8-7-2011

Experiential Learning in Second Life

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ABSTRACT

Virtual worlds such as Second Life provide new possibilities for computer-mediated communication, cooperation and learning because of their three-dimensional (3D)-environment and because of their enhanced interaction techniques. Based on the specific charateristics of virtual worlds, immersive perceptions can be supported, From a didactical perspective, these characteristics greatly support innovative distance learning arrangements and are particularly suitable for transferring and gaining experiential knowledge.

In this paper, we discuss the construction of immersive learning arrangements to impart particularly experiential learning via 3D-virtual worlds. Based on literature the authors theoretically investigate the adoption and effectiveness of virtual worlds for imparting experiential learning. Until now only a few articles provide empirical research in this field. Therefore, we conducted a case study in Second Life based on a specific learning concept for entrepreneurs. Three groups of students have been interviewed and surveyed regarding the adoption process. By doing this, we seek to learn more about their satisfaction and the relevance of their previous knowledge in the fields of business administration and virtual worlds. Our study shows that learning arrangements can be designed in Second Life to impart experiential knowledge. However, the construction and usage of those settings require extensive resources that have to be provided by participants as well as by the organizer.

Keywords
Virtual Worlds, Experiential Learning, Second Life, Entrepreneurship, E-learning.

INTRODUCTION

Virtual worlds are described as platforms where the user is represented by an avatar and is able to navigate, act, and communicate in three-dimensional (3D)-environments (Davis et al., 2009; Pannicke and Zarnekow, 2009). In comparison to online games, virtual worlds do not define certain goals to be achieved (Kong and Kwok, 2009). In contrast to Web 2.0-technologies such as wikis, podcasts, or blogs, virtual worlds enable users to perceive *immersion*, where the user has the sensation to be part of a real-world environment.

Virtual worlds have attracted millions of participants and became a remarkable technology-hype in 2007. Nowadays, virtual worlds have entered the "stage of disillusionment" (Gartner, 2009) because they failed to meet market expectations, became unfashionable, and were abandoned by the press. In the first place high technological requirements, weak stability, and insufficient usability have been identified as reasons for this development. However, experts proclaimed that new technologies and standards such as XML3D/X3D/3DMLW (Turonova, 2009) would cause massive changes in graphical design and navigation of the Internet in the near future (Bradley and Froomkin, 2005). Through a combined use of innovative Internet features, such as 3D-animations, virtual worlds provide also new possibilities for computer-mediated cooperation and offer new veins and motivational concepts for distance learning arrangements (De Lucia et al., 2008; Huang et al., 2009).

Consequently, recently more attention was drawn upon virtual worlds from an educational perspective. In order to attract new users, the providers of several virtual worlds (e.g. LindenLab, Sulake Corporation) started to investigate needs of teachers and learners for distance learning arrangements. The open source initiative SLOODLE (simulated linked object oriented learning environment) links SL with the e-learning platform Moodle (Bloomfield and Livingston, 2009).

According to Kolb (1984) and Alavi (1994) experiential learning is an effective way of imparting knowledge. Based on work of Kolb (1984) and Kayes (2002) interaction and immersion can be identified as significant parameters to support experiential learning. This paper classifies experiential learning as one of four principle learning-scenarios, where each scenario is describing a combination of a high/low immersion and a high/low interaction. Additionally, this paper analyzes the usability and acceptance of virtual worlds for experiential learning approaches. Until now there exists very few empirical data in this context (Jarmon et al., 2009). Therefore, we provide analyses and results of an empirical study to answer the following questions. First (RQ1): Are virtual worlds appropriate to support experiential learning? To address the aspect of high complexity of virtual worlds our second question (RQ2) is: How important is previous knowledge for learners to adapt virtual worlds?

To address these issues a literature review about virtual worlds and experiential learning is provided in the next section. In a further step, a theory-based framework for experiential distance learning by means of 3D virtual worlds will be presented. Based on this, the authors identified the value of the parameters *interaction* and *immersion* as relevant to create an experiential learning arrangement in Second Life. Therefore, they developed a research design to gather empirical data in this new field. A case study approach was applied to validate the ability of learners to adopt virtual worlds. Therefore, three independent student groups have been analyzed. Research results, extracted by surveys and interviews will be presented. The article ends with a summary and conclusion.

RELATED WORK

Compared to face-to-face interaction computer-mediated communication (e.g. email, instant messaging) is affected by a loss of information while being transmitted (Turoff and Hiltz, 1977). The reduced richness of content is due to a lack of communication possibilities via electronic media with regards to body language, para-verbal content (voice level, volume, and tempo) and other non-verbal information such as look, clothing, or behavior and the limited activation of senses (Daft et al., 1987; Davis et al., 2009).

By integrating VoIP-technologies and personification of users as avatars virtual worlds offer new ways of communication and collaboration (Huang et al., 2009; Fetscherin et al., 2008). Due to the assembling of new technologies and functions, virtual worlds have an *immersive and highly interactive* character (Magnenat-Thalmann et al., 2005), which can be applied for learning arrangements. Previous research argues that communication in virtual worlds may enhance the *perception of social* presence and the degree to which a medium allows a user to establish a personal connection to other users (Csikszentmihalyi, 1998). Immersion refers to becoming part of an experience and indicates the sensation of a real-world environment (Csikszentmihalyi 1998). Following Warburton (2009) the technical infrastructure, which supports immersive feelings for users as well as co-presence of other user's avatars generate experiences in virtual worlds such as Second Life. However, until now only very few authors have introduced these aspects to the academic discussion (e.g. Kim et al., 2008; Jarmon et al., 2009).

As Alavi (1994) pointed out active and experiential learning can be a key approach to effectively appropriate knowledge. Also Kolb (1984) stated that experiential learning supports the success of educational processes and that knowledge is a result of the interaction between the person and the environment. He points out that active and experiential learning is based on the parameters of interaction and immersion. Also Boyd (2002) explained learning as a process of interaction and diverse experience, which requires a continuous evaluation by the learner (Boyd, 2002; Alavi, 1994).

Following this, experiences play a pivotal role in the process of gathering knowledge as well as content and media competencies (von Glasersfeld, 1995). Surveys show, that the transformation of experiential knowledge into practice must be accompanied actively by several repetitions and setbacks. Applied to virtual wolrds Jarmon (2009) argues that theoretical knowledge has to be adapted to experiential learning to achieve a usual and common handling. With regards to this matter, it is necessary to frame exercise, training, and transfer sequences. The high degree of immersion, whereby students learn directly rather than only through complicated symbol systems (Winn, 1999) enhances learning through experiences and the capturing of complex contents (Dede, 1996; Walker, 1990).

EXPERIENTIAL LEARNING

Existing software-based learning platforms such as Blackboard or Moodle are to large extends not immersive and do not activated participants in the way virtual worlds do. Beard and Wilson (2002) pointed out that experiential learning combines two dimensions: the action and the parallel or subsequent thinking about the

action. Following him, it is necessary to link these dimensions to create long-lasting knowledge. Experiential learning is therefore needed to build a *bridge between action and cognition*. In this context they define experiential learning as "the insight gained through the conscious or unconscious internalization of our own observed interactions, which build upon our past experience and knowledge" (Beard and Wilson 2002).

The starting point in Kolb's (1984) learning cycle is that learners have concrete experiences (e.g. intended in a specific learning arrangement). The learner reflects these experiences within a stage of reflective observation. Theories and rules are then used to validate and conceptualize the experience. According to Kolb's model, the experiences are activated in experiments modifying the occurrence of the experience, leading to a following concrete experience. The reflection of observations and active experimentation lead to assimilation and accommodation, which brings external and already existing knowledge into a relationship.

This learning cycle can help to outline and explain the potentials and the effectiveness of 3D learning arrangements (Jarmon et al., 2009). The cycle may serve as groundwork to construct an e-learning framework for imparting experiential learning via 3D environments. Virtual worlds provide different sorts of metaphors for interaction and even VoIP technology to support verbal communication and to impart experiential learning.

Based on Kolb's (1984) and Kayes (2002) work we identified interaction and immersion as significant parameters to support experiential learning (see also Jarmon et al., 2009; Warburton, 2009). Applied to the virtual world environment, a framework can be derived, which consists of four clusters (Figure 1).

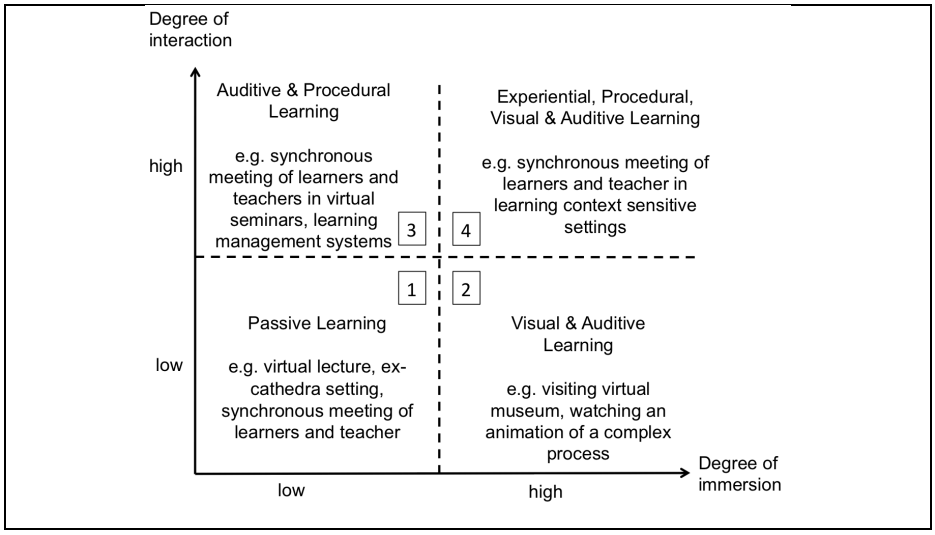

Figure 1. Different approaches of learning supported by virtual worlds

If immersion and interaction are low (cluster 1), primarily auditory or textual learning drives passive knowledge acquisition without active engagement of the learners. Additionally, combinations of a low degree of immersion and high degree of interaction – or vice versa – can be designed (cluster 2 and 3). 3D-animations being presented as ex-cathedra teaching provide a low degree of interaction and, at the same time, may provide a high degree of immersion (cluster 2). Cluster 3 describes scenarios where learners are integrated in synchronous meetings, e.g. in virtual classrooms with VoIP, where they can experience visual and auditory effects (cluster 3). If immersion and interaction are high (cluster 4) knowledge can be imparted via experiential learning.

Based on our analysis of literature we can assume that virtual worlds can support experiential learning. As it is described in cluster 4, virtual worlds support experiential learning in particular by tapping a high potential of interaction and immersion (supported by Kolb, 1984; Kayes, 2002, and Jarmon et al., 2009). To validate these theoretical considerations and to learn more about the adoption of a specific virtual world (Second Life) by students, we set up a case study design.

CASE STUDY: EXPERIENTIAL LEARNING IN SECOND LIFE

Today universities provide a variety of educational programs to prepare students for their future careers as entrepreneurs on a theoretical level (Mohr, 2008). These programs regularly are based on theoretical descriptions of entrepreneurship and the work on business plans. More advanced programs use venture-games and simulations to convey entrepreneurial knowledge. However, most of these programs allow interaction only with the computer (or algorithm) and do not require communication among the participants. In these scenarios, the

learners can choose among different strategies and get a reaction, which is based on computer's pre-defined algorithms (e.g. GoVenture, 2010).

As virtual worlds are build on user generated content and are populated by avatars, which are navigated by real persons, neither the users themselves nor the provider of the virtual world platforms may determine the competitive and interactive environment in virtual worlds. Activities and reactions of virtual worlds inhabitants cannot be forecasted, as it is possible in simulations to a certain degree. In this sense virtual worlds provide characteristics, which make them similar to a real environment (Castranova, 2005).

Methodology

By adopting virtual worlds, potential entrepreneurs are enabled not only to gain experiential knowledge, but also to learn from a risk-free competitive environment. In comparison to 'traditional' learning arrangements, where students learn by reading books or by writing business plans, this 3D environments support students to experience pitfalls in the process of starting a (virtual) business start-up.

An explorative case study was designed to investigate this issue. Therefore, an implementation based on the virtual world of Second Life (SL) has been realized. Second Life has been chosen because (1) regularly more than 70.000 inhabitants (potential consumers for virtual products) are simultaneously online (LindenLab, 2010), (2) SL is free of charge, (3) users can create their own avatars and objects, and SL provides a business environment comparable to a real-world economy (Fetscherin and Lattemann, 2008).

The authors seek to develop an innovative approach for knowledge sharing particularly in the area of entrepreneurship. To reach this goal, training modules are provided in SL, which cover various stages to establish a venture (Ege, 2003; Freiling, 2006) (see Figure 2).

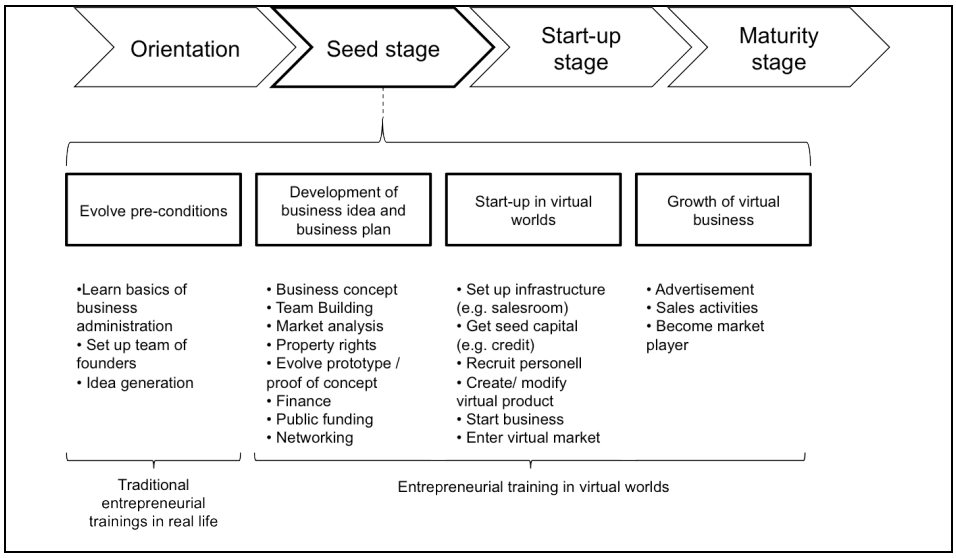

Figure 2. Organization and Timeframe to pass the Training Parcours

Before entering the virtual world, participants have to pass two short introductive classroom courses. First, they get basic informations about entrepreneuship (e.g. customer relations, finance) and second they learn how to navigate in Second Life. The general idea of the training parcours is that students develop a strategy to sell virtual products or services in SL. Each team had to choose one virtual product from of a variety of eight products that have been developed for the program (e.g. a growing plant, a nice belt). In a next step teams had to write a short business plan about how to bring their product into the virtual market. In this environment all other users of SL can be understood as potential customers. To support the entrepreneurial process and the feeling of immersion for students, several locations, buildings, and functionalities are offered at a specific region in SL (e.g. meeting rooms, a virtual library, video rooms).

Regarding to the classification of learning arrangements in virtual worlds (Figure 1) the degree of interaction as well as the degree of immersion while participating in the program are both very high. Members had to interact with several individuals such as their group members, unknown SL inhabitants (customers) as well as other stakeholders (e.g. land owners in Second Life). Furthermore, the students can use different communication

technologies, such as VoIP, text chat, gestures and mimics. The feeling of immersion was supported by virtual environment itself (e.g. the personification as an avatar).

In our case study, 28 students were divided in twelve teams who passed the parcours in one full-semester course (two hours a week) and two one-day workshops (10 hours). A first group of two teams and four participants attended the training course from April to August 2009. A second group of 5 teams and 14 participants passed the program in September 2009. The third group (10 students; 5 teams) completed the training in January 2010 (see Table 1). To address both research questions, interviews have been conducted and groups were organized in the way that participants of group 1 already had experiences in virtual worlds while most of the other participants never used virtual worlds before participating in the program. Furthermore, two of the groups already had knowledge in writing business plans (1 & 2).

	Group No. 1	**Group No. 2**	**Group No. 3**
Educational Background	Business Administration, Economics	Business Administration, Economics	Life Science
Virtual World Experiences	Yes	No	Rarely no (20% used virtual worlds on a low level)
Number of Participants	4 participants 2 teams of 2 participants	10 participants 5 teams of 2 participants	14 participants 5 teams of 2-3 participants
Rate of Return	4 questionnaires (100%)	9 questionnaires (90%)	10 questionnaires (72%)
Period	April to August 2009	January 2010	September 2009

Table 1. Entrepreneurial Teams

The following research steps were conducted with each team: (1) Students were interviewed about expectations, motives, and previous knowledge in respect to virtual worlds and entrepreneurship. (2) A general introduction into virtual worlds was given. (3) An in-depth introduction into SL was given. (4) Students had to pass the training course. (5) Students were asked to fill in a semi-structured questionnaire as well as taking part in an interview. The questionnaire included 22 questions separated into three sections (experiences in virtual worlds and business start-ups as well as socio-demographic characteristics) and one open question about the overall evaluation of the course. Data were analyzed with PAWS 17 and Microsoft Excel.

RESULTS

Interviews as well as a survey have been conducted with three different student/post-graduate groups to evaluate the learning arrangement (see Table 1). According to our methodological design each group had a different background in the fields of business and virtual worlds. Most participants know about virtual worlds. However, they had not used them at all (except members of group 1). Therefore, participants of group 2 and 3 used virtual worlds for the first time while passing the training course of the program. To support the groups and to ease the learning process, a tight checklist about how to proceed in the training parcours was offered.

Group No. 1: 4 Students of Business Administration (experienced in using SL)

The four business students of group No. 1 were already experienced in entrepreneurial courses because of their former curriculum. Hence, the learning objectives were focused on an in-depth understanding and experience in entrepreneurial endeavors and an understanding of the 3D virtual world platform.

All four participants had already experienced virtual worlds before staring the program. However, the degree of knowledge was rather different ("logged in a few times" to "SL expert"). The course started with an initial face-to-face meeting between the supervisor and the four students. From that point on only virtual meetings (as avatars and by using VoIP) took place at predetermined times on SL. Consultancy by the supervisor was only given on request by the students. Feedbacks about the business plans and students' progress were only given in the stage of the financial planning by announcing their financial budgeting granted by the simulated "home bank". Students had to submit reports about their perceived progress, their work and their experiences into the provided wiki and weblog. Members of group 1 had sufficient knowledge about designing artefacts in SL. They additionally modified the given virtual product while the other groups used given 'as-is' products for the entrepreneurial venture.

The statements by the team members about pitfalls in the different stages of the parcours were quite homogenous as the following quotes about the product design and marketing phase show*: (G1-I)-"The main problem was based on having no marketable product to start with."; (G1-II) "It took a long time to design a product…getting used to the technical requirements and possibilities in SL."; (G1-III) "Once we had finished the product and*

tried to market it, we realized it was not wanted by the residents in-world."; (G1-IV)"We had to adjust the product and rethink our market strategy…that took a long time."; (G1-V)"We spent too much time to develop the right product, … so we did not have enough time left to find the right market strategy."

The following general statements about the whole course provide interesting insights as they reflect what was intended by the training: *(G1-VI)* Riskless environment: *"we perceived no risk at all … that eased pointing decisions"; (G1-VII)* Interaction and team spirit: *"we encouraged and motivated each other in the team to keep on going"; (G1-VIII)* emotional cycles of an entrepreneurial endeavor: *"during starting a business you are passing good and bad times… things happen that throw you back in your planning"*

After finishing the training students were asked to fill in a questionnaire about the perceived effectiveness and potential of the program. All 4 students approved that the training course covered the essential aspects of business start-up as well as they agreed that it is a useful offer for students to experience business start-up through virtual worlds. 3 of the participants stated that using virtual worlds effectively requires a lot of time and knowledge.

Group No. 2: 10 Students of Business Economics (no experiences in using SL)

The students of group 2 had quite homogeneous levels of business knowledge. The students were concentrated on depicting a very brief business plan before defining their final entrepreneurial strategy. The members of the five teams of group No. 2 stated that it was easy for them to write a (short) business plan on their own as they were all students of business administration. Based on their existing theoretical knowledge in business administration this group focused on getting used to virtual worlds from the beginning. Despite the short timeframe, they easily tested different marketing strategies. However six participants complained about the difficulties and time-consuming process of getting used to navigate and orientate in virtual worlds.

The following statements were most frequently mentioned in the interviews. They depict the different perceptions and experiences made while completing the training course by the entrepreneurial teams: *(G2-I)"So far, we have already written many business plans but until now, we did not have the chance to bring them into practice – now it is possible."; (G2-II)"Until now, we didn't know how important it is to know about the target market in detail. Now we know that cursorily observations are not sufficient."; (G2-III)"As a team we ran through positive phases, in which everything happened as we wanted to, but also through phases with setbacks. To handle those, it is a good training and pretty close to a real business start-up."; (G2-IV)"The training course is a pretty playful complementation to other available and established offers for entrepreneurs."*

Furthermore, some critical remarks concerning the whole approach were mentioned: *(G2-V)"For a virtual business start-up lots of time is necessary – especially if you haven't used virtual worlds before."; (G2-VI)"Basically it is necessary to have previous knowledge about virtual worlds for a successful completion of the parcours."*

The following selected quotations about specific entrepreneurial phases show that students recognized the pitfalls by hands-on experiences: *(G2-VII)"It is very difficult to determine the avatar's needs in the phase of market research without having interviews with them."; (G2-VIII)"The product has an essential role – to start a business with a given product hinders a deep identification with that product. It will probably take longer to run through the training course, if we would have to build an own product."*

7 out of 9 completed questionaires of the participants stated that the training course was helpful to gather information about how to start a venture. Furthermore, they stated that the program helped to get in contact with other students using the platform at the same time.

Group No. 3: 14 Students from Life Sciences (rarely no eperiences in using SL)

The group No. 3 consisted of 14 students of life sciences (bio-technology). The students were grouped in five teams with each two to three members. Each team was guided and supported by an experienced supervisor. A ninety minutes crash course in management was offered before entering the parcours. In this group 3 of the 14 students from life sciences used virtual worlds before they started the program. However, their degree of knowledge was rather low (principles). Only 6 of them had heard about SL before.

Most of the statements given by the group No. 3 focused on the handling of virtual worlds instead of reflecting the virtual start-up process itself. To write a brief business plan they concentrated tidily on the given checklist and explored different locations concerning life science. In the interview members of this group stated: *(G3-I)"It is very difficult to understand how virtual worlds are build up; especially to orientate and navigate within virtual*

worlds."; (G3-II) "As we know online games, we already knew how to navigate and communicate in virtual worlds – but the search within virtual worlds is very peculiar and not very common."; (G3-III)"I feel queasy because I get dizzy in virtual worlds."

After finishing the program participants from life sciences said (7 from 10 completed surveys) that the platform was useful to get real-world experiences (e.g. by interviewing SL inhabitants). 8 students also stated that the program in SL was appropriate to experience entrepreneurial processes. 4 participants argued that the training course might be helpful for starting a business in the future.

DISCUSSION

Research question 1: Appropriateness of Second Life to support experiential learning

According to the results from interviews and surveys the learning arrangement engaged the teams to collaborate with each other (e.g. in product testing, sharing distribution channels, etc.), which resulted in a co-opetition in the given setting. Additionally, they described and discussed their experiences in the provided forum as well as looking for help within the wiki. The students' statements show that they liked a part of the "simulation". Group cohesion and work intensified the interaction and the learning process (see students quotations G1-VII, G2-III). However, it has to be remarked that the number of members per group ranged only from 2 to 3. Results show, that participants mentioned to gain experiences about how to act as an entrepreneur. Besides, the immersive sensation and, according to Kolb's (1984) model, self-organized intensive interaction (e.g. synchronous; via text-chat and VoIP) between students of one team, among different teams in one group as well as with SL inhabitants supported the experiential learning process. However, in our study we did not directly compared groups using virtual worlds with groups, which did not. Therefore, it cannot be said which approach is more effective to impart knowledge.

In the final interviews all groups stated that they had enjoyed the gaming character of virtual worlds after they knew how to use them. All three groups made similar experiences: avatars behaviour is to a certain degree just as unforeseeable as it is of real-world inhabitants or customers. This causes problems for the students in analyzing the avatars' interests (representing other users in SL which are not participating to the program) and in defining target groups in a proper way (see quotation G2-II, G2-VII). Conducting market research was as hard as finding appropriate places to sell their virtual product. All teams could change their once defined strategies, redesign and fit it to the market conditions. New findings automatically made it necessary to re-think the chosen strategy (see quotation G1-VIII). This contained light bulb moments and setbacks as well – comparable to a real-world business start-up. Three teams decided to rent a shop, which could be found by potential customers and where products could be sold. Four teams mainly advertized their products at well-known websites to sell goods in SL. Three teams focused on individual marketing, e.g. finding other avatars and trying to directly sell the virtual goods.

Research question 2: Relevance of previous knowledge for the adoption of Second Life for experiential learning

The completion of the training program was more difficult for the students from life sciences (group No. 3) than for the BA students due to the fact that the life sciences students had to learn two new topics in a very short period of time: i.e. entrepreneurial and business knowledge and the handling of virtual worlds (see quotation G3-I-III). The group of business students benefitted from the course by experience first-hand pitfalls in starting a (virtual) business. Therefore, the teams of life science students benefitted from the course by learning about the theoretical principles of management and entrepreneurship and by experience first-hand pitfalls in starting a (virtual) business, too (G1-IV, G2-II, III).

The results of our survey suggest that students of different research fields, even without any economic background, can gain entrepreneurial experiences in a very fast and effective way by passing the described virtual training parcours. Short-commings are the time-consuming introduction into the usage of virtual worlds. Hence, to visit pre-seminars and lectures to get into the topic and comprehend the start-up process more decisively turned out to be helpful for students with no entrepreneurial and business background. Both analyzed one-day workshops show that the participants, independent of their profession, need continuous assistance from skilled tutors. Otherwise the motivation changes quickly in frustration. To ease the successful completion of the parcours for students with no entrepreneurial background and no knowledge about virtual worlds, fundamental theoretical knowledge about entrepreneurship should be trained in advance before starting the venture in the virtual world. Similarly experiences about handling virtual worlds should be made upfront.

Critics primarily concerned the handling of the virtual product (see quotations G1-I-V, G2-VIII). The developed virtual product is as decisive as it is in real start-up business. The teams, who had own ideas and modified their own products had to spend much more time on the development of the product idea than on the business plan. Furthermore, students who had no experience in using SL complained that it is difficult to learn to navigate in Second Life (G3-I). Other studies support this issue (see Baker et al., 2009; Jarmon et al., 2009).

CONCLUSION

As a conclusion of the paper, it can be stated, that virtual worlds offer potentials for the computer-mediated knowledge transfer on different levels (Figure 1). As the evaluation of the participants of the entrepreneurial training course shows virtual worlds support experiential learning in particular. However, it has to be considered that the development (design, implementation) as well as the proceeding of such learning arrangements (guidance of learners) requires a lot of resources. One reason for this is that the current development of distance learning courses and environments in a technical and a conceptual sense is still at a very early development stage.

Reasoned by the explorative research design some limitations have to be taken into account: The employment of students' opinions and experiences to evaluate the effectiveness of learning arrangements is going along with some shortcomings. Students are regularly not competent to validly judge course designs. However, they are the only ones who can evaluate the quality of instruction they receive and the environment they are acting in (Coughlan, 2004).

Studies suggest, that student evaluations should be used with great care as validity can be affected by a number of variables (e.g. perceived situation of examination, different understanding of terms), which have to be considered or will need to be controlled (Entwistle and Tait, 1990; Gibbs, 1992; Light and Cox, 2001). It is important to conclude with a cautionary remark that this case study suffers from the issue that it is not possible to generalize the findings due to the explorative and qualitative character as well as a small sample. Our investigation focuses on German students of business economics and life sciences and their experiences in SL only. Furthermore, our methodology does not include a long-term tracking of the participating students to measure their success of founding a company in real-world.

In our research we investigated and evaluated the potentials of virtual worlds for experiential learning, which turned out to be a very promising area for usage of virtual world. However, until now virtual worlds are rarely explored academically in this context. For this reason our study is needed to strengthen the debate about usage of virtual worlds in higher eduction by enrich it with empirical data and project-based experiences. In our case study the research project does not only cover the evaluation of new learning arrangements on the basis of an exclusively establishes framework, it also contributes significantly to promote the debate about the usage of new media and technologies for teaching and learning purposes, especially virtual worlds. Essential research topics concern the user behavior, business models in virtual worlds, concepts and efficiency of new learning models (as activity-based learning or game-based learning) through 3D simulations, communicational, collaborative and co-operational behavior within virtual worlds as well as community building in Web 2.0 and virtual worlds are addressed.

Additional research is needed to learn more about the learning success that can be achieved and measured by usage of virtual worlds. Furthermore, technical as well as organizational concepts are needed to closer link traditional learning systems and Web 2.0 technologies with virtual worlds. This might alleviate the provision of virtual worlds platforms for educational purposes of groups up to 50 participants. However, this has to be analysed in a following project.

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