BUSINESS ADMINISTRATION – HRM
Master Thesis

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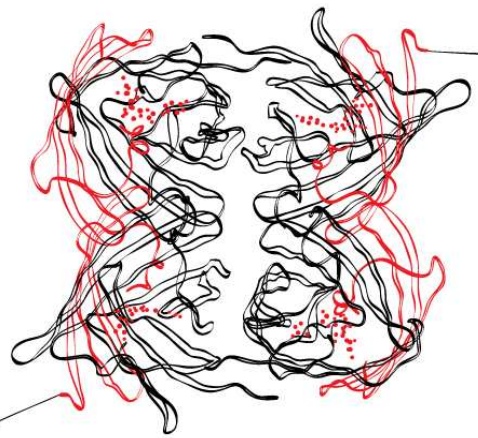

UNIVERSITY OF TWENTE.

The effect of a hospital's work environment on nurses' retirement age

A quantitative analysis on the effect of informal learning, influenced by the nurses' work environment and their motivation to learn, on the nurses' intention to actively stay until reaching the official retirement age.

1st mentor – Dr. Ida Wognum

2nd mentor – Dr. Tanya Bondarouk

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Be brave and embrace the world with an open heart.

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Abstract

The health sector recently has been confronted with two trends that lead to a considerable problem; an ageing society is in need of more healthcare while at the same time the average age of nursing staff is rising, as there are not enough young talents entering the workforce. These trends lead to a shortcoming of qualified nurses to provide the healthcare needed by the society. Therefore, this research investigates how health care institutions can treat nurses so that they stay actively in the workforce until reaching their retirement age. An opinion survey (46 respondents), spread in the author's personal network and a questionnaire (157 respondents), spread in two hospitals and one nurses network, have been used to identify whether the work environment can influence the nurses' informal learning activities via their intrinsic motivation to learn and if this consequently could increase their actual retirement age. The statistical analysis revealed that, giving nurses choice-independence at work leads to more knowledge sharing and feedback asking (informal learning activities). Furthermore, the analysis revealed that nurses, who participate in informal learning activities, have a significant higher intention to actively stay in the hospital than the ones who do not learn informally.

Zusammenfassung

Das Gesundheitswesen wird momentan mit zwei Trends belastet, wodurch folgendes Problem entstanden ist; eine älter werdende Gesellschaft braucht eine ausgiebigere gesundheitliche Versorgung. Gleichzeitig steigt jedoch auch das Durchschnittsalter von Krankenschwestern, da es nur wenig junge Arbeitskräfte auf dem Arbeitsmarkt gibt. Diese Entwicklung führt zu einem Mangel an gut ausgebildeten Fachkräften im Gesundheitswesen, die den Bedarf an medizinischer Versorgung in der europäischen Gesellschaft decken können. Deswegen wird in dieser Arbeit analysiert, welchen Einfluss Krankenhäuser auf ihre Mitarbeiter haben, um sie zu motivieren, bis zum Erreichen des offiziellen Rentenalters, aktiv und engagiert zu arbeiten. Eine Meinungsumfrage (46 Befragte), die im persönlichen Netzwerk der Autorin durchgeführt wurde, und ein Fragebogen (157 Befragte), der in zwei Krankenhäusern und einem Netzwerk für Krankenschwestern verteilt wurde, wurden benutzt um zu analysieren, ob die Arbeitsumgebung das informelle Lernverhalten von Krankenschwestern, insbesondere im Bezug auf Ihre innere Motivation (‚*intrinsic*

motivation'), positiv beeinflussen kann und ob dies zu einem höheren Renteneintrittsalter führt. Die statistische Analyse hat ergeben, dass Krankenschwestern, die in ihrer Arbeit viel selbst entscheiden dürfen, häufiger ihr Wissen teilen und Kollegen um Kritik fragen. Desweiteren, hat die Analyse ergeben, dass Krankenschwestern die viel informell lernen, eher bereit sind um später in Rente zu gehen als ihre Kollegen und sich weiterhin aktiv für ihre Organisation einzusetzen.

Samenvatting

De zorg sector heeft momenteel last van twee ontwikkelingen in onze maatschappij; oudere mensen hebben meer zorg nodig, maar de gemiddelde leeftijd van verpleegkundigen stijgt evenzeer en er zijn niet genoeg jonge talenten die de arbeidsmarkt opkomen, waardoor een tekort aan verpleegkundigen ontstaat om aan de noodzakelijke zorg te kunnen voldoen. Daarom wordt in dit project dan ook onderzocht, hoe zorginstellingen hun verpleegkundigen kunnen behandelen, zo dat zij gemotiveerd zijn om te blijven werken tot en met het bereiken van de officiële pensioensleeftijd. Een opiniepeiling (46 respondenten) en een vragenlijst (157), die in twee ziekenhuizen en één netwerk van verpleegkundigen werd afgenomen, zijn gebruikt om te analyseren of de werkomgeving van verpleegkundigen hen, via hun intrinsieke leermotivatie, kan stimuleren om informeel te leren en of dit leidt tot een hoger pensioensleeftijd. Uit de statistische analyse blijkt dat verpleegkundigen, die veel ruimte krijgen om keuzes te maken met betrekking tot hun werk, vaker bereid zijn hun kennis te delen en collega's om feedback te vragen, dan verpleegkundigen met weinig keuzeruimte. Daarnaast, blijkt uit de analyse dat verpleegkundigen, die veel informeel leren ook eerder de neiging hebben om nog langer actief door te blijven werken, dan hun collega's.

The effect of a hospital's work environment on nurses' retirement age

As Europe is an ageing society (Centraal Bureau voor de Statistiek, 2012), organizations are in need to deal more efficiently with a mature workforce. Fewer children have been born in the last decennia (Henkens, 2011), causing that less young people enter the labor market. Furthermore, people have a higher life expectancy and these two factors combined lead to an ageing (work) population (Maurer, 2001; Van Dalen & Henkens, 2004; Van Solinge, Henkens & Van Dalen, 2009; Henkens, 2011). Even though an increasing number of organizations have implemented an age-related Human Resource (HR) policy recently, the need for more research remains and more prominent HR structures focusing on the requirements of older employees are needed (Tikkanen & Nyhan, 2006; Walker, 2005). This is, for example, reflected in the fact that people do not extend their working life although they nowadays have higher life expectations (Van Solinge & Henkens, 2009). Almost 80% of the people between 60 and 65 years stopped working early and do not participate in the workforce anymore (Centraal Bureau voor de Statistiek, 2012). Therefore, the actual retirement age in the Netherlands is around 62 years (Eurostat, 2012), whereas the legal retirement age is 65 years (and even going to be 67 years in 2023). The reasons for an early retirement need to be investigated, to be able to keep the employees in the workforce until they turn 65 and to better use the knowledge of elderly employees. Besides the fact that there are less young people entering the workforce, it is also desirable to have a low turnover of employees due to the high costs of recruiting and selection (Waldman, Kelly, Aurora, & Smith, 2004), better internal communication (Weber & Camerer, 2003) and higher organizational performance (for example: Hurley & Estelami, 2007). In addition, stable teams significantly learn new skills and procedures faster (Edmonson, 2003). Another issue concerning research on retirement is that most of the research has focused on the reasons that

employees left the organization. It has been found, that supervisors mostly translate the reasons for leaving into reasons why other employees stay, which is an unsatisfactory approach (De Vos & Meganck, 2009). Consequently, more knowledge about the factors influencing employees to stay is necessary.

Previous research has shown that most employees are not tired of working in general, though they search for new challenges, which are mostly found in unpaid functions or by becoming self-employed (Ester, Muffels & Schippers, 2003). If organizations are able to create a challenging work environment for employees of all ages, the employees have fewer intentions to leave the organization early (Van Dam, Van der Vorst & Van der Heijden, 2009; Damman, Henkens & Kalmijn, 2011). Consequently, in order to be successful in the long-term in an aging society, the key question for organizations should be: *How can challenging characteristics be included in the daily working of employees?*

Research has shown that a challenging work life is experienced as a possibility to learn and to enhance one's capabilities (Dweck & Leggett, 1988). Besides, it has been revealed that lifelong learning is a key variable to keep elderly employees motivated to stay longer within the organization (OECD, 2006). Organizations should therefore focus on the enhancement of the learning opportunities within the daily working life of their employees. Furthermore, it has been shown that elderly employees prefer informal learning activities instead of attending trainings. However, this preference is dependent on the learning content, experienced employees prefer training when it concerns technical aspects; their preferences differ from the ones of the younger employees (Wognum, Veldkamp, De Grip & Sieben, 2006). Therefore, if an organization is interested in lifelong learning of their employees, informal learning should be stimulated and appreciated.

The intrinsic motivation to learn (Noe & Wilk, 1993; Deci & Ryan, 2000a) is an important factor influencing an employee's informal learning activities. Informal learning

activities are initialized by the employee. Therefore, their intrinsic motivation to learn might determine their actual engagement in learning behavior.

Additionally, research has shown that the work environment within an organization can influence the amount of informal learning of employees (Van der Heijden, Boon, Van der Klink & Meijs, 2009; Eraut, 2004). A work environment in which learning is appreciated might stimulate employees to perform informal learning behavior. Therefore, it should be investigated how an organization's work environment can influence the participation in informal learning activities positively (see for example: Van Der Heijden et al., 2009; Eraut, 2004).

The theory introduced above leads to the following research question for this paper:

To what extent does the organization's work environment influence employees' informal learning behavior via their intrinsic motivation to learn and what effect does it have on their willingness to stay?

Healthcare Sector

This work focuses on the work environment of the healthcare sector for the following reasons. The society is ageing and older people have a higher need for healthcare. However, the average age of nurses is also rising. There are not enough young talents available to compensate the loss of qualified nurses due to their retirement. This phenomenon is called a 'demographic double whammy' (Buchan & Calman, 2004) and leads to a global shortage of nurses. One way to solve the problem is to retain experienced nurses in their job as long as possible. Consequently, healthcare institutions need to install processes to reduce early retirement. Even though some research has been executed to detect whether HR practices positively influence the nurses' intention to stay, strong empirical evidence is still lacking

(Armstrong-Stassen, 2005; Hatcher, Bleich, Connolly, Davis, O'Neill Hewlett& Stokely Hill, 2006; Veld, Paauwe & Boselie, 2010). Armstrong-Stassen and Schlosser (2010) have found evidence, that older nurses feel neglected in the set-up of HR practices. Their research states that if older nurses feel appreciated and fairly treated in their work, it positively influences their intention to keep on working (Armstrong-Stassen & Schlosser, 2010). These results emphasize that HR plays a crucial role in the retirement decisions of nurses and confirms the need for further research activities.

The research question will be approached by examining the relationships between the work environment of nurses, the nurses' intrinsic motivation to learn, their participation in informal learning activities, the nurses' intention to stay and their active participation until retirement. The variables of interest and their hypothesized relationships will be introduced in detail in the following section.

Theoretical Background

Work environment and Intrinsic Motivation to Learn

A 'climate' is a by employees perceived atmosphere, which is present within the organization through activities, procedures and compensations (Schneider, Grunnarson & Niles-Jolly, 1994; Tracey, Tannenbaum & Kavanagh, 1995). Consequently, a learning climate is a perceived atmosphere in which learning is appreciated, stimulated and integrated in every job in the organization (Honey & Mumford, 1996; Schein, 1985). The learning climate of an organization can encourage its employees to create new ideas, skills and knowledge. Learning climate factors include: the work environment, the colleagues, supervisors and also the job itself (Cunningham & Iles, 2002; Jerez-Gómez, Céspedes-

Lorente & Valle-Cabrera, 2003, Kirby, Delva, Knapper & Birthwhistle , 2003; Tracey, Tannenbaum & Kavanagh, 1995; Van der Heijden & Brinkman, 2010; Nohria, Groysberg & Lee, 2008). A lot of research has already been executed attempting to measure the learning climate by the quality of the supervisor (for example: Tannenbaum, 1997; Noe & Wilk, 1993; Maurer & Tarulli, 1994). In order to create a more complete picture on the different effects of a learning climate, this work focuses on the work environment. The main variables that have been identified concerning the work environment are workload/time and autonomous decision making (for example: Van der Sluis & Poell, 2002; Noe & Wilk, 1993, Maurer & Tarulli, 1994). Van der Sluis and Poell (2002) defined autonomous decision making as having a high amount of responsibility and therefore more influence on organizational decisions. The variable 'choice-independence' is defined as the individual's perception of control over subjects and working style (Kirby et al., 2003; Delva, Kirby, Knapper & Birthwhistle, 2002). 'Choice-independence' consequently is chosen to represent the autonomous decision making factor on the individual level (Kirby et al., 2003; Bernsen, Segers & Tillema, 2009). The second variable representing factors of a work environment will be 'workload'. 'Workload' can be defined as an individual's perception of a heavy workload and the feeling of having to deal with it alone.

Motivation can be approached from many different angles of interest. One general definition, given by Spector (2006), is: "motivation is […] an internal state that induces a person to engage in particular behaviors" (p.194). Wang and Wang (2004) use the same concept of motivation in their research, with the constraints that the behavior is performed to achieve predetermined purposes. Generally, two different types of motivation have been identified: extrinsic and intrinsic motivation (see for example: Crutchfield, 1962; Ryan & Deci, 2000a; Kok, Praag, Cools & van Herpen, 2002). Whereas extrinsic motivation represents the behavior of individuals motivated by rewards or bonuses (Amabile, 1993),

intrinsic motivation comprises of the behavior of individuals purely motivated by personal interest (Wang & Guthrie, 2004; Kok et al., 2002; Berlyne, 1965). Ryan and Deci (2000a) define intrinsic motivation as the constant search for challenges and opportunities to learn and grow. In this work, intrinsic motivation to learn is focused on the nurses' interest in learning, the effort they put in it and their appreciation of learning at work.

Research has shown that intrinsic motivation is related to several variables within the social surroundings of an individual (Ryan & Deci, 2000b). Koka and Hein (2003) have found that a learning environment is needed to increase people's intrinsic motivation. Intrinsic motivation is, for example, reduced by a feeling of threat, a high workload, and too many instructions (Deci & Ryan, 1985). Furthermore, it has been found that the experienced autonomy at work, combined with a strong level of self-efficacy, enhances the intrinsic motivation of an employee (deCharms, 1968). The effect of autonomy has been confirmed by the studies of Hackman and Oldham (1976) and Van der Sluis and Van de Bunt-Kokhuis (2009). In addition, Herzberg (1987) has figured out, that the level of responsibility that employees perceive at work also influences their intrinsic motivation. Even more important for this research is, that intrinsic motivation can also be enhanced by a climate of self-directedness and freedom for individuality (Deci & Ryan, 1985).

Summing up the findings, it can be concluded from the literature review that 'workload' and 'choice-independence' are core variables for measuring the characteristics of a work environment within an organization. Furthermore, 'intrinsic motivation to learn' will be approached by the nurses' interest, effort and appreciation of learning. The literature reveals that the work environment, a part of an organization's learning climate, can influence an employee's intrinsic motivation to learn. Therefore, the following hypotheses can be formulated:

H1a: *High workload negatively influences an employee's intrinsic motivation to learn.*

H1b: *Choice-independence positively influences an employee's intrinsic motivation to learn.*

Work environment and Informal Learning

In organizations with a good learning climate, the employees experience an atmosphere in which learning is appreciated, stimulated and integrated in the job. As introduced in the section before, a learning climate can be created by several aspects of a work situation: the colleagues, the supervisor, the work environment and the job itself. In this work the focus will lie on the work environment. The two variables 'workload' and 'choice-independence' are two characteristics that have been chosen to measure the work environment of the organizations.

Learning consists of two different processes; formal and informal learning (for example: Hammond & Collins, 1991 Van Der Heijden et al., 2009; Noe, Wilk, Mullen & Wanek, 1997; Wognum & Horstink, 2008). Research has shown that within organizations more than 90% of the learning processes take place informally which states the importance of having such a structure within the organization (Borghans & Golsteyn, 2006). This research focuses on older employees who prefer to participate in informal learning activities for most learning tasks (Rhebergen & Wognum, 1997). Consequently, this research focuses on informal learning activities, as for example learning from experience and colleagues, experimentation and learning on the job (Marsick, Volpe & Watkins, 1999). Informal learning can be defined as a process that is primarily based on experience and that is non-institutional (Marsick & Watkins, 1990). In order to characterize the construct of informal learning in more detail, Marsick and Volpe (1999) defined six characteristics of informal learning. Informal learning is: (1) integrated in the working process, (2) stimulated internally or externally and (3) takes place by reflection or inductive action. Besides, (4) the process

does not have to be conscious, (5) is often stimulated unintentionally or by change, and (6) informal learning is interconnected with the development of colleagues. 'Asking feedback' and 'sharing knowledge' are two informal learning constructs (Van Woerkom, 2003), which fit to the conceptualization of Marsick and Volpe (1999). As Marsick's and Volpe's (1999) conceptualization demands, both concepts can take place during the work process and do not have to be recognized as conscious learning processes. Besides, the processes take place by interaction with colleagues. The precise definition of each concept will be given below.

'Asking feedback' can be defined as a process of reflection through which the employees analyze their work-related behavior. The perception of their own behavior by colleagues can help employees to be more critical and to possibly review their attitude and opinion (Reynolds, 1988; Vince, 2001; Van Woerkom, 2004; Tannenbaum, Beard, McNall & Salas 2010). Ericsson, Krampe and Tesch-Römer (1993) have found, that efficient learning is impossible without adequate feedback and that only highly motivated individuals are able to develop themselves incrementally without feedback. The process of knowledge sharing with colleagues inspires employees to create new ideas and produce new knowledge (Van Woerkom, 2004). Sharing knowledge also stimulates discussions on existing ways of working, opinions and processes (Schön, 1983), which is helpful to learn from, and critically judge, the actions.

Prior to the main research, an opinion survey has been completed in order to verify the main findings from the literature. An opinion survey asks for the belief of an individual to get an idea on how opinions are distributed within a society (Asanger & Wenninger, 1999). The opinion survey has been used to identify the core characteristics of informal learning and how they can be influenced by external factors. For the opinion survey 46 people answered two open questions: '*What is informal learning to you?*' and '*Which variables do influence informal learning at work?*'. The respondents are part of the network of the author but within

the network they are randomly assembled. 17 of the respondents are German (10 women, 7 men) and 29 of the respondents are Dutch (10 women, 19 men). The age of the respondents ranged from 19 years to 64 years. The survey confirms that 'knowledge sharing' and 'asking feedback' are experienced as crucial variables of informal learning[1].

Research has shown that there is a strong relationship between the learning environment in an organization and the informal learning of its employees (Van Der Heijden et al., 2009; Eraut, 2004). Marsick and Watkins (2003) identified the need for a work environment and culture to enhance the participation in informal learning activities. In addition, a work environment, in which learning is a central aspect, assists employees to handle their knowledge consciously, which in turn influences their personal and the organizational efficiency (Chou, Chang, Tsai & Cheng, 2005). Employees require an innovative work environment and the work itself should be stimulating for personal development (Tharenou, 1997). It is, for example, shown that employees are in need of an encouraging environment to ask feedback (Sparr & Sonnentag, 2008). Furthermore, high pressure at work significantly hinders employees to ask for feedback (Van der Rijt, Van de Wiel, Van den Bossche, Segers & Gijselaers, 2012).

In the opinion survey, executed prior to the main research, it has been asked for variables, which influence informal learning. It has been revealed that employees rate the work environment and learning climate within an organization as important factors that influence individual informal learning. For the question: "Which variables do influence informal learning at work" the answers are characterized by the following aspects: an atmosphere in which experimentation is supported and mistakes accepted, stimulating feedback sessions, time for learning processes, and openness to new ideas. The findings of the opinion survey confirm the results of the literature review.

[1] The Methods and Results of the opinion survey can be found in Appendix 1.

All in all, the literature review and opinion survey reveal that 'asking feedback' and 'sharing knowledge' are suitable variables representing informal learning. In addition, it can be stated that, the two variables measuring the characteristics of the work environment (workload and choice-independence) influence informal learning activities of employees. Therefore, the following hypotheses can be formulated:

H2a: *High workload negatively influences the feedback asking of employees.*

H2b: *High workload negatively influences the knowledge sharing of employees.*

H2c: *Choice-independence positively influences the feedback asking of employees.*

H2d: *Choice-independence positively influences the knowledge sharing of employees.*

Work environment, Intrinsic Motivation to Learn and Informal Learning

The proposed combined effect of an organization's work environment, the employees' intrinsic motivation to learn and their informal learning activities can best be explained by approaching it stepwise. Therefore, first the two direct relationships will shortly be introduced and then, the indirect (mediation) effect will be explained.

An employee's intrinsic motivation to learn seems to be dependent on several external factors (Ryan & Deci, 2000b). Research has confirmed that a learning environment at work enhances an individual's intrinsic motivation to learn (Koka & Hein, 2003). Therefore, a positive impact of 'workload' and 'choice-independence' (two work environment variables) on the employee's 'intrinsic motivation to learn' has been proposed in hypothesis 1.

Informal learning also seems to depend on the work environment of an organization (Van der Heijden et al., 2009; Eraut, 2004). It has been revealed that a work environment, in which learning is appreciated, stimulates employees to deal with their knowledge more

consciously (Chou et al., 2005). Moreover, the results of the opinion survey verified that the respondents expect that a supportive work environment influences informal learning (see Apendix 1). Consequently, a positive impact of 'workload' and 'choice-independence' on informal learning (asking feedback and sharing knowledge) is formulated in hypothesis 2 of this research.

Although, informal learning is stimulated positively by several environmental variables (the work environment), it is also a process which cannot purely be regulated by the organization. Organizations can offer space, time and freedom to participate in informal learning activities, but finally informal learning is initiated by the employee. The work environment, thus, is a necessity to stimulate informal learning (Van Der Heijden et al., 2009; Eraut, 2004), although the degree of participation of the individual is also dependent on the intrinsic motivation to engage in such behavior (Ryan & Deci, 2000a; Ryan & La Guardia, 1999; Noe & Wilk, 1993; Tharenou, 1997). Consequently, a mediating hypothesis, in which the influence of the work environment on informal learning is transmitted through the mediator intrinsic motivation to learn, has been formulated:

H3: *Intrinsic motivation to learn respectively mediates the positive relationship between the work environment variables workload and choice-independence and the informal learning variables sharing knowledge and asking feedback.*

Informal Learning and Intention to Stay and Actively Participate Until Retirement

To solve the problem of the low participation of elderly people in the workforce, it needs to be investigated why employees retire early. The variable 'Intention to Stay and

Actively Participate Until Retirement' measures, to what extent the employee tends to be motivated to work on his/her career and to offer his/her service to the organization.

Earlier research has described that there are 'Push' and 'Pull' factors, which influence elderly employees in their decision to retire (Ester, Muffels & Schippers, 2003; Jonckers, 2006; Leisink, Thijssen, Walter, 2004). On the one hand, 'Push' factors are problems or discrepancies at work and within the organization. An example for a pushing factor is that employees have difficulties to update their skills and knowledge in time. This lack of knowledge is 'pushing' the employee out of the workforce. On the other hand, 'Pull' factors represent the attractiveness of the alternatives to working. Examples for 'Pull' factors are a financially attractive position, more free time and less stress (Ester, Muffels & Schippers, 2003). A possibility to compensate for these factors is the creation of a work situation in which elderly employees feel well treated, supported and needed (Pillay, Kelly & Tones, 2010). Moreover, when a person perceives a high workload and stress at work, the chance that the employee will leave the organization early, increases (Lin & Hsieh, 2001). If, on the contrary, employees receive enough learning possibilities at work, the effect of the 'Push' factors will be minimized (Ester et al., 2003; Pillay, Kelly & Tones, 2010). Van Dam, Van der Vorst and Van der Heijden (2009) have reported that employees who perceive their work environment as interesting, challenging and who have the feeling that development possibilities are offered, have low intentions to retire early.

In line with the literature review above, informal learning can be seen as adding a challenging factor to the daily working life of employees. Therefore, a positive impact of informal learning activities on the intention to stay and actively participate until retirement can be predicted. Consequently, the following hypotheses are formulated:

H4a: *Feedback asking positively influences the intention to stay and actively participate until retirement of employees.*

H4b: *Knowledge sharing positively influences the intention to stay and actively participate until retirement of employees.*

To give a clear overview on the theoretical assumptions made, the main idea of the research model is now shortly summed up. The designed research model proposes a sequential relationship between the variables in question. Firstly, it is expected that if an organization creates a work environment with low workload and high choice-independence, employees tend to perform more informal learning behavior. Secondly, it is stated that if employees perform informal learning activities, their intention to stay within the organization and actively participate until their retirement, rises. In addition to the expected sequential relationship, this research examines a mediation effect of intrinsic motivation to learn on the relationship between the work environment and informal learning.

Control Variables

The control variables capture the aspects that are not directly integrated in the hypotheses but which might influence the hypothesized relationship. In this work five control variables have been considered. These variables and their possible connection with the proposed hypotheses will be discussed in the following. In their research Van Solinge and Henkens (2003) have found that the gender and the long-term employability (prior education and recent efforts in professional development) have influence on the intentions of employees to leave the organizations early. Therefore, the control variables gender, earlier education, and training participation/professional development in the past have been added to the questionnaire. The influence of age on the motivation of employees as well as on the

participation in learning activities, has been found in several studies before (see for example: Horstink, 2008; Maurer, 2001; Nauta, de Bruin & Cremer, 2004; Colquitt, LePine & Noe, 2000). Consequently, in this work it will be controlled for the effect of age on the proposed hypotheses. The influence of the control variables will be tested by ANOVA analyses.

The hypotheses presented in the section 'Theoretical Background' are summed up in Figure 1 to provide a clear overview on how the research question of this thesis is approached.

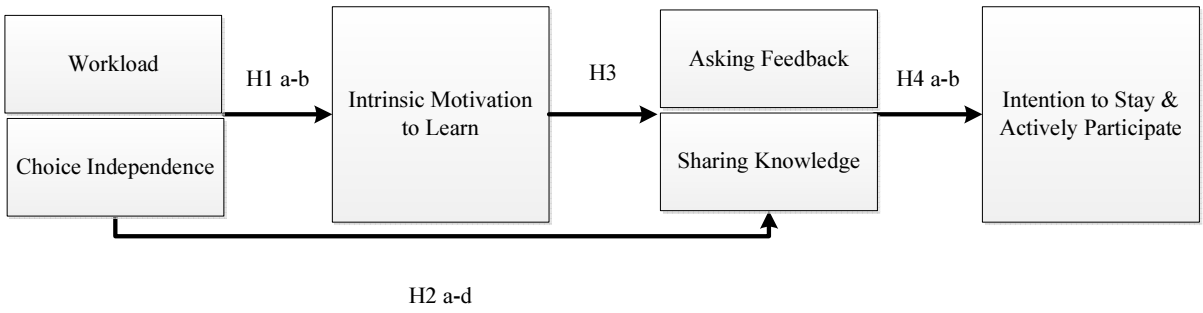

Figure 1 – Research Model

Method

Research Design

To test the designed research model, it has been chosen for a cross-sectional survey, which is a quantitative analysis approach (Saunders, Lewis & Thornhill, 2009). In a quantitative approach a broad range of people can be reached to answer the proposed hypotheses. An online questionnaire has been set-up based on the literature findings. In an online questionnaire the questions are sent via the internet to each respondent. The person can then answer the questions with the interviewer being absent. The data can finally be returned electronically (Saunders et al., 2009).

Procedures

To develop the questionnaire, the concepts of the research model are translated into constructs, which are representative components of the concepts (Van de Ven, 2007). Afterwards, variables have been chosen, to measure these constructs. Variables thus make the selected concepts operationalizable (Schwab, 1980). Consequently, the variables are in line with the chosen definitions of this research. The choices that have been made will be presented in the following text (Methods - Instruments).

The selected statements are originally designed in Dutch and English and so, the English statements have been translated with the forward-backward translation method to avoid language problems (Usunier, 1998). Afterwards, a pilot study has been executed. Four people with diverse backgrounds have been writing down their comments while filling in the questionnaire. Of the four respondents of the pilot study, two have an academic background and are aged between 20 and 30 years. The other two respondents have an MBO/HBO background and are aged between 50 and 60 years. The pilot study has led to minor changes in the phrasing of the statements but no changes with regard to the content have been made.

To test the research model, it has been decided to gather data in the healthcare sector, since the healthcare sector (together with the educational and agriculture sector) is dealing with a high amount of mature workers (Henkens & van Solinge, 2003) and the demographic double whammy (Buchan & Calman, 2004). A list with Dutch hospitals has been set-up. It has been decided to focus on small to medium sized hospitals because the chances might be better that they are willing and have time to participate in the research. The list has been sorted by regions of the Netherlands. It has been decided to firstly contact hospitals in the regions: Drenthe, Gelderland and Overijssel, due to distant matters. 25 hospitals have been contacted of which two have decided to participate. Besides the hospitals, two networks of nurses have been contacted of which one has decided to participate. The contact has been, where possible,

by phone with the HR department (mostly, HR director). As soon as the hospitals decided to participate, a link with the questionnaire has been sent by e-mail to the HR contact person. The HR department has spread the questionnaires to all team leaders of the hospital, with the request to spread it within their teams. In the nurse network, the questionnaire has been send to the founder of the network. She then added the link of the questionnaire to the monthly newsletter of the network. Due to this procedure, no response rate can be estimated. To spread the questionnaire, the online device 'www.thesistools.com' has been used. After one week a reminder has been sent. The data collection period has been eight weeks.

Respondents

The online questionnaire has been filled in by 191 nurses. 157 of the 191 questionnaires have been filled in completely and can be used for the statistical analysis of this study (82,2%). All respondents of this quantitative research are active in the healthcare sector. In total, two hospitals and one network for nurses have agreed to participate. 49 respondents (31.2%) work for Hospital 1, 73 respondents (46.5%) work for Hospital 2, and 35 respondents (22.3%) are a member of the network for nurses and filled in the questionnaire. 23 (14.6%) of the respondents are men and 134 (85.4%) women. Of the respondents, 46 (29.3%) are younger than 35 years old, 78 (49.7%) are between 35 and 55 years old, and 33 (21%) are older than 55 years old. Most of the respondents (94.3%) have either followed a MBO (62; 39.5%) or HBO (86; 54.8%) education.

Instruments

The questionnaire of this research mostly consists of statements. The respondents are asked to state to what extent they agree with the statement. A Likert scale from 1 to 5 (1=

totally disagree to 5= totally agree) has been used as respond possibilities. One answer per statement has been permitted.

Workload and Choice-Independence

The construct 'work environment' is measured by the variables 'workload' and 'choice-independence'. The Workplace Learning Questionnaire (WLQ) validated by Kirby et al. (2003) is used to operationalize the variables. The α values of the scale in their study have been quite high (Cronbach's α between .74 and .84). The WLQ consists of three parts: 'workload', 'choice-independence' and 'supervisor'. As it has been stated in the theoretical background it has been chosen to leave out the supervisor scale for two reasons. Firstly, this research focuses on the characteristics of the job and the work atmosphere instead of the colleagues or supervisors. Secondly, the influence of supervisors on learning behavior has already been examined in detail (see for example: Ellinger, 2005, Maurer & Tarulli, 1994; Noe & Wilk, 1993). 'Workload' is operationalized by asking statements concerning the pressure that employees experience at work and the time they have to execute given tasks. The statements measuring 'choice-independence' focus on the freedom that employees have to decide on their work-style and -rhythm. 'Workload' is measured by four statements and 'choice-independence' by five statements (Kirby et al., 2003). '*The workload here is too heavy'* is an example for a statement measuring 'workload'. An example of a statement for 'choice-independence' is: '*Employees here have a great deal of choice over how they learn new tasks'*. The reliability of the 'workload' scale in this study has been raised by deleting statement 2: '*In this organization you are expected to spend a lot of time on autonomous learning'*. Reasons for this effect might be that this is the only statement of the 'workload' scale, which does not directly focus on the amount of work, free time or experienced

pressure. Furthermore, the research by Kirby et al. (2003) showed that this already has been the statement with the weakest factor loading on 'workload' (.31). After deleting statement 2, the reliability of the 'workload' scale is quite high (Cronbach's $\alpha = .76$). The reliability of the 'choice-independence' scale in this study also is quite high (Cronbach's $\alpha = .78$).

Intrinsic Motivation to Learn

'Intrinsic motivation to learn' is measured by using parts of the Intrinsic Motivation Inventory, which is a tool that has been used in several researches already to measure the respondents' subjective perception of an activity (see for example: Ryan, 1982; Ryan, Mims & Koestner, 1983; Ryan, Connell, & Plant, 1990; Ryan, Koestner & Deci, 1991). Three out of seven characteristics (Interest/Enjoyment, Perceived Competence, Effort/Importance, Pressure/Tension, Perceived Choice, Value/Usefulness, and Relatedness) to measure Intrinsic Motivation have been chosen: Interest/Enjoyment, Effort/Importance and Value/Usefulness. The statements of these three parts fit best to the chosen definition in this work, since they measure how much the respondents appreciate the behavior, their own commitment and the significance of it (for the definition see: Ryan & Deci, 2000a; Wang & Guthrie, 2004; Kok et al., 2002; Berlyne, 1965). Interest is measured by six statements, effort/importance by five statements and value/usefulness by seven statements. An example of a statement is: *'I believe this activity could be of some value to me'*. The reliability of the 'intrinsic motivation to learn' scale has been raised by deleting statement 3 of the interest scale, statement 5 of the effort scale and statement 4 of the value scale. Statement 3 of the interest scale and statement 5 of the effort scale are both formulated negatively. These statements are often more difficult to understand, which might be a reason why these statements have to be deleted. Statement 4 of the value scale states that the respondents would like to get more chances to learn informally. This might be a distracting formulation if they already have a lot of chances to

learn. Consequently, this could be a reason why this statement has to be deleted. After deleting the three statements, the reliability of the scale is high (Cronbach's α = .93).

Asking Feedback and Sharing Knowledge

Informal learning is measured by two variables: 'sharing knowledge' and 'asking feedback'. The statements of 'sharing knowledge' are validated by Van Woerkom and Sanders (2010). The statements of 'asking feedback' are validated by Van Woerkom (2003). The statements to measure 'sharing knowledge' are concerned with the willingness of the nurses to talk about their knowledge with colleagues. The statements measuring 'asking feedback' focus on the nurses' intention to ask their colleagues to judge their work critically. 'Sharing knowledge' is measured by seven statements whereas 'asking feedback' is measured by six statements. An example of a statement concerning 'knowledge sharing' is: '*The advice of my colleagues helps me to execute my work better'*. An example of a statement for 'asking feedback' is: *'I regularly ask my colleagues for feedback'*. The reliability of the sharing knowledge scale in this study has been raised by deleting statement 7. This is the only statement of the scale which focuses on the quality of knowledge sharing instead of the respondents' willingness to share their knowledge. This might be a reason, why this statement has to be deleted. Afterwards, the reliability is high (Cronbach's α = .83). The reliability of the 'asking feedback' scale in this study also is high (Cronbach's α = .86).

Intention to stay and actively participate until retirement

The statements to measure the intention to stay and actively participate until retirement variable have been developed for this research because no existing statements focusing on the same aspects have been found in the literature. The designed statements are

aligned to earlier studies using related variables (Tett & Meyer, 1993; Koster, Fourage & De Grip, 2009; Sieben & De Grip, 2003). In their research the intention for turnover has mostly been tested by one single statement, solely focusing on if the employees think of leaving the organization. In this work the focus is on the nurses' intention to stay in the organization and their intention to participate actively in the future to support their personal and the organizational development. The construct is measured by four statements in this work. An example of a statement is: *'I am looking forward to the next years within this organization'*. The reliability of this scale has been raised by deleting statement 1. In this statement the phrase 'work related activities' has been used. This expression can be interpreted in several ways, which might be a reason that this statement has to be deleted. Afterwards, the reliability is quite high (Cronbach's $\alpha = .71$).

Control Variables

For the analysis of the research model, several control variables have been chosen. These variables are: age, gender (1 – men, 2 – women), earlier education (1 – none, 2 – MBO, 3 – HBO, 4 – WO, 5 – Promotion), training participation in the past (1 – low, 2 – average, 3 – high) and professional development in the past (1- little, 2 – average, 3 – much). The constructs 'training participation in the past' and 'professional development' measure the nurses' own perception of their efforts in the past.

Statistical analysis

The data from the questionnaires has been analyzed statistically with the computer program: Statistical Package for the Social Sciences (SPSS) 20. The statistical analysis of the data consists of a couple of steps, which will be introduced shortly. First of all, it is tested if

the data is reliable. This is done by the split-half reliability analysis of Cronbach. It is tested if the variables consistently, thus in every point of time, reflect the construct they are measuring (Field, 2005). Then, an explorative factor analysis is executed in which it is measured, if the statements used in the questionnaire actually measure the construct they are intended for. Thirdly, an ANOVA is executed to compare the mean values of the constructs based on controlling factors. After that, a correlation analysis is performed. Finally, a regression analysis is used to test the proposed hypotheses of this research. It has been chosen for a stepwise regression in which the selected control variables are added, as well as the variables for the hypothesis in question. In a stepwise regression the computer program searches for the best predicting antecedent of the outcome variable (Field, 2005).

Results

The results of the statistical analysis will be presented in the following section. First of all, the means, standard deviations and correlations are introduced. Then, the results of the factor analysis and ANOVA are presented. Finally, this section focuses on the results of the regression analysis by which the hypotheses have been tested.

Means, Standard Deviations and Correlations

The means, standard deviations and correlations of the variables that have been used, are summed up in Table 1. The correlation analysis reveals that the correlation of ‘workload’ and ‘intrinsic motivation to learn’ is not significant ($r = -.04$, p = n.s.), as well as the correlation between ‘choice-independence’ and ‘intrinsic motivation to learn’ ($r = .04$, p = n.s.). Furthermore, the correlation of ‘workload’ and ‘knowledge sharing’ ($r = .08$, p = n.s.) as well as ‘workload’ and ‘asking feedback’ ($r = .07$, p = n.s.) is not significant. On the contrary,

the correlation between ‘choice-independence’ and ‘knowledge sharing’ ($r = .21$, $p < .01$) as well as the correlation between ‘choice-independence’ and ‘asking feedback’($r = .22$, $p < .01$) is significant. In addition, the correlation between ‘sharing knowledge’ and ‘intention to stay and actively participate until retirement ($r = .33$, $p < .01$) as well as the correlation between ‘asking feedback’ and ‘intention to stay and actively participate until retirement ($r = .34$, $p < .01$) is significant.

Another noticeable significant correlation is between ‘education’ and ‘intrinsic motivation to learn’ ($r = .20$, $p < .05$). This correlation indicates that people with a higher education are also more intrinsically motivated to learn. It should also be noted that the control variable age solely correlates with the degree of choice-independence ($r = -.16$, $p < .05$). The nurses’ age thus correlates negatively with the degree to which they feel independent in making choices at work. The factor age does not correlate with any other variable used in this work. Furthermore, the variables ‘past learning motivation’ and ‘knowledge sharing’ ($r = .27$, $p < .01$), ‘past learning motivation’ and ‘feedback asking’($r = .19$, $p < .05$), as well as ‘past training participation’ and ‘knowledge sharing’ ($r = .31$, $p < .01$) and ‘past training participation’ and ‘feedback asking’ ($r = .23$, $p < .01$) correlate significantly. These results indicate that the past behavior concerning learning correlates positively with the recent engagement in informal learning activities. In addition, ‘feedback asking’ ($r = .32$, $p < .01$) and ‘knowledge sharing’ ($r = .46$, $p < .01$) correlate significantly with ‘intrinsic motivation to learn’. This means that employees with a high amount of intrinsic motivation to learn also engage in more informal learning activities. Moreover, the variable ‘intention to stay and actively participate until retirement’ significantly correlates with the following variables: past learning motivation ($r = .17$, $p < .05$), workload ($r = -.27$, $p < .01$), choice-independence ($r = .34$, $p < .01$), and intrinsic motivation to learn ($r = .39$, $p <$

.01). Finally, the high correlation between ‘feedback asking’ and ‘knowledge sharing’ ($r = .74$, $p < .01$) indicates, that these two constructs are quite close in regard with contents.

Factor analysis

Prior to testing the proposed hypotheses, a factor analysis has been executed to measure if the scales used in the questionnaire are valid. The results of the factor analysis are represented in Table 2. It can be revealed from the data, that all statements used for the statistical analysis, load on the intended factor. Examples are the three statements of the construct ‘workload’. The first statement has a factor loading of .84, the second .79 and the third .84. The ‘eigenvalue’ of ‘workload’ is 2.0 and explains a variance of 67%.

The significance of factor loadings is dependent on the sample size used for the analysis (Stevens, 2002, as cited in Field, 2005). Due to the fact that around 150 data sets have been used in this work, factor loadings lower than .5 have been excluded. Even though all statements load on the intended factor, the factor loadings of the ‘intention to leave and actively participate until retirement’ variable are quite low.

Table 1 - Mean, Standard Deviation and Correlation

Variables	α	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender		1,85	0,36	1										
2. Age		1,92	0,71	-,202*	1									
3. Education		2,66	0,63	-,257**	,065	1								
4. Past learning motivation		2,34	0,58	-,038	,053	,249**	1							
5. Past training participation		2,15	0,61	-,108	,103	,099	,583**	1						
6. Workload	.76	3,27	0,79	-,125	,036	-,096	,047	,024	1					
7. Choice-independence	.78	2,79	0,69	-,002	-,160*	-,012	-,025	,065	-,101	1				
8. Intrinsic motivation to learn	.93	4,22	0,57	,028	-,090	,202*	,368**	,299**	-,044	,044	1			
9. Feedback asking	.86	3,67	0,69	-,029	,074	,038	,192*	,231**	,068	,223**	,319**	1		
10. Knowledge sharing	.83	4,17	0,52	-,018	-,027	,151	,272**	,313**	,081	,212**	,463**	,739**	1	
11. Intention to stay and actively participate until retirement	.71	3,98	0,79	,036	-,162*	,091	,165*	,105	-,267**	,340**	,388**	,340**	,334**	1

.* Correlation is significant at the 0.05 level
.** Correlation is significant at the 0.01 level

Table 2 - Factoranalysis of all variables

Variable	Eigen-value	1	2	3	4	5	6
Workload 1		.84					
Workload 1	2.0	.79					
Workload 1		.84					
Choice-Independence 1			.78				
Choice-Independence 2			.64				
Choice-Independence3	2.7		.69				
Choice-Independence 4			.80				
Chooice-Independence 5			.74				
Intrinsic Motivation to Learn 1				.79			
Intrinsic Motivation to Learn 2				.85			
Intrinsic Motivation to Learn 3				.71			
Intrinsic Motivation to Learn 4				.74			
Intrinsic Motivation to Learn 5				.52			
Intrinsic Motivation to Learn 6				.81			
Intrinsic Motivation to Learn 7	7.7			.84			
Intrinsic Motivation to Learn 8				.66			
Intrinsic Motivation to Learn 9				.71			
Intrinsic Motivation to Learn 10				.66			
Intrinsic Motivation to Learn 11				.80			
Intrinsic Motivation to Learn 12				.75			
Intrinsic Motivation to Learn 13				.74			
Intrinsic Motivation to Learn 14				.76			
Asking Feedback 1					.78		
Asking Feedback 2					.76		
Asking Feedback 3	3.5				.71		
Asking Feedback 4					.82		
Asking Feedback 5					.77		
Asking Feedback 6					.75		
Sharing Knowledge 1						.67	
Sharing Knowledge 2						.70	
Sharing Knowledge 3	3.3					.82	
Sharing Knowledge 4						.73	
Sharing Knowledge 5						.72	
Sharing Knowledge 6						.79	
Intention to Stay and Actively Participate until Retirement 1							.61
Intention to Stay and Actively Participate until Retirement 2	1.9						.63
Intention to Stay and Actively Participate until Retirement 3							.67

ANOVA

After the factor analysis has been executed, the means of the variables used in the questionnaire have been compared by a One-way ANOVA. The distinguishing factors for the ANOVA have been: organization, age, gender, education, past training participation and past learning motivation.

When controlling for the 'organization', the following significant differences have been found: 'intrinsic motivation to learn' ($F(2,150) = 4.59$, $p < .05$), 'asking feedback' ($F(2,155) = 5.45$, $p < .05$), and 'knowledge sharing' ($F(2,155) = 3.89$, $p < .05$). With 'intrinsic motivation to learn', the post-hoc analysis (Bonferroni) has revealed, that the values of Hospital 1 and Hospital 2 differ significantly from the values of the network group. The nurses of the network have a higher intrinsic motivation to learn. The values of the hospitals do not differ significantly from each other. The post-hoc analysis further reveals that the means of Hospital 2 differ significantly from the values of the network for 'knowledge sharing' and 'asking feedback'. The values of Hospital 2 are lower for both informal learning activities than the values of the network group. No significant differences with Hospital 1 have been found. The means and standard distributions (SD) per organization are represented in Table 5 in the Appendix. When controlling for 'age' or 'gender', no significant differences of the mean values have been found. When 'education' is the controlling factor, only the mean values of 'intrinsic motivation to learn' ($F(4,150) = 3.71$, $p < .05$) and 'knowledge sharing' ($F(4,155) = 3.00$, $p < .05$) differ significantly. For this analysis, no Bonferroni test has been performed, because just one person answered to have promoted. With just one person in a group, no post-hoc analysis can be performed (Field, 2005). The means of 'intrinsic motivation to learn' ($F(2,150) = 11.70$, $p < .01$) and 'knowledge sharing' ($F(2,155) = 9.09$, $p < .001$) differ significantly, when controlling for the 'past training participation' of the employees. For both constructs ('intrinsic motivation to learn' and 'knowledge sharing')

the post-hoc analysis reveals that the values of the groups: low-average ‘past training participation’ and low-high ‘past training participation’ differ significantly. The higher the previous training participation the higher their values for ‘intrinsic motivation to learn’ and ‘knowledge sharing’. The means and SD for the degree of training participation in the past is represented in Table 6 in the Appendix. Furthermore, when controlling for the ‘past learning motivation’, the means of ‘intrinsic motivation to learn’ ($F(2,150) = 7.91$, $p < .01$), ‘asking feedback’ ($F(2,155) = 4.53$, $p < .05$), and ‘knowledge sharing’ ($F(2,155) = 9.252$, $p < .01$) differ significantly. The Bonferroni test reveals that for ‘intrinsic motivation to learn’ and ‘knowledge sharing’ the values of little and average ‘past learning motivation’ as well as little and much ‘past training motivation’ differ significantly. With ‘asking feedback’, just the values of little and much differ significantly. The higher the past learning motivation the higher the values for ‘intrinsic motivation to learn’, ‘feedback asking’ and ‘knowledge sharing’. The results of the ANOVA controlling for the ‘past learning motivation’ are represented in Table 7 in the Appendix.

Regression Analysis

To test the hypotheses of this study, a linear regression analysis has been executed (Field, 2005). Hypothesis 1 proposes that ‘workload’ and ‘choice independence’ influence the ‘intrinsic motivation to learn’. Hereafter, for testing hypothesis 2, it needs to be analyzed if ‘workload’ and ‘choice-independence’ influence ‘asking feedback’ and ‘sharing knowledge’. To test the third hypothesis the mediating effect of ‘intrinsic motivation to learn’ on the relationship of ‘work environment’ and ‘informal learning’ needs to be analyzed. Finally, the fourth hypothesis is tested by analyzing the positive influence of the informal learning variables on the ‘intention to stay and actively participate until retirement’.

The results of the regression analysis are presented in Figure 2. The black arrows represent the significant hypotheses, whereas the grey arrows represent the not significant hypotheses. The analysis reveals that hypothesis 1a, 'workload' negatively influences the 'intrinsic motivation to learn', cannot be confirmed (β = -.04; p = n.s.). The positive influence of 'choice independence' on the 'intrinsic motivation to learn' (Hypothesis 1b) is also not significant (β = .04; p = n.s.). Furthermore, it can be concluded from the analysis that 'workload' does not influences 'asking feedback' (β = .07; p = n.s.) and 'sharing knowledge' (β = .08; p = n.s.) negatively (Hypothesis 2 a and b). The positive influence of choice-independence on 'asking feedback' (β = .22; p < .01) and 'sharing knowledge' (β = .21; p < .01) can be confirmed (Hypothesis 2 c and d).

In the second chapter of this paper a mediating effect of the employees' 'intrinsic motivation to learn' on the positive relationship of the learning environment and informal learning activities has been hypothesized (Hypothesis 3). For a mediating effect, it is obligatory that Hypothesis 1 is confirmed. As this is not the case in this study, hypothesis 3 cannot be tested.

The fourth hypothesis, in which it has been assumed that 'sharing knowledge' (β = .33; p < .01) and 'asking feedback' (β = .34; p < .01) positively influence the 'intention to stay and actively participate until retirement' can be confirmed.

After the regression analysis a second, stepwise regression analysis has been executed in which the effect of the control variables on the proposed hypotheses is analyzed (Field, 2005). The results of this follow-up analysis can be found in Appendix 3 – Table 8, 9 and 10. In the tables the R^2 values for every model can be found. R^2 is the 'coefficient of determination' and explains the amount of variability in one variable that is shared by the other (Field, 2005). Choice-independence, for example, explains 34% of the variance of 'asking feedback'. In addition, the value ΔR^2 is registered in the regression analysis tables.

ΔR^2 represents the changes in R^2 resulting from adding new predictors to the regression analysis. It is noticeable that just one of the control variables influences the proposed hypotheses significantly. The past training participation of nurses does have a positive influence on their willingness to share knowledge (Table 9).

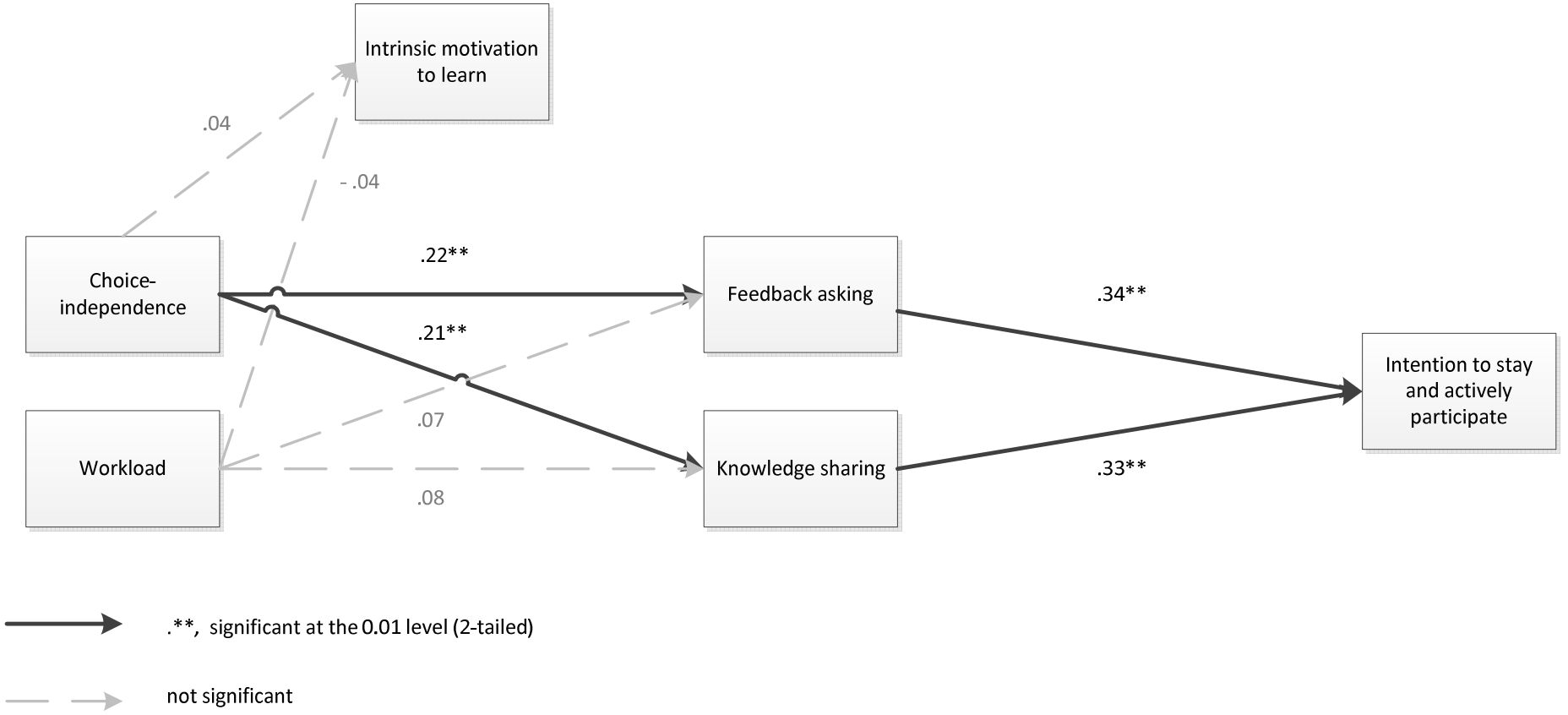

Figure 2 – Results of the Regression Analysis

Discussion

General review

The main goal of the research has been to test, if a hospital's work environment influences the informal learning activities of nurses, which in turn should enhance their 'intention to stay and actively participate' until retirement. Furthermore, a mediating effect of the 'intrinsic motivation to learn' on the relationship of the work environment and informal learning has been proposed. The work environment is measured by the constructs 'workload' and 'choice-independence'. The variable informal learning is measured by the constructs 'asking feedback' and 'sharing knowledge'.

The developed research question (see 'Introduction') can to most extend be answered with the help of this research. The work environment partially influences the employees' engagement in informal learning activities and employees who learn informally have higher intentions to actively stay within the organization.

The statistical analyses reveal, that the hypotheses of this study can partly be confirmed. The results from hypotheses 2c and d as well as 4a and b are in line with the expectations. Hypotheses 1, 2a and b as well as 3 cannot be confirmed in this study. The results will be discussed in further detail in the following.

Hypothesis 1a states that 'workload' negatively influences the employees' 'intrinsic motivation to learn' and hypothesis 1b states that 'choice-independence' positively influences the employees' 'intrinsic motivation to learn'. Both statements cannot be confirmed, which means that neither the amount of work, nor the amount of freedom at work, influences an employee's inner motivation to perform learning behavior. The reason why no effect has been found, although the relationship has been proposed based on the literature review, might be grounded on the following reasons. First of all, the work environment variables

‘workload’ and ‘choice-independence’ might not be the most suitable variables for this research. In this work, the role of the supervisor and the colleagues has been neglected in order to focus on other aspects of the learning climate. However, it might be an option, revealed from the literature review and the opinion survey, to again focus on these aspects of the learning climate in future research. The second reason might be that the relationship between the work environment and an employee’s intrinsic motivation to learn is dependent on the respondent population or type of organization. This can be substantiated as Theebom, De Knop and Weiss (1995) have also not found any effects of the learning climate on the intrinsic motivation to learn in their research, which is contrary to other studies. Their study has been executed in a group of students.

Hypothesis 2a states that ‘workload’ negatively influences the ‘feedback asking’ of employees and hypothesis 2b states that ‘workload’ negatively influences the ‘knowledge sharing’ of the nurses. Both hypotheses cannot be confirmed by the statistical analysis of this study, which means that the amount of work does not influence employees’ participation in informal learning activities. This seems surprising, given the fact that both, the literature review and the opinion survey revealed that workload and time are important variables influencing informal learning (stated by 21 of the 46 respondents). An explanation for the deviant results might be, that the statements measuring ‘workload’ do not fit to the respondents’ understanding of workload/time. Another explanation might be, that ‘workload’ does influence informal learning activities but maybe not the two chosen variables ‘sharing knowledge’ and ‘asking feedback’. As it has been stated in the theoretical background, informal learning is a broad construct, consisting of many facets. In future work, it would be advisable to test, if workload positively influences other informal learning activities.

Hypothesis 2c states that ‘choice-independence’ influences the ‘feedback asking’ of employees and hypothesis 2d states that ‘choice-independence’ influences the ‘knowledge

sharing' of employees. Both hypotheses can be confirmed. It is shown by the data that if an employee has the freedom to decide how to work, the employee will significantly share more knowledge and ask for more feedback. Choice-independence at work thus facilitates informal learning of employees.

Hypothesis 3 states that 'intrinsic motivation to learn' respectively mediates the positive relationship between the work environment ('workload' and 'choice-independence') and informal learning ('sharing knowledge' and 'asking feedback'). For this effect it is obligatory that the relationship between the work environment and an employee's intrinsic motivation to learn is significant (Baron & Kenny, 1986). Since this is not the case, the mediating effect of intrinsic motivation to learn cannot occur.

Hypothesis 4a states that 'asking feedback' positively influences the 'intention to stay and actively participate until retirement'. Additionally, hypothesis 4b states that 'sharing knowledge' positively influences the 'intention to stay and actively participate until retirement'. Both hypotheses can be confirmed, which means that employees, who share their knowledge and ask for feedback, have more intention to stay an actively participate until retirement. Employees, who are active in informal learning activities, are also willing to participate in the organization's activities enthusiastically and to keep on developing themselves in the future.

Moreover, the ANOVA has revealed significant differences between the values of the hospitals and the network of nurses, which attract attention. To give one reason, why these differences might occur, the set-up of the network will be analyzed in more detail. The nurses, who are members of the network, mostly work for doctor's offices or nursing homes and therefore, they are not active in hospitals. They significantly score higher concerning their intrinsic motivation to learn, knowledge sharing behavior and amount of asking feedback. The network founder has reported, that most nurses have followed advanced

training and are highly valuable for the employer. The small scale of their employers and their high value for the employer might be reasons for the differing results.

Limitations and recommendations

The research has contributed to the existing theory by researching in more detail why employees decide to stay instead of why employees decide to leave. Furthermore, the research delivers new insights in the interaction of a hospital's work environment and the nurses' informal learning behavior.

It should be noted, that the nurses' intention to stay correlates significantly with the work environment variables 'workload' (negative correlation) and 'choice-independence' (positive correlation). Van Dam and colleagues (2009) have found in their research that employees, who experience their work environment as interesting and challenging, have less intentions to retire early. It is therefore advisable to research if this effect can also be found in the healthcare sector and thus to have a closer look at the direct effect of a hospital's work environment on the nurses' intention to stay and actively participate in future research.

Additionally, in this work it has become clear, that 'asking feedback' and 'sharing knowledge' can influence the employees' intention to stay within an organization and to keep on developing their selves professionally. In further research, the effect of informal learning on scaling down early retirement should be analyzed in more detail.

Even though this research has been set-up carefully, some limitations of the study should be discussed shortly. As stated in the previous section, the variables 'workload' and 'choice-independence', representing the work environment, might not be the most suitable variables to measure a hospital's learning climate in this work. The influence of the social surroundings of employees (supervisor, colleagues) might be more important than the work

environment. Therefore, it is advisable to test the proposed relationships with other learning climate variables.

Also surprising is, that the control variable age does not seem to influence the proposed hypotheses. It might be that the work experience of nurses is more important than the person's age. This should be tested in future research.

It should be noticed, that in this work it has been operated with two different scales to measure the characteristics of an organization's work environment. In future research, it might be chosen for one scale to measure an organization's work environment.

Furthermore, the research model should be tested in another industry. The work conditions in other industries differ widely, which makes it hard to generalize the results. Besides the industry, the chosen group of employees might also have biased the results (McGrath, 1986). One of the reasons for a biased result might be that nurses are knowledge workers. Their work results are mostly intangible and their job demands them to personalize their activities to meet the diverse requests of their patients (Mohr, Young & Burgess Jr., 2012). This is different to service workers so the results might not be translated into service focused organizations easily. Second, nurses generally do not follow a university education and do shift-work. For further research it might be interesting to repeat the research in a group with higher educated employees and to also control the kind of work (shift-work) they do. Third, research has found out, that different groups of professionals also perform different learning behavior (Poell, Tjepkema, Wagenaar & Dekker, 2002). The learning behavior of nurses for example, seems to be dependent on the needs of their patients and the gained knowledge has to be directly connected to the practical workfield. Contrary, the learning behavior of accountants for example is mostly focused on pure theoretical knowledge and mainly influenced by their trade union. Therefore, it might be interesting to repeat the research in a group of employees with a different degree of professionalism.

Practical implications

Healthcare organizations, which are working with nurses, can use the results of this research in the following ways. First of all, the organizations should ensure that the nurses have enough freedom to design their work processes. The nurses will participate more in informal learning activities, if they feel that they have a high degree of autonomy in their work. Second, it has become clear from the opinion survey that many employees would like to get the opportunity to get new information via intranet, books or the internet (results from the opinion survey). They would appreciate it, if a place for informal learning activities is set-up. This place can either be a table at the coffee-machine or a room in which informal discussions are possible. Furthermore, the supervisors and colleagues should stimulate each other to continuously update their knowledge. In general, informal learning should be in the center of attention within the organizations, because employees participating in informal learning activities have higher intentions to stay and keep on developing themselves. Third, besides the advices for the current workforce in organizations, the results can also be used for the selection process of new employees. The 'past learning motivation' and 'past training participation' of employees correlates with the recent engagement in informal learning activities. This is in line with the research of Heckman and Masterov (2004), who state that 'learning begets learning'. In their research with children, they have figured out, that early investments pay out in the later development. Consequently, it might be useful to ask for past professional development behavior during a selection process of new employees.

Conclusion

Summarizing the whole research project, it can be stated, that the author's research objectives have been met. The literature review, opinion survey and questionnaire complemented each other and created a clearer picture on the issue of early retirement. The research positively contributes to the theory on this topic and also delivers practical advises. Thanks to the research methods and analyses, the research question can mostly be answered. It becomes clear, that informal learning significantly supports the reduction of early retirement of nurses. Furthermore, the more a nurse feels to be independent in making choices, the more he/she will perform informal learning behavior. Other possibilities to positively influence informal learning could not be detected in this work but would be an interesting supplement to this project.

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Appendix

Appendix 1 – Opinion Survey

After gaining a general overview on the topic by a literature analysis, it has become clear that informal learning is a rather broad construct. To support the choice on several constructs to measure informal learning, it has been decided to set-up an opinion survey. In this survey people with differing backgrounds (for example: sex, age, education, nationality) have been asked two questions. First, the people have been asked to give three examples of what informal learning at work means to them. It has been chosen for an open question to offer the possibility of wide-ranged answers. Second, the people have been asked to name three aspects which, concerning to them, influence the informal learning activities. The contact with the respondents has taken place via e-mail. In total 46 people responded to the request. The response rate of 93% is very high. The answers of the respondents have been given in German and English and are summed up in the tables (Table 3 & Table 4) below. It can be concluded that the opinion survey actually supported the choices made based on the literature review.

Table 3 - Informal learning variables

	Germany	The Netherlands	Total
information gathering	9	12	21
knowledge sharing	15	22	37
communication	2	0	2
e-learning	3	0	3
mentor	3	5	8
group work	4	3	7
learning from others	1	5	6
more tasks	3	3	6
feedback asking	0	16	16

Table 4 - Factors influencing informal learning

	Germany	The Netherlands	Total
culture	3	4	7
colleagues	3	10	13
learning climate	12	12	24
workload/time	11	10	21
autonomy	3	5	8
supervisor	6	5	11
interest	1	1	2
motivation	6	5	11
space/possibilities	3	6	9
others	3	8	11

Appendix 2 – ANOVA Tables

Table 5 - Means and Standard Deviations for each Hospital

Variables	Sig.	Hospital 1 (N = 49)		Hospital 2 (N = 73)		Network (N = 35)	
		Mean	SD	Mean	SD	Mean	SD
Workload	n.s.	3.27	.82	3.32	.75	3.16	.85
Choice-independence	.+	2.87	.58	2.65	.71	2.96	.75
Intrinsic motivation to learn	.*	4.15	.53	4.14	.62	4.47	.43
Asking feedback	.**	3.70	.64	3.51	.61	3.97	.81
Sharing knowledge	.*	4.20	.50	4.06	.50	4.34	.53
Intention to stay and actively participate until retirement	n.s.	4.08	.68	3.89	.83	4.02	.79

+. significant at the 0.10 level
***. significant at the 0.05 level**
****. significant at the 0.01 level**

Table 6 - Means and Standard Deviations for the Past Training Participation

Variables	Sig.	Low (N = 9)		Average (N = 86)		High (N=62)	
		Mean	SD	Mean	SD	Mean	SD
Workload	n.s.	2.96	.65	3.30	.76	3.28	.85
Choice-independence	n.s.	2.64	.28	2.84	.63	2.74	.80
Intrinsic motivation to learn	.**	3.80	.61	4.08	.59	4.46	.43
Asking feedback	.+	3.33	.88	3.60	.66	3.82	.67
Sharing knowledge	.**	3.54	.66	4.15	.50	4.28	.45
Intention to stay and actively participate until retirement	.+	3.56	.71	3.93	.80	4.11	.74

+. significant at the 0.10 level
***. significant at the 0.05 level**
****. significant at the 0.01 level**

Table 7 - Means and Standard Deviations for the Past Professional Development

Variables	Sig.	Little (N = 19)		Average (N = 96)		Much (N=42)	
		Mean	SD	Mean	SD	Mean	SD
Workload	n.s.	2.98	.51	3.36	.81	3.18	.82
Choice-independence		2.75	.65	2.76	.66	2.87	.78
Intrinsic motivation to learn	.**	3.81	.45	4.22	.59	4.42	.47
Asking feedback	.*	3.31	.79	3.66	.63	3.87	.70
Sharing knowledge	.**	3.76	.63	4.17	.47	4.35	.47
Intention to stay and actively participate until retirement	n.s.	3.79	.76	4.00	.76	4.08	.32

+. significant at the 0.10 level
***. significant at the 0.05 level**
****. significant at the 0.01 level**

Appendix 3 – Regression Tables with Control Variables

Table 8 - Regression Analysis, with Asking feedback as dependent variable

	Model 1	Model 2	Model 3
Gender	-.00	.01	.00
Age	.05	.05	.09
Education	-.01	.01	-.01
Past learning motivation	.09	.08	.11
Past training participation	.17	.18	.14
Workload		**.06**	
Choice-Independence			**.23****
R^2	.25	.26	.34
ΔR2	.06	.07	.11

+. Correlation is significant at the 0.10 level (2-tailed)
***. Correlation is significant at the 0.05 level (2-tailed)**
****. Correlation is significant at the 0.01 level (2-tailed)**

Table 9 - Regression Analysis, with Sharing knowledge as dependent variable

	Model 1	Model 2	Model 3
Gender	.03	.05	.04
Age	-.06	-.06	-.03
Education	.11	.13	.11
Past learning motivation	.10	.10	.12
Past training participation	.25**	.26**	.23+
Workload		**.09**	
Choice-Independence			**.20+**
R^2	.35	.36	.40
ΔR2	.16	.13	.16

+. Correlation is significant at the 0.10 level (2-tailed)
***. Correlation is significant at the 0.05 level (2-tailed)**
****. Correlation is significant at the 0.01 level (2-tailed)**

Table 10 - Regression Analysis, with Intention to Stay and Actively Participate Until Retirement as dependent variable

	Model 1	Model 2	Model 3
Gender	.03	.03	.02
Age	-.17+	-.19+	-.15+
Education	.07	.07	.04
Past learning motivation	.13	.10	.10
Past training participation	.04	-.02	-.03
Asking feedback		**.34****	
Sharing knowledge			**.31****
R^2	.25	.41	.38
ΔR2	.06	.17	.15

+. Correlation is significant at the 0.10 level (2-tailed)
***. Correlation is significant at the 0.05 level (2-tailed)**
****. Correlation is significant at the 0.01 level (2-tailed)**

Appendix 4 - Questionnaire

General Information

1) Wat is uw geslacht?	Man Vrouw
2) Binnen welke leeftijdcategorie hort u?	< 45 46-50 51-54 55-59 >60
3) Wat is uw hoogste behaalde diploma?	Geen MBO HBO WO Promotie
4) Hoe hebt u zich in de praktijk ingezet om te blijven ontwikkelen?	Weinig Gemiddeld Veel
5) Hoeveel trainingen of praktische opleidingen hebt u gevolgd?	Weinig Gemiddeld Veel

Learning Climate

De werklast in deze organisatie is te groot.	1	2	3	4	5
In deze organisatie krijgen medewerkers de kans om te kiezen welke taken zij uitvoeren.	1	2	3	4	5
In deze organisatie wordt van je verwacht dat je veel tijd besteed aan zelfstandig leren.	1	2	3	4	5
Deze organisatie lijkt ons erin te ondersteunen werkgerelateerde interesses zelf te ontwikkelen.	1	2	3	4	5
Het lijkt dat er te veel werk is dat gehandhaafd moet worden.	1	2	3	4	5
Het schijnt dat wij veel keuze hebben in het werk dat we doen.	1	2	3	4	5
Er ligt veel druk op ons als medewerkers in deze organisatie.	1	2	3	4	5
Deze organisatie geeft je de mogelijkheid om je werk op een manier aan te pakken, die jouw leerstijl het beste schikt.	1	2	3	4	5
Medewerkers kunnen vrij kiezen hoe zij nieuwe taken willen leren.	1	2	3	4	5

Intrinsic Motivation

Ik vind het leuk om te leren.	1	2	3	4	5
Ik zet me ervoor in om te leren.	1	2	3	4	5
Ik denk dat leren een toegevoegde waarde heeft voor mij.	1	2	3	4	5
Ik vind het leuk om te leren.	1	2	3	4	5
Ik doe niet mijn best om te leren. (R)	1	2	3	4	5
Ik denk dat leren nuttig is voor mij.	1	2	3	4	5
Ik besteed helemaal geen aandacht aan leren.	1	2	3	4	5
Ik zet me ervoor in om te leren.	1	2	3	4	5
Ik denk dat het belangrijk is om te leren.	1	2	3	4	5
Ik zou leren als interessant omschrijven.	1	2	3	4	5
Het is belangrijk voor mij om goed te zijn in het leren.	1	2	3	4	5
Ik zou graag vaker de kans willen krijgen om te leren omdat het waardevol is voor mij.	1	2	3	4	5
Ik vind het best leuk om te leren.	1	2	3	4	5
Ik doe geen moeite om te leren. (R)	1	2	3	4	5
Ik denk dat leren mij kan helpen.	1	2	3	4	5
Tijdens dat ik leer, denk ik eraan hoe leuk ik het vind.	1	2	3	4	5
Ik verwacht dat leren behulpzaam is voor mij.	1	2	3	4	5
Ik vind dat leren een belangrijke activiteit is.	1	2	3	4	5

Informal Learning

Ik ben bereid mijn kennis te delen met collega's	1	2	3	4	5
Ik bespreek met collega's hoe ik me ontwikkeld heb	1	2	3	4	5
Ik vraag collega's regelmatig om advies	1	2	3	4	5
Ik vraag mijn collega's om feedback	1	2	3	4	5
Ik deel mijn kennis en ervaringen regelmatig met collega's	1	2	3	4	5
Ik vraag mijn leidinggevende om feedback	1	2	3	4	5
Door het advies van collega's kan ik mijn werk beter uitvoeren	1	2	3	4	5
Ik bespreek met mijn collega's wat ik belangrijk vind in mijn werk	1	2	3	4	5
Collega's luisteren wanneer ik advies geef over werkinhoudelijke zaken	1	2	3	4	5
Ik nodig collega's uit om mijn werk kritisch te beoordelen	1	2	3	4	5
Ik waardeer de kennis die met mij gedeeld wordt	1	2	3	4	5
Ik bespreek met mijn collega's onze criteria voor goed functioneren	1	2	3	4	5
Ik vind de kwaliteit van kennisdelen binnen ons team goed	1	2	3	4	5

Intention to stay and actively participate until retirement

Ik ben geneigd om regelmatig betrokken te zijn bij werkgerelateerde activiteiten	1	2	3	4	5
Het liefst zou ik zo snel mogelijk willen stoppen met werken (R)	1	2	3	4	5
Ik vind het leuk dat ik me continu zelf kan ontwikkelen op mijn werk	1	2	3	4	5
Ik kijk uit naar de volgende jaren, die ik voor deze organisatie ga werken	1	2	3	4	5