

## **Attracting Women into Engineering through Regional Technology Programs**

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### **ABSTRACT**

In 1999, a one-year research project was carried out in the Austrian city of Villach with the aim of developing a Women-into-Engineering (WIE) Program for a region where competence in micro electronics is being built up [1]. The study was the first in Austria to investigate barriers and supportive backgrounds for women in highly skilled technical jobs as well as in technical training and education at college and university level. 50 qualitative interviews, 70 composition papers and two workshops brought together the views, experience and demands of women as students at a Technical College and the University of Applied Science and as engineers in three companies of the Micro Electronic Cluster Villach. To encourage and support the setting up of similar women-into-engineering programs in different parts and in various technology fields in Austria, a manual was developed.

### **INTRODUCTION**

The president of the National Academy of Engineering in the USA, William A. Wulf, criticises the one-sided male-dominated culture of technology: *“Every time we approach an engineering problem with a pale, male design team, we may not find the best solution. We may not understand the design options or know how to evaluate the constraints; we may not even understand the full dimension of the problem.”* [2]

### **THE WIE PROGRAM VILLACH**

The aim of this research project was to integrate and motivate key actors in the main training and education institutions as well as in the “cluster firms” from the very beginning. In addition to two workshops 50 qualitative interviews were made at the following institutions: *College of Technology – Electronic data processing and organisation*: nine teachers of science and humanities (5♂, 4♀), the director, the head of the electronic data processing and organisation branch and 15 girls from various classes (age 14 to 18), plus 70 composition papers (15 from girls) on “Being a girl in a technical school” (boys and girls age 14 to 16). *Carinthia Tech Institute – School of Electronics*: two professors of mathematics (♂) and law (♀), the head of the School of Electronics and five female students. *“Cluster firms”*: four HR managers (3♂, 1♀) and twelve women engineers.

One of the outcomes of the WIE Program in Villach is a manual with over 70 suggestions for further activities to encourage girls to enter technical fields. The main focus here lies on qualitative aspects of improving the learning and working environment and culture [3].

## INTERVIEW RESULTS

a) *College of Technology – Electronic data processing and organisation*

b) *Carinthia Tech Institute – School of Electronics*

c) **“Cluster firms”**

*“We would employ women but they don’t apply for vacancies.”*

- **Criteria for recruitment**
- **Women engineers as role models**
- **Getting in, staying in, getting on**
- **Communicating**
- **Mixed teams**
- **Compatibility of career and family affairs**

## CONCLUSION

Since engineering plays the key role in our technological civilisation, it is important that women get more involved in science and engineering to increase their participation in shaping our future. A retreat from this field would not only assign women the status of mere technology users but would, furthermore, minimise their chances to actively participate in designing the world according to their demands. Engineering might provide women with more knowledge and skills, and thus with more influence and power.

The results of the research project for a WIE Program for the Austrian municipality of Villach and its Micro Electronic Cluster have shown that both universities and education institutions as well as firms are interested in recruiting more women. However, the WIE Program Villach has also shown that there is still a long way to go until gender equality in science and engineering will be achieved. Special emphasis in this process should be put on a close co-operation between institutions of training and education and companies, integrating both female and male key actors and decision makers. Activities within the organisations should aim at strengthening the position and at increasing the number of women at all levels. Networking and mentoring programs are important ways to bring women in technical fields in contact not only with each other but also with interested young women. Contrary to boys, young women seldom know female engineers in their surroundings. Role models, however, are an important source of information, motivation, affirmation, and support.

This WIE Project has been one step on the road to change in the culture of engineering education and work. It goes without saying that many more steps need to be taken in the future in order for sustainable results to be achieved and to become visible.

## REFERENCES

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- [3] Wächter, Christine (1999b): Manual zur Entwicklung und Implementierung eines Maßnahmenpaketes für ein Frauen-Technologie-Programm, Graz