

Setting up a New Culture of Teaching and Learning:

The “Ziethen-Workshops” at Technische Universität Berlin

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INTRODUCTION

With 32.000 students, about 120 study programs, 296 professors and 7 faculties – the Technische Universität Berlin (TU Berlin) is the third largest institute of technology in Germany. By 2008 the TU Berlin completed the transformation of its entire syllabus into a bachelor / master degree system that fits to the European Higher Education Area. The challenge of the forthcoming years is imposed by social change in Germany: a rising number of students entering universities next years, an increasing heterogeneity arising from the different educational and biographical backgrounds of students and a shortage of qualified employees at the labour market. With regard to this frame conditions the Federal Ministry of Education and Research released the third pillar of the federal Higher Education Pact [1]. The TU Berlin applied for and receives 10.5 Million € with the program “First Class for our Students”. The program supports a better academic staffing for all status groups as well as measures on didactic qualifications and counseling. TU Berlin uses the Program to establish a new culture of teaching and learning – a culture that concentrates on students’ learning.

1 THE PROGRAM “FIRST CLASS FOR OUR STUDENTS”

1.1 Overall description of the program

In 2012 the TU Berlin initiated the program “First class for our students” in order to improve the conditions of studying and teaching. Common to all measures the TU Berlin is the focus, first, on the undergraduate studies, in particular on the first-year students and, second, on the so-called MINT – subjects, that i.e. **M**athematics, **I**nformatics, **N**atural sciences and **T**echnical subjects (e.g. engineering)[2].:

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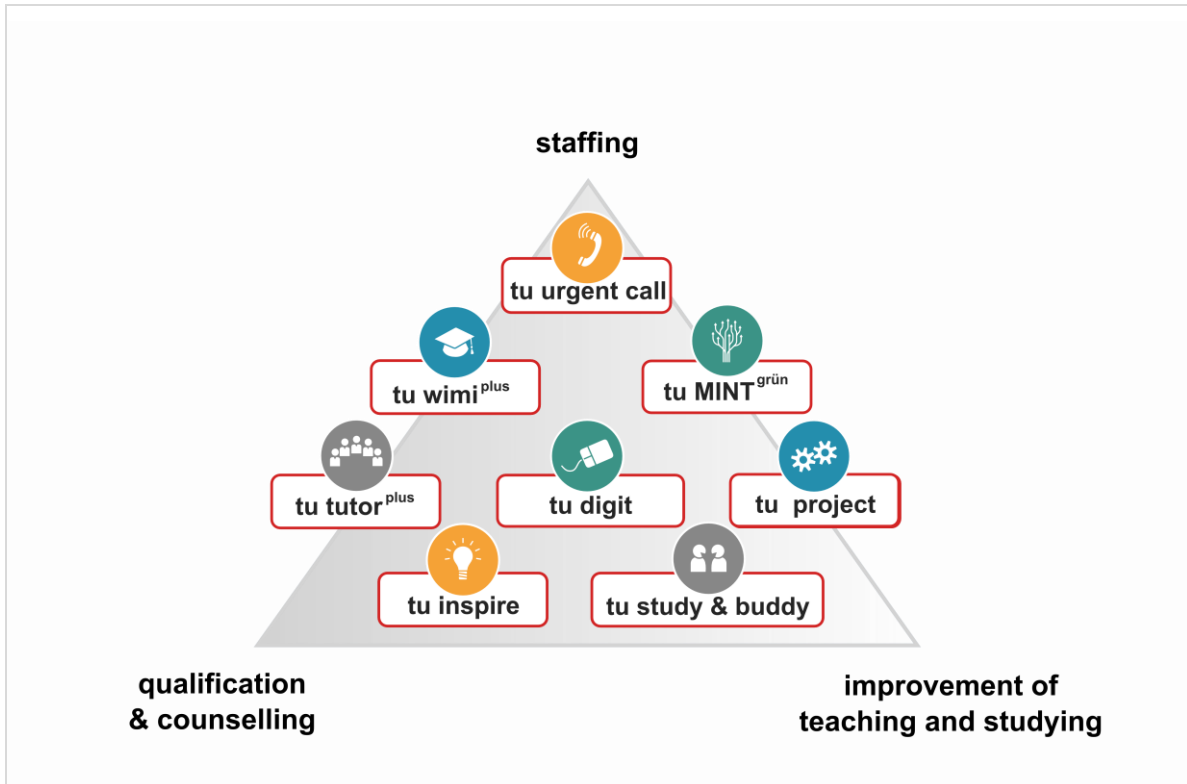


Fig. 1. Overview of the program “First Class for our Students” with sub-projects

The program involves eight subprojects:

- *tu MINT grün* is an orientation program for first-year students who are interested in natural sciences and engineering, but not decided yet what exactly they want to study. The superscript “grün” indicates the conceptual focus on ecological und social questions.
- *tu digit* supports an extended and an advanced usage of e-learning and e-teaching tools by the university teachers and provides specific IT-structure as well as the respective qualification for the teacher.
- *tu tutor plus* is a qualification program for student teaching tutors and for student advisors.
- *tu study & buddy* is a mentoring program focusing on specific situations during the student life cycle as going abroad, childcare or entering the labor market after the first degree.
- *tu project* supports undergraduate students with a two-years funding for an own research project.
- *tu wimi plus* is an incentive model that supports those research assistants who undertake didactic qualifications and who get involved in teaching reform projects. The incentive is to prolong the working contract by one month for every year the assistant carries out the reform project.
- *tu urgent call* is an appointing program for professorships in highly frequented teaching units.
- *tu inspire* is a didactic qualification program for newly appointed professors.

Overall aim of the program “First Class for our Students” is to set up a new culture of teaching and learning at the TU Berlin. Hence, all subprojects deliberately have been anchored within the units of the faculties and university institutions. All personnel measures are linked to measures of further

qualification, supervision or counseling. In this way, persons become enabled to function as multiplier within their units and the new culture will be spread through university.

The measures of the subprojects implemented are based on results on evaluation in combination with a grounded empirical data analysis on students' progression during their study. For example, all module exams were arranged according to the number of students who took part at the module examinations since 2007 and aligned to the frequency of passing the exams at the first attempt. Figure 2 matches these two lists and shows those modules that reach many students and who seem difficult to pass. These modules become the focus of the subproject *tu wimi^{plus}*. The teachers of the identified modules were supported by a research associate who became commissioned to didactically reform lecture, tutorials and other unites of the respective teaching and learning process. By reforming those modules the TU Berlin reaches most of the engineering students and strives for a great impact in respect to students' learning success.

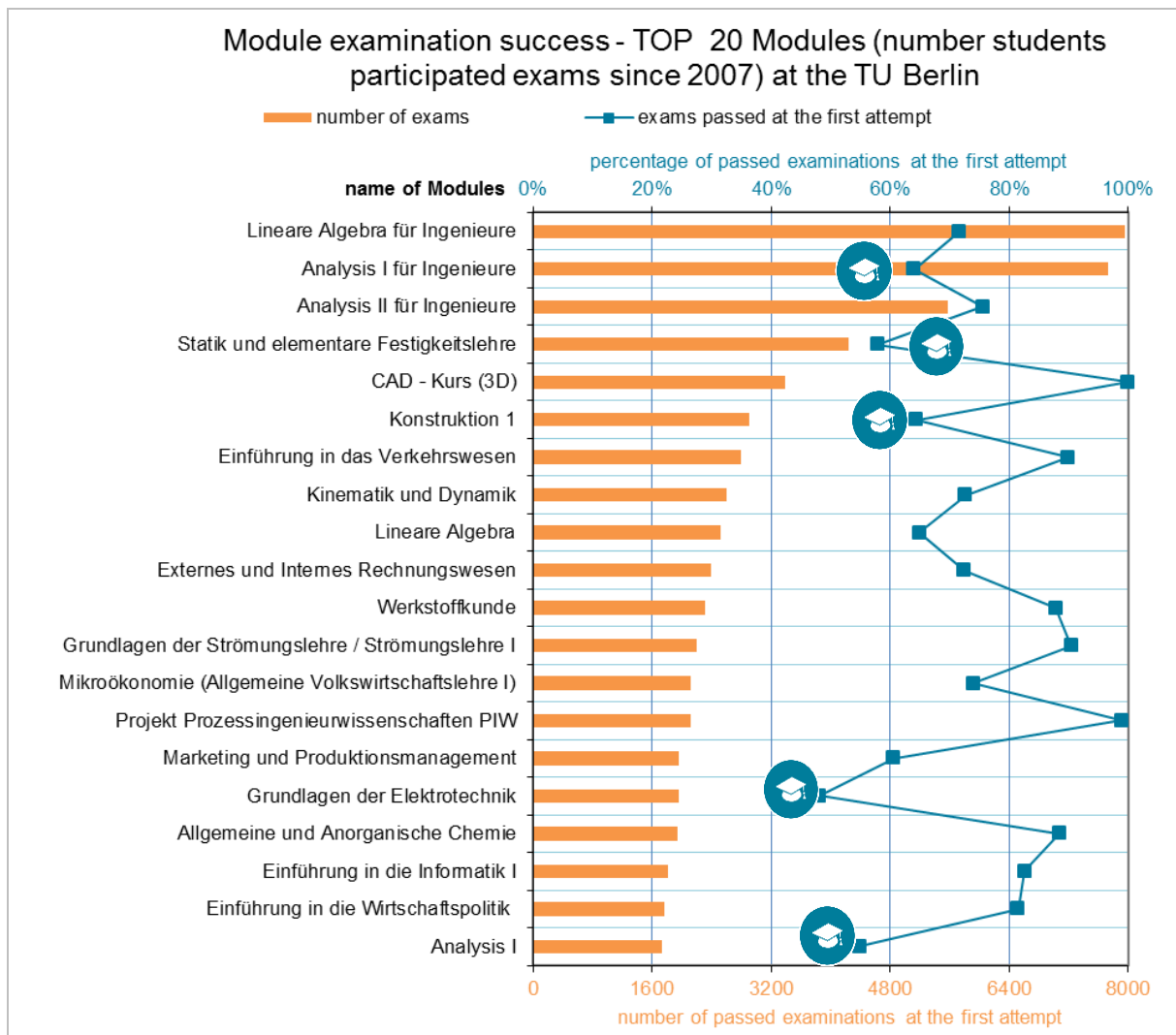


Fig. 2. Module examination success

The subprojects *tu MINT^{grün}*, *tu project* and *tu wimi^{plus}* were presented at the SEFI conference in 2012 [2]. In this paper we will focus on the subproject *tu inspire* that was designed as a qualification and reputation program for teaching and learning. In this line, we organized two workshops in 2012 and 2013 which seems to bring the university to a new culture of teaching and learning within the next few years.

2 THE SUBPROJECT “TU INSPIRE” AND THE ZIETHEN WORKSHOPS

Setting up a process of reform on teaching and studying at the TU Berlin is not only to implement a set of measures enhancing better conditions for student’s learning. In fact, it is essential to win hearts and minds of all persons involved in university teaching processes. Only if all teachers, research assistants, administrative staff members and students alike adopt the new vision as their own the reform projects will turn out to have persistent effects. That is, the TU Berlin produces highly qualified graduates who are demanded on the labour market and who function as figureheads for further student generations.

Why is it seemingly rather difficult to win staff members for new visions and strategies? John Kotter (2012) gives in his cause analysis on organizational change eight answers to this question:

- Allowing too much complacency
- Failing to create a powerful guiding coalition
- Underestimating the power of vision
- Undercommunicating the vision
- Permitting obstacles to block the new vision
- Failing to create short-term wins
- Declaring victory too soon
- Neglecting to anchor changes firmly in the corporate culture [3].

The TU Berlin takes into account this and other experiences on change processes when forcing a new way of teaching and studying at their institution. Therefore, the subproject “tu inspire” of the program “First Class for our Students” aims at sparking all persons involved in the process of teaching with the idea of “shift from teaching to learning”. The *tu inspire* - project fosters the reputation of university didactic. It boosts with various measures - like coaching and lecture series – a greater professionalism of teaching and it allows for new formats and ways that may inspire teachers and students on good teaching and learning. Within the frame of this subproject, the TU Berlin set up retreats on quality on teaching and studying. A so called powerful guiding coalition for good teaching was identified, hence, stakeholders and multipliers were invited to participate at a workshop in “Ziethen”, a place nearby Berlin. The first “Ziethen-Workshop” took place in December 2012, a second in November 2013, a third workshop is planned for November 2014.

The vice president for studying and teaching and the vice president for further education invited deans, study deans, awardees for good teaching, university didactic and administrative staff as well as students to a two-days-workshop in a castle in the village Ziethen - one hour away from TU Berlin. The aim of the workshop was to overcome the focus on the legal and structural aspects of studying that had dominated the Bologna Process in the last years and to concentrate more on the conditions of learning, that is to put the “shift from teaching to learning “ into a very concrete practice.

The place outside of university allowed testing a new workshop-format: all participants were taken as experts regardless of their status at the university. The workshops run without official presentations or key speeches and without a fixed agenda. All participants were given the opportunity to bring up their own topics or concerns in respect to the meta-theme “quality of studying and teaching”. The group collaboratively decided what topics it will work on during the two days. In both workshops conducted about twelve working groups were set up that developed new approaches to the given problems:

- Exempting of selected foundation courses from grading (in order to unburden first year students)
- Implementing project oriented study in the first year of study in ALL bachelor study programs
- Further spreading of e-learning applications in teaching and learning
- Fostering competence oriented studying
- Implementing university didactic qualification for all who teach at TU Berlin (full time professors, research assistants and student teaching tutors)

- Introduction of Service Learning Modules in order to enhance students social engagement
- Strengthening teaching aspects in the appointment strategy by introducing a “Teaching Portfolio” as a formal pre-requisite of application documents in the appointment process of full time professors
- Introduction of a sabbatical term for developing new teaching strategies
- Providing more spatial facilities for students learning at the TU Berlin (rooms, benches, IT-access)
- Exams – developing standardized requirements for the various types of exams for more transparency and justice
- Teaching and learning: spreading, piloting and imparting new ways of teaching and learning among university teachers.

During the retreats in Ziethen, it turned out to be very fruitful, when the perspectives of the different functional sub-groups, such as administrative staff, teachers and students were brought together within one working group. After two or three sessions of the working groups first results were presented in the plenary sessions of the Ziethen - workshop and first steps to be done were agreed.

One important outcome of the first workshop is the “Ziethener Manifest” [4] – a declaration on teaching and learning. There, the participants of the workshop put into own words the vision from the shift from teaching to learning and what it means to the TU Berlin now and here. The supporters of the “Ziethener Manifest” commit themselves to promote the process of change.

All in all, the workshop structure created a rather non-hierarchical atmosphere enabling the participants to communicate in a highly constructive way.

3 THE ZIETHEN FOLLOW UP PROCESS

After the retreats, the process of “shifting from teaching to learning” continued. Looking at John Kotters suggestions on successful change processes it is not only necessary to bring together a guiding coalition and to inflame people’s hearts and minds (sense of urgency), but also to communicate the new vision to the other members of the organization, to win new and active combatants and to produce first and quick wins.

Therefore, in house follow-up-meetings were organized and explicitly opened to the university public. The working groups presented their approaches at the follow ups and invited further members of the TU Berlin to active participation. Further, the TU Berlin newspaper “tu intern” reported on the Ziethen workshop, and a web-site were set up summarizing all activities of Ziethen and the subsequent working groups with dates of contact to the coordinators [5]. Moreover, the process as a whole and the progress of the individual working groups has been presented to the elected boards of the university, such as the academic senate, the board of trustees or the central commission of teaching and studying.

Not surprisingly, the output of the working groups does vary a lot. Some of them came to a result soon. For example, only a couple of weeks after the first Ziethen workshop had taken place, the academic senate agreed on introducing a sabbatical term for full-time professors for developing new teaching strategies (e.g. using more complex e-learning or “flipped classroom”-methods). So far sabbatical terms were permitted to fulltime professors only on behalf of grounded research questions, now questions on teaching and learning could be worked on during a sabbatical too. Another result of 2013 was the introduction of a “teaching portfolio” in the appointment process. The members of this working group developed a catalogue of requirements on what and how an applicant for a fulltime professorship at the TU Berlin should present his or her teaching experiences and his or her teaching philosophy. Since beginning of 2014 the new “teaching portfolio” is pre-requisite of the appointment process for full time professors at the TU Berlin.

Other working groups, like “implementing project oriented studying in the first year of study “ met a highly complex and historically grown structure of study programs that might be changed only on the long term.

The ingredients of successful change processes have been taken very seriously: communicating the vision of a new culture of teaching and learning, broadening the coalition of change or producing first

results. Still some members of the TU Berlin felt excluded from the process and openly expressed their concerns in the university public. These members reproached those, who were involved in the process management, to set up a secret society eluding the elected boards of the university.

In response, the second workshop in Ziethen did not only invite some of the severe critics, but it focussed explicitly on the task of spreading the vision of a new culture of teaching and learning more actively within the faculties. Further the working groups ought to open their groups in a more active way to new members. So it was no coincidence when participants of the workshop soon gathered around the issue of communication and information in respect to teaching and learning and founded a working group on this task.

In the second workshop all participants were commissioned to report about the workshops in their respective faculties. A presentation was prepared by the process coordinator. Further, all working groups were integrated into an intranet platform that is provided by the TU Berlin IT-Centre and is commonly used by students for their courses. E-mail communication, documents or wikis can be followed now by new comers or guests of the forum.

In the following, the work of two selected working groups will be presented. It will show that the shift from teaching to learning is subdivided into very tiny sections that are necessary steps of a successful change.

3.1 Working group “Exemption of selected basic modules from grading”

Evaluation results and drop out studies point out, that “Analysis 1 for Engineers” is one of the big milestones for the engineering freshmen. If they successfully pass that module, they will succeed most probably in all other fundamental courses in the initial phase of their bachelor program. In Figure 2 relevant modules for the engineering bachelor programmes have been shown. On the top of the scale, the success rate in the first examination is given, whereas on the bottom scale the number of examinations from the last 7 years is shown. “Lineare Algebra” and “Analysis 1 for Engineers” are on top in the number of examinations, because all engineering students need to study these modules in the compulsive part of their curricula in the first semester. The success rate for “Analysis 1 for Engineers” is only 64 % meaning reversely that 36 % of the students fail the examination. In the second examination the success rate is significantly higher and there are less than 1 % of the students who failed totally in the third examination in this course. There are two main reasons for this fact: First, mathematics is not (so) easy and the students do not love it. Second, the students have to learn “how to learn” in a mass university and should design their individual learning strategy. Here, more than 2500 students enter in the same freshmen course and a lot of self-organisation is needed for being successful. The first semester in the engineering curricula usually also contains the big fundamental courses such as “Mechanics”, “Construction” and “Physics” as well. The style of teaching and learning equals each other in these fundamental courses. Accordingly, successful learning activation of the students is essential. This can be done by doing exercises individually (i.e. supported by e-learning) or in working groups. Continuous training is also essential for the success. Additionally, with the bachelor/master transformation of the old one cycle diploma curricula the individual grades became important for the bachelor degree grading. The grading is essential to be successful in the master program application and selection process. Thus, it is not only sufficient to pass the examination in each of the fundamental modules successfully, good grading is needed too. As a consequence, a lot of students procrastinate their examination in the fundamentals, especially in “Analysis 1 for Engineers”. Those students, who do not take part at the exam, do not receive a feedback, whether or not their learning strategy was successful. Those students, who fail at the first attempt, start to improve their learning strategy before entering the second examination. Though, if students fail in several fundamental courses in their first examination, the probability for a drop out rises significantly. From overall drop out studies it is known, that especially the first three semesters in the bachelor are relevant in this context [6].

At the workshop in Ziethen teaching staff from both fundamental areas as well as study deans from the engineering departments came together and started a discussion about the learning problems in the fundamental course. Here, the idea was born to start a pilot study with “Analysis 1 for Engineers” to overcome the above mentioned problems. It was worked out to give students an individual grading

for the course at their bachelor certificate, but to give no weight to this mark for the overall grading. Additionally the students receive a strong recommendation to do their first examination of “Analysis 1 for Engineers” in the first semester in order to be forced to work out an individual learning strategy as soon as possible. From the viewpoint of quality, it was also decided to maintain the grading in the subsequent course “Analysis 2 for Engineers”. This module is also part of the compulsory curricula. A successful exam passing and a good grading in the preceding module “Analysis 1 for Engineers” is essential. After the workshop in Ziethen in 2013, the working group discussed the idea with all deans of study at the TU Berlin. Most of the deans of study agreed on exempting “Analysis 1 for Engineers” from grading at the bachelor certificate. Up to now, the faculty of computer science and electrical engineering starts in the winter term 2014/2015 with their new curricula, where the idea is integrated now.

Additionally, the update version of Berlin university law forces the faculties to design/redesign curricula where 25 % of the program modules are without grading. If they have a smaller share of ungraded modules, a special explanation is needed. The new Berlin university law and the Ziethen process with the above mentioned discussion supports the faculties in the decision how the grading of all of the modules should be done. Here, the learning perspective of the students has to be taken into account. During the next two years, all curricula have to be redesigned at TU Berlin.

3.2 Working group on learning rooms

Learning is a social process. The shift from teaching to learning gets very practical when it comes to providing space for students’ collaborative learning and communication. The student survey TUB-SONAR of 2013 proofed that about 45 % of the students who answered the questionnaire do not always find a place within the university where they can learn together. Even about 50 % of the students criticize the standards of the spatial and technic facilities of the existing rooms at the TU Berlin [8].

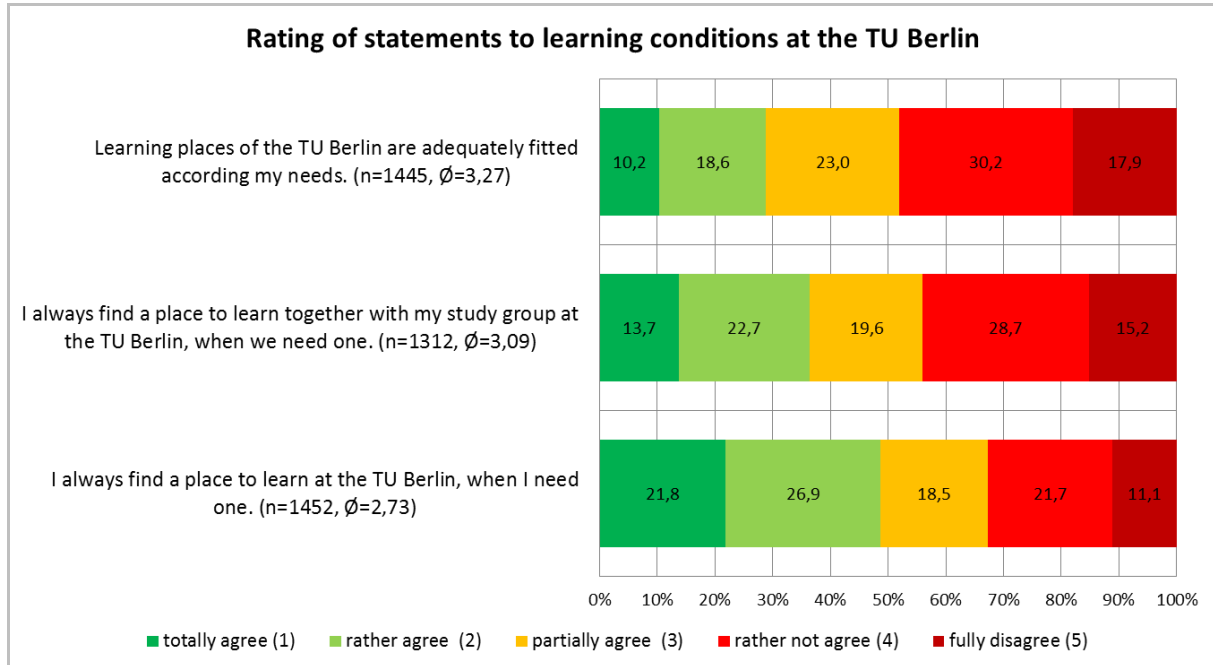


Fig. 3. Rating of statements to learning conditions at the TU Berlin

On the basis of these facts a working group was built during the second workshop in Ziethen. Aim of the group is to offer students more and better fitted rooms for collaborative learning and working at the TU Berlin. Doing so the group needed to cooperate with the administrative department of building and service management. There, the members of the department had started themselves identifying new learning rooms for students to mend the obvious needs of students. Both groups merged and the enlarged working group became a powerful force that broadened their approach by:

1. Systemic stock taking of spare rooms that can be used for student learning and project work
2. Developing a user concept for open rooms – a so called commitment – that defines rules of usage, ethics, norms and gives contact information (in case of urgency) for all those who will use the room and who commit to the given rules when entering the room
3. Listing all learning rooms of the TU Berlin and integrating the list into a web based floor-plan that is provided by the student portal myDESK.

In a broader sense a university generally is ought to be a learning room. Therefore, the group does not confine their focus to closed learning rooms, but looks also outside the buildings, at the campus and the public areas where benches or seating arrangements should support communication and exchange for students.

As first result a new room for collaborative and student learning has been opened in May 2014. For the new room the developed commitment is applied and pilots the new way of self-reliant usage of rooms by students.

4 SUMMARY AND ACKNOWLEDGMENTS

The shift from to teaching to learning is a cultural change process. That is, people involved need to change their own perceptions and perspectives on studying and teaching. Finally they need to act in different way than before. The Ziethen-Workshops opened up a room for individual engagement for many members of the university. That is a good starting point for adopting the new vision as one's own reform. Thus, "Ziethen" became the synonym for a fruitful process on a new culture of studying and teaching. Since April 2014 the TU Berlin has a new elected steering committee that incorporated this change process into their new agenda.

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