Using a Personal Development Plan for Different Purposes: Its Influence on Undertaking Learning Activities and Job Performance

Simon A. J. Beusaert · Mien S. R. Segers ·
Wim H. Gijsselaers

Received: 25 January 2011 / Accepted: 24 May 2011 /

Published online: 8 June 2011

© The Author(s) 2011. This article is published with open access at Springerlink.com

Abstract Today, organizations are increasingly implementing assessment tools such as Personal Development Plans. Although the true power of the tool lies in supporting the employee's continuing professional development, organizations implement the tool for various different purposes, professional development purposes on the one hand and promotion/salary raise/selection/accountability purposes on the other (Smith and Tillema 2001). The study presented here aims at a better understanding of how the purpose of the Personal Development Plan (PDP), as perceived by the employee, influences the extent to which s/he undertakes learning activities and consequently leads to improved performance. Data were collected from 286 employees working in a regional Dutch governmental office and 81 experts from an international organization that is specialized in medical technology ($N=367$). Data were analyzed by conducting hierarchical regression analyses. Results indicate that perceiving the PDP either as a learning and development tool or as a promotion and selection tool, positively predicts the undertaking of learning activities and the employee's performance. Follow-up regression analysis indicated that the most powerful predictor of undertaking learning activities and a high-quality performance is the extent to which employees perceive PDPs as serving learning and development purposes. The results of this study suggest that if an organization wants their employees to learn by undertaking learning activities and in turn perform better, the tool should in the first place be introduced and used as a learning and development tool.

Keywords Portfolio assessment · Personal Development Plan (PDP) · Purpose · Undertaking learning activities · Job performance · Organization

S. A. J. Beusaert (✉) · M. S. R. Segers · W. H. Gijsselaers
Educational Research and Development, School of Business and Economics, Maastricht University,
Tongersestraat 53, 6211 LM Maastricht, PO Box 616, 6200 MD Maastricht, The Netherlands
e-mail: s.beusaert@maastrichtuniversity.nl

Introduction

In general organizations have been facing and dealing with fundamental changes. Examples are the prevalence of a growing number of short-term contracts, shortage of skilled workers in some industries, ageing workforce and increasing employee mobility. At the same time and closely related to these changes, the value of human capital has increasingly been recognized. As McDowall and Fletcher formulate (2004, 8): "It is in an organization's best interest to focus on effective staff development strategies, since companies strong on training and development may be preferred over those offering the greatest rewards. One technique for developing individuals is through the social and motivational aspects of appraisal or review processes." They define appraisal processes in relation to the formal rating of performance, whereas the term review is used to refer to human resource practices with the purpose of supporting employee's professional growth or development. Popular techniques for enhancing professional development are multi-source or 360-degree feedback techniques, career discussions with managers and Personal Development Plans (PDPs). However, as McDowall and Fletcher (2004) argue, most studies to date have tended to concentrate on performance or rewards rather than development, perhaps reflecting the traditional practice of retrospective assessment (Nathan et al. 1991).

In this study, we focus on Personal Development plans, a strategic developmental tool used by Human Resource Departments to stimulate employees' formal (e.g. training) and informal (e.g. reading a book, peer feedback discussions) learning which in turn is assumed to improve performance. In general a PDP can be described as an assessment tool embedded in a larger assessment cycle of development and appraisal interviews; used to gather and document information about the competencies the employee worked on and is planning to further develop. The PDP is used in hopes that employees would intentionally undertake learning activities and in turn improve workplace performance (London 1997; Van de Wiel et al. 2004).

PDPs have come into widespread use, not only in the fields of medicine and education, but also in business contexts and governmental offices (Beusaert et al. 2011). For example, a survey in the Netherlands among companies in the region of Limburg indicated that in the context of talent management 89% of the companies are using PDPs (GITP 2008). In the UK, different authors stress the strong recommendation by the government to use PDPs in order to stimulate the continuous professional development of health service (Evans et al. 2002; Bullock et al. 2007).

Despite its popularity, empirical evidence on the effectiveness of PDP's is still scarce and mainly limited to educational and health care settings. Moreover, there are large variations between the different studies with respect to the features of the implementation of the PDP's. One important difference is the purpose for which PDP are used. A distinction has commonly been made between two broad clusters of purposes, learning/development on the one hand and promotion/selection/ accountability on the other (Smith and Tillema 2001).

Although different authors question whether PDPs can be discussed in development interviews as well as in appraisal interviews, conducted by one and the same supervisor (e.g. Beck et al. 2005; Wolf and Dietz 1998), hardly any attention is paid to the purpose of implementing the PDP. Nevertheless, research in related fields offers arguments for considering the purpose for which a PDP is used.

First, when PDP's are used for rewarding purposes (such as promotion or salary increase) instead of developmental purposes, it can be assumed that the openness towards critical self-reflection is jeopardized. However, this critical reflection is the starting point of professional development as it makes clear the strengths and weaknesses in past performance (e.g. Riley-Doucet and Wilson 1997). Employees' self-protection and fear of underachieving may lead to the collection of unauthentic evidence and the construction of invalid PDPs, instead of PDPs that openly reflect on the employee's learning and development (Smith and Tillema 1998, 2001). As stated by Smith and Tillema (2003, 626): "The relation between selection of evidence and reflection on work remains intrinsically tense".

Second, when the purpose of PDPs is not transparent for the employee, implying it is not clear which decisions will be taken based upon the PDP, this might lead to a lack of trust or confidence in the review by the supervisor and in turn hinder professional development and improvement of performance. Research on 360-degree feedback has presented evidence on the key role of trust in the assessor. The tool of 360-degree feedback "rests on the assumption that performance information about an individual collected from different perspectives and fed back to that same individual will lead to individual development" (Brutus et al. 1999, 676). However, the developmental effect of 360-degree feedback is only realized when assessee has trust in the review of the assessor. This is confirmed in a recent study by Van Gennip et al. (2010) on the effectiveness of 360-degree feedback. The results show that the assessee's belief of psychological safety predicts significantly the assessee's perception of trust in the assessor and in turn his or her perception of performance improvement. Based on this finding, it can be assumed that when purposes of the PDP are not clear and it might be used for development as well as reward purposes, feelings of psychological safety of the assessee are under pressure.

Despite the arguments for transparency of the purpose of a PDP and for a focus on its developmental purpose, there is hardly any evidence of the influence of the purpose for which a PDP is used on its effects. Therefore, this study will examine whether the purpose of the PDP influences the extent to which professionals undertake learning activities and consequently their job performance. This implies this study takes the perspective of a PDP as a powerful tool to stimulate and support employees in their professional development.

A Personal Development Plan (PDP): What?

An Example

Consider a non-profit governmental organization in the Netherlands, employing 30.000 workers in 13 different regions. In one of those regions, 1,400 employees are located in five different offices in four different cities. While the organization is a very large and bureaucratic organization, it is described by employees and management as a warm family business because the majority of employees who start working there, enjoy the work and are so dedicated to the organization that they keep working for it for the rest of their lives. Consequently, the average age of the employees is 49 years. In 2012 the organization will therefore be faced with a very large stream out. It is for this reason that talent management and continuing professional development of the staff is high on the strategic agenda.

Most employees working in the organization undergo an assessment cycle on an annual basis. The assessment cycle consists of a performance interview, a development interview and an assessment interview with the supervisor. In this assessment cycle the supervisor guides the employee in using a

Personal Development Plan (PDP). The PDP format asks for the competences the employee needs to develop (looking forward) through evaluating the strengths and weaknesses of the employee (looking back). In the form the following questions are posed: 'What are your weaknesses?', 'What are your strengths?', 'What do you want to accomplish?', 'Which competencies do you still need to develop?', 'How do you want to develop those competencies and in which timeframe?' and 'Which support is needed?'. The answers to these questions are used to nourish the interviews with the supervisor, in which the supervisor will try to stimulate the employee's reflection on his or her PDP.

In an effort to make sure employees develop professionally, the interest of organizations in setting up assessment cycles, consisting of development-, follow-up-, and performance interviews, started to grow in the course of the last 10 years (James and Pedder 2006). Similar to student evaluation or assessment, assessment within organizational settings was mostly used for purposes of accountability and promotion, finding out if and to what extent formerly defined objectives have been met. This purpose is referred to as assessment of learning or summative assessment. In the past decade, however, a vast amount of studies have evidenced that assessment is a powerful tool to support learning as well, referred to as assessment for learning or formative assessment (Assessment Reform Group 1999; Dochy and McDowell 1997; Gibbs 1999; Perrenoud 1998).

A Personal Development Plan (PDP) is often used in organizations as part of these assessment cycles. The PDP stems originally from portfolios that were used as a showcase by photographers, painters, architects and brokers for a long time (Lyons and Evans 1997; Mathers et al. 1999). Later, students in secondary schools and higher education began using portfolios to support their learning and facilitate certification. One section was dedicated to the professional development of the students, referred to as the PDP (e.g. Driessen et al. 2007). PDPs take various forms and are presented by different synonyms: portfolio, (continuing professional) development plan, logbook or personal professional profile. The two most commonly used concepts are professional or personal development plan, and portfolio assessment. In this study, we use the term Personal Development Plan, because the term portfolio assessment carries many different connotations in organizational literature. For example, portfolio (assessment) can refer to a report system that is used for organizational accountability (e.g. Schmitz and Schillo 2005) or to portfolio management, that aims at the development and implementation of purchasing strategies (e.g. Gelderman and van Weele 2002; Lin et al. 2005). Another connotation is that of portfolio work, a form of flexible self-employment in which individuals contract their skills and knowledge to different persons and organizations and develop a portfolio of job activities for themselves (Fenwick 2006).

A PDP is a tool used to present information about the competencies the employee has been working on and is planning to further develop. It can be defined as a tool that (Brown 1995; McMullan et al. 2003; Redman 1994; Seng and Seng 1996; Smith and Tillema 1998; Snadden et al. 1996):

- gives an overview of the competencies the employee worked on in the past and which competencies the employee is planning to work on in the future;
- is composed and written by the employee himself (self-direction by the employee) although the structure of the PDP is mostly fixed;

- can be used as a basis/structure for conversations with the supervisor or coach who provides the employee with feedback and stimulates the employee's reflection; and
- serves as a decision-making tool, from planning an individual training-program (formative assessment) to assessing the suitability of a promotion (summative assessment).

Note that although the tool is often seen or labeled as an assessment tool (for learning), it is the purpose it is being put to that determines its use and whether or not it constitutes an assessment tool (Smith and Tillema 2003). For example, a PDP used as extended curriculum vitae is not an assessment for learning tool. In the next paragraph we will discuss the different purposes the PDP can be used for.

Purposes of a PDP?

In the PDP, four major questions are put forward: 'What have I done so far?', 'Where am I going?', 'How am I going?', and 'What is the next step to take?'. When a discrepancy is detected between the competencies an employee possesses and the competencies the employee should possess, it suggests that learning needs to be stimulated (Lepak and Snell 1999; Hattie and Timperley 2007). This indicates that the core purpose of the PDP is supporting the development of the professional in order to improve performance. With respect to the purpose of a PDP, a difference has commonly been made between two broad clusters of purposes, professional development on the one hand and promotion/salary increase/selection (e.g. admission to talent management programs)/accountability on the other (Smith and Tillema 2001). When a personal development plan is used to develop, learning takes a central part. Conversely, when a PDP is used for promotion and selection, presenting oneself is more important. Similarly, researchers investigating the purpose of performance appraisals made a distinction between using a performance appraisal to compare between and within individuals (Cleveland et al. 1989) or for developmental and evaluative purposes (Boswell and Boudreau 2002).

Is a PDP Effective for Professional Development?

Although, as described above, the tool is used for various purposes, it is widely agreed that the tool is especially powerful when used to support employees' professional development (formative assessment) (Darling-Hammond and Snyder 2000; McDowall and Fletcher 2004; Smith and Tillema 2003). More specifically, the Beusaert et al. review study (2011) on the effectiveness of PDPs as assessment tools (a total of 54 studies were included in the review) showed that in most empirical studies PDPs are found to be effective for personal or continuing professional development purposes, for stimulating reflection and for improving the professional practice or performance. For example, Evans et al. (2002), by taking questionnaires, analyzing PDPs and in-depth interviews, studied the use of PDPs to stimulate the continuing professional development of General Practitioners (GPs). They concluded that PDPs are effective tools to stimulate the continuing professional development and personal development of GPs, on the basis that it leads to changes in patient care. Tigelaar et al. (2006)

studied how a PDP stimulates reflection on the various aspects of teaching by analyzing the PDPs of five medical school teachers. They found that PDP assessment is effective for reflection, although the reflection is often not very profound. As a possible solution, the researchers concluded that reflection needs to be stimulated by supportive coaches. Wildy and Wallace (1998) conducted a study that researched whether using a PDP improves the professional knowledge and practice of school leaders ($N=73$) by conducting portfolio analysis, taking a survey and observations. They found evidence that administrators who use a PDP, develop their professional knowledge and connect it with their own practice.

Despite these studies' findings, research on the effectiveness of PDPs is still scarce (e.g. Austin et al. 2005) and the small amount of empirical research is mostly qualitative in nature and lacks an explicit description of the research method. Next, not all studies led to positive findings. For example, in Leggett and Bunker (2006) argued that within the context of higher education teaching PDPs can be effective tools for stimulating promotion, but that they are not useful for encouraging reflective practice, because the PDP focuses on success and not on how to avoid failure. Orland-Barak (2005) also questioned the effectiveness of portfolios for reflection. For her research she analyzed 32 portfolios of teachers in two in-service courses for mentors of teachers in Israel. In both product ($n=20$) and process portfolios ($n=12$) the documentation of critical reflection was problematic. Austin et al. (2005) surveyed 1,415 pharmacists in Ontario, Canada. It was found that although the PDP is consistent with the idea of continuous professional development, there seems to be a lack of impact from PDPs on professional practice. Evidence was found that pharmacists did not make a close connection between documentation, self-reflection and practice improvement successfully.

How can we explain these contrasting results? A variety of problems in the PDP assessment practice might explain differences in effectiveness. Most of the aforementioned studies refer to the way the tool is being used and how the use is influenced by the way the supervisor stimulates and motivates the employee and triggers the employee's reflection with instructions and feedback. However, as Tillema (2003, 362) argues, the first question to address when evaluating an assessment practice, is: "What does management want the assessment to accomplish for the organisation and what does the assessment yield?" Or, in other words: What is the purpose of the assessment activity? The study presented here addresses this first evaluative question in order to better understand the effects of the use of a PDP on professional development and performance.

What is the Goal of this Study?

The aforementioned literature indicated different purposes that PDPs are used for and contrasting findings with regards to the effects of PDPs. The study presented here aims at better understanding how the purpose of the PDP, as perceived by the employee, influences the extent to which s/he undertakes learning activities and how this in turn leads to improved performance, for which learning is assumed.

The central research questions are: (1) which purposes of a PDP, as perceived by the employee, predict the undertaking of learning activities and performance significantly positively? and, (2) which is the most powerful predictor of undertaking

learning activities and performance? Based on the aforementioned literature, the following working hypotheses are formulated:

- H1. Perceiving the PDP as a learning and development tool will predict the employee's undertaking of learning activities and the employee's performance significantly positively.
- H2. Perceiving the PDP as a promotion and selection tool will predict the employee's undertaking of learning activities and the employee's performance significantly negatively.
- H3. In the case both learning/development and promotion/selection purposes are taken into account perceiving the PDP as a learning and development tool will be the most powerful predictor of the employee's undertaking of learning activities.

Method

The Participating Organizations and Their Employees

Organization 1 The participants are employees of a regional Dutch governmental office. It employs 1,400 people in five different offices, located in four different cities. Despite the relatively large amount of employees working in different departments, the organization is perceived as a mid-sized organization. The average age of the employees was 49 in 2009 with a very low turn-around of employees.

The employees of the governmental office annually undergo an assessment cycle. The assessment cycle consists of a performance interview, a development interview and an assessment interview with the supervisor. During the assessment process the supervisor and the employee can make use a Personal Development Plan (PDP). The PDP lists the competencies the employee still needs to develop (looking forward) through evaluating the strengths and weaknesses of the employee (looking back). The tools are not used as strictly by every supervisor and the HR department as well as the remarks of the employees on the questionnaire indicate that the tool is not well implemented.

Out of the 1,400 employees that were contacted, a total of 286 (response rate 20%, 187 men and 72 female; 27 missing values) participated in the research, spread over at least six different departments and four office locations. Of the 234 employees who provided us with their highest education level, 27 studied wo (university), 81 hbo (non-academic higher education), 16 vwo (academically-oriented secondary education), 47 havo (higher secondary education), 55 mbo (secondary vocational education) and 8 vmbo (lower secondary vocational education).¹ The average employee was 50 years old ($SD=7$). The average number of years of experience in the organization was

¹ 'For higher education. wo = wetenschappelijk onderwijs (NL), research-oriented higher education, traditionally offered by universities; hbo = hoger beroepsonderwijs (NL), professional higher education.

For secondary education. vwo = voorbereidend wetenschappelijk onderwijs (NL), University Preparatory Education; havo = hoger algemeen voortgezet onderwijs (NL), senior secondary education; mbo = middelbaar beroepsonderwijs (NL), secondary vocational education; vmbo = voorbereidend middelbaar beroepsonderwijs (NL), preparatory secondary vocational education.' For more information, see: <http://www.euroeducation.net/prof/netherco.htm>

22 years ($SD=13$) and the average number of years of experience in the current role was 11 years ($SD=10$). These numbers are in line with the statistics that are available for the total group of employees.

Organization 2 The participants are experts from an international organization that specializes in medical technology. The organization employs approximately 38.000 people in 120 countries. The office that participated employs 200 in total. The assessment cycle in this organization is similar to the one in Organization 1. First, over the course of one year the personal objectives of the employee are determined. Next, the employee has to fill out a performance measure and a PDP; a select group of employees also works on a talent portfolio. The three instruments are linked to each other and each is discussed during a meeting. We treat the three instruments as one. Furthermore, evaluating the effectiveness of the PDP, we do not only refer to the tool, but also to the meetings in which the PDP is discussed. In contrast to Organization 1 the HR indicates that the tool is well implemented and is used strictly.

Out of the 200 employees that were contacted, a final total of 81 (28 men and 49 women; four missing values) participated in the research, a response rate of 41%. Of those 81 employees, seven had a secondary education degree, 20 had a professional bachelor's degree and 50 had an academic master's degree or a PhD. The average age was 38. The number of years of experience in the current role was on average 8 years.

Measures

The different variables were measured by a questionnaire. The questionnaire consisted of three sections. Section 1 measured the perceived purpose of the PDP. Section 2 measured the dependent variables: Learning activities undertaken and Performance. Section 3 asked for information on the employee's background (highest level of education (certificate), gender and experience in the current role). With the exception of the items concerning the background information, all questions were answered making use of a 5-point Likert-scale, going from totally agree to totally disagree or from always to never (undertaking learning activities).

The Perceived Purpose of the PDP To measure the perceived purposes of the PDP, the Perceived Nature of the Assessment Goals Questionnaire (PNAGQ) was developed, based on a literature review on PDP assessment in organizations (Beusaert et al. 2011). The questionnaire asks the employees to rate the perceived PDP purposes on a 5-point-Likert scale concerning the strength of its pursuit going from 'totally agree' to 'totally disagree'. The questionnaire questions the following 15 purposes of a PDP: personal or professional development, self-assessment, stimulating learning and reflection, to deliver evidence to my supervisor, to demonstrate or document, obtaining a certificate or a license, preparing an external job interview, accreditation/accomplishing the organization's standards, selecting/making promotion, receiving coaching, stimulating collaboration with colleagues, motivating, organize oneself/keeping an agenda of learning activities, stimulate confidence, and stimulating the development of the organization.

The Perceived Nature of the Assessments Goals Questionnaire (PNAGQ) was validated in two steps. To explore the optimal factorial structure of the questionnaire an exploratory factor analysis was conducted on the data collected in Organization 1 ($n=286$). Next, a confirmatory factor analysis was performed on the data collected at Organization 2 ($n=81$) to determine the robustness of the factor structure across samples.

In contrast to our expectations, the exploratory factor analysis with direct oblimin rotation indicated the existence of three factors with item loads of .46 and more. The first component had an eigenvalue of 7.88 (corresponding to 53% of the explained variance), the second component had an eigenvalue of 1.49 (corresponding to 10% of the explained variance) and the third component had an eigenvalue of 1.04 (corresponding to 7% of the explained variance). The items stimulating collaboration with colleagues, stimulating the development of the organization, accreditation/ accomplishing the organization's standards, motivating, and stimulating confidence loaded on the first component, which was labeled the organizational learning and development purposes scale (five items). Preparing an external job interview, to demonstrate or document, obtaining a certificate or a license, to deliver evidence to my supervisor, and selecting/ making promotion loaded on the second component. The component was labeled the selection and promotion purposes scale (five items). The items personal or professional development, self-assessment, stimulating learning and reflection and organize oneself/ keeping an agenda of learning activities loaded on the third component which was labeled the personal learning and development purposes scale (four items). One item had a low loading (.397; "Receiving coaching") and as a result did not load on any factor. The Cronbach's alphas were .91 for the personal learning and development purposes scale, .90 for the organizational learning and development purposes scale and .80 for the promotion and selection purposes scale.

Second, in order to test the robustness of the structure of the three components of the PNAGQ that was found in the exploratory factor analysis, a confirmatory factor analysis (CFA) was performed. The model showed a poor fit to the observed data as suggested by the goodness-of-fit-indices ($\chi^2=177.19$; SRMR=.09, RMSEA=.13; CFI=.82). Next, based on the largest standardized residuals, the LM test and the Wald test, the hypothesized model was optimized. Two items (organizing oneself/keeping an agenda of learning activities, and stimulating collaboration with colleagues) had to be deleted. The two items were deleted especially because of too many cross loadings, and, the items had already demonstrated a lower factor loading in the exploratory factor analysis. Furthermore, in line with the content of the items, the correlation between two items loading on the same factor was accepted, namely between "to demonstrate or document" and "to deliver evidence to my supervisor" and also between "obtaining a certificate or a license" and "preparing an external job interview". This resulted in an acceptable moderate model fit ($\chi^2=85.36$, $p=.001$; SRMR=.06; RMSEA=.10; CFI=.92). The Cronbach's alphas were .89 for the personal learning and development purposes scale (three items), .88 for the organizational learning and development purposes scale (four items) and .80 for the promotion and selection purposes scale (five items).

Undertaking Learning Activities The different types of learning activities undertaken were evaluated with the Learning Activities Scale (six items). The scale was

developed based on a literature review about the effects of PDPs and measures to which extent employees undertake learning activities as a result of working with a PDP on a behavioral level. More specifically, on a 5 point Likert scale going from never to always, the questionnaire asked how often different types of learning activities were undertaken because of the PDP (i.e. trainings, courses, workshops, conferences, interventions, supervisions, internships and/or self-study).

A maximum likelihood test on the total data file resulted in one factor with item loads of .67 and higher. The component had an eigenvalue of 3.95 (corresponding to 66% of the explained variance). All items that tagged the scale Undertaking learning activities loaded on this component. The Cronbach's alpha was .90.

Performance To measure the perceived performance we adapted the Output of transfer behavior scale of Xiao (1996), consisting of 6-items. Originally the scale was used to measure the effects of transfer of training. We adapted the questionnaire in order to measure the effects of an assessment tool, the PDP on the employee's performance. For example, the item "Using the new KSA has helped me improve my work" was translated into "Using a PDP has helped me to improve my work".

A maximum likelihood test on the total datafile resulted in one factor with item loadings of .88 and higher. The component had an eigenvalue of 5.12 (corresponding to 85% of the explained variance). The Cronbach's alpha was .97.

For an overview of the different scales, example items, and Cronbach's alphas, we refer to Table 1.

Procedure

Both organizations were contacted and invited to participate in the research. After an introductory meeting, the questionnaire was adapted to the specific setting of the organization in cooperation with a HR consultant. Finally the questionnaire was distributed by the HR-consultant via email, with a link to the

Table 1 Overview of the different scales and their descriptives

Scale	<i>N</i>	α	Example items
The perceived nature of the purposes			Indicate on a Likert scale going from 1 to 5 in which way your organization is striving for the following goals by implementing PDPs:
Personal learning and development purposes	3	.89	Stimulate reflection or learning.
Organizational learning and development purposes	4	.88	Stimulating collaboration with colleagues.
Promotion and selection purposes	4	.80	To delivering evidence to my supervisor.
Outcome variables			
Undertaking learning activities	6	.90	Because of using a PDP I look up things in books, journal or on the internet.
Performance	6	.97	Since I am using a PDP and have related meetings, the quality of my work improved.

questionnaire. To guarantee the anonymity of the employees, the data were gathered immediately by the software (NetQ). To increase the response rate, the employees received one reminder via email and in Organization 1 a weekly newsletter as well.

Data Analysis

Firstly, descriptives of the different variables in the study were calculated. Secondly, correlation analysis explored the relation between the perceived purpose components (personal learning and development purposes, organizational learning and development purposes, and promotion and selection purposes) and the outcome variables (undertaking learning activities and performance). Thirdly, hierarchical regression-analyses were conducted to identify whether the independent variables (perceived learning and development purposes, perceived promotion and selection purposes) predicts the employee's undertaking of learning activities and performance. Fourthly, a hierarchical regression analysis was conducted, including both purposes at the same time, in order to determine the strongest predictor of undertaking learning activities and performance. Additional analyses of covariance (ANCOVAs) are performed in order to look into the interaction effects of the different purposes scales.

Results

Preliminary Analysis

Table 2 shows the means and the standard deviations and correlations between the three subscales of the PNAGQ (personal learning and development purposes, organizational learning and development purposes and promotion and selection purposes) and the two outcome variables (undertaking learning activities and performance). The results indicate that the three different purposes correlate significantly positively with Undertaking learning activities and Performance. Next, the purposes correlate significantly positively and Undertaking learning activities and Performance correlate significantly positively as well.

Table 2 Correlations

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Personal learning and development purposes	2.60	1.05	–				
2. Organizational learning and development purposes	2.38	1.01	.68**	–			
3. Promotion and selection purposes	2.11	.87	.44**	.52**	–		
4. Undertaking learning activities	2.62	.91	.13*	.23**	.34**	–	
5. Performance	2.58	.84	.34**	.36**	.29**	.34**	–

** $p < .01$, * $p < .05$

Hypothesis 1

To examine the effect of the perceived individual and organizational learning and development purposes on the employee's undertaking of learning activities and performance, a hierarchical regression analysis was executed (Table 3). In Step 1 the background variables organization, highest level of education (certificate), gender and experience in the current role were entered. In Step 2 the purpose variable was entered. The findings indicate that there is a difference between both participating organizations in the undertaking of learning activities. Next, the personal as well as organizational learning and development purposes predict the employee's undertaking of learning activities ($\beta=.18$, $p<.001$ and $\beta=.20$, $p<.001$) and performance ($\beta=.36$, $p<.001$ and $\beta=.35$, $p<.001$) significantly positively, which confirms Hypothesis 1. In other words, if the employee perceives the PDP as a learning and development tool, the employee undertakes learning activities and has the feeling that his or her performance improves.

Hypothesis 2

To examine the effect of the perceived promotion and selection purposes on the employee's undertaking of learning activities and performance, a hierarchical regression analysis was executed (Table 3). Similar as for Hypothesis 1 the background variables organization, highest level of education (certificate), gender and experience in the current role were entered in Step 1. In Step 2 the purpose variable was entered. Again the findings indicate that there is a difference between both participating organizations in the undertaking of learning activities. Next, in contrast to our expectations, the Promotion and selection purposes also predict the undertaking of learning activities ($\beta=.16$, $p<.01$) and the employee's performance ($\beta=.32$, $p<.001$) significantly positively, which is not in line with Hypothesis 2. Hypothesis 2 is not confirmed. The results show that perceiving the PDP as a promotion and selection tool leads towards the undertaking of learning activities and a better performance.

Hypothesis 3

In order to determine which purpose is the most powerful predictor of the employee's undertaking of learning activities and performance, we conducted two hierarchical regression analyses, one for each dependent variable (Table 4). In Step 1 we again entered the background variables organization, highest level of education (certificate), gender and years of experience in the current role. In Step 2 the two learning and development purpose variables were entered with alternatively undertaking learning activities and performance as the dependent variables. Finally, in Step 3 the promotion and selection purpose variable was entered. The table shows that perceiving organizational learning and development purposes is the strongest predictor of undertaking learning activities ($\beta=.14$, $p<.05$), while both perceiving personal ($\beta=.18$, $p<.05$) and organizational ($\beta=.18$, $p<.05$) learning and development purposes are the strongest predictor of an improved performance. No additional variance is explained by perceiving promotion and selection purposes. In conclusion,

Table 3 Hierarchical regression analysis of the *independent* purposes scales on the dependent variables (undertaking learning activities and performance)

	Undertaking learning activities			Performance			Undertaking learning activities			Performance			Undertaking learning activities			Performance		
	β	ΔR^2	β	β	ΔR^2		β	ΔR^2	β	β	ΔR^2		β	ΔR^2	β	β	ΔR^2	
Step 1						Step 1						Step 1						
Organization	.37***		.04			Organization	.37***		.04			Organization	.37***		.04			
Education	-.09		-.08			Education	-.09		-.08			Education	-.09		-.08			
Gender	.02		.01			Gender	.02		.01			Gender	.02		.01			
Experience in role	.06		-.03			Experience in role	-.06		-.03			Experience in role	-.06		-.03			
	.20***		.01				.20***		.01				.20***		.01			
Step 2						Step 2						Step 2						
Organization	.39***		0.07			Organization	.37***		.03			Organization	.30***		-.11			
Education	-.13*		-.15*			Education	-.09		-.08			Education	-.10		-.10			
Gender	.01		-.01			Gender	.00		-.01			Gender	.01		-.01			
Experience in role	-.04		.00			Experience in role	-.06		-.03			Experience in role	-.04		0			
	.18***		.36***				.20***		.35***				.16**		.32***			
Personal learning and development purposes						Organizational learning and development purposes						Promotion and selection purposes						
	.03***		.12***				.04***		.12***				.02**		.08***			

The reported regression coefficients are standardized coefficients

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

Table 4 Hierarchical regression analysis of *all* purpose components on the dependent variables (undertaking learning activities and performance)

	Undertaking learning activities		Performance	
	β	ΔR^2	β	ΔR^2
Step 1				
Organization	.37***		.04	
Education	-.09		-.08	
Gender	.02		.01	
Experience in role	-.06		-.03	
		.20***		.01
Step 2				
Organization	.38***		.05	
Education	-.11		-.12*	
Gender	.00		-.01	
Experience in role	-.05		-.01	
Personal learning and development purposes	.07		.22**	
Organizational learning and development purposes	.15*		.20**	
		.04***		.14***
Step 3				
Organization	.36***		.00	
Education	-.11		-.12*	
Gender	.00		-.02	
Experience in role	-.05		-.01	
Personal learning and development purposes	.06		.18*	
Organizational learning and development purposes	.14*		.18*	
Promotion and selection purposes	.04		.10	
		.00		.01

The reported regression coefficients are standardized coefficients

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

if you want employees to undertake learning activities and deliver a higher-quality performance when using a PDP, the tool should be introduced as a learning and development tool.

Additional analyses of covariance (ANCOVAs) were performed for both outcome variables. We analyzed the main effects of the three purposes discerned (the personal learning and development purposes, the organizational learning and development purposes, the promotion and selection purposes) and their interaction effects with organization as a covariate. The analyses for the outcome variable the undertaking of learning activities confirmed the results of the regression analysis reported above. In addition, no interaction effects were found. The results of the four interaction analyses indicated that there is no significant effect of the interaction between the different purposes of the PDP on the extent to which employees undertake learning activities. (personal learning and development purposes*organizational learning and development

Table 5 Analysis of variance between Organization 1 and Organization 2

Variable	Organization 1 (<i>n</i> =286)			Organization 2 (<i>n</i> =81)			<i>F</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	
Personal learning and development purposes	286	2.67	1.10	81	2.36	.81	5.43*
Organizational learning and development purposes	286	2.35	1.06	81	2.48	.81	1.10
Promotion and selection purposes	286	1.90	.82	81	2.86	.60	97.60***
Undertaking learning activities	286	2.41	.87	81	3.36	.65	84.99***
Performance	286	2.54	.86	81	2.74	.78	3.62

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

purposes, $F(40,80)=1.02$, $p=.46$; personal learning and development purposes*promotion and selection purposes, $F(52,80)=1.03$, $p=.45$; organizational learning and development purposes*promotion and selection purposes, $F(55,80)=1.01$, $p=.48$; personal learning and development purposes*organizational learning and development purposes*promotion and selection purposes, $F(1,80)=2.10$, $p=.15$). These results were confirmed when conducting ANCOVA with performance as outcome variable.

ANOVA

The regression analysis indicated the effect of the organization on the undertaking of learning activities as a result of using a PDP. In an effort to better understand the powerful effect of the organization on the undertaking of learning activities, Table 5 illustrates the descriptives (means and standard deviations) for both groups and reports an analysis of variance (ANOVA) for the three purpose components and both outcome variables (undertaking learning activities and performance). The results of the ANOVA indicate that the employees in Organization 2 perceive the tool as a tool for personal learning and development and as a tool for promotion and selection to a greater extent than the employees of Organization 1. These results also suggest that the tool in Organization 2 is more accurately used as a tool for personal development on the one hand and for promotion and selection on the other. Moreover, more learning activities are undertaken if the employee is informed, understands and sees the purposes and possible effects of the tool.

Conclusion and Discussion

This study addresses whether the purposes for which the PDP is used affects the extent to which employees undertake learning activities and consequently their performance. Based on the regression analysis results, we can conclude that perceiving the PDP either as a learning and development tool or as a promotion and selection tool positively predicts the undertaking of learning activities and the employee's performance. However, subsequent hierarchical linear regression analyses, including the three discerned purposes of a PDP, indicated that the most

powerful predictor of undertaking learning activities and a high-quality performance are (organizational and personal) learning and development purposes and not promotion and selection purposes. These results show that when an employee perceives the PDP as a tool for learning and development he or she is more likely to undertake learning activities and in turn perform better as a result of using a PDP than when the assessment tool is perceived as a promotion and selection instrument. The results are in line with previous and similar research conducted by Beck et al. (2005) who compared the effects of formative and summative portfolios on the professional outcomes of pre-service and beginning teachers. They concluded that portfolios focusing on teacher development better supported professional outcomes than did the summative accountability portfolio. The researchers even concluded that the tool should not be used for the summative accountability of teachers. Similarly, Tillema (2001) found that a strong preoccupation with performance appraisal (summative assessment) may counter learning and development purposes. Smith and Tillema (2003) stated that “The higher the stakes of assessment of the PDP [portfolio], the less valuable it becomes for professional development purposes”. Similarly, researchers investigated the different effects of process focus appraisals and exclusive results-oriented appraisals on expectations of performance improvement and found more positive effects of process focus appraisals (Lam and Schaubroeck 1999). However, the results are in contrast with the research of Tigelaar et al. (2004) who concluded on the basis of nine interviews with portfolio experts that portfolios can be used for both learning and selection purposes; focusing on learning first and shifting to selection purposes later, for example because the employee’s motivation to learn will be triggered. Boswell and Boudreau (2002) who researched the separate use of developmental and evaluative performance appraisal interviews also found contrasting results. They found that the employees in the separated performance appraisal group (versus the traditional performance appraisal group) intended to undertake less development activities in the future.

In addition, the hierarchical regression analyses show the organization has a strong predictive power in terms of undertaking learning activities. The results of the ANOVA indicate that while employees in Organization 1 perceive the tool as a tool for personal and organizational learning and development first and foremost, the employees in Organization 2 especially perceive the tool as a tool for promotion and selection. However, the employees in Organization 2 undertake significantly more learning activities than those in Organisation 1. The differences between the organisational culture of both organizations might explain these results. Martins and Terblanche (2003) for example make a distinction between organizations according to the competitive behaviour, vision and mission of the organization, the organizational structure and the freedom and flexibility. First, Organization 1 is a non-profit organization. This means that the organization does not compete with other companies and therefore is not forced to keep up with the newest developments (Martins and Terblanche 2003). Consequently in this type of organizations learning and development do not play a pivotal role. Next, career perspectives are limited and competition between employees is scarce in Organization 1, while Read (1996) indicates that competitiveness stimulates knowledge creation and continuously updating of knowledge. Second, oral communication with the HR department as well as the remarks of the employees on the questionnaire indicated that in

Organization 1 the tool is not closely related to the mission and vision of the organization and that whether or not one uses the tool has no significant consequences. However, HR tools that are not well imbedded within the mission and strategy of an organization lack affectivity (Wintermantel and Mattimore 1997). Finally, governmental offices are more hierarchical, stable and bureaucratic organizations in which employees are less stimulated to autonomously use their knowledge and skills in a dynamic way, again leading to little innovation and therefore in turn jeopardizes the importance of the role of continuous learning and development (Martins and Terblanche 2003). More specifically, Cleveland and Shore (1992) refer to the age of the employees. The average age of the employees in Organization 1 is 49. This means that a large group of the employees could be considered experts who are no longer interested in learning and developing systematically.

In contrast, Organization 2 is a profit organization. This entails that Organization 2 is a more dynamic organization which has to keep up with the newest developments in order to compete with other companies. Furthermore, Organization 2 is situated in the medical sector in which knowledge evolves fast. Next, the PDP is part of a better implemented assessment system in which it performs a central task; the use of the tool heavily influences whether or not an employee is selected for promotion. Finally, this organization has a younger staff; the average age is 38. It is likely that a larger group of novices is interested in learning and developing and consequently making promotion or working on their employability. In sum, Organization 2 has a more competitive external and internal environment, uses HR tools which are better imbedded within the strategy of the organization and has a younger staff. These characteristics of the organizational culture of Organization 2 support innovation and creation which in turn enhances attention for continuous learning and development.

Limitations and Future Research

When we interpret the previous findings, we need to take into account some limitations which future research might be faced with and should address. A first limitation concerns the generalization of the research. This research incorporated results from two organizations. Future research should further cross-validate our findings across organizations and sectors. Before organizations are chosen, it is important to carefully explore the way the PDP is implemented. Often the managers will describe the HR process differently than the way the PDP practice is actually organized.

Furthermore, in addition to the purpose of the PDP, there are various personal, environmental and career related conditions which can influence the PDP practice and in turn the undertaking of learning activities and the employee's performance (Beausaert et al. 2011). For example, the employee's motivation, self-efficacy, need for reflection and age (Beausaert et al. 2011). Moreover, with respect to environmental conditions, how the PDP is introduced and supported by the company, the learning culture and the supervisor can influence the effects of the tool significantly. More specifically, the supervisor—who often communicates the purpose, coaches the process and motivates the employee—and the feedback given by the supervisor play a pivotal role. The feedback stimulates the employee's reflection and is essential to let the employee develop (Beausaert et al. 2011; Smith

and Tillema 2003). Next, changes within the environment of the employee such as reorganizations, technological innovations and new products, are important triggers for employees to reflect. Finally, pending on the career phase of the employee, s/he may feel a bigger need for reflection. For example, an employee who is retiring may feel a less strong need for reflection than an employee who just started working for the organization.

With respect to the methodology used, the data in this study are based on self-reports by employees. For the measurement of the purposes of a PDP, self-report measures are the most valid method. There is a significant amount of evidence that the assessment practice influences the employee's learning outcomes via the employee's perception of this practice (e.g. Biggs 2003; Prosser and Trigwell 1999). However, questioning employees on their learning activities and their performance can induce socially desirable answers. Using 360-degree assessment, including peers and supervisors of the employees questioned, is advisable in future research. Finally, because of this study's cross-sectional design, changes over time cannot be determined; consequently it does not allow us to draw conclusions about causality.

Finally, for deepening our understanding of how the PDP practice affects the employees' perceptions of the tool, we recommend the additional use of qualitative research methods such as interviews.

Practical Implications

This study has a few implications for human resource development in organizations. First, in order to make employees undertake learning activities and improve their performances by using a PDP, introducing and using the PDP as a tool for learning and development is the most effective. This means that the tool is presented as a learning and development tool and used to stimulate the employee's development. In order for this to work the supervisor needs to make the learning and development purpose of the PDP explicit to the employee and support the use as a learning tool with appropriate guidance. Furthermore, the supervisor should stimulate the employee to not only look back on what he or she has already learned, but also explicitly pay attention to what still needs to be learned in the future.

Perceiving the tool as a promotion and selection tool, however, also predicts the undertaking of learning activities and employees' performance positively. This supports the opinion of some authors who indicated that the PDP can be used for both purposes (e.g. Snyder et al. 1998). Nevertheless, perceiving learning and development purposes is a stronger predictor than perceiving promotion and selection purposes. This leads to the question: How to balance between promotion and selection purposes on the one hand and learning and development purposes on the other, knowing that learning and development purposes are stronger predictors of undertaking learning activities and performance? The following suggestions might help to answer that question: (1) Keep learning and development interviews separate from performance interviews. The performance interviews can still be based on a selection of evidence which is collected in the PDP and which is used for learning and development interviews. (2) Similarly, have the two different kinds of interviews conducted by a different person in order to split up both purposes completely. The interviews with learning and development purposes should be conducted by a coach,

while the interviews with promotion and selection purposes should be performed by the supervisor. In practice the PDP interviews and the appraisal interviews are mostly conducted by one and the same supervisor. (3) Make a distinction between the criteria used for discussing the PDP during the learning and development interviews and the criteria used during performance interviews. While growth indicators, making the growth in competencies visible, should be used in the first type of interviews, attainment indicators, pointing out if the specific level of proficiency that was agreed upon before is reached, should be used in the performance interviews. (4) Make the difference between the two types of interviews and the role of the PDP within those interviews clear by referring to the link between the different interviews and other HRD-activities. For example, the link between discussing a PDP during a learning and development interview on the one hand and training on the other hand should be clearly made. (5) Make a distinction between the different parties involved in the learning and development interviews and the parties involved in the promotion and selection interviews. For instance, colleagues can be a fruitful source of feedback in the employee's developing process. Often colleagues work closer with the employee than the supervisor and they are more aware of the employee's weaknesses and strengths. (6) Make the difference between the two types of interviews clear by referring to possible follow-up activities after the PDP interview.

Acknowledgements We would like to thank Prof. Dr. Kari Smith from the University of Bergen for her fruitful comments and advices on this paper.

Open Access This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

Perceived Nature of the Assessment Goals Questionnaire (PNAGQ)

Is your company according to you striving for the following purposes with the personal development plan? Indicate on a 5 point-Likert scale, going from totally agree to totally disagree.

1. Personal or professional development
2. Self-assessment
3. Stimulate reflection
4. To control/deliver evidence
5. To demonstrate or document
6. Obtaining a certificate or a license
7. Preparing a job interview
8. Accreditation/Accomplishing standards
9. Selecting/making promotion
10. Receiving coaching
11. Stimulating collaboration with colleagues
12. Motivating
13. Organise oneself/keeping an agenda
14. Stimulate confidence

15. Stimulating the development of the organization
16. Others:

References

- Assessment Reform Group. (1999). *Position paper on assessment for learning from the Third International Conference on Assessment for Learning, Dunedin, New Zealand, March 2009*.
- Austin, Z., Marini, A., & Desroches, B. (2005). Use of a learning portfolio for continuous professional development: a study of pharmacists in Ontario (Canada). *Pharmacy Education*, 5, 175–181.
- Beusaert, S., Segers, M., van der Rijt, J., & Gijssels, W. (2011). The use of Personal Development Plans in the workplace: A literature review. In P. van den Bossche, W. Gijssels, & R. Milter (Eds.), *Building learning experiences in a changing world, Advances in Business Education and Training III* (pp. 235–265). Dordrecht: Springer.
- Beck, R. J., Livne, N. L., & Bear, S. L. (2005). Teachers' self-assessment of the effects of formative and summative electronic portfolios on professional development. *European Journal of Teacher Education*, 28, 221–244.
- Biggs, J. (2003). *Teaching for quality learning at university*. Maidenhead: McGraw-Hill Education.
- Boswell, W. R., & Boudreau, J. W. (2002). Separating the developmental and evaluative performance appraisal uses. *Journal of Business and Psychology*, 16, 391–412.
- Brown, R. (1995). *Portfolio development and profiling for nurses* (2nd ed.). Lancaster: Quay Publications.
- Brutus, S., London, M., & Martineau, J. (1999). The impact of 360-degree feedback on planning for career development. *Journal of Management Development*, 18, 676–693.
- Bullock, A., Firmstone, V., Frame, J., & Bedward, J. (2007). Enhancing the benefit of continuing professional development: a randomized controlled study of personal development plans for dentists. *Learning in Health and Social Care*, 6(1), 14–26.
- Cleveland, J., & Shore, L. (1992). Self- and supervisory perspectives on age and work attitudes and performance. *Journal of Applied Psychology*, 77, 469–484.
- Cleveland, J. N., Murphy, K. R., & Williams, R. E. (1989). Multiple uses of performance appraisal: prevalence and correlates. *Journal of Applied Psychology*, 74, 130–135.
- Darling-Hammond, L., & Snyder, J. (2000). Authentic assessment of teaching in context. *Teaching & Teacher Education*, 16, 523–545.
- Dochy, F., & McDowell, L. (1997). Assessment as a tool for learning. *Studies in Educational Evaluation*, 23, 279–298.
- Driessen, E. W., van Tartwijk, J., van der Vleuten, C. P. M., & Wass, V. J. (2007). Portfolios in medical education: Why do they meet with mixed success? A systematic review. *Medical Education*, 41, 1224–1233.
- Evans, A., Ali, S., Singleton, C., Nolan, P., & Bahrami, J. (2002). The effectiveness of personal education plans in CPD: an evaluation. *Medical Teacher*, 24(1), 79–84.
- Fenwick, T. J. (2006). Contradictions in portfolio careers: work design and client relations. *Career Development International*, 11, 66–79.
- Gelderman, C. J., & van Weele, A. J. (2002). Strategic direction through purchasing portfolio management: a case study. *The Journal of Supply Chain Management*, 38(2), 30–37.
- Gibbs, G. (1999). Using assessment strategically to change the way students learn. In S. Brown & A. Glasner (Eds.), *Assessment matters in higher education*. Buckingham: Society for Research into Higher Education and Open University Press.
- GITP. (2008). *HR(D) in Limburgs perspectief*. [HRD in Limburg, the Netherlands].
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77, 81–112.
- James, M., & Pedder, D. (2006). Beyond method: assessment and learning practices and values. *The Curriculum Journal*, 17, 109–138.

- Lam, S. S. K., & Schaubroeck, J. (1999). Total quality management and performance appraisal: an experimental study of process versus results and group versus individual approaches. *Journal of Organizational Behavior*, 20, 445–457.
- Leggett, M., & Bunker, A. (2006). Teaching portfolios and university culture. *Journal of Further and Higher Education*, 30, 269–282.
- Lepak, D. P., & Snell, S. A. (1999). The human resource architecture: toward a theory of human capital allocation and development. *The Academy of Management Review*, 24, 31–48.
- Lin, C., Tan, B., & Hsieh, P. (2005). Application of the fuzzy weighted average in strategic portfolio management. *Decision Sciences*, 36, 489–511.
- London, M. (1997). *Job feedback: Giving, seeking, and using feedback for performance improvement*. Mahwah, NJ: Erlbaum.
- Lyons, N., & Evans, L. (1997). *Portfolio: A tool for self-directed learning at work*. Paper presented at the Self-directed Learning: Past and Future Symposium (Montreal, Quebec, Canada, September 1997).
- Martins, E. C., & Terblanche, F. (2003). Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, 6, 64–74.
- Mathers, N. J., Challis, M. C., Howe, A. C., & Field, N. J. (1999). Portfolios in continuing medical education effective and efficient? *Medical Education*, 33, 521–530.
- McDowall, A., & Fletcher, C. (2004). Employee development: an organizational justice perspective. *Personnel Review*, 33, 8–29.
- McMullan, M., Endacott, R., Gray, M. A., Jasper, M., Miller, C. M. L., Scholes, J., et al. (2003). Portfolios and assessment of competence: a review of the literature. *Journal of Advanced Nursing*, 41, 283–294.
- Nathan, B. R., Mohrmann, A. M., & Milliman, J. (1991). Interpersonal relations as a context for the effects of appraisal interviews on performance and satisfaction: a longitudinal study. *Academy of Management Journal*, 34, 352–369.
- Orland-Barak, L. (2005). Portfolios as evidence of reflective practice: what remains “untold”. *Educational Research*, 47(1), 25–44.
- Perrenoud, P. (1998). From formative evaluation to a controlled regulation of learning processes. Towards a wider conceptual field. *Assessment in Education: Principles, Policy & Practice*, 5, 85–102.
- Prosser, M., & Trigwell, K. (1999). *Understanding learning and teaching: The experience in higher education*. Buckingham: Open University Press.
- Read, W. H. (1996). Managing the knowledge-based organization: five principles every manager can use. *Technology Analysis and Strategic Management*, 8, 223–232.
- Redman, W. (1994). *Portfolios for development: A guide for trainers and managers*. London: Kogan Page.
- Riley-Doucet, C., & Wilson, S. (1997). A three-step method of self-reflection using reflective journal writing. *Journal of Advanced Nursing*, 25, 964–968.
- Schmitz, C. C., & Schillo, B. A. (2005). Report Carding: a model for foundation portfolio assessment. *American Journal of Evaluation*, 26, 518–531.
- Seng, S. H., & Seng, T. O. (1996). *Reflective teaching and the portfolio approach in early childhood staff development*. Paper presented at the Joint Conference of the Educational Research Association of Singapore and the Australian Association for Research in Education. Singapore, 25–29 November 1996.
- Smith, K., & Tillema, H. (1998). Evaluating portfolio use as a learning tool for professionals. *Scandinavian Journal of Educational Research*, 42, 193–205.
- Smith, K., & Tillema, H. (2001). Long-term influences of portfolios on professional development. *Scandinavian Journal of Educational Research*, 45, 183–202.
- Smith, K., & Tillema, H. (2003). Clarifying different types of portfolio use. *Assessment & Evaluation in Higher Education*, 28, 625–648.
- Snadden, D., Thomas, M. L., Griffin, E. M., & Hudson, H. (1996). Portfolio-based learning and general practice vocational training. *Medical Education*, 30, 148–152.
- Snyder, J., Pippincott, A., & Bower, D. (1998). The inherent tensions in the multiple use of portfolios in teacher education. *Teacher Education Quarterly*, 25(1), 45–60.
- Tigelaar, D. E. H., Dolmans, D. H. J. M., Wolhagen, I. H. A. P., & van der Vleuten, C. P. M. (2004). Using a conceptual framework and the opinions of portfolio experts to develop a teaching portfolio prototype. *Studies in Educational Evaluation*, 30, 305–321.

- Tigelaar, D. E. H., Dolmans, D. H. J. M., De Grave, W. S., Wolflagen, I. H. A. P., & Van der Vleuten, C. P. M. (2006). Portfolio as a tool to stimulate teachers' reflections. *Medical Teacher*, 28, 277–282.
- Tillema, H. H. (2001). Portfolios as developmental assessment tools. *International Journal of Training and Development*, 5, 126–135.
- Tillema, H. (2003). Auditing assessment practices in organisations: establishing quality criteria for appraising competencies. *International Journal of Human Resources Development and Management*, 3, 359–370.
- Van de Wiel, M. W. J., Szegedi, K. H. P., & Weggeman, M. C. D. P. (2004). Professional learning: Deliberate attempts at developing expertise. In H. P. A. Boshuizen, R. Bromme, & H. Gruber (Eds.), *Professional learning: Gaps and transitions on the way from novice to expert* (pp. 181–206). Dordrecht: Kluwer.
- Van Gennip, N., Gijbels, D., Segers, M., & Tillema, H. (2010). Reactions to 360° feedback: the role of trust and trust-related variables. *International Journal of Human Resource Development and Management*, 10, 362–379.
- Wildy, H., & Wallace, J. (1998). Professionalism, portfolios and the development of school leaders. *School Leadership and Management*, 18(1), 123–140.
- Wintermantel, R. E., & Mattimore, K. L. (1997). In the changing world of human resources: matching measures to mission. *Human Resource Management*, 36, 337–342.
- Wolf, K., & Dietz, M. (1998). Teaching portfolios: purposes and possibilities. *Teacher Educational Quarterly*, 25(1), 9–22.
- Xiao, J. (1996). The relationship between organizational factors and the transfer of training in the electronics industry in Shenzhen, China. *Human Resource Development Quarterly*, 7, 55–72.

Simon AJ Beusaert is PhD candidate at Maastricht University, the Netherlands. His research focuses on the effects of using Personal Development Plans in the workplace.

Mien SR Segers is full professor of education at Maastricht University, the Netherlands. Her research addresses tools and conditions to support learning in the workplace, including the role of assessment for enhancing professional development.

Wim H Gijsselaers is full professor of education at Maastricht University, the Netherlands. His current research focuses on expertise development in business, and sharing expertise.