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Engagement in informal learning activities in self-employed professionals and factors that influence their engagement
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**Abstract**

Self-employed professionals are a relatively understudied group of professionals, especially when it comes to informal learning. It is important to create a knowledge base surrounding self-employed professionals and their informal learning activities to aid their personal development concerning employability. In this paper it was investigated in which prototypical informal learning activities self-employed professionals engage in, and what factors inhibited and enhanced their engagement in these activities. This was done by means of an exploratory quantitative survey research amongst Dutch self-employed professionals (N = 61). Results of the study show that self-employed professionals engage more in non-social informal learning activities than social ones. Engagement in informal learning activities is inhibited by environmental factors such as a lack of time, lack of close colleagues, and a lack of recognition. Engagement is enhanced by personal factors such as having an interest in the field of work and a love for learning. These findings can be used by self-employed professionals to revise their working and learning practices to aid their employability. The results of this study provide insights on how self-employed professionals learn by promoting self-awareness through insights, and to revise working and learning practices to aid employability.

*Key words: self-employed, professionals, informal learning, factors influencing informal learning, engagement in informal learning activities*

**Engagement in informal learning activities in self-employed professionals and factors that influence their engagement.**

With a fast growing working population of 5.3% of the total Dutch working population in 2018 (<https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82309ned/line?ts=1547886427933>) and an increasing amount of graduates going into self-employment (Harvey, 2002), it makes sense to look into activities of self-employed professionals (SEPs) to see how this group deals with keeping themselves employable. More knowledge about the employability of SEPs could potentially help this group in securing a financially stable future. An important aspect of increasing and maintaining employability is informal learning (Van der Heijden, Boon, Van der Klink & Meijs, 2009), and a lot of learning as a professional takes place on an informal level (Marsick & Watkins, 2001; Berg & Chyung, 2008).

Although much is already known about informal learning and regularly employed professionals (from here on referred to as employees) (Ellinger, 2005; Lohman, 2005), it is interesting to look at SEPs because their work environment and tasks differ from employees working for organizations. The differences could possibly influence their engagement in informal learning activities, and therefore influence their employability.

For instance, a difference between employees and SEPs is that SEPs are responsible for the quality and upholding of legal obligations. Having these responsibilities also means that SEPS have responsibility over their own learning trajectory (Knowles, 1975) and increased autonomy, which could aid learning (Fazey & Fazey, 2001). On the other hand, a perceived lack of time due to dealing with a wide variety of responsibilities could hamper learning (Ackerman & Goldsmith, 2011). Another example of the difference between employees and SEPs would be the absence of colleagues, inhibiting social forms of learning like participation in communities of practice (Handley, Clark, Fincham & Sturdy, 2007). Thus, it is important to study what informal activities SEPs engage in, to get more insight in how this group may differ

from other professionals. The need for the examination of informal learning practices in all kinds of groups of professionals was also stressed by Lohman (2006).

In order to get an idea of the informal learning practices in SEPs it is useful to explore the kind of prototypical informal learning activities SEPs engage in and what factors influence their engagement in these informal learning activities. This knowledge could aid SEPs in improving their employability (Van der Heijde & Van der Heijden, 2006; Van der Heijden, Boon, Van der Klink & Meijs, 2009) by creating self-awareness, a key component of personal development (Hall, 2004). This knowledge will also contribute to the knowledge base surrounding SEPs and their personal development practices, answering the need of more insight into informal learning practices in different groups of professionals (Lohman, 2006).

In this exploratory study it will be attempted to test what type of earlier established prototypical informal learning activities SEPs engage in, and see what factors influence their engagement in these activities.

## **Theoretical Framework**

### **Informal learning**

Despite the vast amount of research, informal learning remains a surprisingly difficult phenomenon to define. Marsick and Watkins (1990) primarily see it as a contrast with formal learning. Informal learning includes incidental learning, but is usually intentional and not highly structured (Marsick & Watkins, 1990). For conscious learning, Marsick and Watkins (1990) mention examples like self-directed learning and mentoring, and for incidental learning they mention learning from made mistakes and processes of trial-and-error. Also, informal learning is seen as an individual way of learning (Cross, 2011), as opposed to formal learning in which the trajectory is pre-planned and the same for everyone. Despite variations in definitions, it is generally agreed that any form of informal learning amongst employees takes place predominantly at work (Swanwick, 2005).

Eraut (2004) distinguishes three types of informal learning in a descriptive framework: implicit-, reactive-, and deliberative learning. Implicit learning can be seen as the acquisition of knowledge without conscious attempts to learn, and without explicit knowledge about what was learned (Kihlstrom, 1994). Eraut (2004) recognized that all types of learning have some degree of implicit learning in them. Reactive learning is intentional learning which occurs more or less spontaneous while in the middle of an action when there is little time to think. Reactive learning results more in recognition of future learning opportunities than actual learning in that particular moment (Eraut, 2004). Deliberative learning has a definite learning goal. Time is set aside for the intake of new knowledge, and participation is planned in organized activities (Tough, 1979). Most of the abovementioned forms of learning are part of daily working tasks and are therefore often overlooked as learning incidents (Eraut, 2004).

In this study, informal learning will take on the perspective of deliberative learning. Deliberative learning was chosen because this paper wants to research informal learning in SEPs on a conscious level. Since this will be done through self-report (see Method), it would be nearly impossible to measure implicit- or reactive learning.

### **Prototypical informal learning activities**

Although the descriptive framework (Eraut, 2004) is useful in order to understand informal learning, more is already known about specific activities which exist in informal learning. Informal learning involves a process of action and reflection (Marsick, Volpe & Watkins, 1999; Lohman, 2000). Marsick and Watkins (2001) stated that the process of action and reflection is started by encountering challenging work situations and involves eight steps closely fitting in with Eraut's description of deliberative learning (2004): framing the context, responding to triggers to a potential learning experience, interpreting the experience, examining alternative solutions, choosing learning strategies, producing alternative solutions, assessing intended and unintended consequences, and evaluating lessons learned. These steps provide a

blueprint of the cognitive activities involved in informal learning, but do not yet provide specific activities that may lead to informal learning.

Eraut (2007) distinguished four activities of informal learning in the workplace that tie in with the cognitive activities mentioned by Marsick and Watkins (2001): participation in group activities (teamwork with common goal and groups set up for special purpose), working alongside others (observe and listen to others at work), tackling challenging tasks (requires on-the-job learning), and working with clients (learning about the client, from client his problem, and new ideas that came from interaction).

Lohman (2006) further specified these informal learning activities. Talking with others, collaborating with others, observing others, sharing of materials and resources with others, searching the internet, scan professional magazines and journals, trial and error, and reflection on actions were seen as the most prominent activities in which informal workplace learning takes place (Lohman, 2006).

Van Woerkom, Nijhof, and Nieuwenhuis (as cited in Lohman, 2006) developed a model which included activities which are associated with critical reflective behaviour at work, further deepening earlier found activities of informal learning (Lohman, 2006): reflection on oneself in relation to the job, learning from mistakes, vision sharing, challenging group think, asking for feedback, experimentation, sharing knowledge, and awareness of employability.

For this study the informal learning activities presented by Lohman (2006) will be used as prototypical informal learning activities. These will be used because Lohman (2006) provides specific descriptions of activities which can easily be recognized in participants day to day life, giving them a more clear image of informal learning. The activities described by Lohman (2006) could be considered deliberative learning as described by Tough (1997) since these activities usually take place after being confronted with a problem or situation that is unfamiliar, and therefore needs an unknown solution.

### **Factors influencing engagement in informal learning**

Several factors may influence engagement in informal learning activities. Woerkom et al. (as cited in Lohman, 2006) identified ten influential characteristics of the job itself: workload, alternation, autonomy, task obscurity, information, participation, cooperation, communication, coaching, and organizational climate for learning. Woerkom et al. (as cited in Lohman) also identified three worker characteristics which influence engagement in learning activities: motivation, self-efficacy, and variety of experience. Self-efficacy was the most potent in relation to promoting critical reflective behaviour.

A qualitative study by Lohman and Woolf (2001) revealed a more complex relationship between environmental and personal factors on engagement in informal learning. Engagement in teachers was inhibited by four work environment aspects: lack of time for learning, lack of proximity to learning resources, lack of meaningful rewards for learning, and limited decision-making power. The effects of these environmental inhibitors were reduced by certain personal characteristics that enhanced teachers their ability to engage in informal learning activities (Lohman, 2003): initiative, self-efficacy, commitment to lifelong learning, and love for the subject area. These environmental- and personal factors will be used in this study to see how they influence engagement in informal learning activities for SEPs.

### **Self-employed professionals and informal learning**

Looking at the literature for informal learning, there are reasons to believe that different groups of professionals engage in different informal learning activities (Lohman, 2005). SEPs might have certain preferable informal learning activities in which they engage, and different environmental- and personal factors that influence their engagement. For instance, Human Resource Development (HRD) professionals rely on more independently focused activities, where school teachers rely on more interactive learning activities (Lohman, 2005). This could best be explained by the type of influential environmental factors that both groups of

professionals experience. HRD professionals their engagement was influenced by unsupportive organizational cultures, the unwillingness of others to participate in informal learning activities, and the inaccessibility of subject matter experts. Teachers their engagement was largely influenced by experiencing a lack of funds (Lohman, 2005). It is expected that SEPs experience similar environmental restrains and engage in more independent informal learning activities because of similarities with HRD professionals, like not having an organizational culture to support them, not being physically close to colleagues who would participate in informal learning activities with them, and having to rely on your own budget for investments in personal development.

Aside from factors influencing informal learning practices, the nature of self-employment itself is of great influence on developmental practices of SEPs. Whilst self-employment may lead to greater autonomy regarding work, SEPs might have difficulty deciding which assignments will be the most knowledge enhancing (Bird, 1994). In addition, SEPs might encounter difficulties with deciding to what extent knowledge can be codified and transferred between assignments (Davenport & Prusak, 1998), and may struggle with the reduced opportunities for experimentation (trial-and-error) because of client assumptions about hiring their expert knowledge (Herriot & Pemberton, 1995). SEPs might also experience limited opportunities for learning conversations (Bird, 1994; Davenport & Prusak, 1998). These difficulties surrounding learning stresses the need for studying informal learning for SEPs as a separate professional group (Lohman, 2006).

Findings in which SEPs were said to be more individually oriented and value their autonomy (Feldman & Bolino, 2000; Beugelsdijk & Noorderhaven, 2005; Van Gelderen & Janssen, 2006), created the expectation that SEPs engage more in activities which do not require social contact, like searching the internet and reflecting on personal actions. Also, it is expected that a perceived lack of free time (Lohman, 2006) is the most prominent inhibitor for



engagement in informal learning since SEPs often perceive that they are under time constraints to finish an assignment (Hyytinen & Ruuskanen, 2007). For personal factors that enhance engagement in informal learning activities, initiative (Lohman, 2006) is expected to have a substantial influence on the engagement in informal learning activities in SEPs, since initiative is seen as a personality factor that is typically present in a high amounts in SEPs (Frese, Fay, Hilburger, Leng & Tag, 1997). Also, self-efficacy (Lohman, 2006) is expected to have a large influence on engagement in informal learning activities as it is seen as the most potent personal characteristic in promoting reflective behaviour (Woerkom et al., as cited in Lohman, 2006).

In this paper it will be investigated in what kind of prototypical informal learning activities SEPs engage in and what factors influence their engagement in these activities. Also, these activities and factors will be compared between three different groups of SEPs to explore the influence of environmental and personal factors on their engagement. A distinction is made between SEPs with their own business with personnel and SEPs with their own business without personnel, and SEPs who second themselves to other organisations. This leads to the following three research questions:

The first research questions concerns the type of prototypical informal learning activities which SEPs engage in:

RQ1: *“To what extent do SEPs engage in prototypical informal learning activities and how does this vary between different groups of SEPs?”*

The second research question concerns the environmental inhibiting factors that influence SEPs their engagement in prototypical informal learning activities:

RQ2: *“To what extent do environmental factors inhibit engagement in prototypical informal learning activities in SEPs and how does this vary between different groups of SEPs?”*

The third research questions concerns the personal enhancing factors that influence SEPs their engagement in prototypical informal learning activities:

RQ3: *“To what extent do personal factors enhance engagement in prototypical informal learning activities in SEPs and how does this vary between different groups of SEPs?”*

These questions will be answered by means of an exploratory, quantitative survey research amongst SEPs. Findings of this research can be used to further research on informal learning and SEPs, and help SEPs improve their employability by creating more self-awareness to aid their employability.

## **Method**

### **Research Design**

This study is designed as a quantitative survey research in which SEPs self-report on their informal learning activities. Informal learning has been known as a subject of discussion when it comes to research methods (Colley, Hodkinson & Malcolm, 2003). However, no dominant research method for investigating informal learning has been established yet, with both quantitative and qualitative methods having their own benefits and uses (Sawchuck, 2008).

Since this study is about testing if earlier established prototypical informal learning activities are engaged in by SEPs, and if earlier established factors influence that engagement, it seemed logical to use a survey in which these prototypical learning activities were presented to SEPs to self-report. Participants were asked to fill out the survey once and could do so on their own electronic device. Although multiple, repetitive test with the same participants could result in a more coherent image of informal learning amongst SEPs, the pilot study revealed that this would make the workload for participants too high.

Dependent variables for all three research questions in this study were the prototypical informal learning activities as stated by Lohman (2006). Independent variables were subgroups of SEPs (first research questions), inhibiting environmental factors (second research question), and enhancing personal factors (third research question).

### **Participants**

For this study a total of 61 participants ( $n = 61$ ) filled out the survey. Of these participants 24 were women ( $n = 24$ ) and 37 were men ( $n = 37$ ). Average age of the participants was 46 ( $M=46$ ) with the youngest participant being 21 and the oldest participant being 75. Participants were, on average, active as a SEPs for eight years ( $M = 8$ ) with a standard deviation of 6,7 ( $SD = 6,7$ ). All participants were Dutch speaking SEPs.

Participants were asked to categorize themselves into one of three types of SEPs to be able to check if different working conditions and environments effected their results. Unfortunately, most participants categorized themselves in one group: SEPs without personnel. This made it impossible to perform a valid comparative analysis and therefore influenced the degree in which the research questions could be answered. However, the data was investigated to look for any trends between the three groups.

### **Instruments**

The informal learning survey used in this paper is based on a survey by Lohman (2006) (Appendix I), who investigated engagement in informal learning activities in teachers. The entire survey was translated, from the original English to Dutch, to accommodate Dutch speaking participants (Appendix II). The translation was performed through a process of direct translation (McKay, Breslow, Sangster, Gabbard, Reynolds, Nakamoto & Tarnai, 1996). The eventual survey that was used contained a total of 72 close-ended items and three open-ended items (excluding demographics) (Appendix II).

The survey was divided into three parts. Part one concerned asking participants about the prototypical informal learning activities they engaged in: talking to others, collaborating with others, observing of others, sharing of material and resources, searching the internet, scanning of professionals magazines, trial-and-error, and reflecting personal actions. Participants were asked to indicate how often they made use of a certain informal learning

activity when having to learn something new for work on a 5-point Likert scale (1 = never use this activity, 5 = always use this activity).

Part two asked participants about the environmental factors that inhibited their engagement in the prototypical informal learning activities that were mentioned in part 1 of the survey: a perceived lack of time, a perceived lack of proximate colleagues, a perceived lack of access to technology, and a perceived lack of recognition. Participants were asked to indicate how often an environmental factor inhibited their engagement in informal learning activities on a 5-point Likert scale (1 = never inhibits my engagement, 5 = always inhibits my engagement). One of the questions that was used in the survey was ‘How often does a lack of personal time inhibit your engagement in the activities mentioned in part 1 of the survey?’.

The third and last part of the survey asked participants about the personal factors that enhanced their engagement in the prototypical informal learning activities mentioned in part 1: initiative, self-efficacy, having a love for learning, and being interested in the field of work. Participants were asked to indicate how often a personal factor enhanced their engagement in informal learning activities on a 5-point Likert scale (1 = does not enhance my engagement at all, 5 = does totally enhance my engagement). All three parts finished with an open-ended question, asking participants to add any additional informal learning activities they engaged in, and any environmental- or personal factors that influenced their engagement in any of the prototypical informal learning activities. One of the questions that was used in the survey was ‘In what degree does your perception of your professional capacities enhance your motivation to engage in the activities mentioned in part 1 of the survey?’.

At the end of the survey participants were asked to fill out their demographic information concerning age, the number of years they had been active as SEP, their gender, and select one of three types of SEP they identified with the most. An introductory section was

added to the translated survey in order to inform participants about the process of the research, and to provide informed consent.

Validity of the translated survey was established by means of a pilot study (n=3) and back-translation (Appendix III). The pilot study also provided information for the feasibility of the study. Several adjustments were made to the survey based on the output from the pilot study (Appendix III).

### **Procedure**

A variety of methods was used to gather participants because SEPs were hard to find and persuade to fill out the survey. Methods to recruit participants included using LinkedIn advertising options, approaching SEPs at public workplaces, contacting SEPs in personal networks, and contacting organizations and online networks for SEPs. Although most SEPs, organizations, and networks had an enthusiastic reaction, and LinkedIn statistics showed promising statistics, only a small portion of the approached participants completed the survey.

Before starting the survey, participants were asked to read through the whole procedure of the study, what the information that they provided in the survey was used for, and provide their consent for the use of that information (Appendix II). All participants gave their permission to use their provided information for this study. In order to motivate participation in the study, all participants were given the option keep being involved in the study by presenting them with the eventual results. After six weeks of collecting data the survey was closed.

### **Data Analysis**

In order to be able to perform the correct analyses, the assumptions for an One-Way ANOVA and a multiple regression analysis were checked. Due to a small sample size and large size differences between the three groups of SEPs, the assumption of normality for the ANOVA was violated. Due to the significant size differences between groups, no added value was seen

in performing a non-parametric test instead. The scale of measurement, independence, and homogeneity of variance assumptions were met.

Testing of assumption for the multiple regression analysis revealed a violation of the reasonable N:k ratio, due to a small sample size. Because of the small sample size, the effect size was taken into consideration in every model for RQ2 and RQ3 using Cohen's  $f^2$ . The assumption of normality was met with mild departures in normality. Assumptions of multicollinearity and normality, linearity, and homoscedasticity of residuals had been met. The Maximum Mahalanobis distances revealed that multivariate outliers were present. Considering the type of information gathered with the survey and the small sample size, it was decided to ignore this violation and use all the data.

In order to answer RQ1 (*To what extent do SEPs engage in prototypical informal learning activities and how does this vary between different groups of SEPs?*) descriptive statistics were investigated to establish an idea of what activities were most engaged in. Before analysing the data it was discovered that the vast majority of participants classified themselves into one of the three categories presented for SEPs, making valid statistical testing impossible. An ANOVA was performed and descriptive statistics were used to look for any apparent trends between the three groups, but these results were not used for further analyses.

In order to answer RQ2 (*To what extent do environmental factors inhibit engagement in prototypical informal learning activities in SEPs and how does this vary between different groups of SEPs?*), the amount of variance in the engagement in informal learning activities that could be accounted for by inhibiting environmental factors was checked. This was done by means of a multiple regression analysis in which environmental factors that hamper engagement in informal learning were compared on their influence on different informal learning activities.

In order to answer RQ3 (*To what extent do personal factors enhance engagement in prototypical informal learning activities in SEPs and how does this vary between different*

*groups of SEPs?*), the amount of variance in the engagement in informal learning activities that could be accounted for by enhancing personal factors was checked. This was done by means of a multiple regression analysis in which personal factors that promote engagement in informal learning were compared on their influence on different informal learning activities. All analyses were performed through IBM SPSS Statistics, using an alpha level of .05 ( $\alpha = .05$ ).

Answers to open questions were investigated manually to see if there were any informal learning activities that were overlooked, or new factors that could be identified using open- and axial coding. The common factors were identified by comparing the content of the answers. Since there was only a small amount of answers to the open-ended questions, the exact number of times a topic was mentioned was not taken into consideration. The information from the open-ended questions was intended to aid design of future research on the topic of informal learning, improve the used survey, and support findings from the analyses.

## **Results**

### **One-Way ANOVA**

Because the majority of the participants categorized themselves in one of the three groups of SEPs, the first research question could not be tested. However, it was possible to investigate the engagement in prototypical informal learning activities using descriptive statistics (Table 1) and perform an ANOVA to explore possible future outcomes (Table 2). Table 2 shows that the most used activities amongst SEPs is searching the internet, talking to others, and reflecting on one's own actions. The least used activity is scanning professional magazines. The SD values show that there is not much variation in distribution of scores. Table 2 shows the descriptive statistics for the ANOVA. Unfortunately, none of the analyses were significant. This could be attributed to the small sample size. Looking at Table 2, no noticeable trends between the three groups of SEPs could be discovered.

**Table 1 Informal learning activities in SEPS**

Informal learning activity	M	SD	Min	Max
Talking to others	4.16	.71	2	5
Collaborating with others	3.67	.94	1	5
Observing of others	3.34	1.06	1	5
Sharing of material and resources	3.64	1.05	1	5
Search the internet	4.41	.72	3	5
Scan professional magazines	3.13	1.27	1	5
Trial-and-error	3.33	1.11	1	5
Reflect on own actions	4.03	.89	2	5

**Table 2 Descriptive statistics for ANOVA**

	ZZP No personnel		ZZP with personnel		ZZP detached	
	M	SD	M	SD	M	SD
Talking to others	4.11	.73	4.27	.65	4.67	.58
Collaborating with others	3.57	.97	4.09	.70	3.67	1.16
Observing of others	3.32	1.02	3.27	1.27	4.00	1.00
Sharing of material and resources	3.64	1.072	3.82	.75	3.00	1.73
Search the internet	4.40	.74	4.45	.69	4.33	.58
Scan professional magazines	3.21	1.28	3.09	1.22	2.00	1.00
Trial-and-error	3.19	1.12	3.73	1.01	4.00	1.00
Reflect on own actions	4.06	.92	4.00	.76	3.67	1.16

**Multiple regression analysis**

To estimate the proportions of variance in engagement in prototypical informal learning activities that can be accounted for by inhibiting environmental factors and personal enhancing factors (RQ2 and RQ3), a standard multiple regression analysis was performed. Tables 3, up and till 10 show the multiple regression analyses performed per prototypical informal learning activity.

**Talking to others.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 30% of the variability in the informal learning activity talking to others,  $R^2 = .29$ , adjusted  $R^2 = .19$ ,  $F(8, 52) = 2.77$ ,  $p = .01$ . Lack of proximity of colleagues



had a negative beta coefficient, suggesting that the closer an individual is to colleagues, the more likely they are to talk to others in order to learn. Interest of field of work had a positive beta coefficient, meaning that the bigger the interest in the field of work, the more likely an individual is to talk to others in order to learn (Table 3). Effect size of the model is  $f^2 = .43$ , which can be considered a large effect.

**Table 3 Multiple regression analysis ‘talking to others’**

Talking to others	B	SE B	$\beta$	<i>t</i>	<i>p</i>
Time	.04	.60	.05	.383	.70
Proximity	-.13	.10	-.25	-2.06	.04
Technology	.02	.06	.05	.35	.73
Recognition	-.04	.06	-.08	-.60	.55
Initiative	-.08	.07	-.15	-1.09	.28
Self-efficacy	.05	.07	.08	.51	.61
Love for learning	.04	.10	.06	.39	.70
Interest in field of work	.37	.14	.37	2.58	.01

**Collaborating with others.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 28% of the variability in the informal learning activity collaborating with others,  $R^2 = .28$ , adjusted  $R^2 = .17$ ,  $F(8, 52) = 2.51$ ,  $p = .02$ . A lack of proximity to colleagues had a negative beta coefficient, suggesting that the closer an individual is to colleagues, the more likely they are to collaborate with others in order to learn. A lack of recognition also had a negative beta coefficient, suggesting that the more recognition an individual expects to receive for his or her work, the more likely they are to collaborate with others in order to learn (Table 4). Effect size of the model is  $f^2 = .39$ , which can be considered a large effect.

**Table 4 Multiple regression analysis ‘collaborating with others’**

<b>Collaborating with others</b>	<b>B</b>	<b>SE B</b>	<b>β</b>	<b>t</b>	<b>p</b>
Time	.01	.12	.01	.08	.94
Proximity	-.25	.10	-.35	-2.58	.01
Technology	.06	.09	.10	.68	.50
Recognition	-.22	.10	-.32	-2.12	.04
Initiative	-.11	.10	-.15	-1.105	.27
Self-efficacy	.04	.13	.04	.26	.80
Love for learning	.05	.15	.07	.37	.71
Interest in field of work	.24	.21	.17	1.14	.26

**Observing of others.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 24% of the variability in the informal learning activity observing others,  $R^2 = .24$ , adjusted  $R^2 = .13$ ,  $F(8, 52) = 2.08$ ,  $p = .05$ . Interest in field of work had a positive beta coefficient, suggesting that the higher an individual his or her interest in their field of work is, the more likely they are to observe others in order to learn (Table 5). Effect size of the model is  $f^2 = .32$ , which can be considered a large effect.

**Table 5 Multiple regression analysis ‘observing of others’**

<b>Observing of others</b>	<b>B</b>	<b>SE B</b>	<b>β</b>	<b>t</b>	<b>p</b>
Time	-.17	.13	-.21	-1.32	.19
Proximity	-.19	.11	-.52	-1.71	.09
Technology	.08	.10	.13	.78	.44
Recognition	-.07	.13	-.09	-.53	.59
Initiative	-.06	.11	-.08	-.54	.59
Self-efficacy	-.20	.13	-.27	-1.49	.14
Love for learning	.03	.20	.04	.17	.87
Interest in field of work	.51	.23	.51	2.22	.03

**Sharing of materials and resources with others.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 31% of the variability in the informal learning activity sharing of material and sources,  $R^2 = .31$ , adjusted  $R^2 = .20$ ,  $F(8, 52) = 2.85$ ,  $p = .01$ . For sharing of material and sources there were no factors accounting for a significant amount of variability (Table 6). Effect size of the model is  $f^2 = .44$ , which can be considered a large effect.

**Table 6 Multiple regression analysis ‘sharing of materials and resources’**

Sharing of materials and resources	B	SE B	$\beta$	<i>t</i>	<i>p</i>
Time	-.19	.13	-.23	-1.51	.14
Proximity	-.11	.10	-.16	-1.11	.27
Technology	-.05	.09	-.07	-.50	.62
Recognition	-.12	.11	-.17	-1.09	.28
Initiative	-.14	.11	-.19	-1.26	.21
Self-efficacy	.14	.12	.17	1.12	.27
Love for learning	.05	.15	.06	.34	.73
Interest in field of work	.04	.16	.04	.22	.83

**Searching the internet.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 34% of the variability in the informal learning activity searching the internet,  $R^2 = .34$ , adjusted  $R^2 = .24$ ,  $F(8, 52) = 3.37$ ,  $p = .003$ . A perceived lack of time had a negative beta coefficient, suggesting that individuals who feel they have a shortage of time are less likely to search the internet in order to learn. A lack of recognition also had a negative beta coefficient, suggesting that individuals who expect recognition for their work are more likely to search the internet in order to learn (Table 7). Effect size of the model is  $f^2 = .52$ , which can be considered a large effect.

**Table 7 Multiple regression analysis ‘searching the internet’**

Searching the internet	B	SE B	$\beta$	<i>t</i>	<i>p</i>
Time	-.22	.08	-.32	-2.72	.01
Proximity	.04	.07	.08	.54	.59
Technology	-.01	.05	-.02	-.13	.90
Recognition	-.19	.09	-.31	-2.05	.04
Initiative	-.07	.07	-.13	-1.02	.31
Self-efficacy	.02	.06	.05	.40	.69
Love for learning	.07	.08	.12	.96	.34
Interest in field of work	.14	.12	.17	1.19	.24

**Scanning professional magazines.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 37% of the variability in the informal learning activity scanning of professional magazines,  $R^2 = .37$ , adjusted  $R^2 = .27$ ,  $F(8, 52) = 3.76$ ,  $p =$

.001. A perceived lack of time had a negative beta coefficient, suggesting that individuals who experience a shortage of time are less likely to pick up a professional magazine and scan through it (Table 8). Effect size of the model is  $f^2 = .58$ , which can be considered a large effect.

**Table 8 Multiple regression analysis ‘scanning professional magazines’**

Scanning professional magazines	B	SE B	$\beta$	<i>t</i>	<i>p</i>
Time	-.37	.13	-.42	-2.73	.01
Proximity	-.10	.10	-.15	-1.02	.31
Technology	.12	.10	.19	1.31	.20
Recognition	-.03	.14	-.04	-.19	.85
Initiative	-.15	.12	-.17	-1.20	.23
Self-efficacy	-.09	.10	-.12	-.85	.40
Love for learning	.23	.14	..24	1.62	.11
Interest in field of work	.15	.16	.15	.91	.37

**Trial-and-error.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 28% of the variability in the informal learning activity trial-and-error,  $R^2 = .28$ , adjusted  $R^2 = .17$ ,  $F(8, 52) = 2.57$ ,  $p = .02$ . A love for learning had a positive beta coefficient, suggesting that individuals who like to learn are more likely to feel motivated to try out new things (and make mistakes in these) in order to learn (Table 9). Effect size of the model is  $f^2 = .39$ , which can be considered a large effect.

**Table 9 Multiple regression analysis ‘trial-and-error’**

Trial-and-error	B	SE B	$\beta$	<i>t</i>	<i>p</i>
Time	-.21	.12	-.28	-1.70	.10
Proximity	-.15	.12	-.24	-1.24	.22
Technology	.04	.09	.07	.48	.63
Recognition	.03	.16	.04	.18	.86
Initiative	-.12	.10	-.17	-1.20	.24
Self-efficacy	-.09	.12	-.13	-.78	.44
Love for learning	.31	.13	.36	2.36	.02
Interest in field of work	-.08	.14	-.09	-.58	.56

**Reflecting on own actions.** All taken together, inhibiting environmental factors and enhancing personal factors accounted for 55% of the variability in the informal learning activity

reflecting on own actions,  $R^2 = .55$ , adjusted  $R^2 = .48$ ,  $F(8, 52) = 8,02$ ,  $p < .001$ . Perceived lack of time had a negative beta coefficient, suggesting that the more an individual experiences a lack of time, the less likely they are to reflect on their actions to learn. An interest in the field of work had a positive coefficient, suggesting that the more interest an individual has in their field of work, the more likely they are to reflect own their own actions in order to learn (Table 10). Effect size of the model is  $f^2 = 1.23$ , which can be considered a large effect.

**Table 10 Multiple regression analysis ‘reflecting on own actions’**

Reflecting on own actions	B	SE B	$\beta$	<i>t</i>	<i>p</i>
Time	-.19	.08	-.26	-2.23	.03
Proximity	-.10	.07	-.16	-1.40	.17
Technology	.08	.07	.15	1.25	.22
Recognition	-.16	.10	-.22	-1.60	.12
Initiative	-.07	.07	-.12	-1.07	.29
Self-efficacy	-.01	.08	-.02	-.16	.88
Love for learning	.17	.11	.22	1.50	.14
Interest in field of work	.37	.14	.39	2.67	.01

**Open-ended questions**

All the received activities could be grouped with the activities listed in the survey. All of the inhibiting environmental factors and personal enhancing factors that were mentioned by participants revealed two new categories: a perceived lack of (financial) resources (which can be seen as an inhibiting environmental factor) and being able to see the added value of learning something new (which can be seen as an enhancing personal factor). The other factors that were mentioned could be grouped with the existing factor ‘perceived lack of time’. Manual analysis of the open-ended questions in the survey revealed no new informal learning activities that SEPs engage in.

## **Discussion**

### **Conclusion**

In this study, it was investigated what kind of prototypical informal learning activities SEPs engage in, what environmental factors inhibited their engagement, and what personal factors enhanced their engagement. It was found that SEPs engage more in individually oriented informal learning activities than activities that require social contact. Engagement of SEPs in informal learning activities was mostly influenced by a perceived lack of time, proximity of colleagues, recognition of colleagues, having an interest in the field of work, and having a love for learning. In this section the results of this study, their implications for theory and practice, and directions for future research will be discussed.

### **Prototypical informal learning activities**

In line with research by Beugelsdijk and Noorderhaven (2005), two out of three of the most popular informal learning activities did not involve social contact ('searching the internet' and 'reflecting on personal actions'). On the contrary, the remaining activity in the three most popular was one that does require social contact ('talking to others').

This unexpected finding can be explained by entrepreneurs embedding their business decisions in social structures (Hansen, 1995). Entrepreneurs receive support, knowledge, and access to distribution channels through their social network (Greve & Salaff, 2003), which aids learning. It is expected that actively reaching out to others is a necessity for SEPs, due to a lack of proximate colleagues, in order to get their information from the outside world. This incidentally (but consciously) causes them to learn.

The activity 'scanning professional magazines' received the lowest score on levels of engagement, but also showed the largest standard deviation. The relatively large standard deviation could be explained by the wide age range of the sample group. Beginning professionals tend to use observations and informal discussions to learn, whereas more

experienced professionals use more formal methods like professional meetings and reading (Grangeat & Gray, 2007). However, these findings were weak and are in need of more extensive research. Answers to the open-ended questions indicated that some participants found that certain sources of information (like literature and conferences) are expensive and hard to find. Some participants might find it worth the investment, whereas others might not.

### **Inhibiting environmental factors**

As expected, a perceived lack of time did have an inhibiting effect on engagement in informal learning (Hyytinen & Ruuskanen, 2007). This was true for the activities searching the internet, scanning of professional magazines, and reflecting on personal actions; activities that do not require any social contact. A general cause for a perceived lack of time for learning can be explained by SEPs self-ensuring themselves for uncertain future conditions by working longer hours (Parker, Belghitar & Barmby, 2005).

The fact that abovementioned activities were influenced by a perceived lack of time might have different causes. Searching the internet could be hampered by a perceived lack of time due to SEPs experiencing longer working hours which hold no time for searching the internet, and opting to work harder on a problem instead of researching solutions in order to solve it (Bennett, Casebeer Zheng & Kristofco, 2006).

Furthermore, a perceived lack of time is an inhibiting factor for all professionals and reading any kind of more elaborate literature, so this is not a problem unique to SEPs (Horder, 2004). Next to a perceived lack of time, there are other inhibiting factors that might prevent SEPs from using literature to learn something new, like social class, culture and educational history (Horder, 2004).

Also, a perceived lack of time has been a known barrier to reflection on experience (Boud & Walker, 1993). A basic challenge with finding time for reflection on ones actions is a lack of understanding of its importance and benefits (Argyris, 1991).

Proximity of colleagues was another influential factor. The availability of knowledge and knowledgeable colleagues can influence whether and how individuals learn at work (Billet, 2002). Doornbos et al. (2004) stated: “The greater the worker’s experience of collegial availability, the more likely he or she will be engaged in learning from peers and learning together” (p.265). This would explain why ‘lack of proximate colleagues’ showed up as a prominent inhibiting factor for many informal learning activities, since most participants indicated that they ran their business by themselves.

Why recognition of colleagues might influence engagement in collaborative activities could be explained by the concept that the key to successful knowledge sharing is that personal ambition should match group ambition (Hendriks, 1999; Soekijad & Andriessen, 2003). In a collaborative meeting, when one individual senses that others are not as ambitious to approach a situation through learning something new, this individual might feel that his or her efforts are not recognized and is therefore less likely to share knowledge with others. The same might go for searching the internet for information, although it is not clear how these efforts would be apparent to others.

### **Enhancing personal factors**

It was expected that self-efficacy would show significant ties to engagement in informal learning activities, especially for the activity ‘reflecting on personal actions’ (Woerkom et al., as cited in Lohman, 2006). However, such a connection was not found in this study. Frese et al. (1997) found that initiative is the most prominent personal factor to influence engagement in informal learning. Initiative (Frese et al., 1997) did not come up as a significant influential factor either. Personal factors that did come up in the analysis were ‘interest in own field of work’ (for talking to others, observing of others, and reflecting on one’s own actions), and ‘love for learning’ (for trial-and-error).



Findings on empirical relations between interest and learning indicate that interest-based motivation has favourable effects on both the process and the outcome of learning (Krapp, 1999). Experiencing positive feelings of interest lead to optimal learning and performance. Also, interest-based performance leads to optimal motivation (Hidi, 2006). This information explains having a strong interest in a field of work enhancing engagement in several informal learning activities.

Logically, having a strong love for learning new things has a positive effect on the willingness of an individual to learn new things. That this effect was only apparent with trial-and-error based learning could be an effect of the small sample size, but research by Jentsch and Dudschig (2009) could explain why it is just apparent with this particular activity. Jentsch and Dudschig (2009) explain that people often become slower in their performance after making an error. Having an exceptionally strong love for learning might cause people to push through and continue with their work at the usual pace because the error is rather seen as an opportunity of improvement.

### **Limitations**

The small sample size ( $n=61$ ) resulted in multiple limitations for the analyses. For example, a comparison between the three groups of SEPs could not be made because only a small number of participants categorized themselves into other groups than 'SEPs with employees'. This can mostly be subscribed to the locations in which participants were approached.

The small sample size most likely also effected the multiple regression analysis, causing significant influential factors (like the personal enhancing factors self-efficacy and initiative) to stay hidden. That more significant influential factors were present, was evident by the large effect sizes ( $f^2$ ) that were detected for all the regression models. This indicated that the multiple regression analyses were underpowered (Sullivan & Feinn, 2012). A small sample size is a

possibility that should be planned for in future research through a carefully constructed procedure for collecting participants and a more strict alpha level ( $\alpha = .01$ ).

During the gathering of participants and data, a few comments were made by SEPs gathered through the personal network. They commented on some of the questions in the survey being too long and complex, making it difficult to answer them. The complexity of the questions was also noticed during the data analysis. Some of the questions were challenging to interpret for the output from the multiple regression analyses. For future use of the survey it is recommended to simplify the questions as much as possible to avoid differences in interpretation by participants. This would aid the reliability of the survey.

### **Practical implications**

Results and conclusions of this study could be used by SEPs to gain insight in their informal learning practices. SEPs are encouraged to look critically at the environment they work in and time they set aside for learning, and look at what effect this has on their engagement in learning activities. Results of this study give rise to two practical, directly applicable implications for SEPs.

First, SEPs could use the insights of this study regarding the perceived lack of time to revise their working and learning habits to assess if they could reserve more time for informal learning activities. Second, when assessing informal learning activities, SEPs who work alone can consider investing extra time in more socially oriented informal learning activities. These two practical implications contribute to tackling the two most influential environmental inhibitors on engagement in informal learning (Dobbs, 2000).

The findings of this study have important theoretical implications. The first is that this study created insights on the used survey, giving feedback on how to further develop it for future research. Also, this study has given more insight into SEPs and how they are maintaining and improving their employability through informal learning. However, because this study just

shed a first exploratory light of informal learning amongst SEPs, it is wise to use the results of this study to further develop the knowledge base surrounding SEPs and their learning activities.

### **Future research**

Based on the results of this study, there are a couple of directions that future research of SEPs and their informal learning practices could focus on. Future research should focus to further create self-awareness amongst SEPs to aid their personal development (Hall, 2004), and on how to best mitigate or overcome inhibiting factors (Tannenbaum, Beard, McNall & Salas, 2010), and make use of personal enhancing factors. In order to enable SEPs to develop effective informal learning habits it could be useful to research if some informal learning activities are more effective than others, just like there are more and less effective formal learning techniques for students (Dunlosky, Rawson, Marsh, Nathan & Willingham, 2013).

Because this study was focused on SEPs in general it is recommended to take into account various variables for future research. The type of profession SEPs are active in (Kyndt, Govearts, Dochy & Beart, 2011), the amount of experience a SEP has (Grangeat & Gray, 2011), and the age of a SEP (Thijssen & Van Heijden, 2003) are all factors which could play a role in the informal learning practices of SEPs. When controlling for these variables, a clearer understanding of informal learning practices in SEPs can be established.

For future research it would be valuable to consider using mixed methods, similar as the study on informal learning by Kwakman (2003). The use of mixed methods would provide a more precise image of how SEPs learn informally, being both able to identify and define activities and influential factors, and testing them for significance. Defining activities and factors is important to limit ambiguity surrounding definitions of informal learning activities and influential factors (Dawson, Henley & Latreille, 2014).

Concluding this study, it can be stated that there are reasons to assume that SEPs engage in different informal learning activities than other groups of professionals. SEPs personal characteristics and their work environments shape their choices when it comes to informal learning practices. Although a lot of work still needs to be done to form a clear understanding of informal learning activities in SEPs, insights of this study can already be used by SEPs to manage their time and informal learning activities to aid their employability, and function as a basis for future research.

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**Appendices**

**Appendix I- Survey Lohman (2006)**

**Appendix II- Translated survey**

**Appendix III- Pilot study**

**Appendix I- Survey Lohman (2006)**

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**Survey Items**

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**Section 1: Informal Learning Activities**

1. How frequently do you use the following activities when you need to learn something new at work?
- |   |  |
|---|--|
| (a) Talk with others                          | (f) Scan professional magazines and journals |
| (b) Collaborate with others                   | (g) Trial and error                          |
| (c) Observe others                            | (h) Reflect on your actions                  |
| (d) Share materials and resources with others | (i) Other activities? Please identify:       |
| (e) Search the Internet                       |  |

**Section 2: Environmental Inhibitors to Informal Learning**

2. How frequently does a lack of free time inhibit you from engaging in the following learning activities?
- |   |  |
|---|--|
| (a) Talk with others                          | (e) Search the Internet                      |
| (b) Collaborate with others                   | (f) Scan professional magazines and journals |
| (c) Observe others                            | (g) Trial and error                          |
| (d) Share materials and resources with others | (h) Reflect on your actions                  |
3. How frequently does a lack of proximity to your colleagues' work areas inhibit you from engaging in the following activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
4. How frequently does a lack of access to computer technology inhibit you from engaging in the following activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
5. How frequently does a lack of monetary rewards inhibit you from engaging in the following activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
6. How frequently does a lack of recognition inhibit you from engaging in the following learning activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
7. Please identify any other aspects of your work environment that inhibit you from engaging in the learning activities listed below.  
[Survey contained same 8 activities as those listed in #2 a -h with a blank beside each activity for a response]

**Section 3: Personal Characteristics Influencing Informal Learning**

8. To what extent does your determination to begin and persist in an activity enhance your motivation to engage in the following learning activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
9. To what extent does your perception of your professional capabilities enhance your motivation to engage in the following learning activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
10. To what extent does your love of learning enhance your motivation to engage in the following learning activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
11. To what extent does your interest in your professional field or subject area enhance your motivation to engage in the following learning activities?  
[Survey contained same 8 activities as those listed in #2 a -h]
12. Please identify any other personal characteristics that enhance your motivation to engage in the learning activities listed below.  
[Survey contained same 8 activities as those listed in #2 a -h with a blank beside each activity for a response]
-

## **Appendix II- Translated survey**

### **Introductie**

Beste zelfstandige,

Mijn naam is Frea van Dooremaal, student van de Universiteit Utrecht, en ik doe onderzoek naar de manier waarop zelfstandigen informeel leren. Informeel leren is kortweg leren dat zich buiten een klaslokaal voordoet, zoals op werk of thuis.

*Wat houdt het onderzoek in?*

Het onderzoek betreft het eenmalig invullen van een vragenlijst over uw persoonlijke leeractiviteiten. Het invullen van de vragenlijst zal niet langer dan 10 minuten duren. De vragenlijst kan gewoon vanaf uw eigen huis of werkplek worden ingevuld, op een tijd die u goed uitkomt.

U zou, indien wenselijk, op de hoogte gehouden kunnen worden van de resultaten van het onderzoek. Dit zou u kunnen helpen met het geven van inzicht in uw eigen leerproces.

Hiervoor kunt u aan het einde van de vragenlijst uw e-mailadres achterlaten.

Alle gegevens worden vertrouwelijk behandeld en anoniem verwerkt. De gegevens worden alleen voor onderzoeksdoeleinden gebruikt en niet verstrekt aan derden. Voordat u aan de vragenlijst begint wordt u gevraagd om toestemming te geven voor het gebruik van uw gegevens voor onderzoeksdoeleinden. U bent vrij deze te weigeren en om u ieder moment tijdens het onderzoek terug te trekken van deelname.

Heeft u vragen over het onderzoek? Stuur dan een mail naar [f.vandooremaal@students.uu.nl](mailto:f.vandooremaal@students.uu.nl).

Met vriendelijke groet,

Frea van Dooremaal

P.S.: Zorg er voor dat je de vragenlijst volledig invult en deze goed afsluit, anders kunnen de gegevens niet voor het onderzoek gebruikt worden.

### **Vragenlijst**

Geef in de onderstaande vragenlijst aan in hoeverre je hebt deelgenomen aan bepaalde leeractiviteiten (deel 1), in hoeverre bepaalde factoren je deelname aan activiteiten hebben geremd (deel 2) en in hoeverre bepaalde persoonlijke factoren stimulerend hebben gewerkt op jouw motivatie om deel te nemen aan bepaalde leeractiviteiten (deel 3). Doe dit door bij elke vraag voor elke genoemde activiteit het cijfer te kiezen dat het beste overeenkomt met jouw beleving.

Data die met deze vragenlijst wordt verzameld zal alleen voor onderzoekdoeleinden gebruikt worden. U zult ten alle tijden anoniem blijven en kunt altijd besluiten om niet meer aan het onderzoek mee deel te nemen zonder het verplicht opgeven van een reden.

Geef hier aan of u akkoord gaat met het gebruik van uw gegevens uit de vragenlijst voor het gebruik van onderzoek en deelname aan het onderzoek voor de komende vijf dagen:

- Ja, ik ga akkoord
- Nee, ik ga niet akkoord

### **Deel 1- Informele leeractiviteiten**

Hoe vaak gebruik je de onderstaande activiteiten als je iets nieuws moet leren op werk?

*(1=gebruik ik nooit, 2= gebruik ik zelden, 3= gebruik ik soms, 4= gebruik ik vaak, 5=gebruik ik altijd)*

- |                       |   |   |   |   |   |
|-----------------------|---|---|---|---|---|
| 1. Praten met anderen | 1 | 2 | 3 | 4 | 5 |
|-----------------------|---|---|---|---|---|



## RUNNING HEAD: INFORMAL LEARNING IN SELF-EMPLOYED PROFESSIONALS

2. Samenwerken met anderen	1	2	3	4	5
3. Observeren van anderen	1	2	3	4	5
4. Delen van materiaal en bronnen met anderen	1	2	3	4	5
5. Zoeken op internet	1	2	3	4	5
6. Scannen van vakbladen	1	2	3	4	5
7. "Trial-and-error"	1	2	3	4	5
8. Reflecteren op eigen acties	1	2	3	4	5
9. Andere activiteit:					

### Deel 2- Omgevingsfactoren die remmend werken op informeel leren

(1= remt nooit mijn deelname, 2= remt zelden mijn deelname, 3= remt soms mijn deelname, 4= remt vaak mijn deelname, 5= remt altijd mijn deelname)

10. Hoe vaak remt het gebrek aan tijd om te deel te nemen aan onderstaande activiteiten?

- Praten met anderen	1	2	3	4	5
- Samenwerken met anderen	1	2	3	4	5
- Observeren van anderen	1	2	3	4	5
- Delen van materiaal en bronnen met anderen	1	2	3	4	5
- Zoeken op internet	1	2	3	4	5
- Scannen van vakbladen	1	2	3	4	5
- "Trial-and-error"	1	2	3	4	5
- Reflecteren op eigen acties	1	2	3	4	5

11. Hoe vaak remt een gebrek aan nabije collega's om deel te nemen aan de onderstaande activiteiten?

- Praten met anderen	1	2	3	4	5
- Samenwerken met anderen	1	2	3	4	5
- Observeren van anderen	1	2	3	4	5

## RUNNING HEAD: INFORMAL LEARNING IN SELF-EMPLOYED PROFESSIONALS

- Delen van materiaal en bronnen met anderen 1 2 3 4 5
- Zoeken op internet 1 2 3 4 5
- Scannen van vakbladen 1 2 3 4 5
- “Trial-and-error” 1 2 3 4 5
- Reflecteren op eigen acties 1 2 3 4 5

12. Hoe remt het gebrek aan toegang tot technologie tot deelname aan de onderstaande activiteiten?

- Praten met anderen 1 2 3 4 5
- Samenwerken met anderen 1 2 3 4 5
- Observeren van anderen 1 2 3 4 5
- Delen van materiaal en bronnen met anderen 1 2 3 4 5
- Zoeken op internet 1 2 3 4 5
- Scannen van vakbladen 1 2 3 4 5
- “Trial-and-error” 1 2 3 4 5
- Reflecteren op eigen acties 1 2 3 4 5

13. Hoe vaak remt een gebrek aan erkenning tot deelname aan onderstaande activiteiten?

- Praten met anderen 1 2 3 4 5
- Samenwerken met anderen 1 2 3 4 5
- Observeren van anderen 1 2 3 4 5
- Delen van materiaal en bronnen met anderen 1 2 3 4 5
- Zoeken op internet 1 2 3 4 5
- Scannen van vakbladen 1 2 3 4 5
- “Trial-and-error” 1 2 3 4 5
- Reflecteren op eigen acties 1 2 3 4 5

14. Wat zijn andere factoren in uw werkomgeving die deelname aan de bij deel 1 genoemde activiteiten remmen?:

**Deel 3- Persoonlijke factoren die bevorderend werken op informeel leren**

*(1= helemaal niet, 2= meestal niet, 3= niet van toepassing, 4=meestal wel, 5= helemaal wel)*

15. In welke mate heeft de vastberadenheid om aan een activiteit te beginnen en door te zetten tot het klaar is een bevorderende invloed op je motivatie om deel te nemen aan onderstaande activiteiten?

- Praten met anderen	1	2	3	4	5
- Samenwerken met anderen	1	2	3	4	5
- Observeren van anderen	1	2	3	4	5
- Delen van materiaal en bronnen met anderen	1	2	3	4	5
- Zoeken op internet	1	2	3	4	5
- Scannen van vakbladen	1	2	3	4	5
- “Trial-and-error”	1	2	3	4	5
- Reflecteren op eigen acties	1	2	3	4	5

16. In welke mate heeft jouw perceptie van je eigen professionele capaciteiten een bevorderende invloed op jouw motivatie om deel te nemen aan onderstaande activiteiten?

- Praten met anderen	1	2	3	4	5
- Samenwerken met anderen	1	2	3	4	5
- Observeren van anderen	1	2	3	4	5
- Delen van materiaal en bronnen met anderen	1	2	3	4	5
- Zoeken op internet	1	2	3	4	5
- Scannen van vakbladen	1	2	3	4	5
- “Trial-and-error”	1	2	3	4	5
- Reflecteren op eigen acties	1	2	3	4	5

17. In welke mate bevordert jouw liefde voor leren jouw motivatie om deel te nemen aan onderstaande activiteiten?

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| - Praten met anderen                         | 1 | 2 | 3 | 4 | 5 |
| - Samenwerken met anderen                    | 1 | 2 | 3 | 4 | 5 |
| - Observeren van anderen                     | 1 | 2 | 3 | 4 | 5 |
| - Delen van materiaal en bronnen met anderen | 1 | 2 | 3 | 4 | 5 |
| - Zoeken op internet                         | 1 | 2 | 3 | 4 | 5 |
| - Scannen van vakbladen                      | 1 | 2 | 3 | 4 | 5 |
| - “Trial-and-error”                          | 1 | 2 | 3 | 4 | 5 |
| - Reflecteren op eigen acties                | 1 | 2 | 3 | 4 | 5 |

18. In welke mate bevordert jouw interesse in je vakgebied jouw motivatie om deel te nemen aan onderstaande activiteiten?

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| - Praten met anderen                         | 1 | 2 | 3 | 4 | 5 |
| - Samenwerken met anderen                    | 1 | 2 | 3 | 4 | 5 |
| - Observeren van anderen                     | 1 | 2 | 3 | 4 | 5 |
| - Delen van materiaal en bronnen met anderen | 1 | 2 | 3 | 4 | 5 |
| - Zoeken op internet                         | 1 | 2 | 3 | 4 | 5 |
| - Scannen van vakbladen                      | 1 | 2 | 3 | 4 | 5 |
| - “Trial-and-error”                          | 1 | 2 | 3 | 4 | 5 |
| - Reflecteren op eigen acties                | 1 | 2 | 3 | 4 | 5 |

19. Wat zijn andere factoren die jouw motivatie om aan de in deel 1 genoemde activiteiten deel te nemen?

#### **Deel 4- Demografische informatie**

20. Wat is je leeftijd?:

21. Wat is je geslacht?:

22. Aantal jaar zelfstandig:

23. Welke van de onderstaande situaties is voor jou als zelfstandige van toepassing?

- Zelfstandige met eigen bedrijf, zonder personeel
- Zelfstandige met eigen bedrijf, met personeel
- Zelfstandige als gedetacheerd bij andere bedrijven

### **Appendix III- Pilot study**

A pilot study was conducted to test the survey on understanding and feasibility for the actual study. Three participants joined in this pilot study over the duration of two days. They were asked, much like participants in the actual study would be, to fill out the survey at the end of their day. In addition they were asked to put down comments on anything that might seem unclear to them or, in their opinion, could be done better. Also, at the end of the second survey they were asked to share their experience of filling out the same survey for two consecutive days and how they would feel if they were asked to do this five days in a row. Comments and experiences were taken into account when adjusting the survey.

Participants in this pilot study were all female, 24 years old, and have gone through writing a Master thesis themselves in the past two years. Two of them studied social sciences and have some degree of familiarity with the research topic. The third participant studied economy and was not familiar with the research topic.

### **Introductionary text**

The introductionary text was written in a more engaging tense. Participants of the pilot study indicated that this would make it easier and more pleasant to read and to instruction more clear.

### **Overall questions**

Some adjustments were made in the questions sections of the survey. All participants had difficulty interpreting question 12 (Hoe remt gebrek aan toegang tot technologie tot deelname aan de onderstaande activiteiten). In the second survey they were asked to write down what they thought it meant. Since their answer was almost identical in interpreting the question, it was decided to leave it intact.

Some of the prototypical informal learning activities in the survey seemed a bit vague or were difficult to distinguish from one another. They were not sure if searching the internet and scanning of trade journals could be considered different since trade journals were read online. This led to formulating these activities more distinctive into 'algemeen zoeken op internet' and '(online) scannen van vakbladen'. This was experienced as more clear by the participants.

Additional changes that were made to the questions included changing the structure of some of the questions in order to make them more easily understandable. The measuring scale was experienced as pleasant and clear so no adjustments were made.

### **Overall experience**

Participants found filling out the same survey for two days quite tedious. This was due to the high level of repetition in the activities that they needed to answer for every question. After two days they reported feeling unmotivated to fill out the form and be done with it as soon as possible. Since adjusting the content of the survey was not possible it was decided to change the design of the study. The initial plan was to let participants fill out the survey five days in a row. This was changed to filling out the survey once. This is thought to help attaining the appropriate amount of participants needed for sufficient power.

### **Back translating**

A back-translation was performed to see if the translated questions still matched up with the original questions (Lohman, 2006). This was done to check for any misinterpreting of the meaning of the questions due to unclear translation. The back-translation did not pose any problems with the questions so no adjustments were made.