

MENTORING DIVERSITY - A PROGRAMME TO REDUCE STUDENT ATTRITION AND ADVANCE EXCELLENCE IN LEARNING

Valerie Stehling¹, Ursula Bach¹, Anja Richert¹, Ingrid Isenhardt¹

¹IMA - Institute of Information Management in Mechanical Engineering

ZLW - Center for Learning and Knowledge Management

IfU - Institute for Management Cybernetics

Faculty of Mechanical Engineering RWTH Aachen University (Germany)

valerie.stehling@ima-zlw-ifu.rwth-aachen.de, ursula.bach@ima-zlw-ifu.rwth-aachen.de,

anja.richert@ima-zlw-ifu.rwth-aachen.de, Isenhardt.office@ima-zlw-ifu.rwth-aachen.de

Abstract

Contrary to a widespread belief, a huge and continuously growing number of students do not meet the demands that universities make. These students can be divided into two groups:

The first group describes students who often do not score as many credit points per semester as they are intended to [1]. This leads to an extension of their prescribed period of study. Some students even suspend attendance from college temporarily due not to problems regarding contents of their subject, but also to financial, familial or other challenges. In worst cases this even leads to a rising student withdrawal rate.

The second group characterises “honors students”. These “most able” students often need higher intellectual stimulation which a “normal” curriculum cannot offer them.

Based on this knowledge it is highly important that universities start developing (or fitting their existing programmes to) retention programmes focusing on the specific subjects/challenges as mentioned before.

At RWTH Aachen University (Germany) a special committee deals with exactly this matter. Within the framework of the “Challenge Excellence in Teaching” initially funded by the “Stifterverband” this “mentoring committee” is responsible for installing a retention programme to support and encourage students to manage their learning in order to maximise their potential, improve their performance and advance their career [2]. Not least this mentoring programme can be an appropriate means to reduce student attrition [3].

When designing a mentoring programme for students, several questions appear: Who can act as a mentor? How can or must a programme like this be organised? What will be the main content? Is it possible to create a field manual for the mentors despite a broad diversity on the one hand concerning the students and on the other hand concerning size, subject etc. of the faculties? How and by whom can the mentors be trained? How can a huge programme like this be installed and evaluated? And last but not least: how can it be financed? All these questions have been thoroughly discussed by the committee and answers as well as solutions have been largely found at this stage: Field manuals are currently being created by the committee and specially trained psychologists, mentoring jobs are being created with the help of the nationwide so called “Bund-Länder-Programme – Quality in Teaching and Improvement of the Study Conditions”, where the committee has acquired additional long-term financing etc.

The evaluative supervision of the mentoring programme at RWTH Aachen University is based on a 3 year plan. In the first year, from the second quarter of 2010 to the second quarter of 2011, the conceptual design as mentioned before has been discussed and brought forward in a special mentoring committee consisting mainly of academic advisors as well as students. The second year is thought to serve as a year in which the mentoring programme will be established in the many different departments/faculties of the university. Finally, in the third year the first mentoring cycle can be evaluated based on a first insight into a “student reality” that will be gained by the mentors during the first run. This knowledge allows the tutors to check previous assumptions and to – if necessary – adjust the mentoring programme to the needs of the students.

1 INTRODUCTION AND INITIAL SITUATION

An analysis of study data concerning student behaviour at RWTH Aachen University shows a high dropout rate especially in the introductory phase of study. Especially technical and natural scientific courses of study require an effort in the introductory phase (and further) that lies above average.

A survey concerning student attrition [4] comes to the conclusion that producing such a high number of drop outs can be prevented by an early coaching as well as a better support in organizing and structuring the study as well as matching the student life with other important (financial, familial etc.) requirements. Therefore, an important group of students for the "Aachener Mentoring Modell" are those students that are most likely to drop out of university due to challenges that do not necessarily have to be linked up with an inability of understanding the profession they chose to study. In addition to this group of challenged students, a second target group for the "Aachener Mentoring Modell" can be identified as those students who are especially talented and therefore need to be stimulated differently to prevent them from the frustration of working below their full potential.

The results of the previous section as well as the constantly rising diversity amongst students lead therefore to an exigency of the implementation of a coherent diversity management especially in the introductory phase of study, to ideally advance the individual needs of the students.

2 GOAL SETTING AND MOTIVATION

Our primary goal is to install an individual, comprehensive mentoring system to support and coach especially these students that by the end of the second semester do not reach two thirds of the required number of credit points as well as the 10% best performers. These students will be invited to make an appointment via email. In addition to that, any student that does not belong to either of the two groups but also wants to be coached or supported in an individual, intensive mentoring session will be given the chance to do so.

The main focus of the mentoring programme (as mentioned before) should lie on the introductory phase of study to allow for an active support of the students and likewise to reduce the time of study needed until a successful graduation to a prescribed period of study. "Students must augment their field-specific knowledge and experience with a variety of other skills if they are to make the best use of their talents. Beyond learning to communicate about science, many students need to develop informal communication skills in general, such as the ability to express themselves clearly and understand others' responses." [5] According to Welter et al. the integration of more undergraduate students into research projects is deemed to be a successful means to enhance a successful graduation and a possible scientific career [6]. It is also highly recommended to invite students back to follow-up sessions at the end of the 4th and 6th semester.

Specific field manuals for mentoring will allow the employed mentors to identify possible (subject-related as well as non-subject-related) challenges and potentials. This way a successful study can be reached or even optimized by an arrangement of additional offers, a planning of further career- or study-enhancing steps or in some cases a possible transfer to other professionals.

In terms of motivation, mentoring can be seen as a win-win-situation. According to Ehrich et al. [2], "(...) mentoring is a two-way or reciprocal process, it also provides benefits for the mentor." Both participants, mentor as well as mentee, share interest in an efficient and successful study course. In addition to that it gives universities and their mentors the opportunity to reduce the distance between them and their students. That way they get a chance to gain insight into the current student reality and can therefore put themselves into the mentee's place a lot better. The information gained in this process can be forwarded to the faculties so they are able to react to specific requirements of the students easier and quicker. In turn, the mentee can be supported in planning and arranging his or her study course according to his or her individual strengths and interests by his or her mentor.

3 CONCEPTUAL DESIGN

When installing a comprehensive mentoring programme, there are several questions to be answered. They are conducive when building up a conceptual design. These questions are:

- Who can act as a mentor in the mentoring process?
- How can a mentoring programme at a university as big and diverse as RWTH Aachen University (approx. 30000 students) be organized?
- What will be the main content of the individual intensive mentoring sessions?
- How can guidelines and field manuals be designed to support the mentoring process (subject-related as well as technically)?
- How will the implementation of the individual mentoring sessions be documented?
- How can a comprehensive mentoring programme be financed?
- How can the mentoring programme be launched and adjusted to the specifics of every faculty of the university? (see Fig.1)

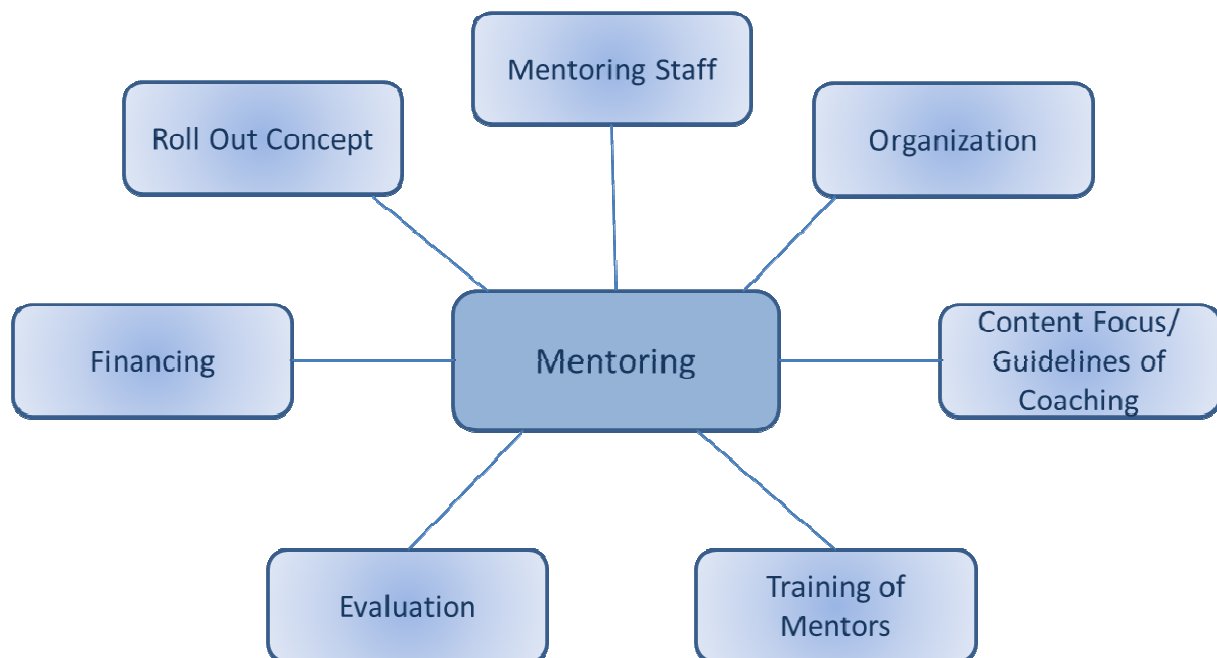


Fig. 1: The Conceptual Design of the “Aachener Mentoring Modell”

The following sub-sections will explain how these questions have currently been dealt with.

3.1 Mentoring staff

A sort of coaching and mentoring that follows the before carefully worded goals requires the commitment of mentors that stand out for their overview of their profession and who enjoy working together closely and professionally with students. As Ehrich et al. [2] put it, “Irrespective of the nature of an organization, not all personnel are suited to be mentors.” According to Kram [7] there are also psychosocial functions that mentors should provide such as acceptance and confirmation of the mentee as a person, counseling for difficult situations, role modeling what to do in particular situations as well as socializing together.

The final decision who to install in this position at RWTH Aachen University rests with the faculties. The mentoring committee suggests the following persons:

- Academic advisors or assistants,
- Professors and Deans (especially concerning the 10% best performers),
- Lecturers those responsible for teaching,
- Members of the board of examiners,
- Additional support by psychologists.

Though students can and should be (and already are widely) installed as tutors in the overall mentoring process, they should not be responsible for a supporting individual and intensive mentoring programme with the outlines and goals that have been widely described before.

3.2 Organization

The organization of the mentoring sessions is distributed, which means that each faculty is responsible for the design and implementation of the introduced framework. The main aspect of this framework is the individual, intensive mentoring. This special variation of mentoring envisions an exchange of information and support between **one** mentor and **one** mentee. This way, students have the chance of being supported along their individual talents and needs as described before. It is recommended by the mentoring committee to cluster the students concerning their probable requirements. Those students who are endangered of dropping out should be reached in time to support them in their decision-making and prevent them from making a possibly unreasonable decision. Concerning the 10% best performers, mentors should focus more on the originality of the offers and the feasibility of their wishes and demands than on timing.

A consecutive manual describing the process has been designed by the mentoring committee. It includes measures a mentor should be taking that will be outlined in the following:

As soon as the test results of the previous semester are available, the mentors should check figures from the "Studierendcockpit", who offer important numbers and figures (grades, credit points, passed tests, tests in third attempt etc.). With the help of this information the mentors can then email students and invite them to make an appointment for a mentoring session (three different invitations, all of them with a slightly different content and exigency (as described before): one for those who by the end of the second semester have not reached their requested number of credit points, one for those who belong to the 10% best performers and one for all others who would like to request a mentoring session). Attached to the email the mentor will send a preparatory questionnaire that the student can use to prepare for the mentoring session.

The mentor, too, is supposed to prepare for the mentoring session. By looking at the numbers and figures from the "Studierendcockpit" he or she can get an insight into the mentee's performance and possible problems or challenges. If the student has been to a mentoring session before, the mentor should be looking at previous agreements and suggested measures in order to be able to assess the current situation.

At the beginning of the actual session, the mentor needs to clarify, whether the student has a certain request or concern. In addition to that, the mentee should describe his or her course of study. The mentor then should sum up the important details and analyse critical or important points. He or she then should subsequently give recommendations or advise measures to be taken. If the requirements, desires or problems of the mentee go beyond the mentors' competencies, he or she should arrange an appointment with the appropriate counselling facility or e.g. register the mentee for certain seminars (time management, learning courses, presentation skills etc.). Target agreements should be made and written down and placed in the study file of the mentee.

Important aspects of the study situation are the course of study, semester and the current test results, registrations or testimonials. Main aspects of the personal situation of the mentee that should also be taken into account are usually financing, learning attitude in their study and towards tests, exam nerves, time management concerning their study, hobbies, jobs, social commitments (kids, fosterage of family members etc.), study motivation etc. Especially critical are situations like working hours that collide with study hours, illnesses, financial troubles, social isolation as well as familial problems like a separation of the parents etc.

Subsequent to the mentoring session the mentor keeps record of the gathered information (problems, challenges, reasons) following a standardized questionnaire. On the basis of this documentation the

faculties can in the long term gather well-founded information about the most important problems of study and the diversity of their students.

Those students who are invited to mentoring sessions because they belong to the 10% best performers will face a similar cycle of the mentoring session, with the exception that a crucial aspect in the session is the retrieval of their special needs and desires concerning their study and learning. They should be given certain information about possibilities they sometimes cannot reach solely by their own achievements such as scholarships, career enhancing measures and seminars, the search of the appropriate mentor etc.

In the long term the programme is also designed to offer a technical (computer-based, online) support system, that

- facilitates the organization of the mentoring sessions (making appointments, offering guidelines and field manuals for different groups of students etc.),
- allows transparency concerning offering, process and measures,
- supports the individualization and intensification of coaching,
- leads to an improvement of the collaboration of all involved authorities (such as specialist counselling, study counselling, advanced trainings etc.),
- continuously collects data (e.g. statistics about reasons for student attrition, types of problems students are facing, granting of scholarships, reviews of measures, acceptance and usage of the mentoring programme etc.).

As long as this support system is still under construction and therefore not accessible to either mentors or mentees, it is made sure, that for a successful first run of the mentoring sessions in the pilot scheme

- there is transparency towards the offering and the measures,
- standards are being determined,
- the important numbers and figures (grades, credit points, passed tests, tests in third attempt etc.) are accessible for the mentors and
- an evaluation of the process controls the actual implementation of the mentoring programme.

3.3 Content focus/Guidelines of coaching

When organising a mentoring programme it is highly important to plan mentoring sessions with special regard to the content of such a session. It must be taken into account that there are various types of students with a very diverse coaching requirements and needs. These types may not be mistaken for the two initially defined groups (those students who after the second semester do not reach two thirds of the required credit points as well as the 10% best performers). There are several types of students within these groups due to a rising diversity amongst students.

Apart from that, different contents of mentoring sessions have to be distinguished: There are subject-related, non-subject-related and structural matters that can be issues in a mentoring session. "Faculty advisers can be asked to advise a wide range of students (...). The details of [their] advice will vary widely, but a cardinal goal should be to help those you mentor toward greater initiative, independence and self-reliance." [5] Due to these circumstances the mentors will be equipped with a catalogue of measures that are to be taken in special situations. This catalogue of measures will be explained and discussed in a preparatory training of the mentors (see chapter 3.4). If mentor and mentee reach an agreement relating to a certain measure, this plan of action can and should be the footing for a follow-up mentoring session. One important aspect in the mentoring process which should not be underestimated is, though, that mentoring sessions are an additional offer of support made by the universities and should not be mistaken for a confinement of the mentees own personal responsibility. The opposite should be the case: That mentees become responsible students who know their own strengths and plan their life according to these.

3.4 Training of Mentors

Regarding outcomes of surveys taken and evaluated by Hansford et al. [8], mentors can be facing some difficulties in the mentoring process such as a lack of time, personality mismatches, lack of training and understanding of the programme concerning goals and expectations, their high responsibility as well as a possible frustration with the mentee performance, attitude or lack of commitment. The implementation of a mentoring programme with the previously described aims therefore requires well trained mentors who know how to deal with and how to act in various situations. Therefore a professional training of the mentors is highly essential. At RWTH Aachen University this preparatory and periodical training will be provided by a collaboration of the Student Advisory Service, the Social Counselling Service, the Integration Team – Human Resources, Gender and Diversity Management (IGaD) as well as the Center for Learning and Knowledge Management (ZLW).

An important element in the training is the reflection of the benefits that both the University/mentors and the mentees can draw from this programme. Beyond that, it is important for field manuals, questionnaires, evaluation sheets and documentation sheets to be explained and discussed with the mentors to ensure the correct usage of the available material. The explanation of the catalogue of measures and the correct recommendations in line with the constraints that this sort of coaching brings about will empower the mentors to cope with a wide range of challenges their mentees might currently be facing.

To keep the periodical training at the highest standards, experiences from the mentors of the pilot scheme will be consequently enquired and led back into the trainings so they can – if necessary – be adjusted.

3.5 Evaluation

Every single mentoring session will be documented (partly anonymously) following a standardized process. As mentioned earlier this shall enable an efficiency control – concerning the outcomes of the mentoring programme both for mentors and mentees and the general usage of mentoring sessions – as well as an evaluation of the programme. A first project and process accompanying evaluation of the mentoring sessions can be expected after a first run during the forthcoming semester, approximately in early 2012.

It is planned to conduct qualitative as well as quantitative evaluations.

Focussing on the view of the mentees as well as the view of the mentors, a qualitative evaluation is planned to be realized, where they will be asked to review the mentoring sessions and their outcomes according to their gained knowledge. This evaluation will allow a continuous advancement of the programme because it will uncover possible soft spots concerning the session itself in a very precise manner.

In addition to that, quantitative operating figures and parameters that make a success of the “Aachener Mentoring Modell” measurable and that serve the demands of the university are for example those taken from the “Bund-Länder”-proposal “Quality in Teaching and Improvement of the Study Conditions” of the RWTH Aachen University. They are:

- Did the rate of students that have reached at least two thirds of the required number of credit points increase?
- Did the student drop-out rate decrease?
- Did the rate of students graduating in the prescribed period of study increase?

Other important qualitative information to be gained is e.g: How many students accept the mentoring offer and attend a mentoring session? How many of these return to a follow-up session? And how many of them take the advice given and thus meet their agreement made with the mentor in the first mentoring session?

The answering of the above-quoted quantitative questions demand a thorough documentation which will be provided by an evaluative sheet the mentors are preliminarily given at hand. Should there be no improvement in either one of the subjects of evaluation then the apparent soft spots of the mentoring programme will be revised. Fig. 1 constructed by Gray [9] shows the process of implementing a

mentoring system considering all its important components, the last of them being the evaluation of surveyed results constantly leading back to a modification of the previous components in the process.

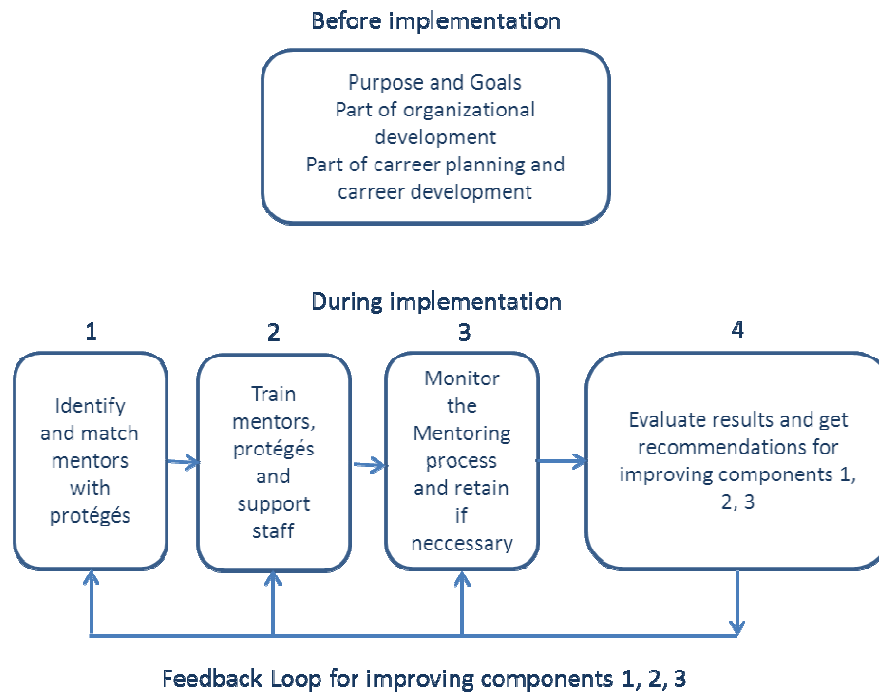


Fig. 2: Essential Components of a Planned Mentoring Programme [9], [10]

Long-term goals of the mentoring programme are to achieve an increase of 25% of the rate of students that have reached at least two thirds of the required number of credit points as well as an increase of 25% of the rate of students that graduate in the prescribed period of study.

3.6 Financing

Considering the predominant result of the survey of Hansford et al. [8] – that the lack of time is the biggest problem for both mentors and mentees in the mentoring process – a realistic calculation of time needed for one mentoring session is essential for the success of the whole programme. Taken from the experiences of members of the mentoring committee, a half hour per session must be scheduled on average. In addition to that, the mentor will approximately need another half hour of pre- and post-processing which turns the average time and effort per mentee into approximately one hour.

When it comes to financing such a huge expenditure of work, easily the financial resources of a university can be exceeded. At this point it is crucial to proceed in small steps. For example, the RWTH Aachen University was successful in acquiring initial funding by the “Stifterverband” in line with the “Challenge Excellence in Teaching”, where a number of projects concerning the enhancement of excellence in teaching are being initially funded. This initial funding as well as capacities provided by the RWTH Aachen University allowed the mentoring committee to work on a conceptual design. With this concept at hand it was possible to acquire additional financing from the “Bund-Länder-Programme”, a nationwide funding programme to enhance quality in teaching, which has allowed the faculties of RWTH Aachen University to create new mentoring jobs and therefore allows the “Aachener Mentoring Modell” to alleviate the current situation for many students.

3.7 Roll Out Concept

The thoroughly described showcase project “Aachener Mentoring Modell” has been developed participatorily in a mentoring committee with members of each faculty of the RWTH Aachen University as well as a number of student representatives. A first realization of the programme (as mentioned before) will start in November 2011 in terms of a pilot scheme. From then onwards it will be constantly evaluated and – if necessary – adjusted. A comprehensive information management (ranging from all authorities in the process to mentors and possible mentees) is inalienable.

The pilot scheme will be conducted by the mentoring committee as well as the ZLW (Center for Learning and Knowledge Management) and the IgaD (Integration Team Gender and Diversity) of the RWTH Aachen University. In advance, a full-time kick-off-event will function as an elaborate information platform for all persons involved.

REFERENCES

- [1] BMBF: Studiensituation und studentische Orientierungen. 11. Studierendensurvey an Universitäten und Fachhochschulen:
www.bmbf.de/pub/studiensituation_studentetische_orientierung_elf.pdf
- [2] Ehrich, L., Hansford, B., Tennent, L. (2004): „Formal Mentoring Programs in Education and Other Professions: A Review of the Literature“, *Educational Administration Quarterly* 40, Nr. 4, October 1, pp. 518 -540.
- [3] Tinto, V. (1993): *Leaving College. Rethinking the Causes and Cures of Student Attrition*. Second Edition. The University of Chicago.
- [4] Wolfram, A., Derboven, W., Winker, G. (2009): Women withdrawers in engineering studies: Identity formation and learning culture as gendered barriers for persistence? In: *Equal Opportunities International* Nr. 1 (28. Jg), pp.36-49.
- [5] National Academy of sciences (1997): *Adviser, Teacher, Role Model, Friend: on Being a Mentor to Students in Science and Engineering*. National Academy of Sciences, National Academy of Engineering, Institute of Medicine. National Academy Press, Washington, D.C..
- [6] Welter, F., Vossen, R., Richert, A., Isenhardt, I. (2010): "Network Management for Clusters of Excellence: A Balanced-Scorecard Approach as a Performance Measurement Tool". In: *The Business Review*, Cambridge. Volume 15, Number 1, Summer 2010, pp. 171-178.
- [7] Kram, K.E., Ragins, B.R. (2007): *The Handbook of Mentoring at Work: Theory, Research, and Practice*, Sage Pubn Inc.
- [8] Hansford, B.C., Tennent, L., und Ehrich, L.C. (2003): „Educational mentoring: Is it worth the effort?“, Journal Article, <http://eprints.qut.edu.au/2259/>.
- [9] Gray, W.A. (1989): Situational Mentoring: Custom-designed Planned Mentoring Program, *Mentoring International*, Vol. 3 No.1.
- [10] Brian Gay, „What Is Mentoring?“, *Education + Training* 36 (1994): 4-7.