A Student Project to Qualify Underprivileged Adolescents

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Abstract

The objective of this student project was for the students to develop, conduct, and supervise a training course for basic work place applications (word processing and business graphics). Students were responsible for the planning, organizing and the teaching of the course.

As participants, underprivileged adolescents took part in order to learn the handling of IT applications and therefore, improve their job skills and have a better chance to get into employment. Therefore the adolescents do the role of trainees at the course. Our students worked with a population that is continually overlooked by the field.

As a result, the students trained to design and implement training courses, exercised to manage projects and increased their social responsibility and awareness concerning the way of life and living conditions of other young people. The underprivileged adolescents learned to use important business applications and increased their job skills and job chances. The overall design of our concept required extensive resources to supervise and to steer the students and the adolescents. The lecturers had to teach and to counsel the students and had to be on "stand-by" just in case they were needed to solve critical situations between the two groups of young people.

Keywords: Student project, underprivileged adolescents, user training

Introduction

Integrating student projects into Information Management curricula has become quite popular. The list of objectives addressed by teaching through student projects covers:

- to foster the will and the enthusiasm of students accepting goals and dealing with problems
- to teach students how to manage situations where problems are not fully explored and without predefined solutions
- to train students to develop and implement their own ideas
- to give students the chance to take part in group work
- to use the work environment for better learning in groups
- to support the integration and application of knowledge learned in vari-

ous other courses of the academic program

- to deepen the somehow theoretic knowledge taught in other courses of the program by work-integrating learning
- to train students in working on projects including managing the triple constraint of scope, time, and cost
- to simulate realistic work places and the future working environment of their students – so that one can mirror the 'real world' – with real-life projects.

Grounding on constructivist learning theory to aim at these objectives it is important to develop IT professionalism. Key elements of knowledge and important competencies should be trained during academic education.

The course in question was prepared by the authors and added an additional objective to the list: to train social responsibility and to develop and increase awareness of undergraduate students concerning the way of life and living conditions of other young people. Until now the course has been conducted three times with 8 to 10 students as trainer and 12 to 14 adolescents as trainees each course. Our experiences show that the course can support the above mentioned objectives. The results of the students' projects were very good, the feedback of the students and of the participating adolescents was very positive. The workload for the students is above the workload of an average student project and the advisors had to present a framework for the students to handle in special situations.

Background and Framework

Student Projects as Part of the Curriculum

The Department of Business at the University of Applied Sciences and Arts (Hannover) offers academic programs in Business Administration and Information Systems at the Bachelor and Master level. Aiming at integrating real-world experiences into learning environments in order to combine scientific education with training of management practices, the students have to build up sound formal knowledge of theories and methods and combine this with some industry orientation. For instance, during the 4-year bachelor program the students have to complete two internships with companies, each 4 month long, and two projects to combine academic learning with practical experience.

These projects are characterized by the following features:

- Students work in a group of 5 to 10 people;
- The group gets a special assignment that is normally developed together with companies from industry;
- The group has to develop well grounded and realistic solutions and has to implement their approaches;
- The time frame for projects is ca. 16 to 18 weeks.
- Workload: The time and effort the students have to invest is quite extensive. The estimated workload is about 12 hours work per week, partly scheduled for meetings etc, partly working in smaller groups on subtasks.

The students have to organize their work and time, division of labor, communication etc. on their own; thereby, they have to manage their project properly. The tasks for the lecturers in this teach-

ing environment basically consists of controlling and support, as well as supervising the students. At the end of the project the students get grades and credits for participating in this course.

With this special type of course we try to reach the objectives of student projects described above. The students taking this course are in the 3rd or 4th year which means that they normally completed general courses of their programs as well as courses on Project Management before starting the project assignment.

Topic of the Assignment: User Training

For an efficient use of application systems, users have to be trained properly. The complexity of application systems is increasing as well as the degree of (vertical and horizontal) integration of several systems and that means that users need sound knowledge and training to use the applications. Proper handling of the application by users is critical for the success of an application. Therefore, planning, executing and controlling user training are important tasks for IT-professionals. Accordingly, user training is a valid topic for students of the bachelor program in information systems. During user training a series of subtasks have to be tackled:

- Planning and developing training content
- Preparation of adequate training material
- Preparation of adequate facilities
- Scheduling training
- Mastering adequate techniques of teaching and training
- Disciplining and motivating involved participants
- Securing learning progress of the participants.

For the application which has to be trained we chose Microsoft Office as the application domain of this package is very broad and the package fits with the previous knowledge of the participants.

The training has to be taken place in the rooms of the University so that the normal activities are not overly interrupted or disturbed. Therefore, additional necessary planning and organizational work is necessary. A suitable infrastructure (rooms, technical equipment) had to be planned and implemented.

To evaluate the results of the user training and to give the participants the chance to get a certification of their newly trained skills, we used the European Computer Driving License (ECDL), which is a widely accepted standard test in Europe (Figure 1). The test was initiated by the ‘Gesellschaft für Informatik’ (GI) and is managed by a subsidiary of GI. In total, ECDL consists of seven modules tested separately by multiple choice questions: IT Basics, Operating Systems, Word Processing, Presentation, Spreadsheets, Data Bases and Internet. Each exam consists of 30 questions that have to be accomplished within 30 minutes. After passing four of the seven exams, the participants get the certificate “ECDL Start”. After taking all seven exams, the full ECDL certificate is issued. The tests are organized and driven electronically by a third-party provider via Internet and evaluated automatically.

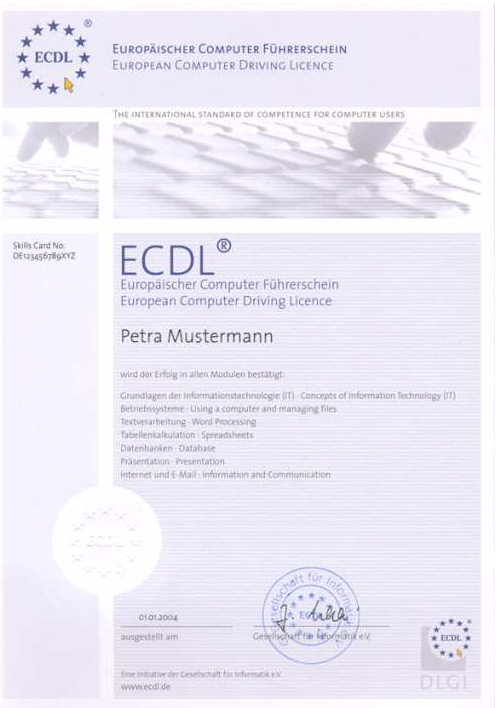

Figure 1: European Computer Driving License (ECDL)

Underprivileged Adolescents

Adolescences with a poor education from school (Planque, 2006), unstable family backgrounds (Rabold, Baier, & Pfeiffer, 2008), living expenses covered by social welfare (Meyer-Timpe, 2009; Krug & Popp, 2008), unsteady housing, and special peer groups tend to have severe problems in getting a job and starting a work life. Official statistics and empirical surveys do not cover this group directly; combining the data of the referenced sources should add up to 10 to 15 % of the younger population. They bear the risk of starting a "career of unemployment" which is very hard to stop.

This is the reason why the government and public administration heavily invest to help this population using various measures. One of these measures is to finance a nonprofit organization which supports the adolescents to learn and develop basic working virtues like punctuality, diligence, carefulness and reliability. In our student project we have the chance to cooperate with one of these non-profit organizations called NewBit. NewBit offers a special 12 months program for underprivileged and unemployed adolescents where they train basic work skills and job routines. The objective of the programs is to increase the chance of the adolescents getting employment. Within a specific program the participants have to be on the premises of NewBit and repair personal computers such as changing disks and processors, installing new operating systems, implementing graphic cards and similar enhancements and peripherals. The participants check discarded PCs and either disassemble and dispose the parts, or assemble them into new fully functioning PCs. Thereby, apart from learning and training basic working skills and routines, the common simple technical and mechanical skills are developed and trained as well. NewBit tries to simulate "normal" work life as far as possible in order to give the participants orientation and motivation. NewBit does not actually focus on training the participants in using computer applications as during their work with NewBit they only have a course in IT Basics and have passed the ECDL examination for this module – within the first and the second student projects the adolescents have passed an additional module in Operating Systems. This certain lack of skills is

seen as a deficiency because one has to know at least how to use some basic applications like word processing, graphics and spreadsheets as they are seen as essential parts of every work place.

At this point, we started to cooperate with Newbit in taking over a part of the program and giving the participants the chance to learn modules of Microsoft Office and to get an official acknowledged certificate concerning theses skills. We arranged and organized groups complying of approx. 12 adolescents who would be trained by 8 to 10 students in our computer facilities at the university for 2 weeks and complete the training with an official exam.

The project is called FOCUS, an acronym chosen by the students and reflects the objectives: to increase the job skills (**F**ertigkeiten) of the adolescents in teaching them **O**ffice programs. These **C**omputer programs are important applications at work places, are **U**niversally applicable in various work environments and will be taught during a **S**chool course.

Special Course Attributes

Beyond the general scope of student projects mentioned above, the course which is studied shows special attributes from different perspectives:

- Socio-political perspective: To support the integration of unemployed adolescents into workplaces. Necessary competencies of the adolescents should be improved through the learning of important IT applications - and thereby, improving their chances in getting into employment. This is realized through exercising to design complex documents with a word processing system and the adequate use of business graphics with a graphic program. To evaluate the exercises, the participants should pass the examinations of ECDL. On top of this, the training course should develop and support positive virtues like punctuality, diligence, attentiveness, and reliability.
- Sociological perspective: Relating to a group of underprivileged young people. The training course represents dedicated methods towards a group of people who often feel as a fringe group that is not well integrated into society. The adolescents had gathered long-term experiences of disappointment and failure at school which negatively affected their self-esteem. The adolescents are all former pupils of “Hauptschulen”, which are the lowest level schools after primary schools. These schools tend to segregate those who are poor and disadvantaged. Therefore, providing the university to young people of this fringe group is an offer for better integration into society and will increase the awareness of the students about social disadvantages in the society.
- Business Computing perspective: Training of IT-users. User training is a significant responsibility when implementing application systems because the importance of training for the success of applications is well known. Within the project, students acquire and carry out this task in detail in order to get to know and be able to control parts of their future job contents.

Implementation

The project took place in times when the students had no regular courses and in this way they could work on their project on a fulltime basis. The lectures supervised the project and organized the work into three main phases (see Figure 2) and ongoing activities of project management:

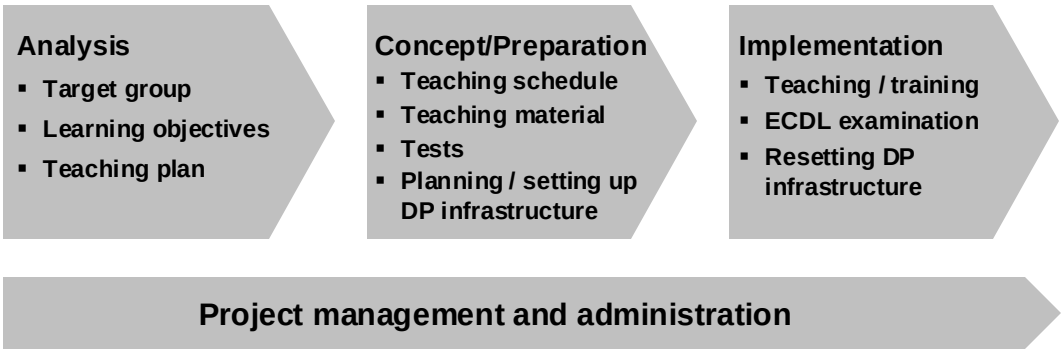

Figure 2: Main phases of the project

Analysis: In classroom work the students developed awareness for the special situation of the target group of underprivileged adolescents. They learned to understand their living situation and their technical competencies with personal computers. They identified the learning requirements of the ECDL examination and the training needs of the adolescents to use a Microsoft operating system and Office applications. They visited NewBit to meet the adolescents for the first time and to get acquainted with them. During this visit general rules of the course and the expected behavior are defined as following:

- Dealing with others openly and respectfully
- Willingness of active participation of everybody is expected
- Punctuality and discipline (respecting scheduling and time tables etc.)
- No smoking in the building, no eating and drinking in the IT laboratories, no mobile telephones during the lessons
- Careful handling of facilities and equipment
- No private use of facilities and equipment
- No alcohol, no drugs, no weapons.

This clear definition was felt necessary to set early signs of a working environment that gives the opportunity of working close together and reaching the goals of the course. The more disciplinary rules were felt necessary because of the somehow rude environment the adolescents grew up in and for this reason, adolescents' high inclination towards violence.

Additionally, the lecturers discussed basic pedagogical concepts and teaching techniques with the students. These discussions included topics such as learning process, teaching style, teaching methods and conflict resolution. The discussions were solidified through practical exercises and role play scenarios.

In total, this first phase lasted approx. 1 week.

Conception/Preparation: One of the main tasks was to develop a schedule for the two weeks of teaching the participants. The schedule had to fit into the time frame of two weeks, had to cover all topics of the ECDL examination and had to consider the fact that the participants would not be able to concentrate a whole day long and therefore, phases of recovering and recreation had to be scheduled. Figure 3 shows the schedule of week 2, where the examinations of the modules for Word and Powerpoint were on Friday. The examinations for the module Operating Systems were at the end of week 1.

Zeit	Monday	Tuesday	Wednesday	Thursday	Friday
9.00 – 9.45	Word classroom teaching	Powerpoint classroom teaching	Word classroom teaching	Powerpoint examples and exercises	ECDL examination
Break					
10.00 – 10.45	Word examples and exercises	Powerpoint classroom teaching	Word classroom teaching	Word repition exam. preparation	
Break					
11.00 – 11.45	Powerpoint classroom teaching	Word classroom teaching	recreation	Word repition exam. preparation	
Break					
12.00 – 12.45	Powerpoint examples and exercises	Word examples and exercises	recreation	Word repition exam. preparation	
Break					
13.30 – 14.15	additional training	recreation	Powerpoint examples and exercises	recreation	Feedback
Break					
14.30 – 15.15	recreation	recreation	Powerpoint examples and exercises	Powerpoint repition exam. preparation	graduation ceremony
Break					
15.30 – 16.15	recreation	additional training	additional training	Powerpoint repition exam. preparation	
Break					
16.30 – 17.15	additional training	additional training	additional training	repition exam. preparation	

Figure 3: Schedule of week 2

For recreation purposes the students planned and organized various activities, for example, a skittle tournament in a nearby gym, a table soccer tournament, visiting a soccer stadium and watching a movie. These activities lasted approx 2 hours each.

Apart from this, the students prepared voluminous materials for the course: slides to present, documentation and instructions to hand out to the course participants and examples and exercises for the participants. The students trained their teaching skills in exercising their parts of the curriculum in front of the other students and the lecturers then discussed wording, gestures, mimics and time control etc.

The students had to set up suitable equipment in the IT labs of the university. The requirements for the technical environment were defined as follows:

- One personal computer for each participant (number of computers: 15); identical configuration of all PCs
- Browser with Java-environment for the use of the ECDL-Training-CD; headphones for all participants (for ECDL CD)
- Minimal software equipment in order to draw the attention of the participants to the training content and to minimize playing games etc.
- Internet access for the participants with the option to directly control access (offering and denying access) in order to ban surfing the Internet secretly (Surf-Lock from MasterEye)
- Software projector to present teaching material on the screen of the PCs of the participants
- Option of loading data (examples, exercises …) to the files of the participants

- Steering participants' screens: Option of showing the screen of the trainer's workstation on the screen of the participants PCs (MasterEye)

This second phase lasted approx. 3 weeks.

Implementation: The highlight for this student project was actually running the course. For two weeks the adolescent came into the university from 8 a.m. to 5 p.m. each day and the students had to teach and train them according to the schedule. On the last day of each week (Friday) the ECDL examinations took place, module Operating Systems on the first Friday and modules Word and Powerpoint on the second Friday.

Apart from these phased activities the student had some ongoing tasks such as planning and organizing their project. These were primary activities which the students had learned in former courses of Project Management.

The final highlight of the project was the graduation ceremony, where the ECDL certificates were handed out to the adolescents. High-ranked representatives of the sponsoring organizations spoke to the adolescents, the students and some guests were present. They congratulated those who were successful in the ECDL examinations and praised the collaboration between the very different groups of young people.

Results and Discussion

One of the primary evaluation criteria for the course was the ECDL examinations the adolescents took part in the last days of the course. Table 1 shows the number of module tests taken and the number of successful tests. Because the adolescents had passed with Focus III one, with FOCUS I and II two examinations before coming to our course, after the course all except two adolescents had in total 4 successful module tests and got the certificate "ECDL Start".

Table 1: Test results for ECDL

	# candidates	# module tests	# module tests passed	remarks
FOCUS I	7	14	13	
FOCUS II	12	24	23	
FOCUS III	12	34	34	one candidate with only one module test

Some special observations:

- The student project created a very special setting: In the rooms and with the infrastructure of the university students of Information Systems and Business Administration (from the age of 22 to 25) trained adolescents (from the age of 17 to 21) using application programs. The similar ages of our students and the adolescents from NewBit helped to build up an open and trustful learning situation as the students and the adolescents had a similar use of language (slang) and shared some common interests. Moreover, this advantage turned sometimes to a disadvantage, for example, when the students had to discipline the adolescents; all in all, the small hierarchical distance helped most of the time. Only in some special situations the lecturers had to step in as they could use their greater distance and higher authority.
- There were some occurrences of conflicts between the adolescents or between the adolescents and the students. Reasons being the social backgrounds of the adolescents: undisciplined behavior and a high readiness for aggression had to be taken into consideration during the preparation and the running of the course. Clear signaling of the expected behavior as well as

the announcement of consequences of misbehavior helped to create sufficient discipline. In a few situations a one-to-one conversation was held between one of the lecturers and an adolescent in which the situations of misbehavior were highlighted and a change of behavior was called in.

- The overall design of our concept required extensive resources to supervise and to steer the students and the adolescents. The lecturers had to teach and to counsel the students and had to be on "stand-by" to solve critical situations between the two groups of young people. These additional resources were funded by some charitable donations from firms the lecturers cooperate with in other projects and spent on to engage some assistance for the lecturers and to pay for some of the recreation activities.
- A special challenge was to maintain a reasonable level of motivation of the adolescents during the course. While normally feeling excluded from many social contexts, the attention the adolescents received from the students, as well as the obvious commitment of the students, strengthened their self esteem and motivation. The seriousness and care in which the students presented to them helped them to take their part of the work seriously. Overall, the adolescents had a positive learning experience with the course and the results they got from the ECDL examinations. Additionally, direct and relatively short term goals are necessary because abstract and rather long term goals like „improving the job skills" did not show significant impact. Therefore, the goal „passing ECDL test and getting a certificate" was set and promoted. The success was obvious on the last days of the course, when the adolescents showed a certain tension and nervousness due to the upcoming tests. Nonetheless, after successful tests the adolescents showed an obvious self-confidence and pride.
- During the course some problems evolved driven by absenteeism of some of the adolescents: Only approx. 50 % of the participants showed up for all 10 days of the course. This absenteeism caused enormous differences within the group, which challenged the learning progress of the whole group and put the pass rate of the final ECDL tests to a risk. The missed times could only be compensated through additional efforts in one-to-one lessons for some participants. However, the missed times resulted in motivational problems as the adolescents thought they would lose the connection to the rest of the group. The amount of absenteeism is serious with regard to future situations at work places as we all are clear on, employers will not accept this kind of behavior on the long-run. This lack of work discipline significantly limits the chances to enter the job market.
- In the previous projects FOCUS I and FOCUS II we tried to teach the use of spreadsheet programs in addition to word processing and graphics. The experiences showed us that a course of 2 weeks can not carry this additional topic resulting to the fact that the work load for the adolescents was too high. A sufficient level of interest for spreadsheet programs could not be raised, neither advantages of job related nor private use could be put across clear enough. The level of abstraction using a spreadsheet program could not be explained and the adolescents showed a lack of interest and motivation. Finally, we dropped these contents regarding spreadsheet programs from the schedule.
- The group of adolescents was very heterogeneous regarding existing knowledge about the handling of computer programs. A few could handle the operating system, user interface and peripherals like the mouse very well, however, most of them had only a very basic experience with Email and Web. This posed a special challenge during the course on the first days, when those with some skills got bored, stopped participating in the lesson and distracted the others from the learning process. Result being, the less developed adolescents gut under pressure and got afraid in getting mixed up. So it was not easy to find the necessary balance between speed and patience.

- In this course the undergraduate students had to cope with uncertainty and ambiguity. With a team-based approach fostering group learning they were enabled to complete a variety of tasks and to take responsibility for the success of the training course.

Overall, our concept is one necessary step in social work supporting young people: With the course the disadvantaged and unemployed adolescents learn relevant job skills (using IT applications) and get an official certificate to improve their curriculum vitae for future job applications. At the same time the concept integrates a student project into the curriculum of our academic programs (Information Systems, Business Administration) and gives the students the chance to learn relevant skills, to experience group work and to apply knowledge formerly gained throughout normal courses. Additionally, the students develop something of value for people. As far as we know, there is no other approach or similar method which brings young people together from different spheres of life to learn and to work in a group environment.

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Biographies

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