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INFORMAL LEARNING IN THE CONTEXT OF FORMAL ACADEMIC EDUCATION SOME FACTORS OF SUCCESS

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Point of Departure and Central Question

"Teachers are (just) able to stimulate and to trust in the autonomous activities of learners by fostering the parallel co-existence of both, formal and informal learning which allows to make use of the advantages of both kinds of scenarios. This should and could be done more often than now by reducing the time allotted to formal learning in favour of informal learning processes which consume less resources while being more effective and thus improving efficiency.

A respectable number of teachers at TUW (Vienna University of Technology) are already thinking in this direction by giving their students assignments with open structured problems to be solved in small groups. Especially courses offered as blended learning scenarios are often following this concept. Nevertheless, there could be improvement in terms of quantity and quality. But for the latter we still need more detailed empirical research upon the factual conditions and structures of successful informal learning."

These were the last paragraphs of our paper for the EDEN Annual Conference 2007 (CSANYI et al., 2007a). During the last twelve months we have done empirical research into the "*conditions and structures of successful informal learning*" and found some decent results that nevertheless seem to be appropriate for sharing with the academic community.

According to CROSS (2006) "*Informal learning is the unofficial, unscheduled, impromptu way most people learn to do their jobs.*" According to our own experiences and analyses this is not only true for people learning on the job but – to some extent – also for students at universities. At any case "a brief questioning of some students and employees at TUW (.) identified the following scenarios of informal learning (.)." (CSANYI et al. 2007a, p.1): meetings in the *Library*, the *Informatik-Forum*, an internet forum run by students of computer science, virtual teamwork with *Google Docs*, team-building, organisation and team-work with *Skype*; and the semi-formal scenarios: *Tandem Language Learning* and a number of different *Tutorial Programmes* (see CSANYI et al. 2007a, p.2ff).

The analysis of the structure of these learning scenarios showed four characteristics applying to each of the identified situations to some degree (see CSANYI et al. 2007a, p.3ff). They are

- *social* situations,
- *non hierarchic* and *student centred*,
- *self-controlled* and *trustful*, and
- oriented to *versatile learning goals*.

The next analytical step generated six factors of success (in part applicable only to the virtual ones among the described situations): *communication skills* of the participating students, *open access* to the (virtual or face-to-face) situations, *usability*, *work-life-balance*, *trustful atmosphere*, and the feeling of *legal certainty* (see CSANYI et al. 2007, p.4ff).

Summarizing we can say that we roughly know what structures of informal learning situations and what characterizes the successful ones of them. What we do not know is how to initiate successful *informal* learning in the context of *formal* academic training. How has the interface between formal and informal learning to be designed for being successful? What framing conditions does successful informal learning need in an academic environment? By means of a modest survey we tried to get some answers to these questions.

The Survey – Methods and Questions

Two quite different conditions influenced the methodological decisions before planning the survey. On the one hand the collection of secured findings about the detailed conditions for success of learning situations in general and of informal learning in particular is rather short. And on the other hand the E-Learning Centre of TUW is not a research institute with high capacities for theoretic work but only a small a support centre with an exclusively practical mission. In consideration of these facts we decided to apply a qualitative approach. This decision was linked to the expectation to get results which allow for the development of explicit hypotheses about detailed interrelations of relevant factors of success on the basis of our findings. What we have found seems to meet these expectations.

The Methods

Identification of best-practice examples

The basic idea of our investigation was simple: If you want to know how to create successful learning situations you should analyse best-practice examples. One of the most relevant groups of experts for evaluating the quality of learning situations is the particular target group – in our case the students.

In a series of informal interviews with members of the student's councils of the eight faculties of TUW we asked for best-practice examples of courses applying e-learning elements in their faculty. (In fact we found exclusively blended-learning courses.) The results of these interviews (firstly executed with the purpose to find nominees for the annual E-Learning-Award of TUW) were a long list of about 15 courses and a shortlist of three very-best-practice examples. These results can certainly not claim representativeness, but that does not cause any problems within our qualitative approach.

Questioning by e-mail or blog

The second step was a survey carried out by e-mail or via blog (of the respective course) informing the participants about and inviting them to join the questioning. The e-mail enquiry addressed the participants of one course of the Faculty of Mechanical and Industrial Engineering with 320 students, and one of the Faculty of Mathematics and Geoinformation with 28 students. The blog-mediated enquiry referred to a course at the Faculty of Informatics with about 700 participants.

The e-mail-based questioning applied to courses using TUWEL (the local Moodle-application at TUW) as learning management system. The LMS made it quite easy to get the e-mail addresses of the participants, but it was a rather time consuming effort. Therefore only about 25% of the 320 students in Mechanical and Industrial Engineering were questioned. The course in informatics does not use Moodle but the blog already mentioned and a wiki. The teacher is proud not to know the e-mail addresses of his participants, thus an enquiry by e-mail was not possible. But according to his teaching philosophy he invited the students to join the questioning via blog, the students sent their answers to the questions by e-mail directly to the researchers. As a control group we finally used a less successful course which was also mentioned in the preliminary talks. (For reasons of data protection in this case we do not disclose the faculty.) From the 360 participants of this course 240 were questioned. The rate of return varied from 0 to 4,6% among all four courses (see Table 1).

Table 1: Numbers of students and rate of return

Faculty	Participants	Students questioned	Rate of return N / %	Medium
Mechanical and Industrial Engineering	N=320	N=75	N=3 / 4%	e-mail
Mathematics	N=31	N=28	N=0 / 0%	e-mail
Informatics	appr. 700	appr. 700	N=22 / 3,1%	blog
Control group	N=360	N=240	N=11 / 4,6%	e-mail

The involved teachers did not get any notice of the results of this survey – on the one hand because of reasons of data protection – on the side of students, on the other hand because of psychological reasons – on the side of teachers. (This is really a pity because the answers of students include very valuable and productive feedback for the respective teachers. So we will have to think over facilities to communicate this feedback in a "political correct" and productive way.)

Much more interesting than the rate of return, which is not crucial in the context of a qualitative approach and might be influenced by a number of accidental circumstances, is the quantity and quality of the produced answers. Both seem to be highly correlating with the subjectively experienced quality of the respective course.

Table 2: Quantity and quality of answers in correlation to the implicit personal evaluation

Faculty	Lines per answer	Level of reflection	Implicit personal evaluation of the quality of the courses
Mechanical and Industrial	1	low	middle

Engineering			
Mathematics	-	-	-
Informatics	6	very high	very high
Control group	7	high	very low

Students who intensively liked or disliked their courses produced more and better reflected answers than those who just evaluated it as middle quality. Consequently the information content for our research problem differed very much from course to course. As a matter of fact it was possible to draw conclusions only from the informatics course (and – with inverse prefix – from the control group). But this material proved to be very rich.

Questions of the survey

According to the qualitative approach we posed one yes/no and two open questions which could be answered by the students in every way they wanted. The questions were preceded by a short introduction[1]:

> *"Dear colleague! In preliminary talks with your colleagues the course #: (.) Title: "(.)" run by Prof. (.) has been mentioned as best-practice example for the application of e-learning elements at TUW. We (the employees of the E-Learning Centre at TUW) now try to find out by questioning you which are the detailed aspects of success for the quality of an e-learning or blended-learning course. Therefore I ask you to answer the following short questions by a reply mail, thus helping us to identify factors of success and also to improve the future course offers of our university.*
>
> *1: Is – in your opinion – the course #: (…) Title: "(…)" a best-practice example for a successful course?*
>
> *2: If yes – what are the crucial attributes of quality / success of this course?*
>
> *3: Why do – in your opinion – the attributes mentioned above have such a positive effect?"*

The Results

The analysed informatics course – where most of our material comes from – can be regarded as a successful combination of formal and informal learning according to the two-worlds-model suggested by CSANYI et al. (2007b)[2]. It consists of a lecture held in a large lecture hall with 634 seats and a great number of very different assignments to be accomplished by students in groups in a rather free manner. Thus the results of the analysis can be taken generally for informal learning within a formal context – at least as a first approach. In the following we firstly give an overview to our findings and then discuss some details.

Table 3: Overview: most frequently stated factors of success

Area	Sub-area	Attributes
Course	concept	(a) Students are an active part of the course, have to play an active role
		(b) Great number of interesting and diversified assignments
	content	(c) Up-to-date topics
		(d) Relevant for course of studies and beyond (vocational practice)
	presentation	(e) Vivid, thrilling, interesting presentation
	technology	(f) Immediate communication – everywhere & every time (time saving)
		(g) tools are easy to handle
Teacher		(h) highly interested in student's development
		(i) highly interested in subject matter / course topics
		(j) charismatic
		(k) humorous

Dialogue is the ruling educational philosophy

According to our findings this seems to be the most effective and most important condition for successful (informal) learning, because it lays the ground for a serious of detailed measures. The course is not designed as one-way communication but it is an open dialogue. (And like with every dialogue the outcomes are not determined.) Every participant of this dialogue, teacher or student, has the same right and nearly the same opportunity to give an input (for details concerning the technological implications see section *Ubiquitous and immediate communication*). Students feel to be involved in the processes of the course (attribute a). It really matters what they are doing. Their activities can lead

the course into unexpected directions. Some of the assignments are explicit experiments with unknown results. And the teacher also regards the personal development of the students as an individual experiment with open outcome. He does not have the intention to determine them, but to bring them forward according to their own goals (attribute h).

Diversified assignments

One very tangible factor of success – being a direct consequence of the philosophy / attitude described above – is the number and quality of assignments. Each student can chose some assignments out of a pool – so there is some kind of individualization. Of course it is completely impossible to design individual assignments for 700 participants. But if the number of available assignments is, e.g., 30 (two for each week of the semester) and you have to accomplish only 15 (one for each week) there are 15 millions of individual options (attribute b). Furthermore the quality of the particular assignments varies to a high degree. Many of them take an unconventional perspective on the respective problem and/or are packed into a humorous situation. The most important common property of all assignments is the short time (in relation to student's expectations) needed to accomplish them.

Up-to-date topics

Beside the characteristics of the course concept – and the teaching philosophy behind it – there are two properties of the course content that seem to be crucial for the success of informal learning in formal teaching contexts. The first of them is the topicality of content (attribute c). This refers to the topics of presentations and practical examples (formal part) as well as to the assignments (informal part). The latter opens the opportunity for being up-to-date even in courses dealing with the timeless basics of a subject matter. Up-to-date examples for illustration as well as assignments for practicing and consolidation of learning outcomes will better stimulate learning motivation and staying power of the students – thus fostering the success of informal learning situations.

Relevance of course content

The second dimension of the content is its relevance (attribute d) for the academic period (years of study) at the one hand and the time after (professional, political and – may be also – private life) on the other hand. Here it is of greatest importance to bear in mind that relevance is not a property of the content, but a property of the relationship between individual *and* content. What may be (or look) relevant for one person may be irrelevant for another person. As a consequence the diversity of aspects of the content dealt with in a course is again one step to success of informal learning phases (compare section *Diversified assignments*). Sometimes the relevance of a scheduled topic is not self-evident for students (especially freshman). In this case it has to be revealed by adequate practical examples (see attribute b).

Ubiquitous and immediate communication

This is a feature with strong implications for course design and for the technological infrastructure of a course. Students nowadays are not used to wait if they feel the need to communicate – e.g. for posing questions or problems, or for receiving feedback, assessment, or encouragement. If the span of time between the perceived need to communicate and the possibility to come up to it is too long the need – and with it the correlated learning or working motivation – will disappear. Thus the speed of the communication processes seems to be a crucial factor of success for informal learning situations in academic contexts.

The technological implications are rather clear: required is the application of easy to handle internet- and notebook-based (in future probably pda-based) tools for fast asynchronous communication in written form – possibly supplemented by voice-over-IP telephony (see CSANYI et al. 2007a, p.3). Such systems allow for quick and immediate communication between students (e.g. in small groups accomplishing assignments) as well as between students and teacher or teaching team.

The implications for the course concept (and organisation) are a little more sophisticated because there has to be decided who (teacher, tutors, students) should be available at which time(s) to deal with which problems or questions? It seems to be crucial that there is a contact person available for each concern reacting within an acceptable span of time. The detailed requirements of this interrelationship still await clarification.

Thrilling presentations

Informal learning originally was conceptualised within vocational contexts (see CROSS 2006): learning by doing while solving real problems and being in communication with colleagues, customers and business rivals. Informal learning in an academic context lacks some of these stimulating and motivating conditions. All the more important are those educational strategies that are able to compensate these deficiencies. Good, that means vivid, thrilling, and interesting presentations (including the quality of presentation materials) are one of them. The central motivational power for the effectiveness of informal learning phases – where students have to act self-directed and self-responsible – seems pretty frequently to result from thrilling presentations. If this factor really is a crucial condition which cannot be compensated by other measures will have to be surveyed in future investigations.

Thrilling personality

As we all know, thrilling presentations depend to a rather high degree on the personality of the person giving them. The

students in our survey seemed to be overwhelmed by the charisma and commitment of their teacher. They like the humour expressed in all aspects of the presentations and admire the dedication to and the unquestionable expertise for the subject matter and course topics. All these personal attributes seem to have a considerable influence on the motivational effects of teaching activities in general. But they can hardly be controlled or improved in a practicable way with a short term perspective. Nevertheless it is interesting to know to what extent these personal dimensions influence – or in the negative perspective: obstruct – quality and success of learning offers, and in particular of informal learning situations.

Summary and Outlook

Starting from the identification of informal learning scenarios in the context of academic learning and the description of basic structural characteristics as well as some quality features one year ago (CSANYI et al. 2007a) we tried to find empirical indicators for more and better distinguished factors of success. This was done – following a qualitative approach – by questioning approximately 1000 students of the TUW via e-mail or blog. The two open questions were answered by 36 students. These results can be the basis for formulating hypotheses to be surveyed in future quantitative studies.

The main findings of the survey presented here suggest the following quality features of courses which combine formal and informal learning scenarios:

- course designed as an open dialogue and not as one-way communication;
- teacher(s) interested in the personal development of students;
- high number and quality of assignments: students can chose some assignments out of a pool;
- high topicality of course content;
- high relevance of the content – for studying as well as professional, political and private life;
- ubiquitous and immediate communication;
- vivid, thrilling, and interesting presentations (including the quality of presentation materials);
- charismatic, committed, humorous teacher with unquestionable expertise.

These findings are only meant to stimulate design and realisation of quantitative analyses leading to representative results. But before starting to design such surveys (which need a lot of capacities), we suggest to repeat the presented investigation

- in identical or similar ways
- at some more universities
- in different countries

to get a wider empirical basis for the construction of highly selective hypotheses and a well-grounded study design.

References

1. CROSS, JAY (2006). *What is informal learning?* http://informl.com/?page_id=580; last visited: 31 January 2007.

2. CSANYI, G.S., POHL, M., REICHL, F. (2007a). *Applying ICT for Informal Learning at Universities* In New Learning 2.0? – Emerging digital territories Developing continuities – New divides (Book of Abstracts and CD)

3. CSANYI, G.S., JERLICH, J., POHL, M., REICHL, F. (2007b). *Blackbox Lernprozess und informelle Lernszenarien* In Studieren neu erfinden - Hochschule neu denken (pp. 65-75)

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[1] Original text in German: „*Liebe Kollegin, lieber Kollege! Die LVA Nr.: (…) Titel: „(…)" von Prof. (…) wurde in Vorgesprächen mit Studierenden als Best-Practice-Beispiel für den Einsatz von E-Learning-Elementen im Studium an der TU Wien genannt. Wir (die MitarbeiterInnen des E-Learning Zentrums der TU Wien) versuchen nun, in Befragungen herauszufinden, welche Detailaspekte den Erfolg bzw. die Qualität einer E-Learning/Blended Learning LVA ausmachen. Daher bitte ich Sie, die folgenden kurzen Fragen mittels eines Reply mails zu beantworten und uns damit bei der Identifikation von Erfolgsfaktoren zu unterstützen. Damit können Sie mittelfristig auch zur Verbesserung des Studienangebots unserer Universität insgesamt beitragen. Frage 1: Ist die LVA Nr.: (…) Titel: „(…)" auch Ihrer Einschätzung nach ein Best-Practice-Beispiel für eine erfolgreiche LVA? Frage 2: Falls ja – was sind die entscheidenden Merkmale der Qualität bzw. des Erfolgs dieser LVA? Frage 3: Warum wirken sich die genannten produktiven Merkmale aus Ihrer Sicht so positiv aus?"*

[2] The attempt to integrate informal learning into the formal frame could proof counter-productive because hereby the mutual trust of a teacherless subculture would be destroyed. A concept of two worlds promises to be more successful: informal learning scenarios are applied as one relevant resource for reaching formal learning goals. This too needs mutual trust – the trust of teachers into the motivation and ability of students to learn which is an indispensable condition of studying anyway. [Corresponding translation of the German original by the author]