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Informal workplace learning among nurses

Organisational learning conditions and personal characteristics that predict learning outcomes

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Abstract

Purpose – This paper aims to examine which organisational learning conditions and individual characteristics predict the learning outcomes nurses achieve through informal learning activities. There is specific relevance for the nursing profession because of the rapidly changing healthcare systems.

Design/methodology/approach – In total, 203 nurses completed a survey assessing their perception of the available learning conditions, the learning outcomes they acquired by executing their job and their self-efficacy, proactive personality and learning motivation. After checking the structure and reliability of the instruments by means of confirmatory factor analysis and the calculation of the internal consistency of the scales, a multivariate multiple regression analyses was performed because the different learning outcomes (dependent variables) were correlated with each other.

Findings – Results show that learning outcomes as a whole are significantly predicted by opportunities for cooperation and feedback. Regarding generic and job-specific learning outcomes, analyses showed the same predictors for both levels of learning outcomes: opportunities for feedback and self-efficacy. Higher proactivity and opportunities for cooperation are related to higher organisational level learning outcomes.

Research limitations/implications – The main limitation of this study is that its findings rely on cross-sectional survey data; hence, further research is needed to confirm these initial exploratory results.

Originality/value – The current study is one of the few studies that empirically relates organisational learning conditions to learning outcomes acquired by employees while considering the personal characteristics of the employee. It offers insight into which learning conditions are able to foster the acquirement of different learning outcomes.

Keywords Employee involvement, Continuing professional development, Workplace learning, Working conditions

Paper type Research paper

Introduction

Nowadays, because of changing environments, innovation and competitive advantage, learning in organisations is considered to be very important (Crouse *et al.*, 2011). Employees have to develop continuously to be able to adapt to the rapidly changing circumstances (Ellström, 2001). There is specific relevance for the nursing profession because of the rapidly changing healthcare systems (Atack and Rankin, 2002) including new technologies, new treatment methods, changing disease patterns and changing task divisions (Sambrook and Stewart, 2007). The nursing sector is an excellent example

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of a changing work environment making it an interesting profession for studying professional learning.

While prior research on professional learning has foremost focused on formal learning including specifically developed trainings, attention for learning in the workplace has grown consistently since the 1990s (Kyndt and Baert, 2013). Workplace learning refers to the development of knowledge, skills and attitudes necessary for improving the quality and progress of work in situations at or near the workplace (Baert *et al.*, 2008). Depending on how explicit the learning process is for the learner, the development of competencies can be more or less intentional and profound (Baert *et al.*, 2008). Even though informal workplace learning in organisations is not intentionally organised, it is possible for organisations to stimulate this by fostering specific learning conditions; however, empirical research demonstrating the relationship with learning outcomes is lacking (Kyndt and Baert, 2013). Moreover, insight into which learning conditions are most suited for which learning outcomes is missing. The current study aims to contribute to the literature by exploring empirically if different organisational learning conditions are associated with different learning outcomes. However, even when there is an optimal learning environment, the individual decides whether to use the offered opportunities (Tynjälä, 2008). Hence, it is important to consider the individual when examining the role learning conditions play in establishing learning outcomes. According to Maurer and Tarulli (1994), personal characteristics may even be the most important predictors of engagement in developmental activities. Before presenting the empirical study and its results, we will introduce the concept of (informal) workplace learning and discuss the different relevant learning conditions, learning outcomes and personal characteristics. Finally, the main (non-)findings of the study will be discussed and practical implications will be proposed.

Theoretical background

Defining informal workplace learning

As research on workplace learning is steadily growing, so are the number of definitions and conceptualisations. Typically, two broad forms of workplace learning are put forward: formal and informal learning (Kyndt and Baert, 2013).

Formal learning is a structured form of learning, mostly organised in classroom environments with a designated teacher or trainer (Enos *et al.*, 2003; Eraut, 2000; Hicks *et al.*, 2007). It is planned within a prescribed learning framework, institutionally based with predetermined goals, and usually leads to recognised qualifications (Eraut, 2000; Kyndt *et al.*, 2009; Marsick and Watkins, 2001). The learning outcomes and learning period are predetermined through the establishment of the objectives, time and allocated resources before the learning activity takes place (Kyndt *et al.*, 2009).

Informal learning is a naturally occurring form of learning grounded in everyday experiences (Cofer, 2000). It is an unplanned, spontaneous, flexible, not sponsored form of learning, which is not directed by an organisation (Boekaerts and Minnaert, 1999). Informal learning is unique and depends mostly on the learner (Boekaerts and Minnaert, 1999). The employee is responsible for acquiring knowledge and skills because it is no longer provided by the employer or external party (Noe *et al.*, 2013). Informal learning happens in a social context, in which peers often share the same values, attitudes,

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interests and beliefs (Boekaerts and Minnaert, 1999) without fixed objectives in terms of learning outcomes (Kyndt *et al.*, 2009; Misko, 2008).

Formal and informal learning cannot be considered as a dichotomy but are considered to be two extremes of a continuum, going from highly informal to highly formal (Baert *et al.*, 2008; Boekaerts and Minnaert, 1999). Too often, school contexts are equated to formal learning and out-of-school contexts to informal learning; however, there is no such strict separation (Resnick, 1987). All learning situations contain a degree of formality or informality, which interrelates in different ways in different environments and influences the effectiveness of learning (Hodkinson *et al.*, 2003). Even though informal learning is not a replacement for formal learning, prior research showed that most knowledge people acquired about their jobs originates from informal learning (Cofer, 2000).

Organisational learning conditions

According to Baert *et al.* (2008), learning conditions are situations created in the work, social, informational or material environment by the employees themselves, key figures or agents of the organisation, so that the employees are able to learn. While selecting conditions to include in this study, the importance of the learning conditions based on prior research and the applicability of the conditions in the healthcare sector were taken into account. The learning conditions investigated in the current study are presented below.

Opportunities for cooperation. Two major factors in a learning context are interaction and cooperation. While interaction patterns between learners influence how effective people learn, cooperation is important in achieving results and in developing better interaction skills (Johnson and Johnson, 1988). By asking advice, listening, observing and discussing issues, people can learn from experiences of others (Baert *et al.*, 2008; Collin, 2002).

Opportunities for evaluation. Opportunities for evaluation of work tasks are crucial elements for informal workplace learning (Ellström, 2001). Through explicitly evaluating previous experiences and outcomes, employees learn to handle similar situations (Collin, 2002). Furthermore, people also learn when confronted with problems that occur on a regular basis. Due to repeated problem solving actions, the competencies needed to deal with these problems are developed (Collin, 2002). More specifically, this learning condition entails the occurrence of evaluation conversations focusing on both work tasks as well as employees' careers.

Opportunities for feedback. Feedback concerns information about actions and results and is as such broader than the specific evaluation conversation mentioned above (Ashton, 2004; Bennink and Fransen, 2007; Eraut, 2007; Frese and Altmann, 1989; Onstenk, 1997). According to Ellström (2001), feedback has two different functions. First, feedback has a cognitive function when it gives information about the adequacy of someone's knowledge. Second, feedback also has a motivational function (Ellström, 2001) because people get the opportunity to meet the expectations (Eraut, 2007). Supervisors can provide opportunities for feedback by stimulating the exchange of feedback, where people can learn about their own functioning, their strengths and weaknesses from colleagues and supervisors (Baert *et al.*, 2008; Kyndt *et al.*, 2009).

Opportunities for reflection. Reflection is a conscious, emotional and cognitive process where attention is given to experiences to make them meaningful (Ellström in

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Boud *et al.*, 2006; Eraut, 2004). It is an active process of discovery and exploration to make an interpretation of experiences and often leads to unexpected outcomes, and hence it is crucial for learning (Bennink and Fransen, 2007; Boud *et al.*, 1985). The workplace can offer opportunities for reflection in the form of appraisals or by allowing time for reflection and reminding employees about the importance of reflecting on one's actions.

Opportunities for knowledge acquisition and access to information. According to Kyndt *et al.* (2009), it is important to give employees the possibility to acquire knowledge and information, for example about important decisions in the organisation, results of the team or new work situations and developments. Ashton (2004) claims that learning motivation depends on the extent to which organisations share information and knowledge. This sharing of information can occur through various sources of information such as books, journals, information folders, etc. (Baert *et al.*, 2008). A lack of access to knowledge or information places restrictions on the learning process (Ashton, 2004).

Coaching. Coaching has gained considerable popularity over the past few years and became an important technique for staff development on every level of the organisation (Kearns, 2006). Coaching is a type of professional supervising where people are guided and facilitated to improve their performance and expand their capabilities (Ellinger *et al.*, 1999). Research showed a strong association between coaching and learning and line managers define coaching as a key activity to shift from formal training to learning in workplaces (Ellinger *et al.*, 2011). In contrast to the other conditions that concern opportunities which need to be taken up by the employee, coaching is more directional in nature, in contrast to cooperation for work tasks, the coach actively guides the – often new – employee starting from his or her own experience.

Individual: personal characteristics

The systematic literature study of Kyndt and Baert (2013) revealed that generalised self-efficacy (Noe *et al.*, 2013; Porter, 2005), proactivity (Antonacopoulou, 2000; Bateman and Crant, 1993; Crant, 2000) and learning motivation (Corno, 1993) are among the most consistent predictors of employee learning.

Self-efficacy. According to Bandura (1986), self-efficacy concerns the beliefs individuals have about their capabilities to perform a task and achieve goals. For example, a person's belief about being able to master the content being taught (Porter, 2005). High self-efficacy can lead to higher motivation and more involvement in the learning process (Noe *et al.*, 2013). It is confirmed that general self-efficacy is able to moderate the impact of external influences (Chen *et al.*, 2001). Several work-related outcomes have been predicted by general self-efficacy including training proficiency and learning intention (Kyndt *et al.*, 2011; Martocchio and Judge, 1997).

Proactivity. Proactivity predicts motivation to learn which in turn positively relates to participation in development activities (Major *et al.*, 2006). People with a proactive personality show the willingness to participate in a course of action, set high standards, see opportunities and show initiative, anticipate on these opportunities and take action to achieve a meaningful environmental change. They are not forced by the situation and use all resources they have to achieve their high standards (Antonacopoulou, 2000; Bateman and Crant, 1993; Crant, 2000). Prior research has shown that a proactive

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personality is a stronger predictor of motivation in learning situations than the Big Five factors (Major *et al.*, 2006).

Learning motivation. The occurrence of learning within organisations depends, among other things, on the willingness of employees to learn (Onstenk, 1997). Motivation to learn concerns the willingness and the desire to participate in training and development and to take on experiences to learn (Major *et al.*, 2006). According to Corno (1993), employees who have the motivation to regulate their own participation in learning are more successful in their jobs.

Informal workplace learning outcomes

Learning outcomes concern *sustainable changes* in knowledge, skills or attitudes that result from engagement in learning processes and that affect individuals' present and future professional achievement (Kyndt *et al.*, 2014). According to Kyndt *et al.* (2014) and Van Beirendonck (2004), three categories of learning outcomes can be discerned: generic learning outcomes, organisational level learning outcomes and job-specific learning outcomes. This classification of learning outcomes can be compared to the earlier identified categories of Kluytmans and van der Sluijs (1995). They made a distinction between strategic, organisational-bound and job-specific learning outcomes. Generic learning outcomes are outcomes that are relevant for employees across different organisations and functions. Organisational level outcomes pertain to competences that enable employees to take on organisational and social responsibility in accordance with the organisational policies. Job-specific learning outcomes are important for particular jobs/functions. Job-specific learning outcomes for nurses are for example following hygiene procedures, knowledge of routine tests and diagnostic results, etc. (KHLeuven, 2008; Sint-Jozef, n.d.).

However, measuring informal workplace learning outcomes is a complex issue. Informal workplace learning is often not reported because people do not always realise that they have learned something (Eraut, 2004). This may lead to a distorted or underestimated view on the total amount of informal workplace learning (Livingstone, 1999). This problem can be attributed to inadequacies in theories of informal workplace learning, where no clear translation is found into indicators for measuring the quality of informal workplace learning in organisations (Skule, 2004) in contrast to formal learning where for example training hours are used as an indicator. However, despite its tacit character, it remains important to try to make the learning outcomes explicit (Watkins and Marsick, 1992).

Present study

Learning in organisations occurs in the interaction between the organisational context and the individual (Tynjälä, 2008). Hence, both organisational learning conditions as well as personal characteristics are taken into account. The specific factors this study investigates were selected because of their importance for learning as well as relevance for the healthcare sector. Control variables that were taken into account are gender, educational level and age of the employee. The research question of this study is:

RQ1. "What self-reported learning conditions and personal characteristics predict nurses" informal workplace learning outcomes?

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Given the lack of prior research investigating whether different learning conditions predict different learning outcomes, specific hypotheses were not formulated. In general, it is expected that the selected learning conditions and personal characteristics predict learning outcomes positively.

Method

Instruments

Data for this study were collected using a questionnaire composed of existing validated and reliable instruments. The questionnaire used in this study consisted of four parts, respectively, focusing on learning outcomes, learning conditions in the workplace, individual characteristics and demographic information. The first part (32 items) was derived from the questionnaire of Kyndt *et al.* (2014) investigating the attained informal workplace learning outcomes. Questions in this part consider what is learned in everyday work in terms of job-specific, organisational level or generic learning outcomes. The last two scales were transferred (without changes) to the present study because of their relevance for a wide range of professional groups (Kyndt *et al.*, 2014) and thus also for nurses. In line with the guidelines of Kyndt *et al.* (2014), job-specific learning conditions were formulated based on Flemish competence profiles for nurses, integrated from competence profiles from different healthcare institutions. Examples of questions for respectively generic, organisational level and job-specific learning outcomes were "In my daily work I learned to reflect autonomously, critically and constructively on my professional activity" (*generic*), "In my daily work I learned to participate in policy development and policy implementation" (*organisational level*) and "In my daily work I learned to build up and to maintain a counselling relation with the patient in order to offer the requested assistance and services" (*job-specific*). All items were scored on a five-point scale: (1) no, (2) to a small degree, (3) satisfactory, (4) to a great degree and (5) to a very great degree.

The second part (24 items) focused on the learning conditions in the workplace and was based on a questionnaire developed by Kyndt *et al.* (2009). The different scales refer to cooperation, opportunities for evaluation, opportunities for feedback, opportunities for reflection, knowledge acquisition and access to information and coaching. Example items were: "I have the opportunity to participate in moments of intervision" (*cooperation*), "Conversations are organized in which the activities, strengths and weaknesses of an employee are discussed" (*evaluation*), "I receive feedback from my colleagues which encourages me to reflect about it" (*feedback*), "I have the opportunity to discuss the results of satisfaction or quality audits with my colleagues" (*reflection*), "I have the opportunity to use the internet for basic information about my work domain" (*knowledge acquisition*) and "I have the opportunity to seek advice from a contact" (*coaching*). These items were scored on the following five-point scale: (1) totally disagree, (2) disagree, (3) neither agree nor disagree, (4) agree and (5) totally agree.

The third part (23 items) concentrated on specific personal characteristics that were related to the probability of informal workplace learning occurring discussed in the theoretical background. Proactivity was investigated using the shortened Proactive Personality Scale of Bateman and Crant (1993). The items measuring self-efficacy were based on a validated questionnaire investigating general self-efficacy (Chen *et al.*, 2001). Questions about learning motivation were derived from Elliot and McGregor (2001). Sample items were "If I believe in an idea, no

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obstacle will prevent me from making it happen" (*proactivity*), "I believe I can succeed in just about any challenge which I formulate for myself" (*Self-efficacy*), "Sometimes I'm afraid that I may not understand the content of an activity as thoroughly as I'd like" (*learning motivation*). Items regarding these personal characteristics were scored on a five-point scale: (1) totally disagree, (2) disagree, (3) neither agree nor disagree (4) agree and (5) totally agree.

Finally, in the fourth part of the questionnaire, demographic information was queried.

Participants

Participants were recruited via their healthcare institution or via social network sites such as LinkedIn and twitter (due to a low response from the healthcare institutions). The final sample consists of 203 participants coming from more than 20 specialties (e.g. oncology, cardiology, radiology, etc). from more than 50 different institutes (hospitals, care centres, etc.). In total, 91 per cent of the participants filled in the questionnaire online, whereas 9 per cent completed a paper version. Of the 203 participants, 80.79 per cent were women. Most of them were nurses, while 19.5 per cent were head nurses. On average, the respondents had 16.47 years of experience as a nurse ($SD = 11.62$), and they were aged between 21 and 62 years ($M = 40.64$; $SD = 12.02$). With respect to their level of education, 3 per cent obtained a lower secondary degree, 5.5 per cent obtained a higher secondary degree, 19.9 per cent obtained a secondary after secondary degree (one additional grade following grade 12), 64.2 per cent obtained a bachelor's degree and 7.5 per cent obtained a master's degree. All respondents participated voluntarily, no compensation was offered.

Analyses

Because the questionnaire used in the present study was an integration of different instruments and was adapted to the healthcare sector, confirmatory factor analyses (CFA) were conducted to check the structure of the data. Cronbach's alphas were calculated to assess the internal consistency of the scales. Three CFAs were conducted with the lavaan package (Rosseel, 2012) using the R software for statistical computing (R Development Core Team, 2012): one CFA for the informal workplace learning outcomes scales, one for the learning conditions scales and one for the personal characteristics. Following, descriptive statistics, correlations and multivariate multiple regression analysis were calculated using SPSS 22.

Results

Structure and reliability of the instrument

Learning conditions. The results of the initial CFA were not satisfactory ($CFI = 0.863$, $RMSEA = 0.080$, CI 90 per cent [0.063; 0.083], $SRMR = 0.070$). To increase the model fit, items with factor loadings below 0.50 were considered too low and thus removed (Maruyama, 1998). In addition, modification indices showed a high covariance between two items. Therefore, one of these items was also removed to achieve a satisfactory fit of the measurement model ($\chi^2/df = 2.07$, $CFI = 0.898$, $RMSEA = 0.073$, CI 90 per cent [0.063; 0.083], $SRMR = 0.062$).

Personal characteristics. The results of the initial CFA did not show a good fit ($CFI = 0.850$, $RMSEA = 0.075$, CI 90 per cent [0.057; 0.078], $SRMR = 0.077$). After removing two

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items with low factor loadings (< 0.50), results were satisfactory ($\chi^2/df = 1.93$, $CFI = 0.895$, $RMSEA = 0.068$, CI 90 per cent [0.057; 0.078], $SRMR = 0.064$).

Learning outcomes. For learning outcomes, the initial CFA was also not satisfactory ($CFI = 0.637$, $RMSEA = 0.115$, CI 90 per cent [0.110; 0.121], $SRMR = 0.099$). Modification indices showed high covariances between items. Therefore, 13 items (12 from the newly formulated job-specific learning outcomes scale) were removed to obtain a satisfactory fit of the measurement model ($\chi^2/df = 1.88$, $CFI = 0.907$, $RMSEA = 0.066$, CI 90 per cent [0.054; 0.078], $SRMR = 0.053$).

The internal consistency of all scales in this study was satisfactory (Table I).

Predicting learning outcomes

Correlations were calculated (Table II), and multivariate multiple regression analysis was conducted because the correlations indicated that the dependent variables were significantly correlated with each other. A regression analysis between learning conditions and personal characteristics as antecedents and learning outcomes as dependent was carried out. Table III shows the results of the multivariate multiple regression analysis.

To verify whether the learning conditions and personal characteristics predict learning outcomes as a whole in a significant way, a multivariate model was estimated to predict the three learning outcomes simultaneously. To test this model, a Pillai trace test was conducted. Results showed that opportunities for cooperation ($\lambda_{pillai} = 0.10$, *Approx.* $F(3, 159) = 6.19$, $p < 0.001$), opportunities for feedback ($\lambda_{pillai} = 0.08$, *Approx.* $F(3, 159) = 4.53$, $p < 0.01$) and self-efficacy ($\lambda_{pillai} = 0.10$, *Approx.* $F(3, 159) = 5.54$, $p < 0.001$) were significant predictors for learning outcomes. As a control variable, gender was a significant predictor for learning outcomes ($\lambda_{pillai} = 0.06$, *Approx.* $F(3, 159) = 3.54$, $p < 0.05$). More specifically, men scored higher on learning outcomes than women. In what follows, results are reported for each of the learning outcomes separately.

Regarding *job-specific learning outcomes*, only one learning condition and one personal characteristic were significant predictors of job-specific learning outcomes: opportunities for feedback and self-efficacy. The model explained 29.6 per cent of variance in job-specific learning outcomes. When looking at *organisational level learning outcomes*, cooperation was the only significant learning condition that predicts

Table I.
Descriptive statistics scales and internal consistency

Scale	*N*	*M*	*SD*	Cronbach's α
Cooperation	203	3.65	0.81	0.87
Information	203	3.76	0.70	0.66
Feedback	203	3.98	0.65	0.76
Coaching	203	3.45	0.79	0.78
Evaluation	203	3.43	0.94	0.67
Reflection	203	3.18	0.90	0.83
Proactivity	203	3.61	0.52	0.86
Self-efficacy	203	3.88	0.46	0.85
Learning motivation	203	4.00	0.56	0.65
Generic learning outcomes	203	3.79	0.55	0.87
Organisational level learning outcomes	203	3.34	0.71	0.70
Job-specific learning outcomes	203	3.79	0.56	0.73

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Scale	1	2	3	4	5	6	7	8	9	10	11	12
1. Cooperation	1											
2. Information	0.636**	1										
3. Opportunities for feedback	0.457**	0.431**	1									
4. Coaching	0.430**	0.333**	0.499**	1								
5. Opportunities for evaluation	0.375**	0.313**	0.536**	0.538**	1							
6. Opportunities for reflection	0.554**	0.423**	0.540**	0.657**	0.659**	1						
7. Proactivity	0.204**	0.123	0.150*	0.273**	0.156*	0.219**	1					
8. Self-efficacy	0.189**	0.113	0.118	0.186**	0.149*	0.223**	0.695**	1				
9. Learning motivation	0.157*	0.132	0.205**	0.246**	0.256*	0.288**	0.613**	0.494**	1			
10. Generic learning outcomes	0.393**	0.371**	0.444**	0.298**	0.224**	0.255**	0.331**	0.371**	0.275**	1		
11. Organisational level learning outcomes	0.342**	0.297**	0.356**	0.285**	0.230**	0.245**	0.324**	0.393**	0.261**	0.769**	1	
12. Job-specific learning outcomes	0.539**	0.402**	0.331**	0.258**	0.185**	0.350**	0.327**	0.288**	0.188**	0.677**	0.619**	1

Notes: $*p < 0.05$; $**p < 0.01$

Table II.
Correlations

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Table III.
Summary of multivariate regression between learning conditions and learning outcomes

	JSLO			OLLO			GLO		
	B	*Se*	*t*	*B*	*Se*	*t*	*B*	*Se*	*t*
Intercept	1.11	0.45	2.46*	0.46	0.55	0.84	0.71	0.43	1.63
Cooperation	0.07	0.07	1.05	0.34	0.08	4.05***	0.08	0.07	1.25
Information	0.12	0.07	1.62	0.06	0.09	4.05	0.13	0.07	1.94
Feedback	0.18	0.08	2.32*	0.13	0.09	1.43	0.26	0.07	3.61***
Coaching	0.05	0.07	0.69	0.03	0.09	0.29	0.07	0.07	1.05
Evaluation	−0.05	0.06	−0.80	−0.09	0.07	−1.20	−0.05	0.06	−0.83
Reflection	−0.01	0.08	−0.14	0.05	0.09	0.51	−0.10	0.07	−1.32
Proactivity	0.01	0.11	0.07	0.28	0.14	2.07*	0.04	0.11	0.40
Self-efficacy	0.43	0.12	3.66***	0.07	0.14	0.49	0.27	0.11	2.37*
Learning motivation	0.02	0.09	0.23	−0.04	0.11	−0.36	0.08	0.09	0.95
Gender	−0.11	0.10	−1.11	0.23	0.12	1.91	0.05	0.10	0.56
Education	−0.07	0.04	−1.66	−0.06	0.05	−1.09	−0.02	0.04	−0.42
Age	−0.00	0.00	−0.45	0.00	0.00	0.44	0.00	0.00	0.17

Notes: *$p < 0.05$; ***$p < 0.001$; JSLO = job-specific learning outcomes, OLLO = organisational level learning outcomes, GLO = generic learning outcomes

organisational level learning outcomes. Regarding the personal characteristics, only proactivity was a significant predictor for organisational level learning outcomes. The model explained 38.4 per cent of the variance. For *generic learning outcomes*, regression analysis showed that similar to job-specific learning outcomes, feedback and self-efficacy were significant predictors. The model explained 32.9 per cent of the variance in generic learning outcomes.

Discussion

The main aim of this study was to examine whether learning conditions and personal characteristics could predict informal workplace learning outcomes. Research studies – such as this one – focusing on informal workplace learning are confronted with the tension between investigating informal workplace learning as a general phenomenon occurring in a wide variety of organisations versus informal workplace learning as a process that is unique within every job or organisation. The current study hopes to contribute to the general theory development regarding informal workplace learning and therefore incorporates learning conditions and outcomes that can be identified within a variety of organisations. However, at the same time, this study acknowledges that outcomes of informal workplace learning also need to be relevant for the specific context at hand. Therefore, a framework was chosen in which both generalisable outcomes as well as job-specific outcomes were represented. In addition, the nursing profession was selected as a context for illustrating the relationship between specific learning conditions and informal workplace learning outcomes because it is an excellent example of a changing work context where a clear need for learning is experienced. In what follows, we will describe the main results and findings on a general level and propose that future research examines whether these relationships can also be identified within different sectors. Finally, several practical implications specifically for the nursing profession will be proposed.

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Main findings

The current study demonstrates that informal workplace learning is a complex process and that not every learning condition necessarily serves the same purpose. Despite the fact that only a few predictors were significant, the proportion of explained variance was relatively high for the different learning outcomes.

Regarding *generic and job-specific learning outcomes*, analyses identified the same predictors for both levels of learning outcomes, being opportunities for feedback and self-efficacy. More opportunities for feedback and higher self-efficacy are associated with more job-specific and generic learning outcomes. Prior research already showed that these factors are important for learning to occur (Ashton, 2004; Bennink and Fransen, 2007; Eraut, 2007; Noe *et al.*, 2013; Onstenk, 1997), the current study adds that these factors are also positively associated with the outcomes of these learning processes. More specifically, they are important for competences relevant for employees from a variety of organisations as well as job-specific competences. Concerning *organisational level learning outcomes*, positive relationships with cooperation and proactivity were identified. It is interesting to see that while generic and job-specific outcomes are related to the same factors (i.e. self-efficacy and feedback opportunities), organisational level learning outcomes are associated with different antecedents (i.e. proactivity and cooperation). Organisational level learning outcomes concern competences that enable individuals to take on organisational and social responsibility within their organisation. In other words, it concerns taking on leadership roles. It is thus possible that the differences in significant antecedents are related to the function or hierarchical position of employees as supervisors or managers are probably exposed to different opportunities than their followers. Future research is necessary to determine whether function and hierarchical position of employees is a relevant moderator.

Despite the general expectation that all learning conditions would be positively associated with learning outcomes, several non-significant relationships came to the fore. Although Onstenk (1997) claimed that employee learning in organisations depends on the willingness to learn, this study did not show a significant relationship between learning motivation and informal workplace learning outcomes. An explanation could be that nurses perceived a lack of possibilities for professional development (Sjogren *et al.*, 2005). Nurses could have been willing to learn and thus had a high learning motivation without this resulting in informal workplace learning outcomes. Also, contrary to prior research, no significant relationship was found between coaching and informal workplace learning outcomes. This was surprising because several researchers established the importance of coaching in expanding capabilities (Ellinger *et al.*, 1999). A possible explanation could be that no clear definition of coaching was given to the participants. Coaching can take on many forms ranging from very intensive to very superficial, and very formally to informally organised with more or less resources available, the interpretation of what constitutes coaching could have been very different among the participants. Finally, according to Ashton (2004), knowledge acquisition and access to information is important for the learning process. Sharing information gives employees the chance to learn (Baert *et al.*, 2008). In this study however, no significant relationship of knowledge acquisition and access to information with informal workplace learning outcomes was identified. This indicates that the fact

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that information was exchanged does not necessarily mean that learning occurred. It is possible that in the nursing sector, no significant relationship was found because it was not possible to evaluate the quality of the information that is shared. It is possible that a lot of information is shared, but when this information was not of good quality or not relevant, knowledge sharing might not have led to more learning outcomes.

Limitations and recommendations for future research

This current study has several limitations that need to be taken into account when generalising the results. As mentioned before, informal workplace learning is difficult to measure due to its tacit character (Watkins and Marsick, 1992). People often do not realise what they have learned. This may have led to an under- or overestimation of informal workplace learning in this study (Livingstone, 1999). Furthermore, this research used quantitative information collected by means of questionnaires, which raise concerns of self-reporting bias and validity threats. Another limitation concerns the results of the CFA for learning outcomes. Thirteen items needed to be removed; twelve of these were items of the adapted scale "job-specific learning outcomes". The two validated scales ("organisational level learning outcomes" and "generic learning outcomes") were confirmed. Six items of the scale "job-specific learning outcomes" remained, so the scale could still be taken into account in the analyses of this study.

With these limitations in mind, future research is desirable. In addition to collecting quantitative information, qualitative information should also be collected. A combination of these different forms of information can provide more insight into informal workplace learning (Raudenbush, 2005). By investigating this issue qualitatively, it is possible to explore potential causes of the findings of this quantitative study. Building on the findings of this study, future research could investigate how employees perceive these factors in their workplace and how employers could enhance their effect on actual informal workplace learning processes. As this study cannot establish causal relationships due to its cross-sectional nature, longitudinal research is needed to determine the impact of learning conditions and personal characteristics on learning outcomes. Finally, replications of this study not only among nurses but also among other occupational groups are needed to confirm and generalise the results.

Implications for practice

The current study shows that the everyday practice of nurses and how their work is organised offers several opportunities for learning. In hospitals, nurses usually work in teams and these opportunities for cooperation are beneficial for acquiring job-specific skills such as taking blood pressure, administering medication, etc. In general, it is assumed that job-specific skills are acquired by doing, but this study showed that cooperation with colleagues especially contributes to this learning process. In addition to these job-specific competences, also generic competences such as communication and problem solving are acquired through cooperation. Based on these results, we want to encourage organisations to continue providing nurses opportunities for cooperation rather than assigning each nurse separately to specific patients.

In addition, opportunities for feedback as a starting point for reflection and improvement of work processes was shown to be important, especially for organisational level learning outcomes such as taking up leadership roles and shaping organisational policy. These competences are not addressed in nurses' basic training

and after being promoted to head nurse, they need to acquire these skills in the workplace itself. As this study has shown that feedback can assist the development of these competences, our advice would be that head nurses actively seek feedback from their employees and fellow head nurses. This feedback can be an integral part of a development appraisal in which the supervisor and employee have an equal status and the focus lies on the future collaboration (Beausaert *et al.*, 2011). During a developmental appraisal, both supervisor and employee provide feedback to each other with the goal to optimise the collaboration and performance.

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