Is a technical school a bridge between school and work?

Jean-François Perret
Anne-Nelly Perret-Clermont
University of Neuchâtel (Switzerland)

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Introduction

Aims of our contribution:

• Revisit current studies on learning in professional training with a special attention paid to transition processes:
    Apprendre un métier technique aujourd’hui, dans un contexte de mutation technologique. Paris L’Harmattan.

• Pay a special attention to the training of ES Technicians within a Technical School (full-time).
The Technical School as an institutional setting supporting transition from «student» to «professional»

Two perspectives on transition from school to work:

A

Former professional training → Training of ES technicians (full time school) → Work

B

Former professional training → Training of ES technicians (full time school) → Work
Transition engages 3 types of interdependent processes:

- Acquisition of knowledge and competencies
- Processes of identity re-definition
- Processes of meaning making by which young people can confer sense to changes


The Technical School: a pedagogical setting meant to support transition
to be looked at from three perspectives:
• the school’s
• the teachers’
• the students’
Our research question:

*What is the importance of technical systems (tools and machines) in transition from one activity system to another?*

Our hypothesis: *they play a central role*

**for:**
- acquisition of *knowledge* and competencies
- processes of *identity re-definition*
- processes of *meaning making* by which young people can confer *sense* to changes

**from the perspective of:**
- the school
- the teacher
- the students
From the school perspective

The Technical School cares:

- to be up to date, even cutting-edge, with its tools and technologies
- to choose tools and technologies that are adapted to training activities
- to sustain the development in students of transversal and general competencies (= not limited to the mastery of specific tools)
- to prepare the students for their future
From the students’ perspective

The students:

• look for their identity; they want to be now professionals (and not anymore only students)

• nevertheless they regress to the student position, and behave like youngsters, as soon as they fail seeing links between what they are asked to do at school and what they expect to be industrial life

• they value modern technologies when they expect them to be adopted by industrial firms, but at the same time they fear that these technologies might threaten their jobs and profession (devenir « presse-bouton »!?)

• they judge the school tools and technologies in relation to what they imagine about their use in firms.

• they want a guarantee that the didactic activities are professional activities

• they dislike « didactical tools » meant to help the learning of the trade. They want « real tools », authentic ones.
School and students have different perspectives, sources of tensions and doubts.

The school values:
- general and transversal competencies
- tools adapted to teaching settings (didactic tools)

The students value:
- the specific identity conferred by the mastery of a specific trade
- « real tools » used by the firms (authentic tools)

Problems in meaning making:
(« what is the meaning of this learning setting and its activities »?)
Understanding the **meaning** of the learning activities

Achtenhagen (2003) places the question of **authenticity** on 3 levels:

- tools
- tasks
- activity context

We observe that students:

- are centered on the *tools* only
- the school does not make sufficiently explicit the links between school *tasks* and industrial tasks
- the students are unsufficiently familiar with the industrial *contexts* of activity and their evolution
Meaning from the students’ perspective

• too centered on tools
• insufficient links to future activities
• insufficient opportunities to discover the technical evolution of the tools in workplaces

-----> Need for more visits of firms and exhibitions, internships, centered on the tools. More comparisons and technical explanations of the technological changes and their impact on activities and skills.
The professional field uses 2 different types of technologies

Classical technologies
mechanical and masterable via individual training

Different professional identities and ethos

craftsman
mastering from A to Z skills and tools in search of high quality

Complex electronic systems
requiring adjustments, frequent debugging, development, team work

expert
managing and debugging the technical system in search of efficiency
2 types of technologies
that require
2 types of competencies

learned within different

2 types of social relationships

- imitation of skills and know-how of the model teacher
- interaction with the teacher as expert (coach, solver, inventor, partner with ressources)
Understanding better these 2 types of tools and technologies, students:

• give **meaning** to professional activities and the didactic activities that prepare them
• understand which **competencies** and **attitudes** they require
• develop an **understanding of the socio-technical context of activity and its evolution**
• develop their professional identity within these activity settings
• give **meaning** to their **identity** and **competencies**
A strong interdependency exists between

- the perceived meaning of the activities
- roles and identities
- commitment
- and acquisition of competencies

There is a strong need to construct explicitly a professional identity connected to the evolution of the profession

in order to reduce the students’ fears in front of the technological changes that seem to threaten their professional competencies

and to facilitate commitment and consequently their learning
A major pedagogical challenge

Manage the « contradiction » between:

teaching the full mastery of the tools of the trade for the crafting of high quality products

teaching the capacity to respond efficiently to the numerous unforeseen problems and bugs of complex technological systems; teaching students to become partners for technical adjustments and developments towards quality.
The school itself is going through a transition from a « monological » to a « trialogical » pedagogical model.

The acquisition metaphor « monological »

Imitating individually the model

The knowledge creation metaphor « trialogical »

Developing collaboratively shared tools and knowledge
