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Scaffolding pedagogic excellence in higher education.

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Abstract

Promoting adoption of educational best practice based on disciplinary educational research and experience poses universities a serious challenge. This paper contributes to the dialogue addressing this challenge. We promulgate a model in which students, higher education researchers in the disciplines, educational leadership and lecturing staff gather, in a council for educational development, to coordinate initiatives in scholarship of teaching and learning. The involvement of students working as true partners is crucial. The council facilitates scaffolding of competence, leveraging leading disciplinary based education research, and provides a unique opportunity to connect disciplinary educational research outcomes to higher education delivery. The council's proximity to the disciplinary context provides rich disciplinary understanding and enhanced credibility in professional development activities coordinated by the council. Broad stakeholder engagement provides an effective, and far reaching, contact network within the faculty. This promotes informal communication and strengthens shared academic values in teaching and learning practice.

Introducing the challenge

What is the best way to support learners and learning? Development of education practices which draw consistently on current best practice and disciplinary educational research is a serious challenge for universities. In this paper we initiate a dialogue on approaches to addressing this challenge.

The educational development strategy for Uppsala University articulates the University vision, "Uppsala University shall offer first-rate education programmes, in which teaching keeps pace with current research developments in educational studies and subject-specific teaching methods" (Teaching and Learning at Uppsala University, 2008).

The Faculty of Science and Technology strives to develop teaching practice in the disciplines from a personal basis in introspection, intuition and gut feeling to a scholarly discourse based on confirmative indications and evidence.

Many teachers, educational leaders and students were already involved in development projects of various kinds. The many individual initiatives could, however, have a greater impact on the education quality if they were linked together. More inclusive arenas for communication between educational

leaders, teachers and students in various constellations were therefore desirable. Organisation of support for a scholarly approach was also identified as important.

An academic staff population who are deeply committed to educational development is of utmost importance to success. They are the ones who make great things happen, and who can inspire their colleagues to take steps in a strategic direction. Therefore initiatives which attract those already engaged, help them develop, and inspire them are well worth the investment.

Nevertheless there is a problem, in that many initiatives reach solely those already involved. All teachers should be encouraged to take part in the movement for change. An approach to meet this challenge was needed.

Central units for academic development are of importance for the wide perspectives and discussions between different faculties and research cultures. There is, however, also a need for in-depth discussions on pedagogical questions concerning subject specific learning activities, threshold concepts within the discipline and competences typically important for certain cohorts of students.

Educational leaders at all levels can make a difference, discussing visions, inspiring and managing change, encouraging initiatives and mobilising efforts. For quality teaching, departmental leadership is mostly important and often pivotal (Gibbs et al. 2008). Deficiency in mandate, lack of leadership tools and knowledge and too little time for the task might however lead to a focus on management rather than leadership. A strategy to strengthen the leaders was recognised as a key enabler.

 A systematic approach meeting all these challenges and promoting a community of scholarly practice involving students and all academic staff was called for.

Actions for scaffolding pedagogical excellence

How is the vision of first-rate education programmes, with teaching in pace with current research developments in educational studies and subject-specific teaching methods to be articulated? While high level strategic decisions are an important component of reform in higher education, engagement at many organisational levels, between lecturers in the disciplines, academic boards of studies and teaching and learning units, are needed to carry this vision into practice (Gosling 2009, Holt et al. 2011).

A plan of action

The Faculty of Science and Technology at Uppsala University has developed a highly successful model with which to tackle this challenge. Guidelines from the University (Teaching and Learning at Uppsala University, 2008) gave an opportunity for comparison with desired goals and analysis of our strengths and potential. In a plan of action the strategy was formulated with shared concrete goals and clarified responsibilities.

The faculty level enabled local considerations regarding special potentials and requirements. Furthermore it made it possible to be more precise and concrete. An important part of the plan was the establishment of the Council for Educational Development at the Faculty of Science and Technology, (in Swedish: Teknisk-naturvetenskapliga fakultetens universitetspedagogiska råd, TUR). TUR plays an important role in coordinating initiatives in practical scholarship of teaching and learning (Boyer 1990).

TUR gathers higher education researchers in the disciplines, students, educational leadership and lecturing staff facilitating scaffolding of competence in combination with leading disciplinary based education research and provides a unique opportunity to connect disciplinary educational research outcomes to the delivery of higher education. Simultaneously the proximity to the disciplinary context provides rich context and enhanced credibility to the professional development activities that TUR coordinates and delivers. Broad stakeholder engagement provides an effective and far reaching contact network within the faculty, promoting informal communication and strengthening shared academic values in teaching and learning practice. The importance of students as true partners, who take active part in all activities cannot be overestimated (Bovill et al., 2011)

TUR encourages academic collegiality in teaching and learning practice through activities such as seminars, workshops, and conferences. Teaching and learning innovation is stimulated by making a fund available from which staff can apply for funding for specific educational development projects. A network for teachers with these grants is organised, with feedback on the application and discussions concerning design, implementation and evaluation of projects and ideas for dissemination of results. Support is also given to educational leaders at all levels, through networks and meetings in smaller groups, to discuss development and cooperation. Recognition of commitment to excellent education by teachers is also a key aspect of the Uppsala strategy. TUR has developed criteria to recognise and promote excellent teachers, which has been adopted by the Faculty. TUR plays an important role in designing and analysis of investigations of teachers' and students' perception on teaching and learning, which is described elsewhere.

In addition to elucidate TUR's mandate, other prioritized areas with clear responsibilities both at faculty and department level were identified and arranged in accordance with the University Guidelines. Some of the decisions were of special importance:

1) The mandate for educational leaders was discussed and clarified.
2) Constructive alignment and a holistic perspective on study programmes, were highlighted. Program Coordinators should analyse their educational programs analysis and relate intended learning outcomes for courses (or modules) to the overall program learning outcomes and to national objectives in the Degree Ordinance in the Higher Education Ordinance. Directors of Studies were given a responsibility to ensure the constructive alignment with clear connections between intended learning outcomes, examination and learning activities. Assessment criteria should be formulated for all courses, with the Director of Studies as responsible.
3) To reach all teachers, and not just the already interested, it was decided that all teachers should have individual development plans discussed in yearly educational development discussions with their Director of Studies.
4) To encourage engagement in teaching it was decided that criteria and handling procedure for rewarding excellent teachers should be developed.

In the following text some of the initiatives with TUR as the major agent are more fully described, structured in the following areas:

• Strategic educational leadership
• Scholarly competence through disciplinary courses
• Enhancing development through seminars and workshops
• Active exchange of experiences and ideas through faculty conferences
• Supporting initiatives in pedagogical renewal
• Rewarding excellent teachers

Strategic educational leadership

Educational leaders are key people for educational development. Pedagogic leadership is an act that motivates others and creates a positive environment for learning and pedagogical development. This is true from the deans of the faculty and heads of departments to program directors and directors of studies. Thus, supporting educational leadership is an important part of the TUR work plan. The focus here has been on director of studies and program directors.

To improve their ability to take responsibility for development of study programmes, courses and colleagues, three initiatives were introduced

- A job description for educational leaders was requested
- A educational leader network was created
- Individual meetings between TUR and educational leaders at departmental level

The initiatives are intended to help clarify and strengthen their role and to provide strategies and tools for leadership. The first item above, the job description, ensures a strengthened mandate for educational leadership and put the emphasis on pedagogical rather than administrative functions. The Heads of departments were obliged to appoint the responsibility for the educational leadership and to document the mandate.

To support the educational leaders and to build a community of practice, an educational leader network has been created and organised by TUR. The network has regular meetings for sharing experiences and discussing current themes. Some examples of topics discussed are:

- Job descriptions for educational leaders
- Educational action plans at departmental level, with consideration of self-assessment.
- Individual educational discussions and development plans for teachers as a way to reach all and increase the competence and scholarly practice.
- Introduction of new teachers, and the role for educational leaders at different levels to introduce them to a community of practice.
- Developmental projects and ideas on encouraging teachers to apply for support, to investigate the results and to spread the outcome at conferences.
- The system for rewarding excellent teachers and how that can be used to create a culture for excellent learning.

Almost all of the educational leaders at the faculty have taken part in the network meetings. Many of them are very frequent participants. Educational leaders express that the dialogue with each other and with members of TUR is of importance for their leadership. Nowadays very few, if any, look upon the task as educational leader as solely administrative. Many of the topics discussed in network meetings have later been accomplished, and educational leaders are less isolated in their departments, and more supportive towards each other.

In addition to the network, TUR have regular meetings with educational leaders at the department level. These meetings take place once or twice a year, and focus on discussions about educational development and strategies at the department. This gives an opportunity for dialogue, TUR get to know current plans, ideas and pedagogical development at the departments, and a possibility to convey and coordinate these ideas with other parts of the faculty. Problems have been discussed and new ideas formed. Suggestions for participation from TUR at local seminars or short courses have come up. One important part is to read and discuss local pedagogical action plans, and give support in the actual implementation process. Examples of best practice have been spread between the departments, through these departmental meetings, as well as via the educational leader network.

Gibbs, Knapper and Picinnin (2008) associate nine clusters of leadership activity with the support of excellence in teaching. Among them are categories like building a community of practice, supporting change and innovation, establishing credibility and trust, identifying teaching problems and turning them into opportunities, articulation a convincing rationale for change. TUR's strategic educational leadership support target these categories.

TUR is also used for its competence by the faculty leadership, discussing strategic orientation, quality enhancement, new decisions and formal documents.

Scholarly competence through disciplinary courses

A key aspect of enhancing innovative teaching and learning strategies is to provide staff with the opportunity to deepen their awareness of educational research and its applications in their teaching and learning contexts. This conclusion builds upon the discussion of scholarship of teaching and learning, drawing on the work of Boyer in the 1990's, and a range of other prominent researchers in higher education.

The demand for professional development courses for higher education teachers is partially served through central units providing courses in higher education teaching and other relevant skills. Although these courses are much appreciated, many teachers request opportunities for competence building closer to their subject teaching practice.

The first such course was established in 2004 – Scholarly Teaching in Science and Technology. This course builds on established knowledge from subject education research. Participants learn about important themes such as active learning, threshold concepts and cultural aspects of learning. The themes are then discussed and elaborated upon from the disciplinary perspectives of the participants. The course is examined through an individual project where the participants focus on questions drawn from their own practice.

A second course – Theory and practice of engineering education – was started 2010. This course focuses on scholarly teaching practice in engineering, provides an overview of recent engineering education research, and through individual projects gives participants an opportunity to put theoretical aspects of the course into practice. The course concludes with presentations of the project work conducted and a discussion of evidence based innovation and evaluation of improvement in learning outcomes based on educational research models.

The projects from these two courses have often been expanded. Some project reports have been presented both at the annual TUK conference of the faculty of science and technology in Uppsala and at other conferences. Course participants have also identified other lasting effects of these courses, such as increasing numbers of innovation projects at their departments and an increased awareness of how to draw on higher education research in science and engineering education to improve courses and study programmes. Participants also identified the value of meeting colleagues with a similar interest in educational issues within the faculty. We also observe increasing collaboration between participants in these courses across departmental boundaries, for instance projects involving staff from chemistry and computing or physics.

A third course, building on the previous two, was started in 2012. This is a methodological course, centred on scholarly investigations of educational practice. The idea is that the thematic focus of this course will be different each time it is given, thereby giving interested teacher multiple opportunities

to expand their knowledge. The current course has a focus on qualitative investigations of student experiences and opinions.

Apart from these courses, TUR also give a number of shorter workshops. Members of TUR also contribute to other courses, for example for marketing staff, student counsellors, Supplemental Instruction leaders and students involved with initial introduction activities. Others initiate many of these initiatives, but TUR contributes as an active partner.

The courses provide valuable opportunities for competence building. They also support other goals of the strategic pedagogic scaffolding, such as strengthening collaborative networks and facilitating exchange of ideas and experiences. A recent survey of approaches to teaching among the staff at the faculty of science and technology at Uppsala University showed that teachers participating in these courses to a larger extent adopt student centred practices focussing on conceptual change.

Enhancing development through seminars and workshops

Regular pedagogical input and possibilities to discuss and work with development is of importance in building a community of scholarly practice. TUR gives such opportunities through meetings in the educational leader network, as described above, but also through seminars and workshops targeted for teachers and students. They serve as forum for exchange of ideas, and contribute to an ongoing dialogue on important pedagogical issues and trends.

TUR organise a range of seminars and workshops. The numbers of seminars and workshops has increased and at present we offer about seven each semester, covering different themes.

Recent examples of themes are:

- First-year students experiences and actions for retention and qualitative learning.
- Constructive alignment and assessment criteria.
- Student identity in relation to different study programs.
- International students.
- Plagiarism and scientific writing.
- Assessment of diploma work.
- Learning from laboratory practice.
- Ranking tasks.
- Supplemental Instruction, SI
- Workshops with feedback on pedagogical funding proposals.
- Seminars to discuss the new system for awarding excellent teachers and workshops to help teachers to apply with portfolios that allow fair assessment of their competence.

In addition, TUR organize one or two literature seminars each semester. Here, teachers and sometimes students, discuss research papers in higher education with themes like retention, student active learning activities, feedback, conceptual change, and threshold concepts.

The students in TUR are often involved in the seminars/workshops, both in planning as well as taking active part in the actual activity. In some cases the students have not only been involved, but rather responsible for the activity as a whole, from idea to implementation.

Ideas for new themes originate from the individual meetings with the educational leaders, from previous seminars or discussions with teachers, or it might be topics in higher education research.

Active exchange of experiences and ideas through faculty conferences

There are several reasons to arrange a local platform for dissemination of educational ideas and projects. A faculty conference is a powerful first step in establishing a local community of scholarly practice. Awareness of developmental projects and good examples in the vicinity of individual practice is valuable since the opportunities for cooperation and exchange of ideas are vast. Not surprisingly the exchange of experiences is stressed as important by the participants.

The conference is an integrated part of the scaffolding activities, which vouch for high quality. Contributions made by those with grants from the fund for educational development (described below) or with projects stemming from TUR's pedagogical courses, are discussed with colleagues in advance of the conference.

Keynote speakers provide access to an external, perhaps broader, perspective. Deans and others from the faculty leadership are invited to give their view on the current state of affairs, and the future. A panel discussion with keynotes, leaders, teachers and students is normally organised as a closure, to broaden perspectives and to generate ideas for future development. Thus the conference is also an arena for debate, creating an opportunity to discuss views on teaching and learning and future development with the faculty leadership

We have seen many teachers and some students who have expanded the participation to national and international arenas later on, partly as a result of this conference.

Supporting initiatives in pedagogical renewal

It is of strategic importance to provide funding for pedagogical renewal, as well as dissemination for impact among teachers within the faculty. Funding makes it possible for individual teachers to allocate time for pedagogical development. To promote a scholarly teaching practice in relation to the pedagogical renewal projects, TUR organize those who get funding in a network, and a faculty conference for sharing the results. The benefits will be broader than just the students and teachers involved in a specific project.

The faculty allocates about 2.000.000 SEK annually for pedagogical renewal initiatives. These funds are available to all teachers within the faculty, a fact that promotes diversity and individual initiatives.

The funding selection criteria were developed by TUR, and stipulate that the project should be based on a clearly formulated pedagogical idea, lead to a predicted positive effect on education and student learning, benefit the subject/study programme or faculty, involve a novel idea, demonstrate how it relates to similar projects or relevant literature, involve students and colleagues in a relevant way, present a clear and realistic project plan, and present a plan for evaluation. These criteria provide good guidelines for both writing and assessing funding applications.

To strengthen the scholarly thinking aspects in the pedagogical projects, and enhance the quality in general, TUR organize a network to connect the successful applicants with each other. The network provides support and feedback, both from TUR and other members within the network.

For funded projects, the following is required

- participation in the network for successful applicants,
- a report written in such a way that interested colleagues can learn from it,

- project presentation on a conference to share the ideas and results. The minimum is the yearly pedagogical faculty conference, see above.

These requirements, coupled with the funding criteria have led to a significant improvement of quality in both the funding proposals and the pedagogical projects. Also, sharing and transfer of ideas and expertise among faculty teachers and even in a national context has increased.

Rewarding excellent teachers

To encourage academic staff to invest time and effort in teaching and pedagogical development, the University needs to show that excellent teachers and educational initiatives are highly valued. Commencing in 2003 the faculty of Science and Technology decided to introduce a rewarding title with an automatic rise in salary, although the initiative was delayed pending a decision from the Vice-Chancellor. The fact that several other Universities in Sweden introduced systems rewarding high quality teaching contributed to the decision from the Vice-Chancellor to adopt the proposal in 2011.

Prior to the decision from the Vice-Chancellor TUR was given the responsibility for formulating the criteria and guidelines to be applied in the selection of excellent teachers. This was done in several steps including comparing criteria from other universities, taking advantage of the national progress (Ryegård et al. 2010) discussions in education boards and a remittance to the recruitment committee and departments. The faculty board adopted the guidelines in spring 2012.

The name of the title chosen by the Vice-Chancellor was "Excellent Teacher", which is problematic, since it is difficult to use compared to "professor" and similar titles. Nonetheless this decision represents a significant step forward in terms of recognising the importance of excellence in teaching and learning for the higher education endeavour.

The word "Excellent" is also ambiguous and difficult to interpret. Kreber (2002) defined teaching excellence in contrast to teaching expertise and scholarship of teaching and learning. According to her, teaching excellence is mainly related to teaching performance, and the development based primarily on a reflective practice (Schön 1983 and 1987). To show expertise teachers should also "continuously construct new knowledge as they combine their declarative knowledge of educational theory with their procedural knowledge of how to teach" and she stresses the importance of construction of pedagogical content knowledge (Schulman 1986). When writing about scholarship of teaching and learning she of course refers to Boyer (1990). A scholarly teacher exhibits teaching expertise, but goes beyond that. She describes a scholarly teacher as one who "holds a conception of teaching that is learning oriented. He also operates at the higher end of the information dimension as he consults the literature on teaching and learning within and beyond his specific discipline. Reflection is focused or directed at particular problems that are examined in greater depth. Finally, communication of insights takes place through peer-reviewed media."

The Excellent Teacher in our Faculty must by far exceed what Kreber (2002) meant by teaching excellence. The Excellent Teacher must show the characteristics of scholarship of teaching. An apprehension during the discussions within the faulty has been that the ability to help students learn would be made invisible, in favour of the communication of insights. In response to that we have stressed the importance of pedagogical resonance linking "teaching knowledge and the student learning that results from that knowledge" (Trigwell & Shale 2004).

In addition to this we have included criteria regarding educational leadership. Excellent Teachers should contribute to colleagues' development and influence modules, courses and programs beyond their own teaching. Scaffolding pedagogical excellence includes a concern not just in the own teaching but also in the development in a broad sense. The educational leadership could be exhibited

within a course as course coordinator, and does not require a formal position as director of studies or study programme coordinator. But the criteria are also in line with the view that educational leaders are crucial to the development. There must be ways of encouraging their efforts, not least since they often have to sacrifice some of their research in favour of the leadership commitment.

The choice to give this reward for scholarly teachers rather than including higher expectations on a scholarly teaching practice for existing titles was made according to the national trend. An advantage is that it makes it worthwhile for every teacher to strive for improvement. The focus on pedagogical content knowledge and requirements on coupling teaching to research ensures that the link exists.

The fairly high demands might lead to that the criteria only apply to a small fraction of the teachers. The hope is that the reform will inspire others to develop. To help them educational leaders at departmental level will use the criteria in individual discussions with teachers and encourage them to use them for self-evaluation.

Another anticipated effect of the reward is a visibility of the pedagogical knowledge in various boards and committees. It will hopefully be less accepted that teachers with the scholarly approach towards teaching and learning are missing, when it is more obvious.

A discussion is going on regarding the use of the Excellent Teachers, and assignments as leaders for local pedagogical seminars and mentors for new staff have been suggested.

A continuing exchange of ideas with other universities continues to be an important part of this process, and as part of that dialogue we use external referees to evaluate the applications.

Conclusions

By coordinating a range of activities, linked in a purposeful manner, the pedagogical culture at the faculty of Science and Technology at Uppsala University has changed for the better. The potential advantages of being a research intensive institution can be exploited more effectively, through a practice in line with what is known about educational effectiveness (Gibbs 2010). The outcomes are clear.

Discussions on teaching and learning are more frequent in almost all groups. Earlier it was in some groups acceptable to have a negative attitude towards developmental efforts, claiming that teaching was mostly an obstacle to research. But those who earlier had negative attitude are now mostly positive towards efforts from their colleagues and students, even if some of them do not take part in the attempts themselves. In individual pedagogical discussions educational leaders also perceive interest in educational issues from teachers they did not expect.

Those who were indifferent before are now increasingly inclined toward a more thought-out practice and take a more pronounced part in the pedagogical discussions. The pedagogical courses and other activities constantly attract new participants. In evaluations they rate the value for their practice high and appreciate new insights.

Teachers who were already interested in educational development now show increased appreciation of the value of scholarly practice, including reflective teaching building on knowledge garnered from research in higher education and with many qualified contributions to national and local conferences. There is an interest in gaining the title Excellent Teacher from all teacher categories.

The impact on single activities is difficult to measure. What is clear is that TUR's courses incline teachers to a more student focused practice. Evaluation of TUR's activities emphasises the importance of stakeholder involvement and tailored academic development in subject didactics and engineering education philosophy and theory. Staff who have taken part demonstrate an enhanced repertoire of teaching and learning techniques, and appreciation of their role in facilitating student learning and personal development.

Students at the faculty identify TUR as an important player in the ongoing evolution of the Faculty. TUR contributes to a climate in which students are seen as peers who have invaluable insights in the teaching and learning. In response, students take increasing responsibility for educational development. The students in TUR take many initiatives to cooperate with other members in TUR, resulting in well attended seminars and workshops.

Educational leaders at all levels within the Faculty express appreciation of the various initiatives and the strengthening and support that the experience. The Faculty Board continuously ask for TUR's point of view. A TUR representative is now a natural part in the weekly meetings with the Dean of Learning and Teaching and the chairmen of the educational boards, discussing strategic priorities.

TUR has been used as an example of good practice by several persons, including the chief quality assurance officer, outside the faculty but at Uppsala University. The collaboration with the central unit for educational development is seen as fruitful from both sides, since there is no competition, but complementary activities.

TUR has also been internationally evaluated as highly promising. In a university wide report on educational quality the board write: "The project TUR at the Science and Technology Domain was very impressive, working as a link between the central units and the departments. It was considered an exemplary example of an initiative at the Domain level that has been highlighted by the CrED-project. TUR activities complemented the work being undertaken at the central level and built on this at the disciplinary level. We especially appreciated the proactive activities and their commitment to promoting the reward and recognition of excellence in teaching and learning at the faculty level and their proposal to expand this into wider University practice." (CrED report 2011)

We conclude that the model has been highly successful. The TUR approach reinforces the development of a community of practice. It identifies teaching problems and supports educational leaders in transforming these into opportunities. TUR is a powerful multi-stakeholder agent for change and innovation in higher education.

The faculty board has in the plan of action for 2013-2016 decided that the initiative is made permanent with an expanded mission for TUR. The new plan builds further on the community of scholarly practice. Doctoral education is incorporated. The focus on internationalisation is enhanced. The importance of student responsibilities for their own learning, for their co-students learning and for the development of the educational programs, courses and teachers, is also highlighted in the new program.

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