improving organisational effectivity and is crucial for the development and survival of organisations (Boselie, Van Hartog & Paauwe, 2004). Performance appraisals have been described as an effective way to facilitate SDL within organisations (Confessore & Kops, 1998; Rana, Ardichvili & Polesello, 2016). To do so, they should emphasise individual learning and development (Rana, Ardichvili & Polesello, 2016), and be known by employees to be satisfactory and fair. If employees feel the process to be unsatisfactory and unfair, they will not use the outcome as intended (Keeping & Levy, 2000). In short, performance appraisals can positively influence SDL, but solely when they emphasise individuals' learning and are perceived as satisfactory and fair.

Compensation & rewards. In this study, the CHRP on compensation and rewards is intended "to reward employees' performance and competence via remuneration and incentives" (Demo et al., 2012, p. 400). One principle of behavioural psychology that is often taken for granted is that behaviour that is rewarded is utilised more. This statement is supported by research proving that although people self-report rewards in terms of money as less important, there is overwhelming evidence that money has powerful effects on the goals that people pursue and the degree of commitment and effort they exert towards it (Rynes, Gerhart & Minette, 2004). This indicates that rewarding SDL behaviour can indeed lead to more quantity, commitment, and effort. In line with this reasoning, skill-based pay plans have been proposed as one of the ingredients to create an SDL culture (Sessa & London, 2008) because employees will become more proactive in obtaining new job-related skills if they receive a reward in return. In contrast to increasingly popular statements (e.g. by Daniel Pink) that rewards can "extinguish intrinsic motivation and can diminish performance" (Ledford, Gerhart & Fang, 2013, p. 18), one study combining both narrative and meta-analytic reviews concluded that rewards are helpful because they increase total motivation (i.e. intrinsic plus extrinsic). Although detrimental effects of incentives are not inevitable, the authors argue that rewards are effective and even more powerful when they do not rely on extrinsic motivation alone (Ledford et al., 2013). They state that effective incentives require "appropriate communication about the importance of the task and the nature of the incentive; specific, meaningful performance goals; appropriate feedback and support from supervisors; selection systems that help sort out those who do not fit the desired culture (and reward strategy) of the organization; and an organizational culture in which incentives are supported by managers and employees" (Ledford et al., 2013, p. 29). Therefore, it is expected that incentives in the form of compensation and rewards can trigger SDL behaviour, when properly implemented.

Recruitment and selection. In a broad sense, the function of recruitment and selection CHRP within organisations is mainly to "look for employees, encourage them to apply, and select them, aiming to harmonise people's values, interests, expectations and competences with the characteristics and demands of the position and organisation" (Demo et al., 2012, p. 399). Breaugh, Macan and Grambow (2008) state that this can manifest in methods (HR practices) such as employee referrals, college placement offices, direct applicants, job fairs, and ads. Although it is argued that such practices can contribute to a change of organisational culture and, of course, the composition of the workforce (Miah & Bird, 2007), there are no specific expectations regarding *recruitment and selection*'s influence on SDL, which makes it worth investigating in this research.

Work conditions. Demo et al. (2012) state that CHRP work conditions are "to provide employees with good work conditions in terms of benefits, health, safety and technology" (p. 400). Associated HR practices can be present within organisations; for example, in terms of workplace safety programmes, health promotion, sport-discounts, temperature regulation, and travel support (Demo et al., 2012). Because there are no specific expectations, this variable is included in this research to find out whether there is any influence.

2.3 Research questions and model

As discussed previously, viewed from both a scientific and practical perspective, it is not well understood how corporate HR policy can influence self-directed learning in the workplace. It has been explained which employee characteristics (i.e. demographics and psychological variables), contextual conditions (i.e. job characteristics and learning opportunities), and perceived HR practices are expected to have impact on the workforce's degree of SDL. Accordingly, the twofold purpose of this research is testing which of the hypothesised factors influence SDL and investigating how the results found might be clarified by HR and employees. This leads to the following overall research question: *How do employee characteristics, contextual conditions, and perceived HR practices influence the workforce's degree of self-directed learning within the knowledge-intensive high-tech sector?* As such, this research comprises two studies. In the quantitative study, the paper will examine *which employee characteristics, contextual conditions, and perceived HR practices influence self-directed learning amongst the workforce?* Following on from the outcomes of this study, the qualitative study will aim to clarify these results by investigating *what examples clarify found relationships between contextual conditions, perceived HR practices and self-directed learning*? The research model of Figure 3 visualises the included variables and their hypothesised relationships with SDL.

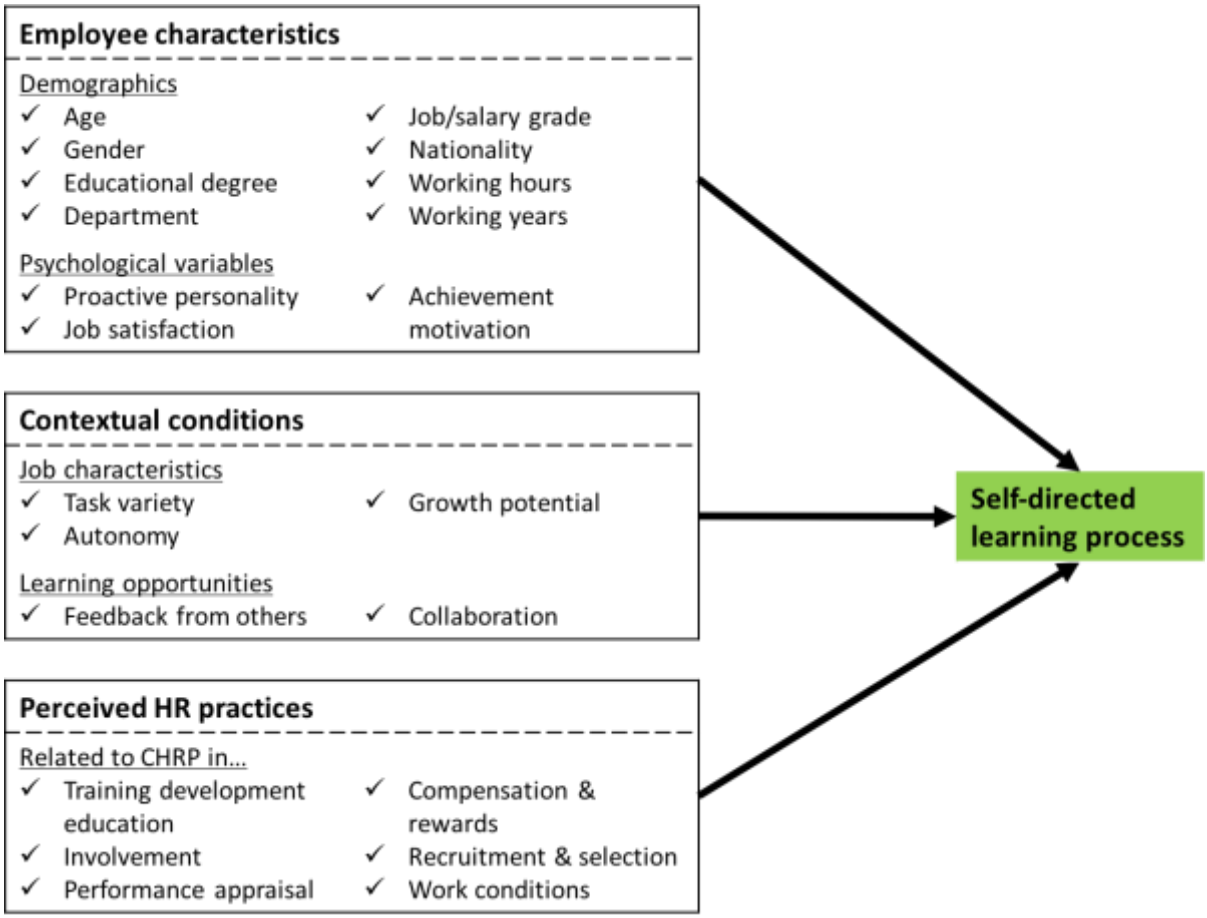

Figure 3. Research model

3. Research methods

To achieve the research goals, an exploratory research approach with a sequential mixed method design was conducted. In this type of design, quantitative data is collected and analysed, after which there is a collection and analysis of qualitative data in order to interpret the entire analysis (Creswell, Plano, Clark, Gutmann & Hanson, 2002). In this type of triangulation, qualitative results are typically used to validate, explain, and interpret the findings of the quantitative study (Creswell et al., 2002; Olsen, 2004). As such, this research contains both a quantitative and a qualitative study. Firstly, a quantitative cross-sectional survey study was conducted to examine the first sub-question. The cross-sectional survey study fits this purpose because it is based on observations of many variables at a single point in time (Field, 2014) and seeks to determine associations between two variables taking their natural values (Dooley, 2009). Subsequently, a qualitative study using semi-structured interviews in focus groups was performed to answer the second sub-question.

3.1 Participants

The data for this research were gathered from a knowledge-intensive high-tech multinational. This research focused on the company's European business units. Interns and temps were excluded from the sampling frame, resulting in a population of focus (N) of 8,000 subjects.

3.1.1 Participants of quantitative study

For the quantitative study, a sample size (*n*) of at least 367 was needed to generalise the findings for the wider population, when accepting a 95% confidence level and a margin of error of ±5% (Smith, 2013). To control for sampling bias, 1,500 employees were approached following simple random sampling, which is a probability sampling technique because all subjects have an equal chance of being selected (Dooley, 2009; Veaux, Velleman & Bock, 2016). In total, 593 employees participated in the study (40%), of which 485 were males (81.8%) and 102 (17.2%) females, with an average age of 41 (M = 41.18; SD = 9.37) and ranging from 21 to 64 years. Participants had on average worked 11 (M = 11.43; SD = 9.92) years for the company, with an average job/salary grade of 7 (M = 7.16; SD = 1.91) (i.e. the level in an organisation's hierarchy in which 1 indicates an administrator/ junior technician, 7 a specialist or project/team leader, and 11 a senior manager) and indicated they worked 38 (M = 38.41; SD = 3.53) hours per week. Most respondents had obtained a Master's degree (36.8%), followed by a Bachelor's degree (31%), while 10.1% had finished trade/technical/vocational education, with almost 10% holding a PhD. The wide majority of participants had Dutch nationality (81%), followed by Belgian (3%), British (1%), German (1%), Indian (1%), Italian (1%), and Taiwanese (1%). Approximately 44% of participants worked in a technical department, leaving 56% in non-technical departments. This

sample is considered largely representative of the high-tech sector; for example, the high proportion of male participants corresponds to the high-tech sector in that most technical jobs are performed by males, while the majority of people are highly educated, as are most of those involved in the development of high-tech innovations. A detailed overview of participants' demographics can be seen in the results section of this paper (Table 2).

3.1.2 Participants in the qualitative study

For the qualitative study, the sample (*n* = 10) was compiled by means of a nonprobability technique purposive sampling, in that participants were selected based on specific characteristics (Dooley, 2009). To explain the found relationships, both the employee and HR perspective were considered by means of two focus group sessions: an employee session (*n* = 4) and an HR session (*n* = 6). This approach strengthens the analysis because employees tend to reflect on their own situation, while their HR managers view it from a broader perspective. Employees with both technical- and non-technical-oriented jobs were represented.

3.2 Instrumentation

3.2.1 Instrumentation of quantitative study

The data for answering the first sub-question were gathered by means of an anonymous digital survey containing 116 items. Aligned with the theoretical framework, the study consisted of eight questions to determine the demographics of the sample such as age, gender, and job/salary grade. Then, participants were asked to answer statements regarding SDL (*n* of items = 14), EC (*n* of items = 33), CC (*n* of items = 21), and PHRP (*n* of items = 40) using a seven-point summated rating scale in which 1 = strongly disagree and 7 = strongly agree. Details on scale construction are discussed below, while the entire survey, including the final scales used for the analysis, can be consulted in Appendix A.

To define the underlying structure of variables and identify construct validity (Field, 2014), three separate Exploratory Factor Analyses (EFA) were performed, grouped on (1) SDL and EC items, (2) CC items, and (3) PHRP items. For each analysis, Principal Axis Factoring (PAF) was the chosen strategy because it has the benefit of taking measurement error into account (Schmitt, 2011). Assuming interconnectivity of the included variables, an oblique rotation method, direct oblimin, was selected. In addition, an analysis of the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was performed both overall and at the individual item-level to determine whether the sample size is sufficient to perform the EFA. Values above .6 were considered acceptable (Field, 2014). Subsequently, to determine the appropriate number of factors, eigenvalues were analysed (>1), scree

plots were considered, and the factors' fit into the theoretical constructs were taken into account. Regarding item reduction, the pattern matrix was studied. In accordance with Worthington and Whittaker's (2006) guidelines, items were excluded if (1) an item's loading was smaller than .3, (2) an item's loading on several factors is higher than .3, and/or (3) the difference between the two highest factor loadings is smaller than .15. After conducting EFA using these criteria, Cronbach's alpha (α) – the most common way of identifying reliability of extracted factors after a factor analysis (Field, 2014) – was calculated. Values above .7 were considered acceptable (DeVellis, 2012). The results of each factor analysis are outlined below.

Self-directed learning and employee characteristics. Statements to measure the EC variables mentioned in the theoretical framework (except for demographics) were based on existing scales. In the case of the variable *proactive personality*, a 10-item shortened version of Bateman and Crant's (1993) original "Proactive Personality Scale" was used (Seibert, Crant & Kraimer, 1999). An example of an item is: "If I believe in an idea, no obstacle will prevent me from making it happen." In addition, the variable *job satisfaction* was questioned using nine items of the "Job Diagnostic Survey" (JDS) designed by Hackman and Oldham (1974). Items were reworded to ensure the fluency of the survey. For example, the original item "How satisfied are you with this aspect of your job?: the amount of challenge in my job" was reworded to "I am satisfied with the amount of challenge in my job." Ray (1979) developed a scale to measure *achievement motivation* consisting of 14 items. Because he used yes-no questions (e.g. "Are you an ambitious person?"), items have been reworded into statements (e.g. "I am an ambitious person"). Finally, a valid 14-item instrument to measure the *self-directed learning process* was used, including statements as "I know which steps I have to take when I want to learn something new" (Raemdonck, 2006).

The strength of the relationship among the variables was high (KMO = .89), thus it was acceptable to run a factor analysis. EFA based on PAF using an oblique rotation method demonstrated that three factors – *self-directed learning, job satisfaction,* and *proactive personality* – could be extracted from the scales used, all with Eigenvalues > 1.00. For this, Raemdonck's (2006) original self-directed learning scale was extended with one item from Ray's (1979) achievement motivation scale (i.e. "I tend to plan ahead for my job or career"), resulting in a Cronbach's (α) of .86. No job satisfaction items were excluded after the factor analysis. The inter-item correlation was also appropriate (α = .85, n of items = 9), which also goes for proactive personality (α = .86, n of items = 9), of which one of the original items was eliminated due to high cross-loadings.

Contextual conditions. To measure the contextual conditions *autonomy* (*n* of items = 4) and *growth potential* (*n* of items = 8), a validated scale from Raemdonck (2006) was used. Because both scales were originally written in Flemish, items have been translated into English to make them useful for this study. Furthermore, *collaboration* (*n* of items = 3, e.g. "My job requires me to work closely with other people") and *task variety* (*n* of items = 3, e.g. "My job is quite simple and repetitive") were measured using items from Hackman and Oldham's (1974) JDS. Finally, the Work Design Questionnaire (WDQ) designed by Morgeson and Humphrey (2006) enabled measuring *feedback from others* (*n* of items = 3, e.g. "I receive a great deal of information from my manager and co-workers about my job performance").

From these 21 items, four factors can be derived (KMO = .87) – *growth potential, feedback from others, collaboration,* and *autonomy*. One item (i.e. "My job offers few possibilities to learn new things") of the original *growth potential* scale was deleted due to low factor loadings, while "My job requires me to use a number of complex high-level skills" was added because it shows a factor loading of .41 on growth potential. This resulted in a Cronbach's alpha (α) of .85 using eight items. Furthermore, regarding *feedback from others* (α = .82, n of items = 3), *collaboration* (α = .70, n of items = 3), and *autonomy* (α = .78, n of items = 4), no items were excluded.

Perceived HR practices. The items used to measure employees' PHRP were based on a validated instrument designed by Demo et al. (2012) named the Human Resources Management Policies and Practices Scale (HRMPPS). Original items were slightly adjusted to fit the company language. The variables *training development education* (*n* of items = 6, e.g. "ASML helps me develop the skills I need for the successful accomplishment of my duties"), *involvement* (*n* of items = 12, e.g. "Within ASML, employees and their managers enjoy constant exchange of information in order to perform their duties properly"), *performance appraisal* (*n* of items = 5, e.g. "Within ASML, competency-based performance appraisal provides the basis for an employee development plan"), *compensation & rewards* (*n* of items = 5, e.g. "Within ASML, my salary is influenced by my results"), *recruitment & selection* (*n* of items = 6, e.g. "Selection tests of ASML are conducted by trained and impartial people"), and *work conditions* (*n* of items = 6, e.g. "ASML is concerned with my health and quality of life") were included in the survey.

The factor analysis derived five reliable factors (KMO = .92) (instead of six in the original instrument) due to the merging of the factors *performance appraisal* and *compensation and rewards.* This is as expected since these policies are utilised as one within the organisation (i.e. compensation and rewards are based on performance appraisals) and labelled "people performance management." Ultimately, final factors were labelled *training development education* (α = .78, n of items = 4),

involvement (α = .86, n of items = 10), *people performance management* (α = .85, n of items = 8), *recruitment and selection* (α = .75, n of items = 4), and *work conditions* (α = .71, n of items = 7).

3.2.2 Instrumentation of qualitative study

The focus group interviews were based on the outcomes of the quantitative study because its purpose was to examine what examples clarify the significant relationships found between contextual conditions, perceived HR practices, and SDL. These interviews had a semi-structured nature intended to trigger a discussion among participants to gather data to answer the second sub-question. To achieve this goal, participants were asked how they currently, within the company, perceive significant influencing factors that were revealed (step 1). These variables were discussed in plain language; for example, "How do you currently experience [e.g.] the opportunity to strive towards a new position within the company?" This created a starting point to question how, in the HR department and employees' opinion, these examples are related to SDL (step 2). To illustrate, an example question was: "You indicate that you have lots of opportunities to grow towards a new role. Do you think you therefore take more initiative in your own learning? Does this motivate you?" The design of the session (i.e. round table, multiple participants at once, a poster illustrating the key findings on the table) stimulated participants to respond to each other. Other than a fixed list of questions, the described two-step structure enabled the researcher to ask a follow-up question to lever the discussion towards step 2 in order to answer the second sub-question. In addition, its open approach limited the researcher's influence on the outcomes. The poster demonstrating the quantitative findings functioned as a guide during the sessions and can be consulted in Appendix B. Each session lasted 90 minutes in total.

3.3 Procedure

To address ethical concerns, at the beginning of the quantitative study's survey, participants were informed about the purpose, importance, and instructions (Appendix A). Participants were told that the data gathered would only be used for the purposes of this research. In addition, the survey was anonymous to complete and the ethical committee of the University of Twente provided the necessary ethical approval. When subjects declared their acceptance of the informed consent, they were given a digital survey consisting of 116 questions in which they were allowed to stop and continue at a later moment to reduce bias due to fatigue. The survey was developed using Qualtrics' survey tool. No rewards were offered to persuade participants to participate. The response period for the survey covered five consecutive weeks, including holidays. The starting date was December 8, 2017, while the survey closed on January 13, 2017. After four weeks, a reminder was sent. At the end

of the survey, participants could opt to take part in the qualitative follow-up study by providing their e-mail address. After the closing date, the quantitative data were analysed. When this analysis was completed, six HR respondents and four employee respondents who complied with the sampling criteria were approached by e-mail to participate in the follow-up study to achieve a more in-depth clarification of the findings. Participants who agreed with the informed consent (Appendix C) took part into one of the focus group interviews. Finally, the merging of the quantitative and qualitative results led to an overall conclusion that was shared and discussed with the company's board by means of (1) this research report, (2) a poster visualising both studies, and (3) advice presentation, which clarified the role of corporate HR policy in facilitating and stimulating SDL in the workplace.

3.4 Data analysis

3.4.1 Data analysis of the quantitative study

Descriptive statistics were calculated to provide insight into the composition of the sample. To answer the first research question, Pearson correlations were calculated for a first indication of the strength of the association between SDL and each independent variable. Variables that show a significant relationship with SDL ($p < .05$) were taken into account for further analysis. As such, by means of multiple regression analysis using IBM's statistical software SPSS (version 24 for Mac), it was determined which independent variables are predictors of the dependent variable (SDL). The quantitative data were analysed first using the enter method to check which variables are significant predictors of SDL. Then, the backward elimination method was conducted to reveal a model with only significant variables explaining the variance in SDL. This method has the advantage of taking into account suppressor effects (i.e. suppressing irrelevant variance in predictor variables). This has, in contrast to stepwise methods, the advantage of lowering the risk of type II errors (i.e. missing a relevant predictor) (Field, 2014). When building the model, demographic variables were controlled for. Dummy variables were created to enable the inclusion of nominal and ordinal variables (e.g. educational degree = high vs low, in which a Bachelor's degree or higher is considered as high). Regarding scale variables, the scale scores were used. Because there was a limited amount of missing values for each variable in the dataset, listwise exclusion was deemed the appropriate method. To ensure quality, it was checked whether the residuals are normally distributed and independent of SDL (Field, 2014; Veaux et al., 2016). Finally, the Pearson's correlation coefficient squared (R^2) was calculated to determine which proportion of the variance in SDL could be explained by predictors included in the regression model.

3.4.1 Data analysis of qualitative study

Recorded data gathered by the qualitative study were transcribed first. To analyse the data, conventional content analysis, which derives codes from the gathered data (Hsieh & Shannon, 2005), was performed to answer the second sub-question. To recapitulate, the aim was to clarify the found significant relationships between contextual conditions, perceived HR practices, and SDL, by distinctive examples. As a first step, transcripts were read through repeatedly in order to become familiar with the data. Then, codes were assigned to all utterances, indicating influence on either contextual conditions or SDL. Thus, utterances indicating such an influence were divided into two categories: "influence on contextual conditions" and "influence on SDL." Assigning the independent variables formed final codes (e.g. "feedback from others influences on SDL'") which resulted in distinctive HR and employee examples underlying each relationship. This coding process was performed using the analysis software ATLAS.ti (version 1.5.4 for Mac). The codebook of Appendix D comprises an overview of formed categories including distinctive HR- and employee-utterances clarifying the relationships. To establish the validity of the interpretations of the data, after completion of the analysis, a member check was conducted. This reviewer checked the assignation of utterances to their categories within the codebook (Appendix D). The reviewer's task was to challenge interpretations of the data and thereby contribute to the enhanced reliability of the results, which resulted in agreement on all utterances assigned to formed categories.

4. Results

The overall aim of the study is to explore how corporate HR policy can influence the degree of SDL among the workforce. For a first indication and illustration of the results, this section starts with descriptive statistics providing information on the Cronbach's alpha, mean, standard deviation, and range of scale variables. The frequencies and percentages of ordinal variables (i.e. job/salary grade, educational degree) and nominal variables (i.e. gender, nationality, department) are indicated and correlations (*r*) between all the included scale variables are displayed. To find the outcomes of the quantitative study, predictors of SDL were revealed using inferential statistics, after the results of the qualitative study were demonstrated.

4.1 Descriptive statistics and preliminary analysis

Tables 1 and 2 provide an overview of the descriptive statistics. The job characteristic *feedback from others* (*M* = 5.35, *SD* = 1.17) shows a relatively high standard deviation, above 1, which indicates a high variation in given answers. Investigating the mean scores revealed that the average employee to a large extent feels he or she is self-directed in his or her learning (*M* = 5.37, *SD* = 0.69). The average scores of the EC, CC, and PHRP variables are also on the positive side of the Likert-scale, above 4.0. For example, the average employee indicated a large degree of satisfaction about his or her job (*M* = 5.45, *SD* = 0.78) and perceived the training development education policy as predominantly positive (*M* = 5.08, *SD* = 0.88).

Table 1
Cronbach's Alpha, Mean, Standard Deviation, and Range of Scale Variables

Category	Variable	Cronbach's alpha	Mean	Standard deviation	Range
SDL	Self-directed learning	0.86	5.37	0.69	2.00-7.00*
EC	Age		41.18	9.37	21-64 years
	Working hours		38.41	3.53	8-48 hours
	Working years		11.43	9.92	0-55 years
	Proactive personality	0.86	5.09	0.77	1.33-7.00*
	Job satisfaction	0.85	5.45	0.78	2.11-7.00*
CC	Growth potential	0.85	5.17	0.82	1.88-7.00*
	Feedback from others	0.82	5.35	1.17	1.00-6.67*
	Collaboration	0.70	6.02	0.83	2.00-7.00*
	Autonomy	0.78	5.38	0.94	1.50-7.00*
PHRP	Training development education	0.78	5.08	0.88	1.50-7.00*
	Involvement	0.86	4.83	0.80	1.00-6.70*
	People performance management	0.85	4.70	0.94	1.63-6.88*
	Recruitment and selection	0.75	4.31	0.78	1.25-6.50*
	Work conditions	0.71	5.11	0.80	2.00-6.86*

Note. * = scale variable, measured on a 7-point Likert scale

Table 2
Frequencies and Percentages of Ordinal and Nominal variables

Variable	Categories	Frequency	Percentage (%)
Job/salary grade	1	1	0.2
	2	2	0.3
	3	14	2.4
	4	30	5.1
	5	60	10.2
	6	104	17.7
	7	139	23.7
	8	99	16.9
	9	63	10.7
	10	45	7.7
	11	30	5.1
	Totals	587	100
Educational degree	High school	38	6.4
	Trade/technical/vocational education	61	10.3
	Associate degree	12	2.0
	Bachelor's degree	184	31.0
	Master's degree	218	36.8
	PDEng	5	0.8
	PhD	59	9.9
	Other	16	2.7
	Totals	593	100
Gender	Male	485	81.8
	Female	102	17.2
	Prefer not to say	6	1.0
	Totals	593	100
Nationality	Dutch	479	80.8
	Non-Dutch	114	19.2
	Totals	593	100
Department	Applications[1]	30	5.1
	CTO organisation[1]	15	2.5
	DUV[1]	16	2.7
	Development and engineering[1]	165	28.0
	EUV[1]	31	5.3
	Sales and customer management[2]	5	0.8
	Operations and order fulfilment[2]	230	39.0
	CEO organisation[2]	39	6.6
	CFO organisation[2]	49	8.3
	Strategic supply management[2]	10	1.7
	Totals	593	100

Note. [1] = Technical department, [2] = Non-technical department

To investigate the coherence and strength of the relationships between SDL, all EC, CC, and PHRP scale-variables, Pearson correlations were calculated and displayed in a correlation matrix (Table 3). Nominal and ordinal EC-demographics (i.e. gender, job/salary grade, nationality, educational degree, and department) were excluded.

Table 3

Pearson Correlations between SDL, EC, CC, and PHRP variables

Group	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SDL	1. SDL		-.07	.12**	-.10*	.52**	.28**	.43**	.25**	.18**	.19**	.23**	.20**	.15**	.17**	.27**
	2. Age			-.09*	.36**	-.04	.01	-.11*	-.34	-.03	.06	-.05	-.00	-.01	.14**	.09
	3. WH				-.04	.17**	.10*	.15**	.03	.13**	.05	.07	.03	.10*	-.00	.02
EC	4. WY					-.06	.07	-.06	-.04	-.02	.03	-.03	-.03	.03	.05	.06
	5. PAP						.21**	.29**	.11*	.17**	.16**	.10*	.11*	.03	.13**	.06
	6. JS							.63**	.39**	.26**	.56**	.64**	.26**	.42**	.37**	.44**
	7. GP								.32**	.35**	.51**	.51**	.30**	.36**	.24**	.44**
CC	8. FBo									.18**	.26**	.49**	.20**	.31**	.11*	.33**
	9. COL										.32**	.17**	.11*	.07	.10*	.12*
	10. AUTO											.48**	.11*	.30**	.24**	.27**
	11. INVO												.36**	.57**	.43**	.54**
	12. R&S													.40**	.34**	.43**
PHRP	13. PPM														.48**	.50**
	14. WC															.46**
	15. TDE															

Note 1. *$p < 0.05$, **$p < .001$, (both two-tailed).

Note 2. (1) = self-directed learning, (2) = age, (3) = working hours, (4) = working years, (5) = proactive personality, (6) = job satisfaction, (7) = growth potential, (8) = feedback from others, (9) = collaboration, (10) = autonomy, (11) = involvement, (12) = recruitment and selection, (13) = people performance management (14) = work conditions, (15) = training development education.

The Pearson correlations provided a first indication of the strength of the mutual relationships. Significant positive relationships exist between EC variables ($p < .05$), between all included CC variables ($p < .001$), and between all the included PHRP variables ($p < .001$), which might indicate that they mutually reinforce each other. In addition, the data showed that *training development education, involvement,* and *people performance management* PHRP correlate significantly ($p < .001$) with contextual conditions *growth potential* and *feedback from others* (all with $r > .30$). Finally, all included EC, CC, and PHRP model-variables showed an association with SDL on a 99% confidence level, except for *working years* at a 95% confidence level ($r = -.10$, $p < .05$) and *age* ($r = -.071$, $p > .05$), which may function as a suppressor variable because it correlates not with SDL but with independent variables (Field, 2014). Therefore, all the variables were used for further analysis. Respectively, (1) *proactive personality* ($r = .52$, $p < .001$), (2) *growth potential* ($r = .43$, $p < .001$), (3) *job satisfaction* ($r = .28$, $p < .001$), (4) *training development education* ($r = .27$, $p < .001$), and (5) *feedback from others* ($r = .25$, $p < .001$) show the strongest correlations with SDL.

4.2 Quantitative results: Predictors of self-directed learning

To answer the first research question, which was to determine the influence of EC, CC, and PHRP variables on employees' degree of self-directed learning, a multiple linear regression was conducted. Using the enter method, it was found that all EC, CC, and PHRP variables together significantly explain almost half of the variance in SDL ($F (20, 422) = 17.289$, $p < .001$, $R^2 = .45$, $R^2_{adjusted} = .42$). Although ANOVA showed the overall model to be significant ($p < .001$), only five out of 20 entered variables were found to be significant predictors of employees' degree in SDL. Table 4 shows the model in which all variables are entered.

Table 4
Coefficients of Multiple Regression Analysis with All Entered Model Variables

		Beta	*SE*	*t*	*p*
	Constant	1.634	.372	4.387	< .001
	Age	.048	.003	1.038	.300
	Gender (male vs female)*	.043	.065	1.102	.721
	Educational degree (high vs low)*	-.046	.073	-1.450	.148
	Department (tech vs non-tech)*	-.026	.049	-.663	.508
	Job/salary grade (above average)*	-.087	.062	-1.761	.079
EC	Job/salary grade (below average)*	.039	.065	.810	.418
	Nationality (Dutch vs non-Dutch)*	.051	.063	1.302	.193
	Working hours	.038	.007	.970	.333
	Working years	-.066	.002	-1.659	.098
	Proactive personality	.477	.031	12.326	< .001
	Job satisfaction	.046	.046	.813	.417
	Autonomy	-.043	.032	-.908	.365
CC	Growth potential	.248	.041	4.650	< .001
	Feedback from others	.091	.023	2.072	.039
	Collaboration	-.013	.031	-.309	.757
	Training development education	.168	.037	3.341	.001
	Involvement	-.087	.046	-1.465	.144
PHRP	People performance management	-.013	.032	-.262	.793
	Recruitment and selection	.021	.035	.507	.613
	Work conditions	-.002	.039	-.047	.963

Note. * = Included as dummy variable

As a next step, using the backward elimination method, it was revealed that excluding the variables *age, gender, educational degree, department, nationality, working hours, working years, job satisfaction*, *autonomy*, *collaboration*, *people performance management*, *recruitment and selection,* and *work conditions* resulted in an equally well-fitted model showing significant ($p < .05$) effects of EC, CC, and PHRP variables on SDL, which together predict 43% of the variance in an employees' degree of SDL ($F (5, 437) = 66.267$, $p < .001$, $R^2 = .43$, $R^2_{adjusted} = .43$). *Proactive personality* (EC), *growth potential* (CC), and *training development education* (PHRP) are significant, at a 99% confidence level, with *feedback from others* (CC) at a 95% confidence level. The estimates reveal that *proactive personality* is, in line with expectations, the strongest predictor of SDL (Beta = .49, $t(442) = 13.033$, $p < .001$), while respectively *growth potential* (Beta = .227, $t(442) = 5.328$, $p < .001$), *training development education* (Beta = .141, $t(442) = 3.418$, $p = .001$), *above average job/salary grade* (Beta = -.115, $t(442) = -3.125$, $p < .002$), and *feedback from others* (Beta = .074, $t(442) = 1.990$, $p < .047$) also predict a decent amount of employees' degree in SDL. This means that employees with a strong proactive personality who experience lots of growth potential and feedback from others in their job perceive the training development education policy as positive and are more self-directed in their learning than those who do not. In contrast, employees who obtain an above average job/salary grade show less SDL behaviour. Table 5 shows the multiple regression model ($p < .001$), with only significant ($p < .05$) predictors of SDL.

Table 5
Coefficients of the Multiple Regression Model with Only Significant Predictors

		Beta	*SE*	*t*	*p*
	Constant	1.858	.207	8.992	< .001
EC	Job/salary grade (above average)*	-.115	.047	-3.125	.002
	Proactive personality	.488	.030	13.033	< .001
CC	Growth potential	.227	.033	5.328	< .001
	Feedback from others	.078	.021	1.990	.047
PHRP	Training development education	.141	.031	3.418	.001

Note. *Included as dummy variable

4.3 Qualitative results: Clarifying relationships

So far, it has been shown which employee characteristics, contextual conditions, and perceived HR practices predict the workforce's degree of SDL. The study's second goal was to investigate what examples clarify the found relationships between contextual conditions, perceived HR practices, and SDL. Therefore, for the purpose of this study, the variables *growth potential* (CC), *feedback from others* (CC), and *training development education* (PHRP) were investigated because they show a significant influence on SDL. In addition, although *involvement* (PHRP) and *people performance management* (PHRP) were revealed to not be significant predictors of SDL, they are included in this study because they correlate highly with both SDL and other contextual conditions. To give some structure, in this section the results are divided into: (1) examples clarifying contextual conditions' influence on SDL and (2) examples clarifying perceived HR practices' influence on SDL. The codebook can be consulted in Appendix D.

4.3.1 Examples clarifying contextual conditions' influence on SDL

The results enabled a clarification of how *growth potential* and *feedback from others* influence SDL. Analysis of HR- and employee-utterances confirmed the relationships between growth potential, feedback from others, and SDL, showed the direction of these relationships, and provided examples behind it. Additionally, it was revealed that contextual conditions are influenced by employee characteristics. The results are demonstrated below.

Growth potential influences SDL. The influence of growth potential (someone's perceived opportunities to learn and grow towards a new job role) on SDL is exemplified by both HR and employees. It appeared that growth potential influences SDL because it affects employees' effort to develop themselves:

> Employee: *"I told my boss I want to focus on the progress-part of a certain job. Although this was not in his own interest, he accepted. This gave me loads of energy. You get what you want*

and therefore you are motivated to make it a success. […] If he had not accepted, I would still cooperate… with less effort to develop myself."

HR: *"In my opinion, there are many possibilities to grow within the company, both horizontally and vertically. That is not merely within the HR department. I believe this is quite unique. I do not know how this works within other companies, but I have the feeling that there are lots of possibilities here. Because of these opportunities, I can imagine people thinking: I like learning and I want to take the initiative in it."*

Feedback from others influences SDL. The analysis of the data revealed examples of how feedback from others (both giving feedback to and seeking it from others such as colleagues or managers in order to improve performance, a task, or a product) influences SDL. Both employee- and HR-utterances showed that employees who give and receive feedback are more self-directed in their learning because feedback provides focus in employees' development which activates them to drive their learning:

Employee: *"If you receive feedback, you hear whether you are heading in the right direction. That stimulates me to start learning aimed on the right topics. It enables me to put aside things which I first considered as very important and now pointed out not to be. Thus, I know better which topics I should dive into."*

HR: *"I believe the link between feedback and self-directed learning is very clear because whether you ask for feedback or receive it, then are at least triggered to engage in self-reflection. It puts you into a certain development mode. You automatically start thinking: OK, how can I profile or develop myself? You start looking for those possibilities yourself."*

Additional insights. Apart from the main findings, which clarify the relationships established, an analysis of the data showed that the contextual conditions *growth potential* and *feedback from others* are, in turn, influenced by employee characteristics such as an individual's degree of *proactive personality* (EC), owing to needed initiative to recognise and utilize opportunities: *"This really is a fast-expanding organisation in which changes occur fast and often. A favourable side-effect is that it creates opportunities for people. To utilise them, you need to be proactive. You need to recognise chances, show initiative. Through contact with others, you then experience plenty of possibilities."* More examples indicating the influence of *proactive personality* on contextual conditions are included in Appendix D.

4.3.2 Examples clarifying perceived HR practices' influence on SDL

The results clarified how *training development education* influences SDL because they confirmed the relationship, showed its direction, and provided examples behind it. In addition to these findings, the analysis of the data indicated that all perceived HR practices investigated in the second study exert an influence on contextual conditions. The results are discussed below.

Training development education influences SDL. The influence of *training development education* on SDL is exemplified by both HR and employees. The below statements explain that when the company facilitates learning, employees are stimulated to actually undertake and even initiate learning activities.

> Employee: *"I have worked here for a long time. From '99, when I started here, until 2005, I did absolutely nothing with regard to learning; it was just role-specific, but certainly no voluntary learning activities. Suddenly, I was placed in a department in which I met a guy. He went to courses, training, and all kinds of other learning stuff. Management approved all of it. I did nothing. After that moment, I said to myself: every year, I will choose one thing to learn. At minimum. Every year, that one thing gets approved. I now request training at my own initiative."*

> HR: *"If you perceive a strong learning policy, you tend to take more initiative in your own learning because you believe there are opportunities to do so. You are more likely to continue learning. For example, if you want to improve your English, you can log in on MyLearning and there, you can complete an English course. That makes it more likely for people to request training and start learning than if you need to search for it for 80 years."*

Additional insights. In addition to clarifying the direct influence of *training development education* on SDL, the results indicate that perceived HR practices *training development education, involvement, and people performance management* impact on contextual conditions. To illustrate, it was stated: *"I experienced it during my performance appraisal. According to my manager, I had apparently become a fisherman. He told me: everyone around you catches 10 fish from the pond. You only catch three. That is the reason I do not promote you to the next job grade."* This utterance shows, for example, how *people performance management* (PHRP) influences the contextual condition *growth potential.* More examples showing the influence of perceived HR practices on contextual conditions are demonstrated in Appendix D.

5. Discussion

As outlined previously, despite the increasing importance for both companies and their employees, scientific research and practice show a lack of understanding in how corporate HR policy can actually influence self-directed learning (SDL) at the workplace. To fill this gap, the purpose of this research is to investigate how employee characteristics (EC), contextual conditions (CC), and perceived HR practices (PHRP) influence the workforce's degree of SDL. Accordingly, two studies have been conducted within the high-tech sector. Results of the first study revealed which EC, CC, and PHRP influence employees' SDL behaviour while the second study provided examples clarifying the relationships found between CC, PHRP, and SDL. Below, results of both studies are summarised, connected, and discussed.

5.1 Conclusion

Overall, this research managed to construct and clarify a model that explains 43% of the variance in employees' degree of SDL consisting of significant influencing EC (*job/salary grade* and *proactive personality*), CC (*growth potential* and *feedback from others*), and PHRP *(training development education*). These results are extensively discussed below. Apart from main findings, the present study also demonstrates additional insights, which go beyond the constructed model.

Employee characteristics. It was hypothesised that both demographics and psychological variables influence SDL. This research indeed showed *job/salary grade* and *proactive personality* to be predictors of the workforce's degree of SDL indicating that demographics of *age, gender, educational degree, department, nationality, working hours,* and *working years* as well as the psychological variable *job satisfaction* do not explain any additional variance in SDL.

Starting with found significant relationships, results showed that employees' level in the organisations' hierarchy indeed predicts their degree of SDL. However, this is not in the expected positive direction since it appeared that employees obtaining a high *job/salary grade* show less SDL behaviour compared to those with an average or low job/salary grade. This implies that the average administrator or junior technician (grade 1) is more self-directed in their learning than their senior manager is (grade 11). Although this is notable because earlier research concluded that lower qualified employees' learning intentions are rather low (Illeris, 2006). The negative direction of the relationship might be explained by the labour market's tendency in developing countries to hire overqualified employees (Zhang, Law, & Lin, 2015). Overqualified employees, whose individual qualifications such as skills, work experience, and education are beyond the job requirements (Erdogan & Bauer, 2009) are shown to have higher control over their work (Erdogan et al, 2011). This enables them to become

more proactive (Maynard, 2011; Zhang, Law, & Lin, 2015), to expand the scope of their job (Erdogan et al, 2011), and to change their work situations (Maynard, 2011). Following this line of reasoning, this paper argues that overqualified employees in lower job/salary grades show more SDL behaviour due to increased initiative in exploring fields beyond their current job description.

Furthermore, in accordance with earlier research (Raemdonck, 2006; Raemdonck et al., 2012), current results confirm that a *proactive personality* is the biggest predictor of SDL, also within the high-tech sector. This implies that proactive people, who have a "disposition to take personal initiative in a broad range of activities and situations" (Raemdonck et al., 2012, p. 572), are more self-directed in their learning, as they are inclined to drive their own development. Apart from the direct influence on SDL, it appeared that the influence of *proactive personality* is additionally mediated by the influential CC of this research, owing to needed initiative to recognise and utilise opportunities. For example, *"This really is a fast-expanding organisation in which changes occur fast and often. A favourable side-effect is that it creates opportunities for people. To utilise them, you need to be proactive. You need to recognise chances, show initiative. Through contact with others, you then experience plenty of possibilities."*

The demographic variables *age, gender, educational degree, department, nationality, working hours,* and *working years* were no significant predictors of SDL. Previous research already showed inconsistent results regarding such demographical variables. Some studies for example found differences between men and woman with others reporting the opposite (Chong, Lee, & Long, 1995) and the same tendency is true for age (Stockdale, 2003). As demographics affect many behavioural patterns (Raemdonck, 2006), a possible explanation for these inconsistencies might be that they do not directly impact SDL, but function as a moderator in a sense that they affect the strength of the relationship between two variables (Baron & Kenny, 1986). For example, a policy's impact on SDL might be stronger for people working more hours a week as they are more exposed to it and it might be reduced for young-professionals (with a low average *age*) if its content is solely aimed on seniors.

Contradictory to expectations, "an employee's affective reactions to a job based on comparing desired outcomes with actual outcomes" (Cranny, Smith, & Stone, 1992, as cited in Egan, Yang, & Bartlett, 2004, p. 283) or *job satisfaction* was not a significant predictor of SDL. Previous research found that high levels of *job satisfaction* maintain levels of *proactive personality,* while low job satisfaction negatively affects someone's proactiveness over time (Strauss, Griffin, Parker, & Mason, 2013). This implies that *job satisfaction* affects *proactive personality* over time. This, in turn, influences SDL. The present study supports this reasoning as *job satisfaction* indeed appeared to be associated with both *proactive personality* and SDL.

Contextual conditions. Besides the rather stable EC (Boyce et al., 2013), it was expected that job characteristics (*autonomy* and *growth potential*) and learning opportunities (*feedback from others* and *collaboration*) influence SDL. This research partly confirmed these hypotheses because only *growth potential* and *feedback from others* were found to influence SDL.

Both studies found SDL is greater in employees perceiving many learning and mobility opportunities (i.e. high *growth potential*) than those experiencing the opposite. The reason is that perceived growth potential affects employees' effort to develop themselves, as explained: *"I told my boss I want to focus on the progress-part of a certain job. Although this was not in his own interest, he accepted. This gave me loads of energy. You get what you want and therefore you are motivated to make it a success. […] If he had not accepted, I would still cooperate… with less effort to develop myself."* This outcome is supported by earlier research stating that both reduced opportunities to learn and restricted mobility opportunities negatively influence efforts in SDL (Kops, 1993).

Furthermore, this research shows that employees who give feedback to and seek it from others, such as colleagues or managers, are more self-directed in their learning because *"[...] you hear whether you are heading in the right direction. That stimulates me to start learning aimed on the right topics. It enables me to put aside things which I first considered as very important and now pointed out not to be. Thus, I know better which topics I should dive into."* Thus, feedback provides focus in employees' development, which activates them to drive their learning. A recent study even specified that feedback is one of the greatest organisational drivers stimulating employees to further engage in informal learning activities (Schürmann & Beausaert, 2016).

Against initial expectations, the non-influence of *collaboration* on SDL is noteworthy as previous research argued that "organisations could promote SDL by […] fostering collaboration, interaction, and teamwork" (Rana, Ardichvili, & Polesello, 2016, p. 178). A way of approaching it is that fostering collaboration is a solid way to support SDL, as communication between two individuals offers much possibilities for feedback, while the more people attending reduces the options for feedback (Pearson, Nelson, Titsworth, & Harter, 2011). Considering earlier revealed influence of *feedback from others* on SDL, the paper suggests that fostering collaboration among people creates moments in which feedback actually takes place, which, in turn, influences SDL. The present study's results strengthen this line of reasoning, as it revealed that *collaboration* is equally associated with *feedback from others* and SDL.

Finally, it was argued that people whose job gives room for *autonomy* are more likely to perform SDL behaviour since people who have the impression that they control their own learning can learn in a more self-directed way (Straka, 2000) and are more motivated to actually do so (Ryan & Deci, 2000). However, this research found no such influence. This corresponds to research by

Raemdonck et al. (2012) who also, contrary to their expectations, did not find any influence. They reasoned that autonomy did not influence SDL in their study, as their population of focus (low-qualified employees) might not feel capable of performing highly autonomous jobs (Raemdonck et al., 2012). Although the present research questioned predominantly highly educated employees, similar conclusions might be drawn due to the extreme complex nature of the company's products. This might reduce employees' perception regarding their ability to perform such a complex job highly autonomously. However, this reasoning is considered worth investigating.

Perceived HR practices. In the present research, the researcher argued corporate HR policies manifest themselves within the organisation as PHRP (Nishii & Wright, 2007; Purcell & Hutchinson, 2007) that affect the workforce's degree of SDL. Accordingly, it was hypothesised that PHRP on *training development education*, *involvement*, and *people performance management* influence SDL. No clear expectations regarding *recruitment and selection* and *work conditions'* influence on SDL could be expressed, which made it worth investigating. Both studies found a direct influence of *training development* education on SDL, while examples of the second study additionally show it, together with PHRP on *involvement* and *people performance management*, indirectly influencing SDL. With regard to recruitment and selection and work conditions, no such influences were found.

In this research, the aim of a corporate HR policy on *training development education* was understood "to provide for systematic competence acquisition and to stimulate continuous learning and knowledge production" (Demo et al., 2012, p. 400), which thus has a broader nature than merely providing formal classroom training. The first study found associated PHRP to positively influence SDL. The second study clarified that when the company facilitates learning, employees are stimulated to actually undertake and even initiate learning activities, as illustrated below:

> *"I have worked here for a long time. From '99, when I started here, until 2005, I did absolutely nothing with regard to learning; it was just role-specific, but certainly no voluntary learning activities. Suddenly, I was placed in a department in which I met a guy. He went to courses, training, and all kinds of other learning stuff. Management approved all of it. I did nothing. After that moment, I said to myself: every year, I will choose one thing to learn. At minimum. Every year, that one thing gets approved. I now request training at my own initiative."*

The above example specifies that this employee initiates more formal learning activities (e.g. training) because he experienced presence of such opportunities. Previous empirical research found the same tendency in that employees who experience many informal learning opportunities in their workplace actually undertake more of them (e.g. searching the internet, asking colleagues for advice, reflecting on previous actions) (Milligan et al, 2015). Apart from *training development education's* direct

influence on SDL, the second study additionally revealed examples indicating an indirect impact on SDL via the CC *growth potential* and *feedback of others*. This finding is supported by earlier studies stating that PHRP aimed at continuous learning are essential in creating appropriate conditions in which SDL can thrive (Rana, Ardichvili, & Polesello, 2016). As such, the paper concludes that *training development education's* influence on SDL is twofold. First, it directly influences SDL because it stimulates people to undertake formal and informal learning activities at their own initiative. Secondly, it indirectly influences SDL as it adds to creation of a fruitful SDL environment.

Contrary to expectations, a corporate HR policy accounting for employees' "well-being at work, in terms of acknowledgement, relationship, participation, and communication" (Demo et al., 2012, p. 400) manifested as *involvement* PHRP*,* was found to be no predictor of employees' degree in SDL. This might be explained by additional insights of the second study revealing that involvement practices both impact employees perceived *growth potential* and *feedback from others* (CC), which, in turn, influence SDL. More than providing training (Fuller & Unwin, 2004), previous research' results clarify that organisations must provide appropriate environments (i.e. contextual conditions) to enable employees to learn (Milligan et al., 2015). It is emphasised that engaging employees within and beyond their workplace is essential in shaping such environments (Fuller & Unwin, 2004) as it "provides focus and energy for learning" (Senge, 2006, p. 192). This is exemplified by an employee stating: "*For me it is crucial to discuss my development-goals with my manager. I want to know what he has to say so that we can align this with each other. If we are not able to align, that truly would be the biggest possible problem in my job. Caused by not being aligned with my manager".* In that sense, *involvement* PHRP is argued to indirectly enhance SDL behaviour as it contributes to shaping the appropriate CC that stimulate SDL behaviour.

Furthermore, factor analysis revealed that employees perceive *performance appraisal* and *compensation & rewards* (Demo et al., 2012) as one single policy. This can be explained because the compensation and rewards one receives within the company are dependent on the actual outcomes of the performance appraisal. Therefore, for the purpose of this research, this merged policy was labelled *people performance management*. It includes both an appraisal of employees' and rewards (e.g. money) corresponding to the result of this evaluation. Contrary to expectations, the first study showed no influence on SDL. However, the second study revealed impact on the CC *growth potential* and *feedback from others*. This is exemplified by an employee describing a *people performance management* conversation: "[…] *According to my manager, I had apparently become a fisherman. He told me: everyone around you catches 10 fish from the pond. You only catch three. That is the reason I do not promote you to the next job grade."* In line with this finding showing an influence on his potential to grow (CC), earlier research already argued that such performance appraisals should aim

to enhance individual's learning and development (Rana, Ardichvili, & Polesello, 2016). Furthermore, it is explained that *"[…] for some, the appraisals are one of the few moments in which they [employees] actually receive feedback".* Moreover, research emphasised "rewarding of proficiency" as important in creating a strong learning environment (i.e. CC) (Skule, 2004). Hence, although no direct relationship between *people performance management* and SDL has been found, this paper suggests that *people performance management* still can stimulate SDL as it exerts influence on CC.

Regarding PHRP on both *recruitment & selection* and *work conditions,* no initial expectations were expressed. After analysis of the data, they both appeared to exert no influence on SDL. However, in line with earlier studies (Uysal, 2012) correlations between PHRP have been found. This likely indicates that PHRP mutually reinforce each other. More research is needed to see whether they indeed exert significant influence on PHRP and to clarify such outcomes.

5.2 Limitations of the present study and recommendations for further research

This research has given valuable insight into a field which is not quite well understood in both science and practice: corporate HR policy's role in supporting SDL at the workplace. However, there are several limitations which should be kept in mind when interpreting results.

Because data used in this research was derived from one specific high-tech organisation's European business unit, one should be aware of the context-specific nature of the outcomes. Hence, vigilance is recommended with generalisability of results (Dooley, 2009), especially regarding the rarely earlier explored results regarding PHRP. It is therefore recommended that future research investigating the influence of corporate HR policy on SDL will be utilised within more organisations, preferably within several sectors to see whether the revealed relationships hold in other contexts as well. As such, replication of the research will strengthen the explored knowledge base. It should be taken into account that although a strong sampling method was conducted (i.e. simple random sampling), which limited the risk of sampling bias (Dooley, 2009), the quantitative study depended on the actual response of participants, making it vulnerable to disproportionate response of employees with specific characteristics. For example, it is likely that employees who already are proactive tend to be overrepresented as they take the initiative in participation. Furthermore, it should be noted that due to time limitations, a cross-sectional instead of longitudinal design was performed, which has the disadvantage of only measuring values at a single point in time (Field, 2014). As such, the ability to infer results about causality are limited (Boudah, 2010), which may indicate that relations are not from A to B but actually the other way around. However, results of the qualitative study already gave a convincing indication of the relationship's direction. Nevertheless, it is recommended to validate these findings by conducting a longitudinal design (Boudah, 2010), which means collection of more

data at several points in time. Moreover, because too many items (i.e. 42, see Fontana, Milligan, Littlejohn, & Margaryan, 2015) were needed to measure the three phases of the SDL process, that is, forethought, performance, and self-reflection, Raemdonck et al's (2012) scale was chosen to measure the overall SDL process as it fitted within acceptable survey-length limits. It thus remains worth investigating which parts of the SDL process predictors actually are affected, as these insights will contribute to a more solid understanding of the underlying mechanisms.

It should be noted that although an extensive amount of previous research was considered when constructing the research model, it turned out that there are some limitations with regard to its complexity. First, though a well-considered selection of variables was included when testing the model, due to limits with regard to survey length, overlooking less important predictor-variables that may exert an unexpected influence is inevitable. Besides, the second study found that SDL is influenced by a more complex interaction between characteristics of the individual (EC), the contextual conditions (CC), and perceived HR practices (PHRP), which is not solely limited to direct influences on SDL. That is, both studies confirmed the direct influence of specific EC, CC, and PHRP on SDL. However, the second study's outcomes additionally exemplified that both EC and PHRP can influence SDL through their impact on CC. One should recognise that the initial purpose of this qualitative study was to provide examples clarifying found quantitative outcomes. Although above conclusions drawn are strengthened by connecting them to existing literature, one should treat these additional insights as a conceptual framework illustrating more complex mechanisms. Thus, no statistical inferences can be drawn from it. Moreover, it was argued that such indirect effects mutually exist within EC, CC, and PHRP. Considering these insights, future research should take into account the underlying indirect relationships by testing for mediation and moderation effects, for which structural equation modelling (SEM) is considered to be the appropriate technique (Little, Card, Bovaird, Preacher, & Crandall, 2012). Finally, as the follow-up study aimed at clarifying found results, in a replication of this study the researcher might want to include more variables during the focus group interviews, allowing for greater understanding of revealed indirect effects (by SEM).

5.3 Practical implications

This research managed to identify how EC, CC, and PHRP influence SDL at the workplace. The outcomes of this research provide valuable insights for HR practitioners, since they contribute to answering one underlying key-question of this research: how can corporate HR policy influence the degree of SDL among the workforce? Although this research found that an individual's *proactive personality* is the biggest predictor of SDL, it is considered to be a relatively stable employee characteristic (Boyce et al., 2013), which thus cannot easily be influenced. However, findings of this

research suggest that HR practitioners actually can play a considerable role in stimulating SDL among the workforce.

Previous research already emphasised that the responsibility of learning itself falls increasingly on the individual, but that the organisation is responsible for creating the appropriate conditions in which learning can actually take place (Billet et al., 2008; Fuller & Unwin, 2004; Milligan et al., 2015). Outcomes of this research identified two such CC that stimulate SDL behaviour among the company's workforce: *growth potential* and *feedback from others.* These findings imply that organisations can enhance their workforce's degree of SDL by (1) creating a diversity of opportunities in terms of learning, (2) providing opportunities for promotion, and (3) fostering a culture in which giving and seeking feedback is standard practice. For HR practitioners, the question of how corporate HR policy can contribute to creating such conditions is an essential one. This research concludes that these contextual conditions can be influenced by utilising three main corporate HR policies on *training development education, involvement,* and *people performance management*. Moreover, a striking finding of this research is that a corporate HR policy on *training development education* also exerts a direct positive influence on SDL. As such, this paper suggests that HR practitioners can stimulate SDL by utilizing three main corporate HR policies.

Training development education. Results of this research indicate that utilizing policy "to provide for systematic competence acquisition and to stimulate continuous learning and knowledge production" (Demo et al., 2012, p. 400) has a positive influence on employees' degree of SDL. The reason is that facilitation of learning stimulates employees to actually undertake and even initiate learning activities. This implies that HR practitioners can foster SDL behaviour in the workplace by offering a variety of learning opportunities. This can manifest itself in providing "planned and structured" (Choi & Jacobs, 2011, p. 241) formal learning opportunities such as workshops, training and courses. Given the influential role of feedback on SDL, HR practitioners could for example facilitate moments in which employees deliberately give feedback to each other. In addition, as this policy aims to stimulate continuous learning, outcomes suggest that informal learning, that mainly takes place at the workplace itself (Berg & Chyung, 2008), should be encouraged. As such, employees should at least have easy access to relevant information, and time to actually undertake learning activities at their workplace, while a culture in which people learn with and from each other should be fostered (Rana et al., 2016; Schürmann & Beausaert, 2016).

Involvement. This research concluded that utilizing policy aiming to stimulate employees "well-being at work, in terms of acknowledgement, relationship, participation, and communication" (Demo et al., 2012, p. 400) contributes to shaping the appropriate conditions (i.e. *growth potential* and *feedback from others*) through which SDL takes place. This finding suggests that an environment

of trust and cooperation among employees should be created, in which information is shared and people are engaged in the decision-making and problem-solving process (Demo et al., 2012). Managers can play a key-role in creating such environment (Embo, Driessen, Valcke, & Vleuten, 2014) as they could build a shared vision and goals with employees (Demo et al., 2012; Rana et al., 2016).

People performance management. The influence of *people performance management* on SDL was investigated. It includes a process of both performance appraisals and rewards corresponding to the results of the appraisal. Outcomes of this research imply that organisations could stimulate SDL by utilizing a people performance management policy that emphasises employees' learning and fosters possibilities for promotion (i.e. enhancing *growth potential*). As such, it is suggested that the aim of the appraisal should not merely be on employees' past-performance but should stress employees' future development by, for example, connecting short- and long term goals and a development plan to the result of the appraisal. Marquardt (1996) suggested that learning itself should be rewarded. Moreover, findings imply that feedback of managers and peers should play a central role in this process. It therefore is considered important to not only provide feedback during the actual appraisal, but ensure it takes place frequently in order to support SDL.

5.4 Overall conclusion

This research explored how corporate HR policy can facilitate and stimulate SDL at the workplace by taking into account employee characteristics, contextual conditions, and perceived HR practices. The findings enabled to explain 43% of employees' degree in SDL. Although employee characteristics (*proactive personality* and *job/salary* grade) exert the greatest influence on SDL, the results show that creating a diversity of opportunities in terms of learning, providing opportunities for promotion, and fostering a culture in which giving and seeking feedback is standard practice are contextual conditions that foster SDL among a company's workforce. Outcomes suggest that corporate HR policies on *training development education, involvement,* and *people performance management* can stimulate such conditions, while the first mentioned was even found to directly influence SDL. Future research could contribute to this exploratory foundation by further investigating the underlying mechanisms.

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Appendices

Appendix A: Survey including results factor analysis (Study 1)

Introduction.

Welcome to the survey! I'm glad you are about to contribute to workplace learning within ASML. As this survey seeks to examine which factors influence self-directed learning at your workplace, questions related to self-directed learning, individual characteristics, contextual conditions, and organizational practices will be asked. You may notice some overlap between questions. It is important you answer all of them, to ensure reliability of the measure. You reserve the right to withdraw from this study without the need to give any reason. Any completed answers will be saved. In case of partial completion of the survey, you are enabled to resume within 5 days. Gathered results from this research are made completely anonymous and are solely used for the study's purpose. Data will not be traced back to you as an individual. If you request further information about the research, now or in the future, you may contact the researcher via phone (+31631559623), email (robert.verscheijden@asml.com), or by visiting the researcher's office (room 08A11019). When continuing the survey, you declare that you have been informed in a clear manner and your questions have been answered to your full satisfaction. You agree of your own free will to participate in this research.

Yes, I agree on above stated and would like to continue to the survey >>

Employee characteristics: demographics.

#	Item	Answer possibilities
1	What is your **age**?	*Open question numerical only*
2	What is your current **job/salary grade**?	*Dropdown menu: 1-11*
3	What is your **gender**?	a) Male c) Prefer not to say b) Female
4	What is your **nationality**?	*Dropdown menu with all nationalities*
5	What is your highest achieved **educational degree**?	a) High school b) Trade/tech/vocational education c) Associate degree d) Bachelor's degree e) Master's degree f) PhD g) Other (please specify), *[text box]*
6	What **sector** are you currently working in?	*Dropdown menu with all sectors*
7	How many **hours per week** do you **work** according to your contract?	*Open question numerical only*
8	How many **years** do you approximately **work** for ASML?	*Open question numerical only*

Employee characteristics: psychological variables.

Variable	#	Item	Original source	Result of FA
Proactive Personality (α = .86)	1	If I believe in an idea, no obstacle will prevent me from making it happen	Seibert, Crant, & Kraimer, 1999	Retained
	2	I excel at identifying opportunities	Seibert, Crant, & Kraimer, 1999	Retained
	3	Wherever I have been, I have been a powerful force for constructive change	Seibert, Crant, & Kraimer, 1999	Retained
	4	I love being a champion for my ideas, even against others' opposition	Seibert, Crant, & Kraimer, 1999	Retained
	5	Nothing is more exciting than seeing my ideas turn into reality	Seibert, Crant, & Kraimer, 1999	Retained

	6	I can spot a good opportunity long before others can	Seibert, Crant, & Kraimer, 1999	Retained
	7	I am always looking for better ways to do things	Seibert, Crant, & Kraimer, 1999	Retained
	8	No matter what the odds, if I believe in something I will make it happen	Seibert, Crant, & Kraimer, 1999	Retained
	9	If I see something I don't like, I fix it	Seibert, Crant, & Kraimer, 1999	Retained
	-	~~I am constantly on the lookout for new ways to improve my life~~	Seibert, Crant, & Kraimer, 1999	Deleted
Job satisfaction (α = .85)	1	I am satisfied with the amount of personal growth and development I get in doing my job	Hackman and Oldham, 1974	Retained
	2	I am satisfied with the amount of job security I have	Hackman and Oldham, 1974	Retained
	3	I am satisfied with the feeling of worthwhile accomplishment I get from doing my job	Hackman and Oldham, 1974	Retained
	4	I am satisfied with how secure things look for me in the future in this organisation	Hackman and Oldham, 1974	Retained
	5	I am satisfied with the amount of independent thought and action I can exercise in my job	Hackman and Oldham, 1974	Retained
	6	I am satisfied with the amount of challenge in my job	Hackman and Oldham, 1974	Retained
	7	I am satisfied with the people I talk to and work with on my job	Hackman and Oldham, 1974	Retained
	8	I am satisfied with the chance to help other people while at work	Hackman and Oldham, 1974	Retained
	9	I am satisfied with the chance to get to know other people while on the job	Hackman and Oldham, 1974	Retained
Achievement motivation (No factor)	-	~~Being comfortable is more important than getting ahead~~	Ray, 1979	Deleted
	-	~~I am satisfied to be no better than most other people at my job~~	Ray, 1979	Deleted
	-	~~I like to make improvement to the way ASML functions~~	Ray, 1979	Deleted
	-	~~I take trouble to cultivate people who may be useful to me in my career~~	Ray, 1979	Deleted
	-	~~I get restless and annoyed when I feel I am wasting time~~	Ray, 1979	Deleted
	-	~~I have always worked hard in order to be among the best in my own line~~	Ray, 1979	Deleted
	-	~~I prefer to work with a congenial but incompetent partner rather than with a difficult but highly competent one~~	Ray, 1979	Deleted
	-	~~I am inclined to take life as it comes without much planning~~	Ray, 1979	Deleted
	-	~~"Getting on in life" is important to me~~	Ray, 1979	Deleted
	-	~~I am an ambitious person~~	Ray, 1979	Deleted
	-	~~I am inclined to read of the successes of other rather than do the work of making myself a success~~	Ray, 1979	Deleted
	-	~~I describe myself as being lazy~~	Ray, 1979	Deleted
	-	~~Days often go by without me having done a thing~~	Ray, 1979	Deleted
	-	*I tend to plan ahead for my job or career*	Ray, 1979	Moved to SDL #15

Participants could indicate either: Strongly disagree (1), disagree (2), somewhat disagree (3), neither agree nor disagree (4), somewhat agree (5), agree (6), strongly agree (7)

Self-directed learning				
Variable	**#**	**Item**	**Original source**	**Result of FA**
Self-directed learning (α = .86)	1	When I want to learn something new that can be useful for my job, I take the initiative	Raemdonck, 2006	Retained
	2	I know when it's time to learn new things for my job	Raemdonck, 2006	Retained
	3	I strive for exchange of experiences with people who are passionate about their job	Raemdonck, 2006	Retained
	4	I test myself in order to know whether I've learned something thoroughly	Raemdonck, 2006	Retained
	5	When I learn, I understand more about the world around me	Raemdonck, 2006	Retained
	6	Last year, I learned a lot of new things for my job on my own initiative	Raemdonck, 2006	Retained
	7	I regularly look for information in order to know more about topics in my field of work that interest me	Raemdonck, 2006	Retained
	8	I will never be too old to learn new things for my job	Raemdonck, 2006	Retained
	9	I try to get involved in projects at work because they offer me opportunities to learn	Raemdonck, 2006	Retained
	10	I like to undertake learning activities on my own initiative	Raemdonck, 2006	Retained
	11	I find learning an important aspect of my working life	Raemdonck, 2006	Retained
	12	I never give up when I am learning something difficult	Raemdonck, 2006	Retained
	13	When I want to learn something for my job, I always find the time	Raemdonck, 2006	Retained
	14	I know which steps I have to take when I want to learn something new	Raemdonck, 2006	Retained
	15	I tend to plan ahead for my job or career	Ray, 1979	Added from ach. motivation

Participants could indicate either: Strongly disagree (1), disagree (2), somewhat disagree (3), neither agree nor disagree (4), somewhat agree (5), agree (6), strongly agree (7)

Contextual conditions				
Variable	**#**	**Item**	**Original source**	**Result of FA**
Autonomy (α = .78)	1	In my job, there is no opportunity to use my personal initiative or judgment in carrying out my work	Raemdonck, 2006	Retained
	2	I can influence the content of my job	Raemdonck, 2006	Retained
	3	In my role, I get considerable opportunity for independence and freedom in how I do my work	Raemdonck, 2006	Retained
	4	My job allows me to take decisions on my own	Raemdonck, 2006	Retained
Growth potential (α = .85)	1	In my job, I have the possibility to follow education (e.g. training, e-learning)	Raemdonck, 2006	Retained
	2	With the experience I obtain in my job, I find another job immediately	Raemdonck, 2006	Retained
	3	My job offers good prospects for my career	Raemdonck, 2006	Retained
	4	In my job, I am stimulated to learn new things	Raemdonck, 2006	Retained
	5	I can use the experience I obtain in my current job to strengthen my position in the labour market	Raemdonck, 2006	Retained
	6	My job offers opportunities to gain new knowledge and skills	Raemdonck, 2006	Retained
	7	My job offers opportunities for promotion	Raemdonck, 2006	Retained
	8	My job requires me to use a number of complex high-level skills	Hackman & Oldham, 1974	Added from task variety
	-	~~My job offers few possibilities to learn new things~~	Raemdonck, 2006	Deleted
Task variety (No factor)	-	*My job requires me to use a number of complex or high-level skills*	Hackman & Oldham, 1974	Moved to growth potential #8
	-	~~My job is quite simple and repetitive~~	Hackman & Oldham, 1974	Deleted
	-	~~My job requires me to do many different things at work~~	Hackman & Oldham, 1974	Deleted
Feedback from others (α = .82)	1	I receive a great deal of information from my manager and coworkers about my job performance	Morgeson & Humphrey, 2006	Retained
	2	Other people within ASML, such as managers and coworkers, provide information about the effectiveness of my job performance	Morgeson & Humphrey, 2006	Retained
	3	I receive feedback on my performance from other people within ASML	Morgeson & Humphrey, 2006	Retained
Collaboration (α = .70)	1	My job requires a lot of cooperative work with other people	Hackman & Oldham, 1974	Retained
	2	My job can be done adequately by a person working alone, without talking or checking with other people	Hackman & Oldham, 1974	Retained
	3	My job requires me to work closely with other people	Hackman & Oldham, 1974	Retained

Participants could indicate either: Strongly disagree (1), disagree (2), somewhat disagree (3), neither agree nor disagree (4), somewhat agree (5), agree (6), strongly agree (7)

Perceived HR practices				
Variable	**#**	**Item**	**Original source**	**Result of FA**
Training development education (α = .78)	1	ASML helps me develop the skills I need for the successful accomplishment of my duties (e.g., training, conferences)	Demo et al., 2012	Retained
	2	ASML stimulates learning and application of knowledge	Demo et al., 2012	Retained
	3	ASML invests in my development and education promoting my personal and professional growth in a broad manner (e.g., full or partial sponsorship of undergraduate degrees, postgraduate programs, language courses)	Demo et al., 2012	Retained
	4	I can use knowledge and behaviours learned in training at work	Demo et al., 2012	Retained
	-	~~Within ASML, training is evaluated by participants~~	Demo et al., 2012	Deleted
	-	~~Within ASML, training needs are identified periodically~~	Demo et al., 2012	Deleted
Involvement (α = .86)	1	Within ASML, there is an environment of understanding and confidence between managers and employees	Demo et al., 2012	Retained
	2	Within ASML, there is an environment of trust and cooperation among colleagues	Demo et al., 2012	Retained
	3	ASML seeks to meet my needs and professional expectations	Demo et al., 2012	Retained
	4	ASML recognizes the work I do and the results I achieve (e.g., in oral compliments, in articles in corporate bulletins)	Demo et al., 2012	Retained
	5	Within ASML, there is a consistency between discourse and management practice	Demo et al., 2012	Retained
	6	ASML encourages my participation in decision- making and problem-solving	Demo et al., 2012	Retained
	7	ASML treats me with respect and attention	Demo et al., 2012	Retained
	8	Within ASML, employees and their managers enjoy constant exchange of information in order to perform their duties properly	Demo et al., 2012	Retained
	9	ASML favours autonomy in doing tasks and making decisions	Demo et al., 2012	Retained
	10	ASML follows up on the adaptation of employees to their functions	Demo et al., 2012	Retained
	-	~~ASML is concerned with my well-being~~	Demo et al., 2012	Deleted
	-	*ASML encourages interaction among its employees (e.g., social gatherings, social events, sports events)*	Demo et al., 2012	Moved to work conditions #7
People Performance Management (α = .85)	1	ASML shares competency-based performance appraisal criteria and results to its employees	Demo et al., 2012	Retained from PA*
	2	Within ASML, competency-based performance appraisal provides the basis for an employee development plan	Demo et al., 2012	Retained from PA*
	3	ASML periodically conducts competency-based performance appraisals	Demo et al., 2012	Retained from PA*
	4	Within ASML, competency-based performance appraisal is the basis for decisions about promotions and salary increases	Demo et al., 2012	Retained from PA*

	5	ASML discusses competency-based performance appraisal criteria and results with its employees	Demo et al., 2012	Retained from PA*
	6	Within ASML, my salary is influenced by my results	Demo et al., 2012	Retained from CS*
	7	ASML rewards me according to the rewards offered at either the public or private marketplace levels	Demo et al., 2012	Retained from CS*
	8	Within ASML, I get incentives such as promotions, commissioned functions, awards, or bonuses	Demo et al., 2012	Retained from CS*
Recruitment and selection (α = .75)	1	ASML communicates performance results to candidates at the end of the selection process	Demo et al., 2012	Retained
	2	ASML uses various selection instruments (e.g. interviews, tests)	Demo et al., 2012	Retained
	3	Selection tests of ASML are conducted by trained and impartial people	Demo et al., 2012	Retained
	4	ASML discloses information to applicants regarding the steps and criteria of the selection process	Demo et al., 2012	Retained
	-	~~ASML shares information about both external and internal recruitment processes~~	Demo et al., 2012	Deleted
	-	~~ASML has competitive selection processes that attract competent people~~	Demo et al., 2012	Deleted
Work conditions (α = .71)	1	ASML has programs or processes that help employees cope with incidents and prevent workplace accidents	Demo et al., 2012	Retained
	2	ASML is concerned with my health and quality of life	Demo et al., 2012	Retained
	3	ASML provides additional benefits (e.g., membership in gyms, country clubs, and other establishments)	Demo et al., 2012	Retained
	4	The facilities and physical condition (lighting, ventilation, noise and temperature) of ASML are ergonomic, comfortable, and appropriate	Demo et al., 2012	Retained
	5	ASML provides basic benefits (e.g., health care, transportation assistance, food aid)	Demo et al., 2012	Retained
	6	ASML is concerned with the safety of their employees by having access control of people who enter the company building/facilities	Demo et al., 2012	Retained
	7	ASML encourages interaction among its employees (e.g., social gatherings, social events, sports events)	Demo et al., 2012	Added from involvement

**PA = original performance appraisal scale, CS = original compensation and rewards scale*

Participants could indicate either: Strongly disagree (1), disagree (2), somewhat disagree (3), neither agree nor disagree (4), somewhat agree (5), agree (6), strongly agree (7)

Appendix B: Poster visualising interview-topics (Study 2)

The poster was used to trigger the discussion during both focus group interviews.

Appendix C: Informed consent (Study 2)

Informed consent Form

Title research	The Role of Corporate HR Policy in Facilitating and Stimulating Self-directed Learning: An Exploratory Research
Researcher	Robert Verscheijden

Consent for Participation in Focus-Group Interview Research

Hereby, I declare to volunteer in a follow-up research project conducted by Robert Verscheijden from the University of Twente/ ASML. I understand that this project is a follow-up study designed to gather information about how to support and stimulate self-directed learning. I agree that outcomes of this study will be used to explain findings of earlier research conducted by the researcher (Robert Verscheijden). I will be one of approximately 14 people being interviewed for this research.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without any consequences.

2. I understand that most interviewees will find the discussion interesting and thought-provoking. If, however, I feel uncomfortable in any way during the interview session, I have the right to decline to answer any question or to end the interview.

3. Participation involves taking part in a focus-group session with approximately 6 other colleagues. Robert Verscheijden is the interviewer. The interview will last approximately 90 minutes. Notes will be written during the interview. An audio tape of the interview and subsequent dialogue will be made. If I don't want to be taped, I will not be able to participate in the study.

4. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study will remain secure. Subsequent uses of records and data will be subject to standard data use policies which protect the anonymity of individuals and institutions.

5. I understand that this research study has been reviewed and approved by the Ethics Committee of the faculty of Management, Social and Behavioural Sciences of the University of Twente.

6. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

7. I have been given a copy of this consent form.

Participant	**Researcher**
_____	February 20, 2017
My Signature	Date
_____	_____
My Printed Name	Signature of the Researcher

Appendix D: Codebook (Study 2)

Examples of contextual conditions' influence on SDL (1/2)		
Feedback from others (FBo) = Feedback from others is understood both giving feedback to and seeking it from others such as colleagues or managers (Schürmann & Beausaert, 2016) in order to improve performance, a task, or a product		
Relationship	HR-example	Employee-example
FBo → SDL	I believe the link between feedback and self-directed learning is very clear because whether you ask for feedback or receive it, then are at least triggered to engage in self-reflection. It puts you into a certain development mode. You automatically start thinking: OK, how can I profile or develop myself? You start looking for those possibilities yourself	If you receive feedback, you hear whether you are heading in the right direction. That stimulates me to start learning aimed on the right topics. It enables me to put aside things which I first considered as very important and now pointed out not to be. Thus, I know better which topics I should dive into
PAP* → FBo	I think it often happens that you just forget to ask for feedback. That is a personal challenge: to take that initiative. And within the fuss of the day…	I recognise a high degree of self-management and self-learning is expected of people who are placed in a new job-role. Exactly as just mentioned. From everywhere, information is flowing down on you. In case you ask for feedback, people are eager to help you out. They come to you, take time for you. But, you have to initiate it yourself. If you do not ask, you will fall behind. That is a pity. That is something you do not want to happen.

Note. * PAP = Proactive personality; "a disposition to take personal initiative in a broad range of activities and situations" (Raemdonck et al., 2012, p. 572).

Examples of contextual conditions' influence on SDL (2/2)		
Growth potential (GP) = Growth potential indicates both employees' perceived opportunities to learn and opportunities for mobility (e.g. internal or external possibilities for job-promotion) (Raemdonck et al., 2012).		
Relationship	HR-example	Employee-example
GP → SDL	I In my opinion, there are many possibilities to grow within the company, both horizontally and vertically. That is not merely within the HR department. I believe this is quite unique. I do not know how this works within other companies, but I have the feeling that there are lots of possibilities here. Because of these opportunities, I can imagine people thinking: I like learning and I want to take the initiative in it.	I told my boss I want to focus on the progress-part of a certain job. Although this was not in his own interest, he accepted. This gave me loads of energy. You get what you want and therefore you are motivated to make it a success. […] If he had not accepted, I would still cooperate… with less effort to develop myself
PAP* → GP	This really is a fast-expanding organisation in which changes occur fast and often. A favourable side-effect is that it creates opportunities for people. To utilise them, you need to be proactive. You need to recognise chances, show initiative. Through contact with others, you then experience plenty of possibilities	Potential to learn? You create that yourself, I think. It depends a bit on your personal nature; are you curious or not? Are you able to recognise challenges? Because, everywhere there are things you can learn. In case you are curious and enterprising, you face these opportunities.

Note. * PAP = Proactive personality; "a disposition to take personal initiative in a broad range of activities and situations" (Raemdonck et al., 2012, p. 572).

Examples of perceived HR practices' influence on SDL (1/3)		
Training development education (TDE) = A policy aiming "…to provide for employees' systematic competence acquisition and to stimulate continuous learning and knowledge production" (Demo et al., 2012, p. 400).		
Relationship	HR-example	Employee-example
TDE → SDL	If you perceive a strong learning policy, you tend to take more initiative in your own learning because you believe there are opportunities to do so. You are more likely to continue learning. For example, if you want to improve your English, you can log in on MyLearning and there, you can complete an English course. That makes it more likely for people to request training and start learning than if you need to search for it for 80 years.	I have worked here for a long time. From '99, when I started here, until 2005, I did absolutely nothing with regard to learning; it was just role-specific, but certainly no voluntary learning activities. Suddenly, I was placed in a department in which I met a guy. He went to courses, training, and all kinds of other learning stuff. Management approved all of it. I did nothing. After that moment, I said to myself: every year, I will choose one thing to learn. At minimum. Every year, that one thing gets approved. I now request training at my own initiative.
TDE → FBo	Yesterday, within IT, a teambuilding day was organised. Giving and receiving feedback was part of it. We organise more of such sessions in which you deliberately give feedback. After these sessions, you often hear that people find it pleasant to, especially, receive feedback. Giving is often more difficult. However, we experience that if you are start facilitating it, people become enthusiastic. You hope they can hold this flow. [..] When I look around in training-sessions with managers, I see they also realise the added value of feedback too late. In such sessions, they need to give feedback continuously. Suddenly, almost everyone gets insights: I need to ask more often for feedback, I need to give more feedback, and it works better than I had expected.	It could help me if feedback is facilitated more. It should be scheduled more often.
TDE → GP	We knowingly do not promote training. The reason for that is: if you are going to promote it, you obviously get way more requests. Then HR-line needs to check for all of them: are these useful applications? Are they in line with employees' development action plan and 70:20:10?	I can open the catalogue of training and courses and I really can choose anything I want. I have almost never had a comment of my manager like: come on, what are you requesting? I decline that one. Almost every time, it is just approved.

Examples of perceived HR practices' influence on SDL (2/3)		
Involvement (INVO) = A policy aimed at contributing to employees' "…well-being at work, in terms of acknowledgement, relationship, participation and communication" (Demo et al., 2012, p. 400).		
Relationship	HR-example	Employee-example
INVO → FBo	The extent to which you give and ask for feedback depends also on how you perceive safety within your team. Personally, I feel safe. But I can imagine that lots of people do not experience it as such and as a result do not ask the feedback-question.	My girlfriend works in healthcare in which feedback is really aimed on how you perform as an individual within a team. Way more personal, like: I experience it as not pleasant if you do this during your work. In here, a personal note is often really not appreciated. I do not like that at all. I want to address such feedback and communicate with others.
INVO → GP	For me it is crucial to discuss my development-goals with my manager. I want to know what he has to say so that we can align this with each other. If we are not able to align, that truly would be the biggest possible problem in my job. Caused by not being aligned with my manager.	Within our work-environment, we use two shifts: a 5-shift and a 2-shift. The 5-shift is expanding while the 2-shift shrinks. If a 2-shifter leaves, a 5-shifter will return in place. The 2-shifters feel: Ai, the number of 2-shifters decreases and no new colleagues are attracted. What happened? Team leaders involved those 2-shifters: fellow, how can we enlarge your chances within the organisation? As most of them work here already quite some time, there were lots without a CV. Thus, they started with creating one. What appears? Most of them really like it.

Examples of perceived HR practices' influence on SDL (3/3)		
People performance management (PPM) = A merge of the policies on performance appraisal and compensation & rewards. The first part aims "…to evaluate employees' performance and competence, career planning, supporting decisions regarding promotion, and development" (Demo et al., 2012, p. 400) while the second part's focus is "…to reward employees' performance and competence via remuneration and incentives" (Demo et al., 2012, p.400).		
Relationship	HR-example	Employee-example
PPM → FBo	I suggest there is a relation between PPM and feedback because PPM yields feedback. For some, the appraisals are one of the few moments in which they actually receive feedback.	Only once, within the 17 year I work here, I experienced a manager who gave me the feeling: we have a click. We have a goal and we are going to work on it. Together, with the two of us. He literally said to me: for me it is important that you are not here anymore within three years and we are going to work on that, together. For me, that is PPM in which all comes together: feedback, growth potential. All comes together.
PPM → GP	Part of the performance appraisal conversations should be aimed on looking forward, and not merely on looking backward. So, we know: this is the situation right now. What does this mean for the upcoming year? How are you going develop yourself?	I experienced it during my performance appraisal. According to my manager, I had apparently become a fisherman. He told me: everyone around you catches 10 fish from the pond. You only catch three. That is the reason I do not promote you to the next job grade.