



## **A case study of integrating gender perspectives in teaching and in subject content at a natural science university in Sweden**

***Stina Powell<sup>1,2</sup> and Malin Ah-King<sup>2</sup>***

***1) Department of Urban and Rural Development, Swedish University of Agricultural Sciences***

***2) Centre for Gender Research, Uppsala University***

### **ABSTRACT**

This article describes an action research project aiming at integrating gender and norm critical perspectives into teaching and subject content at a predominantly natural science university in Sweden. At this university there is an uneven gender balance of students in the education programs. This is perceived by students and teachers as problematic. But rather than initiating activities aiming at a 50-50% distribution of the sexes represented in the classroom, this specific project focused on increasing awareness of gender and norm critical perspectives on teaching in order to ameliorate the study environment. University teachers were the main target for the intervention. The project was conducted by 1) investigating teachers' and students' experiences, attitudes and needs related to gender equality in education, 2) grounding the project in the existing university structure, 3) performing interventions, i.e. holding courses 4) evaluating outcomes and enabling visions for future continuation and 5) presenting outcomes and visions to responsible committees at the University. This project shows that it is possible to integrate gender and norm critical perspectives on teaching and subject content into natural science education. The article discusses and critically reflects on the implementation process of the project and its strengths and challenges.

### **KEYWORDS**

Gender equality, natural sciences, norm critical pedagogy, gender equality change, action research, academia, study environment



## **A case study of integrating gender perspectives in teaching and in subject content at a natural science university in Sweden**

### **INTRODUCTION**

In this article we present an intervention project whose aim was to introduce gender and norm critical perspectives in teaching at a natural science university. The purpose of the project was to establish new ways of working towards more gender equal education by offering a course for university teachers. We describe our methodology, how we prepared the course to be relevant for the specific group of teachers and for action-oriented outcomes. We discuss the outcomes and the context and the possibilities for change in this particular project.

### **CONTEXT**

Sweden is rated the fourth most gender equal country by the Global Gender Gap Index of the World Economic Forum (2012). Despite this, research shows that Sweden has a very gender segregated work market (Löfström 2004). We still do not have equal pay for women and men, and women make up only 17% of the professors at the universities (Högskoleverket 2011 p.17). Additional research shows that academia does not provide equal opportunities for women and men (see e.g. Huusu, 2001, Bondestam, 2006, Hearn, 1998) neither for students or staff. These inequalities were the point of departure for this project (Powell, 2008).

The Swedish University of Agricultural Sciences (SLU) is primarily a natural science university with research and education programs such as biology, soil sciences, forestry, agronomy, and veterinary medicine. Research with a gender perspective is rare and can mainly be found in the interdisciplinary or social science oriented disciplines such as Environmental Communication, Rural Development and Landscape Architecture.

### **THE PROJECT**

The project described here was funded by the Swedish government through the Delegation for Gender Equality in Higher Education (Delegationen för jämställdhet i högskolan), its focus was on creating gender equal study environments. Swedish policy goals for gender equality include breaking stereotypical education choices. At SLU there are heavy imbalances in certain programs, such as a female bias in the veterinarian program, the landscape architect program and the animal husbandry/agronomy program. In, for example, the forestry programs there are a heavy male bias. The University has explicitly said that this imbalance between the sexes is negative and stated the need to work towards achieving a balance in the programs. Rather than focusing on strategies for making the gender balance even in the classrooms, this project focused on promoting norm critical and gender aware approaches in teaching. The assumption behind this approach is that gender equality is not a matter of counting bodies (Alvesson, 1997) and that a classroom with 50 per cent women and 50 per cent men can still provide an unequal study environment. Therefore our project developed to focus on ameliorating the study

environment through gender and norm critical pedagogy. Also, as Riley and Claris (2009) discuss, focusing on transforming pedagogies for teaching can create new ways of looking at science. They argue "that any resistance to prevailing power dynamics offers an opportunity for transformation via an appreciation of more complex epistemologies" (ibid p.39).

We use the concept of norm critical pedagogy as used by the Queer Pedagogical Network in Scandinavia (Bromseth and Darj, 2010; similar to the concept of anti-oppressive education by Kumashiro, 2000). Norm critical pedagogy, rather than focusing on those who are perceived as deviant, aims to make visible the norms in teaching and in society in general, question these norms and the power relations implicit in them in order to change oppressive practices. Focusing on norms creates an opportunity to question the same norms that create and maintain power relations when they arise in the classroom.

Making norms visible makes possible new ways of relating to them, and ways to avoid locking persons into specific roles, thereby opening possibilities for everyone. In norm critical pedagogy, emancipatory pedagogy's critique of power is combined with an understanding of identities and gender as already intersectional, that is that various forms of oppression are interwoven: such as sexism, racism, homophobia and classism (Bromseth, 2010). This is the basis for understanding how oppression is shaped, stigmatization is formed and how change can occur (ibid). In practice that means 1) challenging and expanding the basis for norms, by including more voices, experiences and examples that break exclusionary practices and 2) disrupting and interfering with power reproducing norms: in the selection of literature, in the selection of teaching themes, in classroom interactions and responses and in the practice as a teacher. The norm critical pedagogy approach has been the leading principle for the course lecturers in order to introduce it to the participants of the course.

## **METHODOLOGY**

The project uses an action research methodology. An action research process is part of a desire to change a situation which is perceived as problematic by different actors in that situation "*(it) seeks to bring together action and reflection, theory and practice, in participation with others, in pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons in their community*" (Reason and Bradbury, 2001, p.1). We were utilizing the methodology of action research because we aimed to inspire and create change in teaching with the goal of a more gender equal and inclusive study environment and to document and follow the change process as a research project.

To establish a starting point for the project, we needed to know what students and teachers considered as problematic in their education and what they wished to change. We used methods such as focus groups, interviews, surveys, discussions and meetings to talk about the present situation. University teachers, students and others linked to education (such as pedagogy specialists and people responsible for education development at the University) took part in these activities. This diverse group of actors enabled identification and development of ideas and ways to

proceed in a reflexive manner. The outcome of the planning phase was essential to motivate and to ground the project and its activities in the organization at different levels.

Initially an interdisciplinary gender researcher was recruited as course leader. This person had double competence in the natural sciences (PhD in Zoology) and Gender studies and was thus able to discuss issues of sex and gender across disciplinary boundaries. This was something that had been pin-pointed earlier on as an important aspect in the mainly natural science setting of the University.

### **PROJECT EXECUTION**

The activities during the planning phase included:

- the operational group consisting of the project leader, the course leader, one consultant senior gender researcher and a pedagogical developer met regularly to plan the project
- a reference group consisting of university teachers, students and representatives of the University leadership was appointed. This group consulted on the project execution
- presentation of preliminary project plans and discussions with the committees for different education programs
- the project was communicated at meetings with educational steering boards, university boards as well as through web pages and interviews in the University magazine,
- focus group interviews with students and university teachers
- a survey with questions about the current extent, need and possible suggestions for integrating gender perspectives in education. One survey was sent to teachers and one to students
- a structure for reporting back to established university structures and committees to ensure the integration of the project's results into the University's education development.

The outcome of the planning phase was the development of a course package about gender and norm critical pedagogies. The picture emerging from the surveys was that there was a need for the University to take on issues of gender inequality, segregation based on sex, norms of how women and men "are" and ideas about how they might be expected to act in different situations. Some of the female students spoke about how they, as a stark majority of the students in the programs we focused on, felt answerable for their education choices since they experienced an implicit and explicit wish for more men in their programs. There was a mix of answers, but many of the students said that the small number of men in the programs obtained many advantages in terms of being heard and seen. While some students were aware of gender issues in education ("*Gender courses ought to be included in all programs independent of subject, especially as the future profession includes collaboration and meeting with other people*") and gave explicit examples of sexist jokes and lack of gender perspectives ("*We start examining the male genitalia as they are not so complicated*"), other students declared their resistance towards integrating gender perspectives ("*If you start including gender*

*perspectives, I will quit*"). The students also expressed worries about decreasing salaries as the veterinarian profession has become female-dominated and related to this how to best to prepare for dealing with discrimination in their working lives. Veterinarian students pointed out a norm about women taking care of small cute animals and men dealing with "real" production animals. Furthermore, the university teachers brought up questions of how to handle very sex-biased classes and were worried about falling into the trap of treating the students differently depending on sex.

Discussions with the reference group exemplified the importance of which role models/invited examples of a profession are presented to students. One student representative in the reference group described how during the initiation week her class on the landscape architect program was presented with a charismatic male architect working as a well-paid consultant with creative freedom and a female architect working in the municipality with very small means. She reflected on how this experience had influenced her expectations: "Is this the gendered working life awaiting us?"

Because of limited time that teachers had for participating in the course, the course consisted of four half-day workshops which combined discussion seminars, assignments and literature reading. To connect the course to the teaching practices, the assignments were aiming at reflection and inspiration to continue working with gender and norm critical pedagogy after finishing the course. The themes of the four half-days were:

- The first workshop concerned questions of what gender is and how it is relevant in academia and teaching.
- The second workshop concerned norm critical pedagogy which allowed the university teachers to reflect on what norms and values they take with them to the classroom and how these norms play out in the interactions with the students.
- The third workshop focused on gender perspectives in evolutionary biology, as an example of how gender perspectives can be applied in the natural sciences. The way we frame our research questions, what methods we use and how the results are interpreted may be affected by cultural conceptions of gender (Ah-King, 2010).
- The last workshop was, through the use of 'Forum Theater', actively practicing how norms play out in educational or work situations, and how they may be counteracted.

In preparation, the invited lecturers/facilitators of the course were provided with the surveys and updated information on course participants' interests and the course progress. The course ran three times with a total of 55 university teachers attending.

### **PROJECT OUTCOMES**

To follow-up on the project we have conducted eight interviews and one survey with course participants. Evaluations from the course have been positive, and new ideas and initiatives have followed as a result of participating in the course.

As part of the follow up course evaluations were sent out and a summary of responses from participants suggested that the course:

- contained a good balance between theory, discussions and working with their own project plan
- contained inspiring lectures and discussions
- has increased the awareness of the effect of discrimination according to sex and other forms of discrimination and of norms in everyday life as well as in education and academia
- has increased the awareness of gender perspectives on subject content in natural sciences
- had a useful course assignment that impels putting theory into practice
- the auscultations<sup>1</sup> gave opportunities to reflect on the teacher's own and other's teaching practices and to discuss them with colleagues

The results from this project show that students and university teachers had experience of and reflected on gender aspects in their teaching situations, before the project started. They were also willing to explore norm critical ways to develop their teaching and learning that was offered by the project. Projects initiated by the university teachers following the course includes: a workshop on norm critical pedagogy for librarians, analyzing text books from a gender perspective, a project reflecting on how to incorporate students' perspectives into teaching practices, a project plan to abate sexual harassment, a study of gender perspectives on the working environment, planning for a workshop on gender perspectives on teaching and gender equality for a team of teachers, and reflecting on gender perspectives on examination practices.

The final part of this project aimed at disseminating the results, ideas and suggestions from the project team to the University. Firstly, a workshop with a mix of people responsible for education at the University, gender researchers and participants in the course all took part in a half day workshop. The method that was used is called "Future Workshop". The aim was to allow for visions to be articulated as well as to concretize the continuation of gender perspectives in teaching and gender equality work. Visions included for example giving an introduction to gender to all new SLU students, integrating gender into all educational programs and making the project course obligatory for all teachers. Secondly, the results and visions for the future were presented to the committee for education at the University which delegated the responsibility to continue giving the course for teachers to the educational unit. This outcome of the meeting was criticized by one board representative as being the bare minimum of what would be possible in relation to the visions presented. He suggested that there would be many opportunities to create new ways of working with gender at SLU at the stage when the critical mass of people engaged was higher than ever before.

## **DISCUSSION**

This case study shows that it is possible to integrate gender perspectives in teaching and subject content at a university mainly teaching natural sciences and also to move the discussion about what constitutes gender equality from a perception of counting bodies to much more complex discussion about how norms

influence teaching and study environments. The course evaluation and follow-up interviews show that the project was appreciated by the participants. This project has both increased the awareness of gender perspectives in teaching, supported individual teachers that are or have become engaged in these questions and provided a platform to discuss issues relating to teaching overall. However, the fact that the project was externally funded affects the prospects of long-term effects, given the uncertainty of funding.

Claims that the leadership has to be driving the process and be explicit with their engagement to the organization are very strong in research on gender equality and organizational change (see Wahl et al, 2011 and Delegationen för jämställdhet i högskolan, 2011). This particular university does not have a very strong organizational structure for working with gender perspectives and gender equality in education (Powell, 2008). Gender aspects are sometimes addressed in the pedagogy courses for university teachers at the University, but not all teachers take them. The equal opportunities structure is currently based in faculties which have committees responsible for equal opportunities work, which cover all discrimination grounds. There is one person employed in the Human Resources division working on 30 per cent of full time employment rate who deals with all discrimination cases. Altogether, gender equality is not highly financed and often takes the form of short term activities which are initiated and run on an ad hoc basis (Powell, 2008).

Gender equality work is often driven and performed by isolated engaged individuals without support from the organization (Pincus, 2002). Using Pincus' analytical concept of passive and active support and how that plays out in gender equality projects helps us analyze the current project. Pincus looked closely at how gender equality aims in Swedish municipalities were, intentionally or unintentionally not implemented. Pincus showed how inactivity/passivity was the most prevalent form of resistance at all stages of the implementation process. This is something we recognize in our project and which relates to what we have considered as passive agreement. We have had open access to meetings, committees and different groups at the University, we got prompt answers to our various questions and in general felt that there was an *acceptance* of the project. The overall analysis is still that there is not a long term commitment to follow up the results from the project.

## **CONCLUSIONS**

This approach to working with gender and norm critical pedagogy in a natural science setting has both its strengths and its challenges.

The strengths of this type of approach are connected to the project itself, its structure, organization and implementation. Action research has turned out to be an appropriate way of interacting with the people we wanted to reach and engage in this project. Through the activities we have gained insight and knowledge about their views and experiences which are reflected in the course content and structure. The action research approach also created openings for change at one particular level and one group of employees in the organization; the university teachers. Another conclusion is that introducing gender perspectives in natural science (e.g. showing how cultural conceptions of gender have influenced research in the natural sciences) into the project was another opening for change. Prior to the course,

many of the participants were unsure about how or whether gender would be relevant to their natural science disciplines. This uncertainty decreased with more awareness. A final concluding point is that the norm critical approach was an appreciated "way in" to discuss education; it made visible to the participants the mechanisms by which norms include and exclude, and that discrimination on grounds other than gender also takes place in classrooms.

Although the project intervention is regarded as successful, we think that the circumstances, with a short-term externally funded project, lack of organizational support structure and a not so proactive position from the leadership in the organization may affect the long-term effects of this type of intervention. Creating gender equality requires a change in the organization and as such it needs to be well integrated into existing structures as well as well funded to have a positive long term change effect.

## ENDNOTES

---

<sup>1</sup> "To learn by listening", the term is used here referring to a method to learn and critically reflect on what is happening, e.g. in a class room situation. It is a common method for teachers to do auscultations as part of their pedagogical training.

## REFERENCES

Ah-King, M. (2010). Gender and queer perspectives on Evolutionary Biology. In Blomqvist, M. & Ehnsmyr, E. (Eds.), *Never mind the gap! Gendering Science in Transgressive Encounters* (pp.143-168). Centre for Gender Research, Uppsala University.

Alvesson, M. (1997). Kroppsräkning, konstruktion av kön och offentliga organisationer. In E. Sundin (Ed.), *Om makt och kön. I spåren av offentliga organisationers omvandling* (pp.312-339) Stockholm: Fritzes.

Bondestam, F. (2006). *Mellan reaktion och revolution. En analys av genusforskningens betydelser för jämställdhet bland forskande personal i högskolan*. Stockholm: Vetenskapsrådet.

Bromseth, J. (2010). Förändringsstrategier och problemförståelser: från utbildning om den Andra till queer pedagogik. In Bromseth, J. & Darj, F. (Eds.), *Normkritisk pedagogik. Makt, lärande och strategier för förändring* (pp. 27-55) Uppsala: Uppsala universitet, Centre for Gender Research, Crossroads of knowledge 14.

Bromseth, J. & Darj, F. (Eds.) (2010). *Normkritisk pedagogik. Makt, lärande och strategier för förändring*, Uppsala: Uppsala universitet, Centre for Gender Research, Crossroads of knowledge 14.



Delegationen för jämställdhet i högskolan, (2011). *Svart på vitt — om jämställdhet i akademien*. Swedish Government Official Reports (SOU) (Report No. 1.) Stockholm: Fritzes. Retrieved from <http://www.regeringen.se/content/1/c6/15/93/71/09764d10.pdf>

Hearn, J. (1998). On Ambiguity: Contradiction and Paradox in Gendered Organizations. *Gender, Work & Organization*, 5: 1–4. doi: 10.1111/1468-0432.00041

Huusu, L. (2001). *Sexism, support and survival in Academia. Academic women and hidden discrimination in Finland*. University of Helsinki: Social Psychological Studies 6.

Högskoleverket, (2011). *Universitet & högskolor. Högskoleverkets årsrapport 2011*. (Report No. 8R), Stockholm: Högskoleverket (Swedish National Agency for Higher Education). Retrieved from <http://www.hsv.se/download/18.27d86368130216405a680002479/1108R-universitet-hogskolor-arsrapport-2011.pdf>

Kumashiro, K. (2000). Toward a Theory of Anti-Oppressive Education *Review of Educational Research*, 70 (1), 25-53. Retrieved from <http://www.jstor.org/stable/1170593>

Löfström, Å. (Ed.) (2004). *Den könsuppdelade arbetsmarknaden*. Swedish Government Official Reports (SOU) (Report No. 43). Stockholm: Fritzes. Retrieved from <http://www.regeringen.se/content/1/c6/01/72/89/fe0a5c7f.pdf>

Pincus, I. (2002). *The politics of gender equality policy: a study of implementation and non-implementation in three Swedish municipalities*. Thesis, Örebro: Örebro University.

Powell, S. (2008). *På väg mot ett genusintegrerat SLU*. (University report SLU No. 255-278) Uppsala: Swedish University of Agricultural Sciences: Sweden.

Reason, P. & Bradbury, H. (Eds.) (2001). *The SAGE Handbook of Action Research. Participative Inquiry and Practice*. 1st Edition. London: Sage.

Riley, D. & Claris, L. (2009). From Persistence to Resistance: Pedagogies of Liberation for Inclusive Science and Engineering. *International Journal of Gender, Science and Technology*, North America, 1(1), 36-60. Retrieved from <http://genderandset.open.ac.uk/index.php/genderandset/issue/view/1>

Sundin, E. (Ed.) (1997). *Om makt och kön- I spåren av offentliga organisationers omvandling*. Swedish Government Official Reports (SOU) (Report No. 83). Stockholm: Fritzes. Retrieved from <http://www.regeringen.se/sb/d/108/a/2527>

Wahl, A, Holgersson, C., Höök P., Linghag, S. (2011). *Det ordnar sig. Teorier om organisation och kön*. Lund: Studentlitteratur.

World Economic Forum (2012). *The Global Gender Gap Report 2012*, [www.weforum.org/reports/global-gender-gap-report-2012](http://www.weforum.org/reports/global-gender-gap-report-2012). Retrieved February 26, 2013.