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Effect of using a personal development plan on learning and development

Author: Beausaert, Simon; Segers, Mien; Fouarge, Didier; Gijssels, Wim

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Abstract: Purpose - This study aims to examine the effects of using a personal development plan (PDP) on the undertaking of learning activities and the employee's job competencies. Design/methodology/approach - Data from Dutch pharmacy assistants was collected (n=2,271). Analyses of variance (ANOVAs) as well as regression analyses were conducted on this dataset. Findings - The results indicate that PDP users undertook more learning activities in the past than non-users, but using a PDP does not stimulate users to plan more learning activities in the future. Furthermore, PDP users do not score themselves significantly higher on job competencies than non-PDP users. Research limitations/implications - Future research should investigate the effectiveness of PDPs for the undertaking of learning activities and job competencies in a broader sample, involving multiple-raters and focusing more closely on one essential feature of the PDP practice: the feedback given by a supervisor and/or colleague or coach when discussing the PDP. Practical implications - The results stress the value of a PDP as a feedback tool. The tool could add significant value to the learning and development process of the pharmacy assistant, however, if it would be used as a feed-forward instrument as well. In other words, the tool should more often be used to get an overview of desired future plans, plan future careers, and the undertaking of learning activities in order to reach these future goals. Originality/value - In order to promote employees' learning and development, more and more companies are starting to implement PDPs. Empirical studies researching the effectiveness of PDPs in the workplace are scarce, however.

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Full text: 1. Introduction

It is evident that in the current knowledge economy learning does not stop after graduation. Learning for the profession is only a starting point for learning in the profession. Since the nineties, health services (pharmacists, general practitioners, dentists, consultants, nurses) have come to realize the importance of investing in the lifelong learning and development of their professionals and have put continuing professional development (CPD) high on their strategic agendas. The International Pharmaceutical Federation defines CPD as: "the responsibility of individual pharmacists for systematic maintenance, development and broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers" (International Pharmaceutical Federation; cited in [31] Rouse, 2004, p. 2069). In order to support the CPD of professionals in health service, organizations started to implement Personal Development Plans (PDPs). In the UK, for example, the government even suggested to make use of the tool the way forward for CPD ([14] Evans *et al.*, 2002). In the Dutch pharmacy business, the PDP has only recently been introduced. In 2004, only 2 percent of the pharmacy assistants had a PDP. This percentage had risen to 45 percent by 2008 ([15] Fouarge *et al.*, 2008). In sum, more and more pharmacy assistants are using a PDP in order to stimulate their professional development, which is certainly related to the central role PDPs are taking in performance appraisal interviews nowadays. Based on a collective bargaining agreement pharmacists are expected to have performance appraisal interviews with their employees in which the PDP is discussed, using prescribed PDPs. Whether or not receiving salary raise is dependent on the assessment of employees' competencies reported in the form and discussed during the conversation (CAO Arbeidsomstandigheden 2004-2005).

In general a PDP can be described as an assessment tool embedded in a larger assessment cycle of development and performance interviews. It is used to gather and document information about the competencies the employee worked on and is planning to further develop in the near future. Although PDPs are

widely used, especially within health services, the empirical evidence on its impact and effects is scarce (e.g. [2] Austin *et al.* , 2005; [14] Evans *et al.* , 2002; [42] Zeichner and Wray, 2001). Moreover, the results of the empirical studies are inconclusive. Our review study indicates that most empirical studies show that PDP assessment is effective for learning, personal or professional development and improving professional practice; other studies, however (e.g. [10] Bunker and Leggett, 2004) do not support these positive findings. Furthermore, previous studies on PDPs are often based on small sample sizes (e.g. [9] Bullock *et al.* , 2007) and therefore do not lead to generalizable results. Similarly, to date, hardly any studies on the effects of PDPs have been using a control group design and therefore could not draw any valid conclusions on the effectiveness of PDPs. Our study aims to contribute to the current insights on the effects of PDPs in different ways. First, we focus on two effect measures. Given that undertaking learning activities is highly valued in current human resources management ([22] Kraiger *et al.* , 2004) and PDPs are theorized to be supportive in employees' learning, we investigate whether or a PDP effectively supports and stimulates employees to undertake learning activities. Next, we investigate to what extent PDPs are effective in supporting the development of the general and specific key competencies that are defined by the relevant industry as indicators of the employees' performance. Second, by using a large data set, we aim to measure effects that we eventually will be able to generalize to the total population of pharmacy assistants. Third, we use a quasi-experimental design, comparing users to non-users (control group) of PDPs. To control for sectoral differences in the use of PDP and occupational differences in training and competence development, we focus our study on a homogeneous group of employees from a specific health care service sector. We collected data from employees who work in the Dutch pharmacy sector, more precisely from pharmacy assistants, who are the core workers in this industry. They prepare the medication and have personal contact with the clientele. All members of the group that we collected our data from are female and share the same vocational education background. In sum, this empirical study examines the effects of using a PDP on learning and job competencies. This leads to the following research question: "Does using a PDP effectively stimulate the undertaking of learning activities and improve job competencies?" More specifically, this study measures three different effects of using a PDP: the correlation with the employee's learning activities undertaken in the past and the effects on the employee's plans to undertake further training and on his/her competence level. A distinction is made between undertaking learning activities in the past and intended future learning activities since PDPs are designed as feedback tools to reflect on past performance and activities as well as identify training needs of the worker and plan future development accordingly (feed forward) ([26] McMullan *et al.* , 2003).

1.1 A personal development plan (PDP)

In general a PDP can be defined as an assessment tool embedded in a larger assessment cycle of development and performance interviews (also called traditional top-down assessment; [18] Hagan *et al.* , 2006), used to gather and document information about the competencies the employee has already worked on and the ones that he/she is planning to further develop. More concretely, a PDP can be characterized as a tool that ([8] Brown, 1995; [26] McMullan *et al.* , 2003; [30] Redman, 1994; [34] Seng and Seng, 1996; [35] Smith and Tillema, 1998; [38] Snadden *et al.* , 1996):

- gives an overview of the competencies the employee worked on in the past (looking back) and of the competencies the employee is planning to work on in the future (looking forward);
- is composed by the employee himself (self-direction by the employee), although the format of the PDP is mostly fixed;
- is used as basis for or to structure the conversations with the supervisor or the coach, who provides the employee with feedback and stimulates the employee's reflection; and
- serves different decision-making processes, ranging from planning an individual training-program to whether or not giving an employee a promotion.

Using a PDP requires the user to act as a reflective learner ([33] Schön, 1987). Reflection signifies a critical

analysis of previous experiences and aims at intensifying cognitive elaboration on those experiences; it is expected to lead to behavioral changes ([1] Anseel *et al.* , 2009; [26] McMullan *et al.* , 2003; [34] Seng and Seng, 1996; [35] Smith and Tillema, 1998). In other words, reflecting provides insight into the employee's own processes of learning ([26] McMullan *et al.* , 2003). Moreover, [33] Schön (1987) makes a distinction between two ways of engaging in reflection: reflection-in-action and reflection-on-action. Reflection-in-action refers to reflecting during the experience, without interrupting it. It allows the reflective practitioner to adjust what s/he is doing while s/he is doing it. To reflect on action means that we think back on what we have done, after the initial experience ([33] Schön, 1987). This reflection on action can be supported by making use of a PDP. Similarly, Kolb states in his model of experiential learning that learning occurs through "concrete experiences" and the reflection on those experiences ([20] Kolb, 1984), for which a PDP can be used. By thinking over what happened, the learner is able to draw a more general conclusion (abstraction) and build up concepts (conceptualization). Finally, the learner can use previous experiences and what he learned from those experiences as a basis for new active experimentation, and, finally, an improved performance. In the PDP, three major feedback questions take up a central role: "Where am I now?", "Where am I going?", and "Where to go next?" The third has a feed-forward function. When a discrepancy is detected between the competencies an employee possesses and the competencies he/she should possess, further learning can be stimulated ([19] Hattie and Timperley, 2007).

Gathering and documenting information by means of a PDP is used to serve two main purposes. Commonly a distinction is made between professional development and certification/selection/accountability ([36] Smith and Tillema, 2001). When a PDP is used to support reflection and development, the feedback is mainly used to scaffold learning. Conversely, when a PDP is used for certification, presenting oneself in a positive light is more important ([4] Beck *et al.* , 2005; [7] Bradshaw and Hawk, 1996; [10] Bunker and Leggett, 2004; [25] Lyons and Evans, 1997; [29] Orland-Barak, 2005; [36] Smith and Tillema, 2001). Although there is a trend towards using the tool for certification and performance appraisal, the tool is especially powerful to support employees' professional development ([37] Smith and Tillema, 2003).

Besides differentiating the aforementioned purposes of a PDP, [36] Smith and Tillema (2001) make a second distinction, between composing a PDP on a voluntary basis and on a mandatory basis. The authors reported that there was more professional development when sustained PDP use was voluntary than when it was mandatory ([36] Smith and Tillema, 2001). Other research, on the other hand, showed that staff members did not develop a PDP unless this was mandatory ([10] Bunker and Leggett, 2004).

1.2 The effectiveness of PDPs: previous research and hypotheses

In practice PDPs are used to steer employees' competence development. Employees should undertake learning activities and improve their competencies exactly as a result of using the PDP as a reflection tool. A recent review of 54 studies on the effectiveness of PDP assessment in organizations showed that different studies led to different, often contradicting findings. While most researchers found that in the health care services PDPs facilitate learning activities, help develop professional knowledge and skills, promote reflection and improve performance, others demonstrated that it is difficult for PDPs to stimulate reflection and influence professional practices at the workplace.

[14] Evans *et al.* (2002), for example, analyzed general practitioners' PDP use by means of a questionnaire, analyses of PDP reports and in-depth interviews. The majority of general practitioners (GPs) felt that the PDP helped them to enhance their personal and professional development effectively as well as to improve their service to patients. Similarly, [28] Mathers *et al.* (1999) concluded that through using PDPs, GPs become more proactive in their learning. In their study, 32 volunteer GPs were divided into two groups. Each group followed a "traditional" route to postgraduate educational accreditation (PGEA) in the first six months, and then a PDP-based learning route in the next six months. It was found that making a PDP provided proof of the application of learning into professional practice and facilitated the completion of learning cycles. Other researchers measured

whether the use of an electronic PDP is effective for reflective CPD of physicians ([13] Dornan *et al.* , 2002). They surveyed physicians who registered with the Royal College of Physicians to work on their CPD. They concluded that although the use of electronic PDPs is influenced and sometimes hampered by individual learning styles, resources and technical support, it does indeed lead to reflective learning.

In contrast, other research suggests that implementing a PDP system in a profession can be quite complex. Because of time pressure, practitioners' self-directed learning inclination and self-monitoring abilities cannot be brought into full play. Although the PDP is consistent with the idea of continuous professional development theoretically, there seems to be a lack of impact from PDPs on professional practice. One study found that pharmacists did not closely and successfully connect documentation and self-reflection with practice improvement ([2] Austin *et al.* , 2005). This is in line with the research of [21] Kostrzewski *et al.* (2009) who undertook an in-depth research to examine the effect of PDPs on the pharmacy practice in hospitals by conducting semi-structured face-to-face interviews. The participants were four male and five female pharmacists, and were divided into three groups. Three key themes kept returning in the participants' answers: lack of contribution to practice, tacit contribution and mentality. Furthermore, it was found that having a PDP has little if any influence on the professional practice, especially for the more experienced participants. The study consequently concluded that it is hard to demonstrate positive effects of the use of PDPs in practice. Similarly, [10] Bunker and Leggett (2004; cited in [23] Leggett and Bunker, 2006) argued that in the context of higher education teaching PDPs can be effective tools for stimulating promotion, but that they are not useful to encourage reflective practice, because the PDP focuses on success more than on how to avoid failure. [29] Orland-Barak (2005) also doubted the effectiveness of portfolios for reflection. For her research she analyzed 32 teachers' portfolios 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.

Based on these insights, still indicating more positive than negative effects of PDP use, the following hypotheses can be formulated:

H1. In contrast to employees who don't use a PDP, employees who use a PDP undertook more learning activities in the past.

H2. In contrast to employees who don't use a PDP, employees who do are planning to undertake more learning activities in the future.

H3. In contrast to employees who don't use a PDP, employees who do will score themselves higher on job competencies.

2. Method

2.1 Participants and procedure

In March 2008, 6000 pharmacy assistants - the core workers - who account for 80 percent of total employment in the pharmacy sector ([12] De Grip and Sieben, 2009) were asked to take part in the survey. The advantage of focusing on the core workers is that they are key employees in the branch, and that it is a homogeneous group in terms of educational background and profession. Pharmacy assistants were sampled from the administrative database of the Dutch pension fund for pharmacy workers (PMA), where all pharmacy assistants are required to register. The participants were invited by means of an e-mail, which contained a link to the online version of the questionnaire. A total of 2,156 pharmacy assistants in total were contacted this way. Because their e-mail address was unknown a further 3,844 pharmacy assistants were invited by regular mail which contained a printed version of the questionnaire and a link to the online version.

Pharmacy assistants in our study go through a yearly evaluation cycle, consisting of a development interview, an in-between interview and a performance appraisal interview. In these interviews the employee discusses the PDP with his/her supervisor. Together, they discuss strengths and weaknesses, which competencies need further development and how to work on those. Moreover, it is decided which learning activities to undertake in order to bridge the gap between the pharmacy assistant's competencies and the acquired competencies. In The

Netherlands the same format is used in every pharmacy.

A total of 2,271 females answered the full questionnaire (response rate 38 percent)[1]. The sample is representative for all pharmacy assistants in the branch with respect to their background characteristics. They are, however, on average somewhat older and the data is weighted accordingly. Of the 2,247 pharmacy assistants who provided us with their highest level of education, the largest group, 2,025 had a degree from secondary vocational education, 141 had a degree from higher vocational education or higher, and 81 had another certificate. The average age of the pharmacy assistants was 39.54 years (SD=10.17). The average number of years of working experience was 19.35 years (SD=8.80). On average an employee had been working as a pharmacy assistant for 16.70 years (SD=9.26), worked or had been working part-time for 11.61 years (SD=8.62) and works 25.27 hours per week (SD=7.62); 1,335 had children who are still living at home.

2.2 Measures

This study focuses on the effects of using a PDP on three dependent variables: having undertaken learning activities in the past, planning further training, and perceived job competencies. In addition, the analyses control for a number of the assistants' background characteristics: age, total working experience, working experience as a pharmacy assistant, children living at home, number of working hours/week, number of years working part-time.

PDP use. Pharmacy assistants were asked if they make use of a PDP or not (dummy variable). The question "Do you have a PDP?" could be answered by yes (1) or no (0) and consequently indicated two groups, the users and the non-users.

Learning activities. We measured the undertaking of learning activities in the past and in the future. The undertaking of learning activities in the past was measured with a yes/no-question: "Did you undertake one or more learning activities in the past year?" (dummy). Next, a list was given of 19 competencies relevant for pharmacy assistants and defined as key competences by the sector. The list included general competencies (e.g. communication skills, problem solving, leadership...) as well as occupation-specific skills (e.g. preparation of medicines, knowledge of regulations...). The assistants were asked to indicate the competencies that they are planning to work on by undertaking training courses in the future. A sum score was calculated by counting the number of competencies the pharmacy assistants indicated she wanted to train.

Job competencies. To measure job competencies, a list was given of 19 relevant competencies for pharmacy assistants as defined by the business. They included general competencies (e.g. communication skills, problem solving, leadership...) as well as occupation-specific skills (e.g. preparation of medicines, knowledge of regulations...). The participants had to score themselves on each competency on a scale from 1 to 10. A single measure was calculated, based on the average of the respondents' answers.

2.3 Data analysis

First, descriptive statistics (means and standard deviations) are compared for users and non-users of a PDP. Second, ANOVAs were performed in order to detect significant differences between the two distinct groups concerning the undertaking of learning activities (past and future) and the scoring of their job competencies. Finally, logistic (undertaking learning activities in the past) and hierarchical regression analyses were performed, controlling for the background variables under research.

Preliminary analyses of the data involved inspection of normality and homogeneity of variance assumptions. Normal plots, box-plots and the calculation of skewness and kurtosis were used to check the normality of distribution. In order to test the equality of group variances the Levene's statistics were calculated. To distinguish between "practically" significant results and results being "statistically" significant, the effect sizes are reported and the results of the statistical analyses were named significant by a p value of <0.05 .

3. Results

Table I [Figure omitted. See Article Image.] illustrates the descriptives (means and standard deviations) and analysis of variance (ANOVA) for the three outcome variables involved in this study. The results indicate

significant differences between the two conditions (PDP use; no PDP use) concerning the undertaking of learning activities in the past ($F(1, 2258)=68.07, p < 0.001$) and the future ($F(1, 2269)=8.67, p < 0.01$). In particular, we find that the mean for the undertaking of learning activities in the past is higher for employees who use a PDP. In other words, employees who use a PDP undertook significantly more learning activities in the past. This is in line with $H1$. In contrast, the mean for the undertaking of learning activities in the future is significantly higher for non-users. It seems that PDP users are planning to undertake significantly less learning activities in the future than non-PDP users; therefore, we reject $H2$.

Next, we find that the mean score for the outcome variable job competencies is slightly higher for pharmacy assistants who use a PDP than for employees who do not. The difference between the mean scores of the two groups of employees is not significant ($F(1, 2269)=3.20, ns$), however. This means that $H3$ has to be rejected. Follow-up regression analyses with PDP use as independent variables and both significant outcome variables as dependent variables, controlling for background variables, resulted in the same findings. Although the Nagelkerke R^2 was low, but significant ($R^2 = 0.02$), the results indicate that PDP users report having undertaken more learning activities in the past (Table II [Figure omitted. See Article Image.]), however, they seem to plan less learning activities in the future (Table III [Figure omitted. See Article Image.]). Furthermore, a significant relation was found between number of working hours per week and the undertaking of learning activities in the past. The more hours a pharmacy assistant works per week, the bigger the chance she undertook learning activities in the past ($\beta = 0.02, p < 0.05$). Next, a significant relation was found between working experience as pharmacy assistant and planning future learning activities. The more experience a pharmacy assistant has, the fewer future trainings are planned ($\beta = -0.15, p < 0.001$).

4. Discussion

As in most other service sectors, PDPs have become increasingly common in the Dutch pharmacy sector as a means to support employees' development. This study analyzed whether Dutch pharmacy assistants' use of PDPs influences the undertaking of learning activities and their job competencies.

The Dutch pharmacy sector is a highly interesting sector for studying the relation between PDP use and the undertaking of learning activities and the development of job competencies, because HRD practices are central to the human resource practices in this sector ([12] De Grip and Sieben, 2009). Moreover, the sector expects increasing shortages of pharmacy assistants within the next few years. This is why the sector needs to invest in the learning and development of the senior pharmacy assistants, to keep them up-to-date. It is of great interest to investigate whether using employee development tools such as personal development plans enhances employees' learning and job competencies.

On the basis of the literature on PDP assessment in organizations we predicted that users of a PDP would generally have undertaken more learning activities in the past as well as undertake more in the future. Our results confirm that users of a PDP undertook more learning activities in the past than non-users. In contrast to our expectations, however, pharmacy assistants who use a PDP do not plan more learning activities in the future, which is to say they do not plan to undertake further training more often than non-PDP users. This finding could indicate that PDPs are especially used as feedback tools rather than feed forward tools. In other words, we expect that the tools were often used to discuss learning activities that have already been undertaken, but do not serve as a tool to support employees in the planning of future learning activities. This is in line with the perspective of the activity-theoretical studies ([5] Beguin and Rapardel, 2000; [40] Toivainen *et al.*, 2009), which states that tools are defined by their use and have a history of usage that can dominate the current use. Furthermore, we found that non-users generally plan to undertake significantly more learning activities than PDP-users, which does not support our hypothesis.

With respect to the extent to which pharmacy assistants are competent in their jobs, we have found no significant differences between users and non-users of a PDP. This lack of differences might be explained by the fact that by using a PDP, the pharmacy assistants are more aware of the competencies that are needed to

fulfil their jobs because the PDP stimulates them to think about them. They are stimulated to think about the job competencies they already possess and the competencies they still need to develop. This is the core goal of using a PDP: stimulating the employee to think about her/his job profile and the competencies which are needed to fulfil the job and compare them with the competencies he/she already possesses in order to single out those that the employee still needs to develop ([41] Topping, 1998). This reflection process is a crucial element of the learning and development process of the employee, but might also lead to a more negative evaluation by PDP users (compared to non-users) on the extent to which they possess the necessary job competencies. This might explain the lack of differences in reported job competencies between both groups. A second explanation is the influence of the lack of reflection skills. Previous research evidenced that reflection is still a skill that PDP users are unfamiliar with ([35] Smith and Tillema, 1998); therefore, it is possible that PDP users did not show a significant improvement in job competencies because some of them had difficulties reflecting and further connecting self-reflection and practice improvement ([2] Austin *et al.*, 2005; [29] Orland-Barak, 2005). Not only the reflection plays a central role when using a PDP, also the presence of a supervisor who gives feedback and instructions and motivates the employee to work and reflect on his/her PDP is crucial to the PDP practice. The lack of a supervisor who fulfils this supporting role may also explain not finding the positive effects as hypothesized ([24] London, 1997; [39] Stanton, 2000).

Third, it might be questioned to what extent the lack of effects of PDP use on learning and job competencies is context-specific. Results differ according to the organizational learning culture ([27] Marsick and Watkins, 2003), sectors or disciplines (e.g. [11] Datta *et al.*, 2005), type of organizations (market-oriented or not; [3] Baker and Sinkula, 1999), type of employees (e.g. experienced versus non-experienced) and organization sizes (small versus large-scale; [32] Saru, 2007). Often larger organizations show a more sophisticated human resource management ([16] Guthrie, 2001).

4.1 Implications for future research

This quantitative research has some limitations that need to be taken into account. Based on these limitations, we will now make some suggestions for future research.

First, industry-specific studies such as ours have a great advantage, in that they can focus on a rather homogeneous workforce. However, for cross-validation purposes our results need to be reproduced in other industries. Future research should investigate the effectiveness of PDPs for the undertaking of learning activities and job competencies in a broader sample which covers professions that differ in labor market perspective (e.g. in terms of current and future shortage of labor force) or in terms of job demand and job control. Moreover, since our data set consisted of female workers only, it would be interesting to reproduce our analysis in industry sectors with a mixed gender population.

Second, this study was a cross-sectional research. However, it has been demonstrated that high quality of a PDP can only be expected after a longer period of time ([39] Stanton, 2000; [35] Smith and Tillema, 1998). Thus, a similar study within a longitudinal design could more accurately measure the effectiveness of PDP in the workplace.

Third, future research should explore opportunities that not only use self-report measures, but involve multiple raters as well. This is especially true when measuring effects of an intervention such as a PDP on employees' behavior in terms of undertaking learning activities and improving job competencies. Using self-report measures, however, remains a powerful method for the measurement of the influence of supporting conditions.

Fourth, the predictive value (R^2) is significant, however, rather low. For future research we suggest to focus more closely on one essential feature of the PDP practice: the feedback given by a supervisor and/or colleague or coach when discussing the PDP. The quality of that feedback might influence the use of a PDP to a large extent. The feedback, for example, often focuses on the individual's job performance in terms of how he/she performed the daily tasks and is not explicitly related to the employee's competencies ([19] Hattie and Timperley, 2007; [36] Smith and Tillema, 2001). This might explain why in our study there is no measurable

effect of the use of a PDP on job competencies. Furthermore, feedback often tends to be retrospective and does not include a prospective aspect (feed forward), discussing the question "which steps need to be taken next?". Future research could verify the effect of this "feed forward" on the undertaking of learning activities and on job performance.

Fifth, it is possible that comparing users and non-users resulted in biased findings. For example, it could be that a PDP is used by employees who are very interested in developing and really motivated to learn. Research using randomized samples might solve this problem.

Sixth, the results indicate a very small amount of variance that is accounted for by the variables studied. Future research should also examine other dependent variables, and consequently might shed a light on the practical significance of the research findings.

4.2 Implications for practice

This research yields some implications for human resource management in organizations and the supervisors who support employees in using a PDP. The results stress the value of a PDP as a feedback tool. The tool could add significant value to the learning and development process of the pharmacy assistant, however, if it would be used as a feed-forward instrument as well. In other words, the tool should more often be used to get an overview of desired future plans, plan future careers, and the undertaking of learning activities in order to reach these future goals. In line with the adult learning theories ([33] Schön, 1987; [20] Kolb, 1984; [6] Boud *et al.*, 1985) it can be stated that only when supervisors stimulate their employees to use the PDP as a tool to look forward, reflection upon action as well as acting upon their reflection is stimulated and it may be expected that employees' job performance quality will improve.

Based on the results of this study, we suggest setting up programs to introduce supervisors in the use of PDPs. It is only when the supervisors are giving feedback (looking back) as well as feedforward (looking forward) and thereby support their employees with planning learning activities in the future, we expect the PDP practice to really encourage employees' competence development.

Footnote

1. Only a few pharmacy assistants are male

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Appendix

About the authors

Simon Beausaert is Assistant Professor at Maastricht University, The Netherlands. His research focuses on the use of personal development plans, social innovation and aging. Simon Beausaert is the corresponding author and can be contacted at: s.beausaert@maastrichtuniversity.nl

Mien 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.

Didier Fouarge is Researcher at the Research Center for Education and the Labour Market (ROA), Maastricht University. His main research interests lie in scientific and applied research on labour market and income dynamics, working time, retirement, income distribution and poverty, and the welfare state.

Wim Gijselaers is Full Professor of Education at Maastricht University, The Netherlands. His current research focuses on expertise development in business, and sharing expertise.

Author Affiliation

Simon Beausaert, Department of Educational Research and Development, School of Business and Economics, Maastricht, The Netherlands

Mien Segers, Department of Educational Research and Development, School of Business and Economics, Maastricht, The Netherlands

Didier Fouarge, Research Centre for Education and the Labour Market (ROA), School of Business and Economics, Maastricht, The Netherlands

Wim Gijselaers, Department of Educational Research and Development, School of Business and Economics,

Maastricht, The Netherlands

Illustration

Table I: Descriptive statistics and ANOVAs for users and non-users of a PDP

Table II: Summary of logistic regression analysis for PDP use

Table III: Summary of hierarchical regression analysis for PDP use

Subject: Studies; Human resource management; Health services; Pharmacy; Employees; Drug stores; Labor contracts; Feedback; Supervisors; Personal development;

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