PREDICTORS FOR MOTIVATION TO LEARN IN THE CONTEXT OF TECHNOLOGY-RELATED TRAINING – AN EXPLORATORY STUDY IN THE HEALTHCARE SECTOR

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PREDICTORS FOR MOTIVATION TO LEARN IN THE CONTEXT OF TECHNOLOGY-RELATED TRAINING – AN EXPLORATORY STUDY IN THE HEALTHCARE SECTOR

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Abstract

Technology-related training in the healthcare sector is crucial. Based on the high job responsibility and the variety of healthcare professionals with regards to different job roles, tasks etc., the assurance of positive learning outcomes can be a challenge. Prior research shows that motivation to learn is a predictor for positive learning outcomes. Therefore, a literature review is done to show the current state of the art. In the next step and to identify the healthcare professionals’ predictors for motivation to learn, an exploratory study is done. 18 French healthcare professionals are interviewed by using semi-structured interviews. Based on the results, several propositions are concluded which suggest that self-efficacy, personal and professional development and learner characteristics are predictors for motivation to learn as well as the environment for learning and working environment conditions.

Keywords: Healthcare, Motivation, Blended Learning, Technology, Training.

1 Introduction

The implementation of new medical technology is related to changes and challenges regarding working routines (Goh et al. 2011, Edmonson et al. 2001). In addition, healthcare professionals need training to be updated and to keep up with the technology (Lopez-Campos et al. 2010). As healthcare professionals take care of patients, their tasks and activities are often related to the well-being of patients. In conclusion, healthcare professionals have a high responsibility and therefore, technology-related training is crucial. The healthcare industry is characterized through a high level of diversity: starting with different professional disciplines (e.g. doctors, nurses, administrators, etc.) followed by the variety of treatment options (conservative, surgical, etc.) up to different medical technologies (e.g. medical imaging technologies, laboratory diagnostics technologies, etc.) (Fichman et al. 2011).

These characteristics result in different training requirements to address the needs of the different groups (e.g. doctors, nurses, etc.) of healthcare professionals. Prior research shows that blended learning is used effectively in the healthcare industry (Pereira et al. 2007) as this learning approach enables to combine traditional learning and online learning methods. These methods are often supplemented by an information system such as a learning management system (LMS) (Graham 2006). Evidence demonstrates that blended learning is well accepted by healthcare professionals (Ruiz et al. 2006).

From training motivation theory, we know that motivation to learn affects the success and in conclusion, the outcome of learning. Motivation to learn is defined as the desire of the learner to learn the content of the training (Noe 1986, Klein et al. 2006). As healthcare professionals are lifelong learners (De Jong et al. 2014), a high motivation to learn is crucial to ensure positive learning outcomes. Research shows that blended learning leads to a higher motivation to learn and better learning outcomes than traditional learning settings (Klein et al. 2006). In addition, we learn from prior research that motivation to learn is affected by several characteristics besides instruction such as learner or situational characteristics (Colquitt et al. 2000). However, these findings investigated only some predictors of motivation to learn and are based in a higher education or corporate education.
context besides healthcare. As the importance of technology-related training in the healthcare sector is shown above, predictors for motivation to learn are crucial to ensure the success of technology-related training. In addition, Klein et al. (2006), Yi and Davis (2003) as well as Kusurkar et al. (2011) request further research for identifying additional predictors for motivation to learn. Therefore, the paper focuses on the identification of predictors for motivation to learn which leads to the following research question:

RQ: What are predictors for motivation to learn to ensure the success of blended learning in the context of technology-related training in healthcare?

To answer the research question, an exploratory study is conducted. By using semi-structured interviews, 18 French healthcare professionals from four different healthcare institutions located in the area of Paris are interviewed. The study concludes with several contributions. A literature review is done to illustrate the current state of the art with regards to motivation to learn from the information system (IS), healthcare IS and educational research streams. In addition, based on the results of the exploratory study, several propositions are derived. The propositions suggest that self-efficacy, personal and professional development and learner characteristics are predictors for motivation to learn as well as the environment for learning and working environment conditions.

For demonstrating the results, the paper is structured as follows. First, an overview about blended learning research and especially in the healthcare sector will be provided. Then, the theoretical background of motivation to learn is explained and a literature review is conducted to illustrate the current state of research. Then the method will be described followed by the presentation of results. In addition, the results will be discussed and implications for theory and practice as well as limitations are explained.

2 Theoretical background and literature review

In the following sections, the theoretical background with regards to blended learning and motivation to learn will be provided. In addition, a literature review is done to demonstrate an overview about predictors of and for motivation to learn.

2.1 Blended learning

In the following, an overview about blended learning in general and in particular to research in the healthcare context is provided.

2.1.1 Blended learning in general

Blended learning reflects the combination of traditional and online learning methods often supported by information systems such as learning management systems (Graham 2006). The concept unites the benefits of both, traditional and online learning and avoids their drawbacks (Welsh et al. 2003, Ruiz et al. 2006). Traditional learning is characterized through synchronous instruction that takes place face-to-face such as classroom training, workshops or individual training. In contrary to online learning, where through the support of technology, instruction is mainly asynchronous. In the corporate context, training is then delivered via the internet or intranet such as web-based trainings (Blanchard and Thacker 2013). The asynchronous instruction provides flexibility to the learners such that learning can be personalized and self-organized. Through the use of a LMS, learning material as well as further features such as online discussion forums can be provided to support the learning (Bonk and Graham 2006, Moreno-Ger et al. 2010). In addition, learners’ outcomes are traceable (Welsh et al. 2003). Nevertheless, online learning has also negative aspects. Learners often feel demotivated resulting from the missing face-to-face interaction between them and the instructor (Wan et al. 2012). Next to the lack of interaction, often high front up costs are coming up for example for setting up the infrastructure or developing learning content (Welsh et al. 2003). Traditional learning is characterized
through a high interaction between the learners and the instructor. Learning often takes place out of
the daily working routine in a separate setting such as training centres. This enables the learners to
fully concentrate on learning and asking relevant questions directly to the instructor. However, the
incurred costs for traditional learning are often high as employees are missing working time and
possible costs are arising for travel reasons (Welsh et al. 2003).

In conclusion, studies demonstrate that the blended learning approach results in better learning
outcomes compared to just traditional or online learning approaches (Al-Qahtani and Higgins 2013).
According to Kraiger et al. (1993), learning outcomes can be classified into affective, cognitive and
skill-based outcomes. Past studies indicate that blended learning leads to positive learning outcomes
with regards to affective outcomes such as satisfaction as well as cognitive outcomes such as the
transfer of knowledge (Melton et al. 2009). In addition, Klein et al. (2006) show in their study that
blended learning leads to a higher motivation to learn compared to traditional learning settings.
Therefore, motivation to learn can be regarded as a mediator between blended learning and learning
outcomes.

2.1.2 Blended learning in the healthcare context

The job group of healthcare professionals is characterized through its wide variety of tasks and a high
specialization (Fichman et al. 2011). Doctors, nurses, technologists, etc. take care of the well-being of
patients. Therefore, they have to decide about the right examination and treatment of patients and have
a high responsibility in their job as mainly every task they execute is related to the health of patients.
In this context, the working routine is related to stress resulting from interruptions within the working
routine such as emergency cases (Califf et al. 2015). These emergency cases demand spontaneous and
right responses and relevant tasks from healthcare professionals (Ragu-Nathan et al. 2008, McVicar
2003).

Based on these characteristics, the job group of healthcare professionals requires special learning
conditions to ensure positive learning outcomes (Samake et al. 2006). According to Lau and Hayward
(2000), healthcare professionals prefer just-in-time and experiential learning based on the needs of the
individual through different delivery modes. The project needs and competency levels of healthcare
professionals as well as their available time and location provide orientation for training. In addition,
individual differences such as previous experience, learning styles, motivation and training needs are
important factors which should be taken into account for training (Drescher et al. 2004). In general,
blended learning is used successfully in the healthcare context. The study of Pereira et al. (2007)
compares a blended learning approach and a traditional learning approach that shows that blended
learning strategies are more successful than traditional learning strategies for teaching human
anatomy. Some of the studies on blended learning in the healthcare IS research focus on the
instruction and design of blended learning approaches to address needs (McLaughlin et al. 2014) or to
empower students with regards to knowledge acquisition and professional skills (Weßel and
Spreckelsen 2009). Other studies concentrate on the different groups of healthcare professionals such
that specific requirements and needs are included in the design to ensure learning success (Buyl and
Nyssen 2010, Lopez-Campos et al. 2010). Culture is another context factor which is investigated by
the study of Sanchez-Mendiola et al. (2013). The use of blended learning for different cultures
especially in the context of developing countries is examined.

In conclusion, none of studies have investigated situational or individual characteristics and their
impact on learning outcomes or motivation to learn in the blended learning context in general and in a
corporate education setting in particular. Therefore, a literature review with regards to motivation to
learn focusing on IS, healthcare IS and educational research is done.
2.2 Motivation to learn

Motivation to learn reflects the desire of the individual to learn the content of the training program (Noe 1986, Klein et al. 2006). Based on training motivation theory and past studies, motivation to learn is regarded as predictor for course outcomes. Several studies confirm the strong relationship between motivational factors and learning outcomes (e.g. Lim et al. 2007, Sharma and Yetton 2007, Wan et al. 2012). In addition, studies indicate that several characteristics such as learner or situational characteristics are predictors for motivation to learn and in conclusion, affect positively or negatively motivation to learn (Colquitt et al. 2000, Noe 1986, Tannenbaum and Yukl 1992, Klein et al. 2006). These well-known effects from prior research are demonstrated in Figure 1.

![Figure 1. Well-known effects from prior training motivation theory (Klein et al. 2006, Colquitt et al.2000)](image)

For this reason, the exploratory study focuses on the identification of predictors which positively or negatively affect motivation to learn to ensure positive learning outcomes of the training of healthcare professionals. To get an overview about prior research with regards to motivation to learn, a literature review is done in the next section.

2.3 Literature review

To get an overview about the current state of research of motivation to learn a literature review is conducted. The methodology and the results are presented in the following.

For the review of literature, we follow the guidelines of Brocke et al. (2009). The databases of the IS senior basket of eight and relevant journals of the health informatics context are screened. The overview of Wilson and Lankton (2004) provide orientation. The focus lays on the journals with an impact factor higher than 1. In addition, the databases of educational and non-IS journals which have a major influence in the field are analysed. The following journals were selected: Journal of Educational Psychology, Review of Educational Research, Journal of Applied Psychology, Journal of Organizational and End-User Computing, Personnel Psychology, Academy of Management, Annual Review of Psychology. As search term ‘motivation to learn’ and ‘training motivation’ are used. 992 articles are identified. The relevance of an article is approved through screening of title and abstract. If the article appears as relevant, the complete text is analysed. In addition, two inclusions criteria are defined such that only qualitative and empirical studies were included. In addition, the focus lays on studies in corporate or higher education. Then forward and backward search is done (Webster and Watson 2002). As a result, 16 articles are identified. One article was found in the IS senior basket of eight (Information System Research), three in the healthcare IS research (Medical Education) and 12 in the education journals (Journal of Applied Psychology, Journal of Organizational and End-User Computing, Personnel Psychology).

The results are structured according to the context in which motivation to learn is investigated. Therefore, a differentiation between motivation to learn as predictor for outcomes and predictors of motivation to learn is done. In addition, the findings are characterized with regards to impact which is positive or negative of/on motivation to learn. The results are illustrated in Table 1.

Based on the literature review, several predictors for motivation to learn are identified. Most of the factors have a positive impact on motivation to learn whereas factors such as age, anxiety, hindrance stress and performance orientation have a negative impact on motivation to learn. The study of Klein et al. (2006) shows a positive impact of blended learning as instructional characteristics. In addition, the identified predictors can be classified into personal characteristics of the learner (e.g. openness,
extraversion, etc.), instructional characteristics, situational characteristics (e.g. choice for learning, control of learning and climate) and working environment characteristics.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Reference</th>
<th>Positive (+) or negative (-) impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predictors of motivation to learn</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Colquitt et al. (2000)</td>
<td>-</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Colquitt et al. (2000)</td>
<td>-</td>
</tr>
<tr>
<td>Choice for training</td>
<td>Baldwin et al. (1991)</td>
<td>+</td>
</tr>
<tr>
<td>Climate (concerns the support from supervisor and peers)</td>
<td>Colquitt et al. (2000)</td>
<td>+</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Colquitt and Simmering (1998), Major et al. (2006)</td>
<td>+</td>
</tr>
<tr>
<td>Control of learning</td>
<td>Pelaccia et al. (2009)</td>
<td>+</td>
</tr>
<tr>
<td>DTI measures</td>
<td>Sobral et al. (1995)</td>
<td>+</td>
</tr>
<tr>
<td>Extraversion</td>
<td>Major et al. (2006)</td>
<td>+</td>
</tr>
<tr>
<td>Fairness perception</td>
<td>Quinooneses (1995)</td>
<td>+</td>
</tr>
<tr>
<td>Hindrance stress</td>
<td>Le Pine et al. (2004)</td>
<td>-</td>
</tr>
<tr>
<td>Instructional characteristics (Blended Learning)</td>
<td>Klein et al. (2006)</td>
<td>+</td>
</tr>
<tr>
<td>Learning (goal) orientation</td>
<td>Colquitt and Simmering (1998), Klein et al. (2006)</td>
<td>+</td>
</tr>
<tr>
<td>Locus of control</td>
<td>Colquitt et al. (2000)</td>
<td>+</td>
</tr>
<tr>
<td>Mastery orientation</td>
<td>Orvis et al. (2009)</td>
<td>+</td>
</tr>
<tr>
<td>Openness</td>
<td>Major et al. (2006)</td>
<td>+</td>
</tr>
<tr>
<td>Perceived value of task</td>
<td>Pelaccia et al. (2009)</td>
<td>+</td>
</tr>
<tr>
<td>Performance orientation</td>
<td>Colquitt and Simmering (1998)</td>
<td>-</td>
</tr>
<tr>
<td>Proactive personality</td>
<td>Major et al. (2006)</td>
<td>+</td>
</tr>
<tr>
<td>Valence</td>
<td>Colquitt et al. (2000)</td>
<td>+</td>
</tr>
<tr>
<td>Work environment perceptions</td>
<td>Noe and Wilk (1993)</td>
<td>+</td>
</tr>
<tr>
<td><strong>Motivation to learn as predictor for</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual participation</td>
<td>Fox and Harvill (1984)</td>
<td>+</td>
</tr>
<tr>
<td>Behavior</td>
<td>Quinooneses (1995)</td>
<td>+</td>
</tr>
<tr>
<td>Development activity</td>
<td>Noe and Wilk (1993), Major et al. (2006)</td>
<td>+</td>
</tr>
<tr>
<td>Observational learning processes</td>
<td>Yi and Davis (2003)</td>
<td>+</td>
</tr>
<tr>
<td>Posttraining attitudes</td>
<td>Tannenbaum et al. (1991)</td>
<td>+</td>
</tr>
<tr>
<td>Posttraining knowledge</td>
<td>Quinooneses (1995), Colquitt et al. (2000)</td>
<td>+</td>
</tr>
<tr>
<td>Posttraining self-efficacy</td>
<td>Colquitt et al. (2000)</td>
<td>+</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Orvis et al. (2009)</td>
<td>+</td>
</tr>
<tr>
<td>Task accomplishment</td>
<td>Gupta and Anson (2014)</td>
<td>+</td>
</tr>
<tr>
<td>Training fulfilment</td>
<td>Tannenbaum et al. (1991)</td>
<td>+</td>
</tr>
</tbody>
</table>
With regards to motivation to learn as predictor for outcomes, twelve different factors were examined in prior research. In all studies, motivation to learn has a positive impact on the different outcomes. Within the literature review, three of the identified studies are located in the healthcare setting (Fox and Harvill 1984, Pelaccia et al. 2009, Sobral et al. 1995). The study of Pelaccia et al. (2009) investigated the impact of training periods in the emergency department on the motivation of healthcare students to learn in the field of emergency medicine. Based on the survey with undergraduate medical students and nursing students, perceived value of task, perceptions of self-efficacy and beliefs about control of learning were analysed as predictors for motivation to learn. Sobral et al. (1995) examined within their study the influence of learners’ characteristics and knowledge acquisition on the diagnostic ability of medical students. As a result of the study, higher scores of DTI (Diagnostic Thinking Inventory) measures lead to a high motivation to learn. Fox and Harvill (1984) analysed in their study the validity of using physicians’ self-assessed needs, relevance and motivation to learn about clinical topics to learn set objectives and priorities for continuing medical education programmes. Within the study the positive impact of motivation to learn on actual participation of learners was validated.

In conclusion, a lot of studies with regards to motivation to learn have been conducted. Most of them are based in a higher education setting and besides the three studies identified in the healthcare context, less is known with regards to predictors for motivation to learn of healthcare professionals. As in the previous section blended learning in the healthcare context is discussed, the special characteristics of healthcare professionals in general and as learner are demonstrated. Healthcare professionals as lifelong learners (De Jong et al. 2014) have a special need for continuous education especially in the context of technology-related training. As a result, the identification of factors that predict healthcare professionals’ motivation to learn is important. Therefore, the exploratory study focuses on the identification of predictors for motivation to learn which are relevant for healthcare professionals and which might have a positively or negatively impact on motivation to learn. The method of the exploratory study will be explained in the following section.

3 Method

To identify individual and situational characteristics that affect motivation to learn and learning outcomes, a qualitative exploratory study is done. Within the study, semi-structured interviews are used for in-depth exploration of the research question. In the following, the data collection and analysis are explained.

3.1 Data collection

We conduct interviewees with 18 French healthcare professionals working in four different healthcare institutions (hospitals and medical imaging centre) in the area around Paris. The contact to the institutions was provided by a healthcare technology company that provides services and technology for the institutions. The interviewees use medical imaging technologies such as angiography, computed tomography or magnetic resonance imaging. The job roles of the interviewees differentiate such that interviewees are radiologists/doctors, radiographers as well as healthcare professionals working in a management position such as a team lead of the radiographers. The team lead is responsible for training issues, organizing the working scheduling etc. Eight female and ten male healthcare professionals were interviewed. The mean age of interviewees is 39 years but five
Interviewees did not answer the question regarding their age. The interviewees had in average 10.1 years of experience in their current job position, 18.5 years of professional experience and work in average 9.8 years with the medical imaging technologies. Eleven interviewees have been trained on-site on the medical technologies they use, or went to classroom training or workshops delivered in the training centre of the healthcare technology company. On-site training means that a trainer comes to the institution such that the training is directly taking place in the working routine and on the technologies the healthcare professionals work with. Only one of the interviewees had experience with e-learning.

By using this sample strategy, we avoid the elite bias and ensure that not only the “stars” (Myers and Newman 2007) of healthcare professionals are asked but also healthcare professionals using different technology and working in different positions but having been trained and/or will receive technology-related training in the future. An overview about the interviewees is provided in Table 2.

<table>
<thead>
<tr>
<th>Job role</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiographer</td>
<td>Mr. F (30), Mr. N (25), Mr. P (32)</td>
<td>Mrs. A (na), Mrs. B (na), Mrs. D (na), Mrs. E (na), Mrs. K (33), Mrs. L (55), Mrs. R (42)</td>
</tr>
<tr>
<td>Radiologist/Doctor</td>
<td>Mr. G (40), Mr. I (29), Mr. J (38), Mr. O (44)</td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td>Mr. C (53), Mr. H (36)</td>
<td>Mrs. M (na), Mr. Q (50)</td>
</tr>
</tbody>
</table>

Table 2. Overview of interviewees.

For the semi-structured interviews, we designed an interview guideline which allows asking additional questions when necessary. In that way, a more detailed explanation by the interviewees is possible. In general, the interviews were open-ended, took between 10-15 minutes and were tape-coded. In addition, the interviewer took notes. A translator accompanied the interviewer. The interview guideline can be divided into two parts.

The first part focuses on general information about the interviewee by asking questions about his/her job, product (technology) and training experience. Questions such as “How long have you been working in your current position? Which experience do you have with technology-related training?”

The second part starts with an introduction of blended learning. The interviewer explains the concept of blended learning to the interviewee and provides examples such as “blended learning can be combining traditional learning such as on-site training with online learning methods such as virtual classroom or web-based training.” The goal is that the interviewee gets a clear understanding about blended learning to be able to answer the questions of the second part in the context of blended learning. In additions, characteristics and perceived enablers/barriers are asked by questions such as: “What are factors that motivate you for learning? Which factors do you think are important for learning?”

### 3.2 Data analysis

For the analysis of data, the interviews were transcribed. The additional notes taken by the interviewer provide additional information to the answers of the interviewees or further notes for better understanding of the answers. The results are analysed through two cycle codings (Miles et al. 2014). For the first cycle, descriptive coding is done. In this way, word or short phrases of the interviewees’ statements are summarized. In addition, first topics can be categorized and classified to the relevant theme. According to the results of the literature review in section 2.3, a differentiation between the themes personal characteristics of the learner (e.g. openness, extraversion, etc.), instructional characteristics, situational characteristics (e.g. choice for learning, control of learning and
climate) and working environment characteristics is done. Furthermore, the statements are classified with regards to the impact of the mentioned predictor in positive or negative.

In the second cycle, pattern coding, the summaries are grouped into smaller number of categories and possible causes/explanations or theoretical constructs are identified. As an example: the statements “Methods of learning”, “Individual learning [that provides] evaluation of oneself to repeat missing aspects” and “be in training with other people to exchange experience and knowledge” are summarized to the category ‘learning methods’.

4 Results

Based on the proceeding of the data analysis, the results are illustrated in Table 3. In addition to the identified predictors, examples of interviewees’ quotes are also included in the table.

<table>
<thead>
<tr>
<th>Personal characteristics</th>
<th>Positive impact</th>
<th>Negative impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content of training</td>
<td>“Interesting topics” (Mr. F; Mr. H)</td>
<td>“Mandatory learning” (Mr. H)</td>
</tr>
<tr>
<td>Learning methods</td>
<td>“Methods of learning” (Mrs. K)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Individual learning” that provides “evaluation of oneself to repeat missing aspects” (Mr. H)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“be in training with other people to exchange experience and knowledge” (Mr. N)</td>
<td></td>
</tr>
<tr>
<td>Competency of instructor</td>
<td>“teacher should perfectly know subjects, be passionated” (Mr. H)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“trainer must have high levels of competencies” (Mr. N)</td>
<td></td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>“to have good knowledge [...] [for] smoothly workflows” (Mrs. A)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“be sure in daily workflow of patients, know everything within the system [...] be self-confident with system” (Mr. C)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“[be more] confident with system, efficient with system, get more knowledge, experience, expertise” (Mr. P)</td>
<td></td>
</tr>
<tr>
<td>Professional and personal development</td>
<td>“increase [medical] competencies to improve diagnostics result” (Mr. I)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Being better in job [...] to have better opportunities, to improve [medical] competencies” (Mr. J)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“intellectual curiosity [...] it’s a pleasure to learn more about the system” (Mrs. L)</td>
<td></td>
</tr>
<tr>
<td>Situational characteristics</td>
<td>“Outside of routine or not much patients” (Mr. C)</td>
<td>“hospital does not provide environment [for learning]” (Mrs. A)</td>
</tr>
<tr>
<td>Environment for learning</td>
<td>“teamwork, time available and equipment and material” (Mr. I)</td>
<td></td>
</tr>
</tbody>
</table>
Table 3. Identified predictors for motivation to learn.

<table>
<thead>
<tr>
<th>Working environment conditions</th>
<th>“quiet, not on-site” (Mr. P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (for learning)</td>
<td>“time for learning” (Mr. N)</td>
</tr>
<tr>
<td>Budget</td>
<td>“Learning should be budgeted” (Mr. D)</td>
</tr>
<tr>
<td>Rewards</td>
<td>“earn more money” (Mr. J; Mr. N)</td>
</tr>
<tr>
<td>Recognition</td>
<td>“recognition from manager” (Mrs. R)</td>
</tr>
</tbody>
</table>

Five of the identified predictors can be classified as personal characteristics. Three of these predictors, ‘content of training’, ‘learning methods’ and ‘competency of instructor’ can be summarized as individual learning preferences. ‘Content of training’ reflects the need of the learner to learn about a topic (Fox and Harvill 1984). For the interviewees, it is important that they are trained on topics which are of interest for their work. ‘Learning methods’ cover the range of training provided in different forms such as online learning or traditional learning or blended learning which combines both (Graham 2006). Some interviewees mention preferences regarding learning methods which appear appropriate for them to enable learning such as “individual learning” (Mr. H) e.g. online learning, which provides the possibility for self-evaluation for the individual and to repeat missing aspects if necessary. In addition, for four interviewees the instructor’s competency is of relevance with regards to traditional learning methods. The competency of the instructor reflects the desirable characteristics of the instructor when learning takes place face-to-face and through traditional learning methods. According to Mr. N, the trainer must “have high levels of competencies” so that “the exchange of experience and knowledge” is possible. Next to the individual learning preferences, two further individual characteristics are identified based on the statements of the interviewees. These characteristics cover the interviewees’ self-efficacy and personal and professional development. Self-efficacy can be defined as the beliefs of an individual about his/her abilities to perform the specific activity (Pelaccia et al. 2009, Kraiger et al. 1993). Based on the results, interviewees are willing to learn for improving their self-efficacy with regards to the technology such that Mr. P said “[be more] confident with system, efficient with system, get more knowledge, experience, expertise”. Nine interviewees mention factors that motivate them for learning to further proceed in their professional and personal development. Mr. J, for example, is motivated to learn because you have then “better opportunities”.

With regards to situational characteristics, one factor is identified. The factor is ‘environment for learning’. ‘Environment for learning’ reflects the conditions and characteristics of the environment in which learning should take place. The four predictors ‘time’, ‘budget’, ‘rewards’ and ‘recognition’ can be defined as working environment conditions. ‘Recognition’ reflects the reputation of the employee to the management. Based on the interviewees’ statements, the availability, especially of time and the environment for learning are essential for learning and to be motivated for learning. The organization has to ensure that time for learning is available, that learning takes place outside of the working environment to guarantee quietness as according to Mrs. A the “hospital does not provide the environment”. In addition, further factors such as recognition of the management with regards to employees or the paying of additional money as motivation to learn are mentioned by the some interviewees. In general, besides one aspect, all identified predictors can be characterized as positively impacting motivation to learn.

The results will be discussed in the following section.
5 Discussion, implications and limitations

Discussion, implications and limitations

An exploratory study is conducted to answer the research question of predictors for motivation to learn in the context of corporate education focusing on the healthcare sector. Based on the results, implications for theory and practice as well as limitations will be discussed in the following.

The results of the exploratory study indicate that healthcare professionals are highly motivated to learn if the environmental conditions for learning are ensured. Therefore, it can be assumed that healthcare professionals are characterized through a high learning goal orientation. Most of the interviewees mention also aspects covering their self-efficacy and personal and professional development such as intellectual interest to learn more and to make progress. This finding confirms the results of the literature review where several studies (e.g. Pelaccia et al. 2009) show that self-efficacy is one of the main determinants for motivation to learn. In addition, the interviewees feel motivated to learn to be up-to-date with the technology and its development and see in the continuously learning the possibility to work more efficiently in their daily working routine. Therefore, two propositions can be concluded:

P1: Healthcare professionals characterized through a high self-efficacy have a high motivation to learn.

P2: Healthcare professionals characterized through an interest in their personal and professional development have a high motivation to learn.

Healthcare professionals have special requirements and needs for learning as a result of the characteristics of their job and working environment (Samake et al. 2006, Lau and Hayward 2000). This can be confirmed by the statements of the interviewees. Situational characteristics concerning the environment for learning are important for healthcare professionals. They need time especially reserved for learning independent of the daily working routine. The requirements with regards to the reserved time vary from short time slots of 30 minutes up to two hours or being completely out of the working environment for learning. In addition, it is important that the “equipment” for learning is available when learning takes place within the working routine such as a quiet place to learn and the possibility to have access to learning material such as e-learning, manuals, etc. This results in the third proposition:

P3: The assurance of an environment for learning for healthcare professionals will lead to a high motivation to learn.

Furthermore, the results demonstrate that personal characteristics concerning the preferences of the individual with regards to learning methods, content or the instructor and his/her competency are important. Therefore, it can be assumed that these characteristics can be regarded as predictors positively affecting motivation to learn. The findings of the literature review demonstrate that learning styles or strategies as predictors for motivation to learn were not examined in prior research. Based on the results of the exploratory study, it can be assumed that learning preferences such as learning styles or strategies are predictors for motivation to learn. Also in accordance with prior studies of blended learning in the healthcare context, which demonstrate that specific courses need to be developed for target audiences (Lopez-Campos et al. 2010, Sanchez-Mendiola et al. 2013) these can be confirmed by the findings of the exploratory study. Based on the user groups and job role, the right topics and related learning material should be delivered to ensure motivation to learn. Therefore, the fourth proposition results:

P4: Supportive learner characteristics for healthcare professionals will lead to a high motivation to learn.

In the context of working environment characteristics, the organization plays an important role. Based on the interviewees’ statements, it can be concluded that organizational characteristics are of high importance. Based on the interviewees’ statements, the interviewees regard the organization as responsible for having budget, time and the necessary environment for learning. In corporate education, budget, time and the necessary environment provide the essential requirements for learning and therefore it can be assumed that working environment characteristics affect motivation to learn.
addition, rewards for the employees and recognition from the management are additional factors which motivate interviewees for learning. In conclusion, the following proposition is derived:

**P5:** Supportive working environment conditions (e.g. time, budget for learning, rewards) for healthcare professionals will lead to a higher motivation to learn.

In summary, based on the findings and the resulting propositions of the exploratory study, a conceptual model is derived which is illustrated in Figure 2.

![Conceptual model based on results of exploratory study.](image)

In conclusion, within the exploratory study several contributions are made. First, the technology-related training research in the healthcare context is extended. Second, a literature review is done illustrating the prior research with regards to motivation to learn. The findings of the literature review provide the basis for the data analysis of the exploratory study. Third, based on the results of the exploratory study five propositions and a conceptual model are derived. These propositions focus on predictors for motivation to learn for healthcare professionals in the context of technology-related training. In addition, within the exploratory study further predictors for motivation to learn are identified. The resulted conceptual model should be empirical validated in future research.

Implications for practice result mainly in the responsibility of the management and the organization itself to enable learning for its employees and to set up the environment that supports the employees’ motivation to learn. The results of the exploratory study clearly demonstrate that healthcare professionals are highly motivated for learning under the requirement of addressing their needs. Therefore, the organization should ensure that employees have time for learning and the appropriate environment for learning. According to the statements of the employees, the management might define short time slots for learning, reserve appropriate budget for training issues and provide the learning environment (i.e. quiet room away from the working routine, equipment such as manuals, workshops etc.). Furthermore, the management can think about further benefits to support the learning of employees by providing benefits such as monetary aspects or recognition for learning such as personal and professional development of the employees by offering appropriate job opportunities.

The exploratory study has some limitations. The sample of the study is small. Therefore, further studies extending the current research with regards to healthcare professionals from other countries are
desirable. Furthermore, the application of the study in other contexts of corporate education such as finance, insurance etc. is desirable.

References


