NETENQUIRY –
A COMPETITIVE MOBILE LEARNING APPROACH FOR THE BANKING SECTOR

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ABSTRACT

Initial and further education in the banking sector is becoming more and more important due to the fact that the regulations and the complexity in world of work and an international banking scene is increasing. In this article we provide the structures of and information on NetEnquiry, an innovative mobile learning environment in this field, designed and tested in different theory-practice-co-operations with all parts of the German universal banking system. It includes a competitive approach in which teams of learners have to solve complex scenarios. This article starts with the focus on mobile learning and the challenges for the banking sector. Taking this as a basis it provides an overview on the NetEnquiry tool, and its integration in vocational education and training. General evaluation and the usability results are presented at the end of the text to be taken as hints for future chances and challenges in this field.

1.   MOBILE LEARNING AND THE BANKING SECTOR

In time of multimedia approaches, internet, and direct focus on the costumer, banks have new challenges concerning their daily work. Their clients are used to new media, and are interested in adequate and quick solutions for their problems and question. Moreover, regulations are changing quickly in the financial services industry. Hence, there is an urgent need for modern high quality training approaches and measures, as banks have to ensure that their staff members are always up to date. But, banks also have to take into account that data-security does often not allow the use of their clients' data or real situations to train their staff members for complex situations of daily work. Due to the fact that co-operative work situations are becoming more and more important in banks they have to think about a way to teach their staff and to address this social requirement in an adequate way. Especially teamwork in a hierarchy with different levels of competence and different opportunities to make decisions which is needed in such situations is not trained appropriately so far.

In Germany, the banking sector consists of three main organizational types (see Baums/Gruson 1993, p. 103)

    (1) Private sector commercial banks (private Geschäftsbanken)
    (2) Saving banks and their central institutions (Sparkassen, Landesbanken und Girozentralen)
    (3) Industrial and agricultural credit cooperatives (Volks- und Raiffeisenbanken)

The challenges occur in all these types and have to be focused for both sorts of staff members, those who are already for a longer time in the bank and those who are fresh. So, the banks have to focus both activities in the fields of initial and further education when they are looking at their field specific and enterprise specific vocational education and training systems.

At the same time the importance of mobile learning (see Pinkwert et al. 2003) is growing continuously (see Beutner 2014). Moreover, it is becoming more and more popular (see Beutner, M. et al. 2015, see Beutner / Fortmann 2015, see Chenet al. 2003). This can primarily be reasoned by the wide availability of mobile devices. Therefore, the support and the importance of mobile learning is increasing as well (see Traxler 2002, see Traxler 2009). This trend is reinforced by the changing expectations of modern learners.

In this text and in the context of the project NetEnquiry which will be presented below, mlearning is defined as innovative, interactive elearning with mobile devices in formal and informal settings, which is focusses on more than providing declarative knowledge only. Its main characteristics are, as outlined by Traxler in 2005, that it is spontaneous, private, portable, situated, informal, bite-sized, light-weight, context aware, connected, personalized and interactive (see Traxler2005, p. 264).

2. AN OVERVIEW ON NETENQUIRY

In the research and implementation project NetEnquiry we create an online learning environment for banks to cope with their challenges in time of mobile learning (see Beutner / Pechuel 2012, see Beutner / Pechuel 2012b). As the basic scientific idea about this approach is design-based research. So, we create a web-solution and an app-solution for mobile learning in a co-operation of theory and practice. The core development and research approach focusses on the mobile learning tool. NetEnquiry is led by the Chair Business and Human resource Education II of Prof. Dr. Marc Beutner at the University Paderborn (see e.g. http://netenquiry.eduproject.eu/). In the project we co-operate with all parts of the universal banking system in Germany. This means that private sector commercial banks, saving banks, and industrial and agricultural credit cooperatives are heavily involved, particularly in the creation of learning scenarios to safeguard their needs as well. Therefore, the consortium focusses on new eLearning approaches in the world of banking and finance in the project. NetEnquiry offers an environment which focusses on authentic situations in the world of work, and it requires the learners to cope with tasks which occur in reality as well.

The system deals with authenticity and interactivity. Therefore, all talks and consultations with the clients are provided as interactive video dialogues where the learner can select between different opportunities what to say. In result, they also get different answers provided by videos. Thus, the structure of the dialogues adapts to the way the learners act in their roles as bank consultants.

The core idea of NetEnquiry is to focus on mLearning in combination with blended learning approaches, and to develop web- and app-solutions (see figure 1). The evaluation and testing is done in both banks and vocational schools.
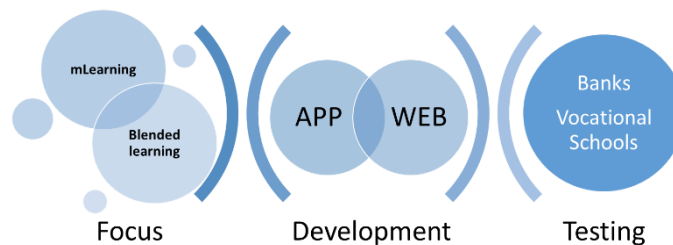

Figure 1. The NetEnquiry Overview

Summarized, the aims of NetEnquiry are to design, develop, test, and evaluate this authentic and interactive m-learning tool and its web-based form. It is an important aspect to create a pedagogical approach and not only a technical solution. For this reason we integrated a realistic process-orientation, multiple perspectives, simulated practice, and authentic bank settings. To create pedagogical efficiency we base on different learning theories:

(a) Action based learning
(b) Process-oriented learning (see Mandl)
(c) Problem-based and problem-solving learning (see Ausubel, see Gagné)

To create acceptance by the users the system has to be provided with a special regard to usability.

3. INSIGHTS IN THE NETENQUIRY APP

The NetEnquiry-APP is designed for the use on tablets in specific vocational contexts. The advantage of mobile learning is that learning in complex learning environments can be focused due to the fact that the APP

(see as well Beutner / Pechuel 2014b) can be used directly in the real enterprise setting, and not only in a formal educational setting. The APP also addresses collaborative learning. Therefore, in NetEnquiry, three persons act in different roles in a team. This provides them with a real setting where bank clerks have to interact with each other. Moreover, the positive and negative interdependency of persons during both decision-making processes and solving processes of problems that are provided by the app can be addressed.

The NetEnquiry tool focusses on three different complex fields which can be chosen as scenarios:
  (a) Specific complex credits and handling of complicated clients,
  (b) Investment banking and consultancy concerning securities, and
  (c) Documentation of counseling and talks with clients in the field of investment.

One of the team members is in the role of the person working in the front office with direct contact to the clients, counselling and advising activities and tasks. This person has to get information, make pre-decisions, and has to do information research. Another team member is in the role of the back office and acts for example as a credit specialist. This one is responsible for data preparation, report generation, and support of the front office. The third person in the team is on another hierarchy level. This is the decision maker, who is responsible for control, strategies, and the decision-making in case of important aspects and offers. Here, gathering of information, structuring, and providing information is important. All learning problems can only be solved when all team members co-operate and support each other (see Beutner / Pechuel 2015). Therefore, the tool addresses and improves social and communicative skills. Additionally, methodological and subject related competences and skills will be improved as well.

In NetEnquiry different teams are working on their learning scenarios at the same time, so that they are in a competitive situation based on scores that are given to both the teams but to each individual learner as well (see Beutner / Pechuel2015. As already recommended by Abt the scoring system is based on the estimated real-life effectiveness of the implemented actions, and the competitiveness will foster motivation (see Abt, C. C. 1970, p. 51, 58).

Furthermore, other non-playing characters like staff members and clients are simulated in the APP.

With regard to usability the users find three areas when entering the APP (see figure 2):
  (1) the main desktop with the orientation tools,
  (2) a slider menu on the left with process-oriented tools, and
  (3) a slider menu on the right with learning support tools.
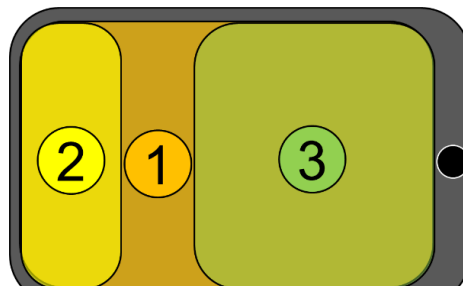

Figure 2. The view on APP-Tool arrangements

The APP and the system behind it work with different scenarios mentioned above. In the scenarios different learning and working tools are needed. For every learner the scenarios provides the specific tools which are needed to solve the included problems and tasks Depending on the progress, the scenario and the role of the learner not every tool is always available to enhance usability and provide only the tools which are needed.

However, the *orientation tools* help the learner to get involved in the scenario. Here, the learners are provided with (a) the profile tool, where the role of the learner is described and explained, (b) the task list, where specific work tasks are given to the learner and the team, (c) an introduction video where the learners find a film about the real work environment in a bank where the topics of the scenario happen in reality, and (d) role cards of the team members and other staff of the bank in the scenario to let them know which persons they could meet in the scenario. All role cards of the team can be modified by own entries of the learners themselves. Moreover, (e) the tests which provide learning assessments, and (f) the setting, where the user can adjust the APP can be found in the first area.

The *work tools* on the left slider are important to cope with all the challenges of the working process. They support the learner and they are the same which are available in a real bank. The learners find (a) a telephone where the learner can find incoming calls, (b) a complete email tool to communicate with the team, the trainer or the members of the bank, or the clients in the scenario, (c) a letter box for the representation of incoming paper documents, (d) an electronic file tool like computer folders, and (e) real folders for collecting and sorting papers. Tools for (f) information material about working processes, (g) a client information system, (h) a loan calculator, and (i) a direct video based client interaction are available as well.

The *learning support tools* help the learner to manage, organize, and steer their learning process. Here the learner finds (a) an interactive calendar for team and client dates, (b) a calculator, (c) a process map tool, (d) a whiteboard tool, (e) a mind-mapping tool, (f) note tool to take notes while the working process and write down important facts to learn and to share, and (g) the ´quicknotes´ tool for a quick communication with the team members.

The following screenshot (see figure 3) gives an impression of the look and feel of the real APP with an opened right slider where you can see one of the learning support tools – the calculator.

Figure 3. Right slider with learning tools

One of the APPs didactical elements is its authenticity based (see Beutner / Pechuel 2015 and Beutner / Pechuel 2010) on real life situations. This approach gained considerable attention in all educational contexts, and is seen as inevitable to foster successful learning and learning transfer (see e.g. Abt1970, p. 31-32, Beutner / Pechuel 2013, p. 932, Schrader / McCreery 2012 p. 11, Beutner 2010, 2011, Cronin 1993). This goes hand in hand with a big goal concerning the creation of dialogues. They should be designed not only to provide information but to directly support the learning process (see Beutner / Pechuel 2014). In NetEnquiry the realization of complex dialogue structures was crucial. Here, with interaction it is meant that the learner is able to steer the communication by choosing between different options what he would like to say and the clients in the videos act and answer in response to the implemented action. This does provide authenticity and valuable trial-and-error learning opportunities, because there is not a single communication path but several opportunities. Moreover, it is one of the main motivating elements as well, because the learner can influence the whole succeeding learning experiences actively (see Westphal 2009, p. 134, Michael / Chen 2006, p. 25f.). The dialogues are provided by virtual persons which appear in interactive video dialogues (see Beutner / Pechuel 2014). The learner who takes the role of the consultant is in direct communication with them. There is not a single communication path but several opportunities. This emphasizes the interdependency between negotiation and information. Moreover, internal and external situated variables are taken into account. In the worst case the clients are also able to leave the bank.
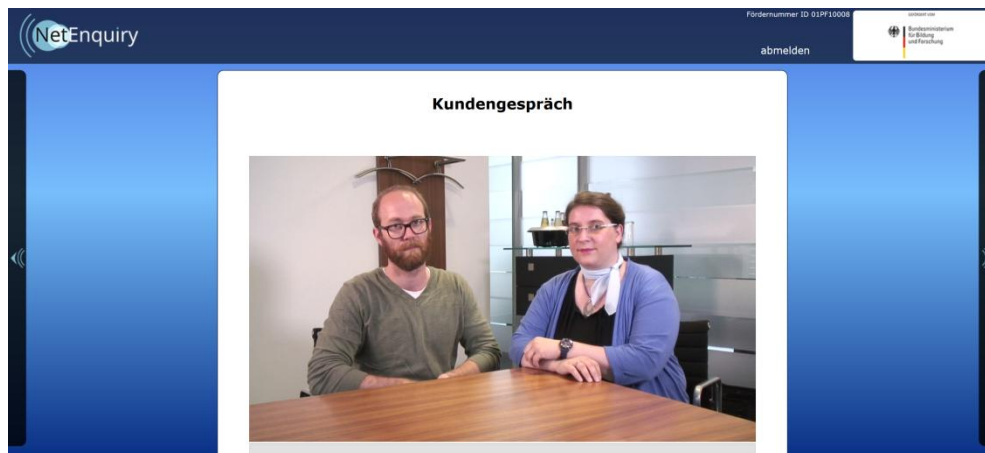
Figure 4. Interactive video dialogue

The screenshot above (see figure 4) shows an interactive video dialogue with a married couple in the first of the scenarios. In the dialogue all answers given by the learners will have a reply in such a video format.

4. EVALUATION RESULTS

The evaluation took place in a qualitative way in summer of 2015 with half-structured interviews and in a usability test. Both evaluations had positive results. To analyze the data we used the approach of content analysis of Mayring (see Mayring 2000). According to this approach the data were structured, compiled in interview related data tables, and categorized.

Target groups were end-user (N=10), designer (4), and staff members of the banks (6). In addition to that another evaluation with teacher students [TS] and vocational teachers [VT] as well as enterprise representative [ER] took place. Due to the fact that we presented these additional evaluation results already in an article in 2015 (see Beutner / Pechuel 2015) we will focus here on the results of the first mentioned target groups. Every target group was confronted with the prototype before they were asked to estimate. While the interviews were done as group interviews the usability test was done by single persons.

Due to the fact that all interviews were conducted in German, we will present here a translation of their statements into English language.

The designers were happy with the tool but addressed usability as an important aspect:

"The usability of NetEnquiry has to be seen under different perspectives. One perspective is the perspective of the learners but also the trainers who use the tool, work with the settings, create external shocks and provide feedback to the learners have to work with the tool in an easy way. Usability is important to ensure quality so it has to focus on quality attributes and methods for improving ease-of-use. We are using TAM to analyse the usability and the actions of the users. But this will come in one of the later steps of the evaluation."

[Des01 NETEnqEval, 1]

At the moment we focus on easy access, easy navigation, actual information, easy interactivity and authenticity to improve usability. And at the moment we are happy with the things realized. Due to technical restrictions and didactical requirements it is not useful to provide every tool in the app- and the web-version as well. But, we try to create a very similar appearance with the same core structures which makes it easy for the user to work with both options."

[Des02 NETEnqEval, 3]

All end-users were happy with the three area structure of the APP and one stated:

"The NetEnquiry tool offers a good insight in the scenario with the tools on the direct desktop. Moreover, the tools for working on the credit on the left slider are really useful. Also the tools on the left are good to structure communication and the own learning process."

[End-user02 NETEnqEval, 2]

Another one focused on the learning support tools and said:

"The learning tools are really helpful. They are always at hand and I like to take notes while working on the interview with the clients. But I would like to share my notes with the team members and it would be great if this can be supported in every situation and also with the trainer."

[End-user05 NETEnqEval, 1]

While addressing "every situation" this end-user focused on the different roles and scenarios. This was really a great hint because at this time a sharing of notes was not technically possible in each role, scenario and especially not with the trainer. Taking this serious we integrated this possibility in the redesign process of the NetEnquiry tool.

Concerning the learning support tools a staff member of the bank said:

"I didn´t expect so many supporting tools for the learning process. The tools on NetEnquiry are easy to use in training courses and at the workplace. The thing is that calculators are often not that much used in a bank due to the fact that the computers provide us most of the time with the necessary data. But I use calculators as well to make things easier for clients. And for - in NetEnquiry such a thing is important because in a learning situation it is necessary to get reconstruct calculations to get a better understanding."

[Staff.member01 NETEnqEval, 2]

Another enduser pointed specifically on the process-oriented tools:

"The tools are what I really like. It is quite easy for me to use the tools and I really like the authentic folder system and the email. It is very similar to my situation at the workplace."

[End-user05 NETEnqEval, 1]

Another one added:

"A very interesting aspect is the fact that in the email system you can do both communicate with your team and communicate in the scenario with the clients and simulated staff members."

[End-user05 NETEnqEval, 1]

Concerning the video dialogues an end-user mentioned:

"Great. Ok it is not real. It is a video. But the clients act different when I am acting in a different way and choose different text options. There is a huge amount of information in the text and it is like in real life. If I forget something to ask information is missing and if I ask several times the clients really get angry. Moreover, I like the possibility of different ways to act and to steer the communication. But, so far as I concern I see a main best way through the dialogue."

[End-user01 NETEnqEval, 3]

Derived from the interviews we could find these categories to describe the following positive aspects (see figure 5) and challenges of NetEnquiry (see figure 6).
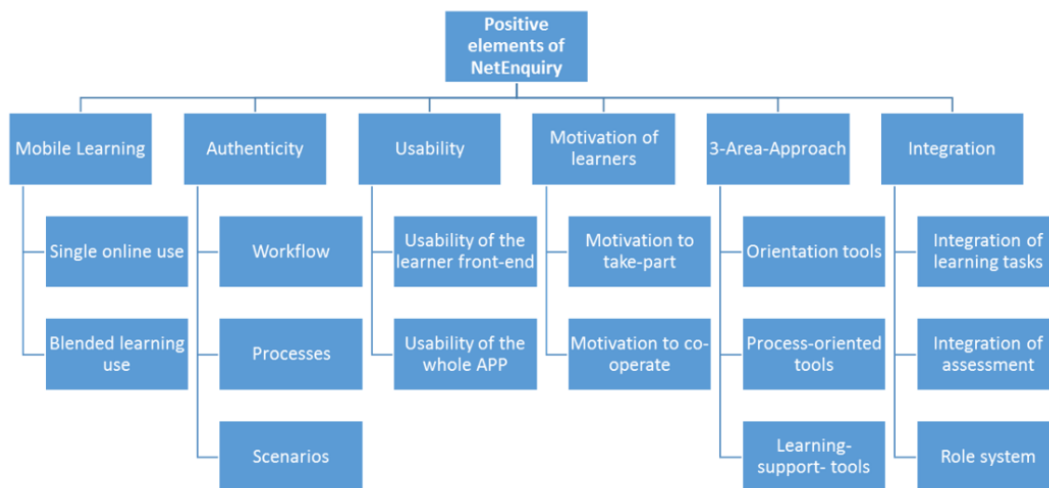

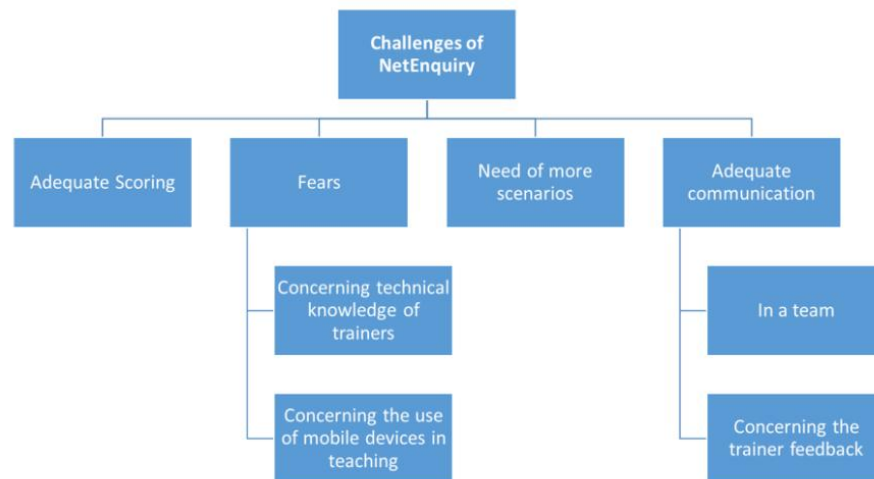Figure 5. Categories concerning positive aspects of NetEnquiry

Figure 6. Categories concerning challenges of NetEnquiry

In NetEnquiry we have to take the proposed hints into account. Moreover, we have to focus on the usefulness and feasibility of the proposed concept. The main challenges about the scoring are that the groups are able to act in different ways and that the scoring has to focus on different activities, e.g. the learner-client-interaction, the team-interaction, the use of the tools and the correctness of the result.

A critical discussion about the fears which were brought up is needed. The project has to think about ways to provide the teachers and trainers with more confidence. The challenges about the communications have to be taken into account in every training where NetEnquiry is used and the trainer has to make sure that the focus on these aspects is a main aspect of the pedagogical design in the learning scenario. Here, additional help by the project is important. A basis for the creation of such helpful hints can be the Paderborn Vocational Education Concept (PVEC) for eLearning and Serious Games (see Beutner / Pechuel 2011, see Beutner / Pechuel 2013). Generally speaking the evaluation of NetEnquiry was very successful so far and emphasizes that NetEnquiry is both a useful approach for the banking practice and a highly valuable concept within the scientific community.

5. CONCLUSION

Due to the evaluation results we can state that NetEnquiry is a promising new approach for mobile learning and web-based learning in the field of apprenticeship and further education. The PVEC is an adequate basis for the tool design and the principles like authenticity, collaboration, role-based approaches, situated learning and process oriented learning can be addressed in an adequate way with NetEnquiry and leads to innovative results which are able to foster the learning process and create acceptance and motivation.

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