Dual track education in Switzerland with Focus on Curriculum development

SEMINAR DUAL EDUCATION IN FLANDERS
3rd of May 2017, Brussels

Emanuel A. Wüthrich, Senior Advisor, Senior Lecturer
”Tell me and I forget,
teach me and I may remember,
involve me and I learn.”
Economic performance linked to VET

- Low (youth-) unemployment rate
- Switzerland holds a leading position in innovation
- 95% of the teenagers (16-20y) successfully achieve to complete an educational qualification
- 70% of the young people take the route of VET
Swiss education system

Professional education (PE)

Universities (academic & applied sciences)

Vocational education and training (VET) ~2/3

General education ~1/3

Compulsory School

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Permeability
Swiss dual-track approach to VET
How does it work?

Practice
In-company training (3-4 days per week)
Branch courses

Theory
Classroom instructions at VET-school (1-2 days per week)
Preparatory course for FVB

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Swiss dual-track approach to VET

How does it work?

- Apprenticeship-contract between company and apprentice
- Apprentice gets a salary from the company
- Apprentice is trained by the company and rapidly integrated in the production/commercial process
- Company needs a permission (e.g. infrastructure, training of instructors)
- Capacity building of teachers (pedagogy – technical skills)
- Competence orientation
Why do companies train apprentices?

1. Apprenticeship is beneficial for companies

Source: VPET in Switzerland, Strahm, Geiger, Oertle, Swars, 2016

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A new profession in VET

Companies

Trade association

• Perceive and voice the need for a new profession
• Aggregates interests of companies
• Analyses needs and situation
• Requests launch of process for new profession

SERI

• Authorises launch of process for new profession

Trade association

• Creates commission for reform (mandates working groups for curriculum and assessment)
• Analyses & defines new profession
• Drafts qualification profile / training plan

SERI

• Drafts ordinance
• Consults all stakeholders
• Enacts ordinance on national level

• Implementation tasks > drafting information and training concept
• (reform commission is replaced by development and quality commission)

Cantons

SFIVET

Meth.
support

Strat.
support
Development of professions – SFIVET method

- Occupational activities
- Occupational development trends

**VET qualification profiles**

**VET curricula**

**Drafting implementation documents:**
- VET teachers
- VET trainers
- Industry course instructors
- VET examiners

Information and Training concept

Communication events

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Elaborating a qualification profile: Overview of analyses

Activity analysis

- Workshop 1
  - Describe activities

- Workshop 2
  - Categorise activities

Occupational development analysis

- Workshop 3
  - Describe the future

= Qualification profile

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Workshop 1: Activity analysis
Having young professionals describe occupational activities
# Activity analysis: Description of work situation

## Situation title / Keyword

## Aim of work situation, assignment, problem to be solved

## Action taken

## Outcome/result and client/consumer

## Participants

## Responsibility (Tasks may be performed by the learner without guidance/supervision or with guidance/supervision)

<table>
<thead>
<tr>
<th>Material</th>
<th>Tools, machines, auxiliary means</th>
</tr>
</thead>
</table>

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Workshop 2: Having experienced workers categorise occupational activities

1. All occupational activities
2. Similar occupational activities
3. Groups of occupational activities

Orientation A

Orientation B
Classification of occupational activities in workshops
Occupational Activities become Professional Situations

• An occupational activity is carried out in specific context

➢ Activity + context = professional situation
(alternatively: work situation, occupational situation)

Note: not a problematic situation (“I had a situation”)
## Result of the analyses:
**Example situation profile Gardener** (excerpt)

<table>
<thead>
<tr>
<th>Area of Situation</th>
<th>Professional situations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Consultation and sales</td>
<td>Advise customers</td>
</tr>
<tr>
<td>Delivery and service</td>
<td>Deliver products</td>
</tr>
<tr>
<td>Operational maintenance</td>
<td>Supervise production facilities and equipment</td>
</tr>
<tr>
<td>Planting and seeding</td>
<td>Rework plant and crop surfaces</td>
</tr>
</tbody>
</table>

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Definition of Competence

• Competent we call a person who is able to manage a professional situation successfully. Therefore she/he uses a relevant bunch of resources: knowledge, skills and attitudes.
Result of the analyses:
Example competence profile Gardener  (excerpt)

<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Professional competences</th>
</tr>
</thead>
<tbody>
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Workshop 3: Looking into the future of the occupation – having experts and visionaries develop scenarios

- In Workshop 3 6-10 acknowledged experts and visionaries of the respective occupational field develop scenarios and deduce additional relevant competencies

- These competences may be added to the competence profile.
Approach to a definition of «competencies»

Knowledge
- theoretical knowledge → understanding

Attitudes
- social and personal competence

Skills
- practical skills → proficiency, exercise

Material, attributes, fields of application, concepts

Use, handling and maintenance of tools / instruments

Accuracy, punctuality, reliability, customer orientation, team spirit

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### Elaborating the curriculum

**Area of Situation:**
Handling general milk processing phases

**Situation Title:**
Receiving, conveying and storing raw materials

**Example of Situation:**
A specialized milk truck carrying raw milk arrives at the unloading ramp. The handler takes an average sample and gets the accompanying documents from the truck driver. The technician-technologist Maria submits the average sample and the documents to the lab technician Ilya who carries out an analysis for inhibitors and the physiochemical analysis. After she receives the results of the analysis, Maria accepts the milk and transfers it for temporary storage.

**Knowledge required:**
- Knowledge about the regulatory requirements, procedures and rules for milk acceptance
- Knowledge about the physiochemical properties of raw milk and the acceptable values thereof
- Knowledge about the safety rules and the measures that need to be taken in case of a broken thermometer
- Knowledge about the structure and principle of operation of milk acceptance line and the rules for safe operation
- Knowledge about HACCP (Hazard Analysis and Critical Control Points)

**Skills required:**
- Taking average sample
-Performing laboratory analysis for inhibitors in the milk
-Performing laboratory physiochemical analysis of the milk (density, acidity, fat content, protein content)
- Filling-in the acceptance control logbook
- Checking the condition of the acceptance line and the pathway to the storage tank
- Monitoring the flow of the milk to the storage tank

**Social competence required:**
- Abides by the rules
- Works without paddling
- Works in a team

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**Competence: Receiving, conveying and storing raw materials**

<table>
<thead>
<tr>
<th>Nr. A1</th>
<th>Belongs to competence area: Handling general milk processing phases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Competencies involved: none</td>
</tr>
</tbody>
</table>

**Semester/school year: Semester 1 / school year 1**

<table>
<thead>
<tr>
<th></th>
<th>Number of lessons throughout the whole apprenticeship: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of lessons per semester: 4 semester 1</td>
</tr>
</tbody>
</table>

**Semester/year of apprenticeship: [indication in which semester the competence is developed in the company]**

**Relevant (professional) situations:**
- Receives raw material that is of insufficient quality
- Transfer of raw milk suffers malfunction
- The quantity of the raw milk is smaller than expected

**Topics involving the relevant knowledge, skills and social competencies according to the CoRe-catalogue:**
- Composition and property of milk
- Milk acceptance
- Storage of raw materials
- Communication of a complaint

**Contribution of the company**

<table>
<thead>
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<th>Year 1</th>
<th></th>
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<tr>
<td></td>
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**Social competencies**

<table>
<thead>
<tr>
<th>Year 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Takes the sample autonomously, precisely, efficently and tidly</td>
</tr>
<tr>
<td></td>
<td>Performs laboratory analysis accurately</td>
</tr>
<tr>
<td></td>
<td>Communicates respectfully and honestly with the client</td>
</tr>
<tr>
<td></td>
<td>Respects the company’s standards and interests in contact with the client</td>
</tr>
</tbody>
</table>

| Year 2 | none |
| Year 3 | none |
Development of the Training Plan: Defining learning objectives for the three learning sites

**Planting plants**

<table>
<thead>
<tr>
<th>Host company</th>
<th>Industry courses</th>
<th>VET School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learners plant plants properly in accordance with situation at hand</td>
<td>Learners apply different planting techniques</td>
<td>Learners describe various planting methods used for different applications and plant properties</td>
</tr>
</tbody>
</table>

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Implementation:

Information and Training Concept (established by the association on behalf of the commission for development and quality):

• Who is informed?
• Who is trained?
• On what?
• When?
• By whom?
• Where?
• Who pays?
• Who organizes?
Thank you for your attention!

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