

Swedish VET Challenges in the Automation Industry

Lessons learned from the ECVET Project EURIAC

PERNILLA ÖHBERG

Project manager and teacher, Elof Lindälvs Gymnasium in Kungsbacka, Sweden

As far as many young people are concerned, Swedish vocational education and training in automation is a well-kept secret. Working in the industry is not regarded as attractive either by the youngsters themselves or by their parents. The gap between the skills needs of Swedish industry and the students' competence level remains wide. The municipality of Kungsbacka in Sweden has attempted to bridge this gap by working with ECVET¹ in the EURIAC project.

Low attractiveness of VET and skills mismatches in the automation industry

Swedish youngsters think that vocational education in Sweden is of low quality and that the requirements made of students in vocational training are low. Vocational training is, therefore, regarded as an alternative for young people who lack ambition and competence. This is reflected in the fact that only some 28 per cent of young people in Sweden apply to enter vocational education.² It is especially difficult to attract students to vocational education in industrial technology. As a consequence, there has been an alarming increase in shutdowns in the industrial technology programme all over Sweden. Furthermore, the programme is too expensive for municipalities to equip and run. Since Swedish vocational education at initial level is school-based, there is no natural link between school and the industry. However, in some places local industry has joined forces with the municipality to run industry-oriented education in order to attract students, increase the quality of industry VET and secure future competence.

Raising attractiveness of VET through internationalisation

The European Industrial Automation Class (EURIAC) was a European pilot project carried out in the municipality of Kungsbacka, Sweden.³ The EURIAC project was created to bridge the following gaps:

1. **Interest gap:** A recent Swedish study indicates that the chance to study and work in an international environment during their training attracts young people, since they think that international experience will provide them with opportunities to improve their language skills and gain new perspectives on life and personal growth. Moreover, the study »Arbetsgivarens syn på utlandserfarenhet« (Confederation of Swedish Enterprises 2010) shows that international experience will increase the students' employability both at a national and European level since the employers highly appreciate the competences the students gain abroad, such as a sense of responsibility, communication skills, and the ability to act on their own initiative.
2. **Knowledge gap:** Due to the rapid technology shift in industry and the lack of communication and cooperation between vocational centres and the industry, a mismatch has arisen between the needs of industry and the learning outcomes of students in vocational training. Industry claims students are poorly educated and trained and are therefore not employable.
3. **Opportunity gap:** There are still few vocational training centres offering international mobility opportunities, and still fewer which offer students in vocational training in automation the opportunity to study or work abroad as part of their qualification.

A major motivation for the municipality of Kungsbacka to participate in an international project was that such involvement contributes to the development of educational programmes and school organisation. Opportunities for students to participate in international internships also lead to an increase in both the status of vocational education and in young people's interest in vocational programmes.

¹ cf. www.ecvet-info.de (retrieved 17.01.2014)

² cf. www.Skolverkets.lagesbedomning.2013/RAPPORT.387.2013 (retrieved 17.01.2014)

³ Cf. www.euriac.eu (retrieved 17.01.2014)

Matching industrial needs and training provision by using ECVET

The aim of the EURIAC project was to create units of learning outcomes in industrial automation in line with European industry skills needs in order to improve the quality of international mobility opportunities in vocational education. Four units were based on a market analysis which provided input about the specific skills needs in the automation of industry. Each unit was tested within two weeks in one of the partner countries. Students from Finland, Spain, and the Netherlands conducted part of their training in automation together with Swedish students thus creating a European Class. The units of learning outcomes were taught in English and consisted of lectures, workshops, projects, and study visits to companies.

During the EURIAC project, the following experiences and insights have been gained along the way.

- The learning outcomes approach was discovered to be useful even for describing learning content for Swedish curricula. The design of Swedish subjects, the new diploma goals, and the terminology used for describing learning outcomes and grading criteria make it really difficult for teachers to communicate the learning experience to students and to organise transparent and transferrable learning opportunities during work placements. Describing learning outcomes in a measurable way in terms of knowledge, skills, and competences opens the door to a mutual language and a common understanding.
- International collaboration provides competence development opportunities for the teachers involved and is also a question of pedagogical awareness, technical skills, different European educational systems and improved knowledge and understanding of one's own national educational system rather than merely a matter of language skills, personal development, and cultural awareness.
- Training for skills and competences requires a different approach to teaching and assessment, and this requires more time than ordinary instruction-based teaching. The VET teachers had little experience in teaching, training, and assessing competences. There is still much focus on knowledge and summative assessment, even though competences such as autonomy, initiative, and responsibility are the elements that are most appreciated and sought after on the labour market.
- The EURIAC transnational learning opportunity not only provided Swedish students with improved technical training, language and cultural skills development. It also demonstrably increased students' commitment to their own learning process (and thus to increased learning achievements), awareness of different ways to

learn, increased self-confidence, greater awareness, an ability to communicate competences and therefore ultimately enhanced employability.

- Carrying out the training for the EURIAC unit in advanced safety systems, it became obvious to the VET teachers involved that none of them provide training at the level required by the industry. There is a lack of equipment as well as of VET teacher competence. At the same time, there are new safety regulations and standards implemented in the industry requiring increased competence in safety systems.

Options and perspectives

The EURIAC project finished in September 2013. The team is now reviewing their work and all the challenges they have encountered along the way. Some challenges, such as assessment and referencing units to EQF levels, proved too big and complicated to solve within the limited timeframe of a project. However, the aim is to continue this exploration and elaboration in a succeeding project.

International cooperation in ECVET provides excellent opportunities for VET providers to quality assure and benchmark their VET qualifications at a European level. During the work process, a number of national qualifications at EQF levels 4 and 5, aiming at job profiles containing learning outcomes related to industrial automation, were identified into which the EURIAC units could be further integrated. For instance, the Swedish training centre involved in the EURIAC project has discovered that it will be possible to provide transnational learning experiences to students in higher vocational training as well as initial vocational training in industrial automation in Kungsbacka in subsequent rounds of EURIAC mobility.

The European Class concept developed within the EURIAC project to provide students in industrial automation with transparent and recognisable international learning opportunities is now already in use in the framework of another European project involving VET providers in Sweden, Italy, and Denmark as well as by Swedish representatives from the German Bosch industry.

Based on these experiences, the municipality has decided to develop a long-term strategy to describe the ways in which this competence should be used and further developed. The aim is to set up a regional network of VET providers to work together on international projects, provide mobility opportunities, share experiences and take turns with project responsibility. ◀