AVATAR Course: Teacher Training for Teaching in 3D Virtual Worlds

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Abstract—In this paper we outline a global course for teachers, which was delivered remotely over a period of four months. The course was created in English language, however to support the learning curve of multilingual and international groups, several modules were moderated in national groups. The course has nine modules, distributed via e-learning and v-learning platform. Last module supports creation of new teaching material by course participants and its piloting with their students. Teachers created interdisciplinary lesson plans with activities in the 3D virtual worlds. Recommendations and experience from trials are tabled in conclusions.

Keywords— e-learning; 3D virtual environments; recommendation

I. AVATAR COURSE STRUCTURE AND DELIVERY.

The lack of ICT use in teaching is a predominant issue in secondary schools throughout Europe. Despite educational benefits and social learning opportunities ICT promotes, the application of it is mostly introduced by individual teachers and related to their increased efforts in preparing lessons. Magnusson, R. [4] argues that the game like activities are highly engaging for the students but the role of the teacher as facilitator is paramount to the success of the learning outcomes. Pivec, P. and Pivec, M. [6] further emphasize, that advantages of using digital games and innovative ways of teaching can only be realized if the games and game like activities are designed correctly, are used in the appropriate environment and employ a suitable pedagogical framework.

The AVATAR course [2] aims at enhancing the level of ICT use in education and providing teachers with relatively new methodological and pedagogical tools and is offered to teachers in secondary schools in Austria, Bulgaria, Denmark, Italy, Spain and the United Kingdom. The course and related activities are developed to increase motivation of teachers (and students) by creating interdisciplinary and international network of teachers developing and exchanging teaching material and practice, thus improving the quality of teaching.

The course is offering support for teachers at integration of ICT based pedagogy and includes approximately 100 hours of learning activities broken down into group activities, individual study, planning and carrying out the project work with students. The course is delivered through both an E-Learning and a V-Learning platform comprising a mix of tutorials, individual and group activities and practical tasks. Second Life is used for the course delivery for the participating teachers.

National groups of teachers are moderated by national moderators (virtual world’s experts) who communicate in their native languages. Participants also partake in transnational activities and reflection in English.

In the four months the course covers educational design of virtual world teaching, the management and construction of virtual objects and learning environments and examples of learning activities in virtual worlds. During the course, teachers develop a project work and use it directly in the classroom with their students. The project work incorporates a practical application of knowledge and skills gained during the course with regards to the creation of a virtual world learning environment and learning activities for a specific subject.

The overall learning objectives of the AVATAR course are for the participants to:

• develop skills and confidence in using various social internet resources as well as massively multi-user online worlds such as Second Life (SL)
• develop a deeper understanding of these environments and their uses with regard to learning scenarios
• gain knowledge of teaching methods, best practices and educational design usable in virtual worlds
• identify and reflect upon the efficacy of the outcomes of different learning activities carried out in-world
• design strategies, activities and resources for learning different subjects in virtual worlds
• integrate virtual worlds as an innovative means in their daily teaching
• experience virtual worlds with their students
• evaluate the educational use of virtual worlds in their classrooms

To achieve these objectives the course offers nine Modules with activities as follows:
1. Introduction Module - The purpose of the module is to gain access to the E-learning platform, to create a profile and to become familiar with the course overview.

2. E-Learning Platform Introduction Module – In this module the course participants become familiar with the E-learning platform and its features and they develop practical proficiencies in using the E-learning platform. In the phase of the online socialisation participants and moderators get to know each other and bring attention to the benefits and challenges of working and learning in teams.

3. V-Learning Platform Introduction Module - The purpose of the module is to introduce the course participants to the V-Learning platform Second Life and to support them in developing the basic skills required to use the environment as well as to be able to access the different support resources of Second Life. The participants create their own avatar and join the AVATAR project group in Second Life.

4. V-Learning Intermediate Module - In this module participants gain a more in-depth knowledge of how to use and manage the different community features of Second Life, they develop practical skills and confidence with Second Life. Furthermore, they learn to search and find places, objects and persons via the Search and Map features of second Life

5. V-learning Advanced Module – The focus of this module lies in basic object creation. The participants understand how the virtual environment of Second Life is created and maintained by its users. Using the building interface and a library for textures they develop some basic object creation skills to create simple content in Second Life.

6. V-Learning Advanced Module – In this module the participants continue to create objects and explore how pre-generated scripts and advanced texturing techniques can be used for creating more advanced objects in Second Life.

In the time table of the course each of the modules 1-6 lasts for one week, during this week the participants should spend about 5 hours per module.

The aim of modules 7 and 8 is to provide more understanding of what Virtual Worlds and Massively Multiuser Online Games and worlds are, and how they are used for teaching and learning. The focus was in particular on Second Life, its culture and how it has and can be used in educational contexts.

7. V-Learning Educational Design Module - The objectives of this module are to learn about different theoretical approaches of teaching and learning in virtual worlds in general, and especially in Second Life, to independently reflect and comment on different theories presented in the module and to discuss how the theories and methods can be applied to specific subjects.

8. Ongoing V-Learning Seminar - The objective of this module is to deepen the knowledge on educational use of Second Life. It provides good examples and cases of teaching in Second Life. By analysis of these examples the participants get ideas for their own project work. They discuss potential challenges and pitfalls with their fellow participants, ask experts for their opinion and experience and reflect on own v-learning approach

Modules 7 and 8 run for five weeks, in parallel to modules 3 – 6. There was one activity per week and per module planned, in total 5 activities per module. Participants were expected to invest 3 hours per week to accomplish one activity, i.e. 6 hours per week for activities of both modules.

The delivery form of these modules was based on knowledge exchange and sharing experiences via e-learning and v-learning platforms, in a mix of provided resources, invited presentations of use cases and discussions. Resources encompassed several book titles, uploaded articles and web-articles, guides for teaching in SL, videos and links covering teaching practices in different disciplines using SL, from science, art, history to demonstrations of physical phenomenon, museum exhibitions, to language learning.

As part of activities of the Module 8, there were three synchronous sessions with experts carried out in SL. The sessions were in form of presentations of good practice, which ended with a short guided field trip exploring teaching resources.

At the first session Inge Knudsen was providing hints and basic building skills on how to create your own learning objects and environments for teaching English. The second session was guided by Gerhilde Meissl-Egghart on language learning in SL, and Charlotte S. Jensen named her session “Making history come alive”.

Although the Module 8 was optional, 20 – 25 teachers were participating at each of the sessions. Some of the sessions were also recorded and videos were uploaded to the forum as a resource. SL sessions with experts were very well accepted and provided an ideal opportunity to benefit from more experienced users, to get ideas and practical instructions of what works, and ask for advice related to own ideas. Some resources that were demonstrated at these sessions were later incorporated by participants when creating their own lessons, e.g. using the Robin Hood Quest which is available in Second Life at the British Council Isle, as part of SL activities in the subject of teaching English as the second language. See [7], for more details on the practical work with students and their results.

9. V-Learning Project Work - The purpose of the project work was to support teachers in designing their virtual world course or lesson, which will be piloted with their students. Based on learned topics and acquired skills in modules 1 to 8 teachers had to structure their ideas by filling out a template. Besides description of class and level, subject and learning goals, they had to consider amongst others how many students they plan to have in class, technical requirements and support, and plan for v-objects and other resources they might need. Teachers shared their plans with other participants in the forum.
their colleagues commented on their ideas and helped with hints on tools that they discovered.

II. TEACHERS REFLECTIONS

A. Opportunities that Second Life provides for teaching

After the end of the AVATAR course an online survey on didactic methodology, quality of content and users satisfaction was carried out by an independent external evaluator [1]. Several questions were asked to evaluate why teachers would consider application of SL for teaching.

From 35 participants answering the survey, 82% share the opinion, that SL is an appropriate environment for teaching, and state amongst others:

- SL is an appropriate training environment, because it provides quick and easy access to different places and events which in real life can hardly be seen or visited.
- SL is useful if you have students who live far away and cannot come to school each day
- It supports to learn foreign languages but the speed of the PC has to be efficient to enable collaboration classes from other countries.
- Part of the teaching today should also take place in virtual worlds. The young people know virtual words through their online computer gaming and can bring their competences into the learning scenario.
- Valuable teaching activities that supplement real life teaching can also take place in Second Life, especially international collaboration projects between countries.
- In the case of teaching English you have a unique opportunity to work in real time if you find collaboration partners.
- SL is the best tool for simulations; virtual tours are suitable for everything.
- SL offers an interactive way, more in line with how students interact in the modern world. Teaching in SL enables students to have the benefits of active learning.

Furthermore, teachers outlined various ways of interaction that increase motivation, explorative learning and pro-active behavior of students as added value of teaching in Second Life. Enclosed are several explanatory statements:

- Using SL as a teaching method makes learning easier and fun for students. It improves communication skills as well as negotiation skills of the participants/students.
- The interactivity offered in SL is a new way of teaching. You can visit or view places far away or impossible to visit.
- Looking for other ways to make my teaching subject more exciting to students.
- Teaching in SL gives better visualization of the subject for better understanding of the matter.
- It gives the opportunity to engage in a new way of learning. It increases the motivation and interest for the subject.
- Via their avatar the students become more liberated - especially in language teaching, they dare to do more without feeling exposed.
- Students can act by themselves and solve problems in groups more easily than in face-to-face teaching.
- It provides an environment where students can play, cooperate, help each other and meet with students from other countries.
- They can see the world, fly, play music, perform, change appearance, have fun and forget that they are actually learning new skills, and English by participating.
- We can best employ the six learnings of Lim [3]: Learning by exploring; Learning by collaborating; Learning by being; Learning by building; Learning by championing; Learning by expressing.
- The possibility to integrate the real life teaching with activities which aren't always possible in a traditional lesson, i.e. virtual travels in distant places, experiments, meeting and talking to native people etc.
- The added value is related to the way students can improve their competences in the use of ICT tools and in the foreign language. (This is true for my project work. Students can improve their competences in many other subjects, obviously.)

However, eighteen percent of surveyed teachers disagree and further explain, why they don’t consider SL as appropriate teaching environment:

- Maybe in some teaching subjects like architecture SL is useful, but not in general.
- It takes too much time to establish the environment.
- It is one of the possible ways but it is not "exhaustive", i.e. not all can be done in, it does not cover everything.
- You can hide your person - teaching needs personal contact.
- It is too complicated and school ICT is too slow to cope with it.

B. Discussion in focus groups after the course

Based on a questionnaire, teachers who attended or completed the AVATAR training course reflected their experience. In this section we provide a summary of focus group reflections from Denmark and UK.

The teachers enjoyed the well prepared materials but the dual approach of the training in the E-learning platform and in SL caused some confusion. Further obstacles were the tough
time management colliding with other deadlines in the schools and the effort to discuss in English.

The project was technically very demanding for schools, one teacher said: “I had to go through the whole IT business. And then our IT department told me that Second Life could only run on some of our computers.” Some teachers failed by using school computers and there were classes working in SL from home in the evening.

A lot of teacher efforts were needed for dealing with technical issues whereas they would have preferred to focus on didactical questions.

The course participants enjoyed the trips and guided tours, creating objects was rather a task for experts. One of the teachers stated that SL is similar to the real world and he asked why scales are needed in SL when you can fly as well.

In SL the teachers were supported in a great way by the technical moderators (members of the AVATAR team) but they mentioned that sometimes there were communicating problems between IT people and teachers.

The transferability of the AVATAR course is seen differently by the course participants. One teacher states that the SL experience would be important for younger pupils as well whereas another teacher mentions different attitudes to protection of children in different countries.

III. RECOMMENDATIONS AND CONCLUSIONS

According to the official project figures 123 teachers enrolled in the AVATAR course, 65 teachers attended the training, 55 dropped out and 3 acted as observers. Out of 65 attending teachers 26 completed the course, including carrying out the project work with their students. 36 teachers responded to the post course survey [1].

The reasons for drop out can be related to four reasons: lack of interest, lack of time, technical problems and lack of support. More than half of the participants answering the questionnaire (61,11%) underlined the difficulties of finding time to follow the course.

The course resources were appreciated and used by participants. The most frequently used resource i.e. several participants reported daily use, was the Q & A forum on the AVATAR e-learning platform. The most valued resource were national moderators that were rated between 1 and 2 (1= excellent, 5 = very poor) by 75% of participants. Although Second Life resources were less frequently used, they were also well valued by the majority of participants.

Several preliminary recommendations and conclusions as tabled in [7] are further explained and extended with results obtained via course feedback questionnaire [1] and moderators observation from the piloting of the course.

- Make sure that participants have the necessary ICT and language skills and that their ICT equipment meets the requirements.
- Choose carefully the platform communication facilities and technical environment, so it supports all planned activities and is easy to use and to handle, e.g. easy was to follow discussion threads, reply to specific posting, attach documents to posts, etc.
- Allow for sufficient time for activities and consider appropriate scaffolding of participants, e.g. most of participants had no previous experience in SL, therefore they would need more time to feel comfortable in a virtual world and integrate it into his/her teaching.
- Consider alternate streams for the practical work, separating out those who want to learn advanced building from those who want to use existing installations in SL.
- Organize repeating synchronous activities / events to bust and maintain motivation and participation, as for example the expert interviews, guided tours, field trips, or informal gatherings.
- Record the synchronous events for those who were not able to participate.
- Prior recording inform the presenter and participants that the sessions will be recorded and from the presenter get the agreement for the recording of the session.
- Provide as much support and material as possible in various languages, as some participants might find it difficult to learn in English i.e. not their native language.
- Provide national discussion groups, as to reduce the language barrier, especially at the early stage of the course, when people are familiarizing with the technical environment.
- National moderator being familiar with the culture and the school calendar should be primary support for the participants in the course.
- Create activities to support mixed interdisciplinary and international teams, e.g. following the feedback on User’s Satisfaction [1], a great majority of respondents were very satisfied with the course (25 respondents -75,75% rated 1+2 on a scale from 1 to 5). The type of suggestions the participants made regarding their own satisfaction were mainly related to the appropriate timing of the course and to a more intensified “cross-national” approach, to assure the European dimension of the teacher collaboration in project work.
- Encourage early discussion about the project work, to enable cross-country groups of participants to work together.
- Subject-related forum might give further opportunities for cross-country communication. In addition, providing an experienced in-world teacher as the tutor
for particular subjects can be very motivating and helpful.
• Provide more time for participants to carry out the project work and to embed it into the curriculum, i.e. well in advance when the next school year is planned. A possibility could be to break down the course in two distinctive parts, modules 1 – 8 taking place in the spring and module 9, the project work, that can be carried out in the following autumn when a new school year starts.

Factors to success for teaching in the virtual world as seen by teachers from the AVATAR course are outlined in the next section [7]. These practical advices can be further expanded by activities and hints how to manage various situations, catalogued in the Design Patterns for Teaching in Virtual Worlds [5].

• Introduce the students to netiquette, so that they can interact with other avatars in the virtual world without causing offence.
• Support the students in-world by offering note cards with SLURLs, instructions etc.
• Provide a framework of modules that explain the task and related completion deadlines.
• Ask a colleague to help you with the students at the beginning of the in-world lessons, e.g. to give them support and guidance in case of technical problems or difficulties to find the class location, so you can focus on planned activities.
• Virtual worlds add an international dimension to language teaching as well as they provide interaction that motivates students to learn foreign languages.
• The AVATAR course proved to be virtual competence development for the participating teachers.
• Inform colleagues (teachers) and your didactic manager of the activities that you will carry out in-world; they will contribute to motivating the students.
• Involve the technical staff in your school at an early stage of your project, they will help you with all the technical problems (open Firewalls, install Viewer, etc).
• Valorize the work of your students.

Teachers reported on higher motivation and involvement of students due to the virtual classes, often taking the initiative and even volunteering to support their colleagues or create parts of practical lessons. In several cases students used the competences acquired in SL at other school projects to create added value thus achieve better results.

In spite of an intense and vivid online experience in the E-learning and the V-learning platform the teachers missed the personal contact and would have wanted to attend face to face meetings in international teacher groups; maybe sorted by subject as well. The face to face part of the course could be integrated in form of a workshop at the start of the course, where all participants would meet, exchange basic information and start forming international subject groups. Such approach might also reduce the dropout rate of the course.

REFERENCES

[1] AVATAR course. Evaluation Report On Didactic Methodology, Quality Of Content And Users Satisfaction, elaborated by Ana Maria García Femenía, July 2011