

Meaning, nonsense and misconstrue
of learning activities by students in
vocational training

Sens, non sens et contresens des
activités d'apprentissage pour des
jeunes en formation professionnelle

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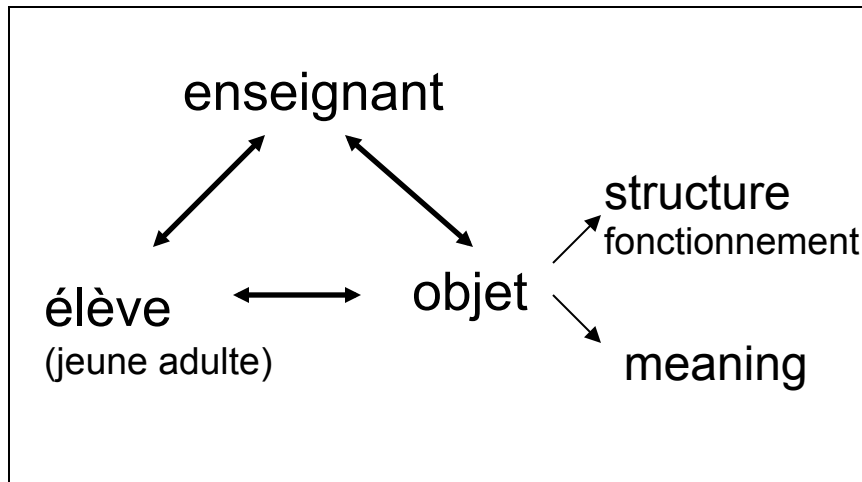
Plan

1. Learning and meaning.
Apprentissage et sens.
2. The research context.
Contexte de la recherche.
3. The methodological approach.
Une démarche d'enquête et d'observation.
4. Sharing the meaning of a learning situation is not immediate
Le sens d'une situation d'apprentissage est loin d'être d'emblée partagé.

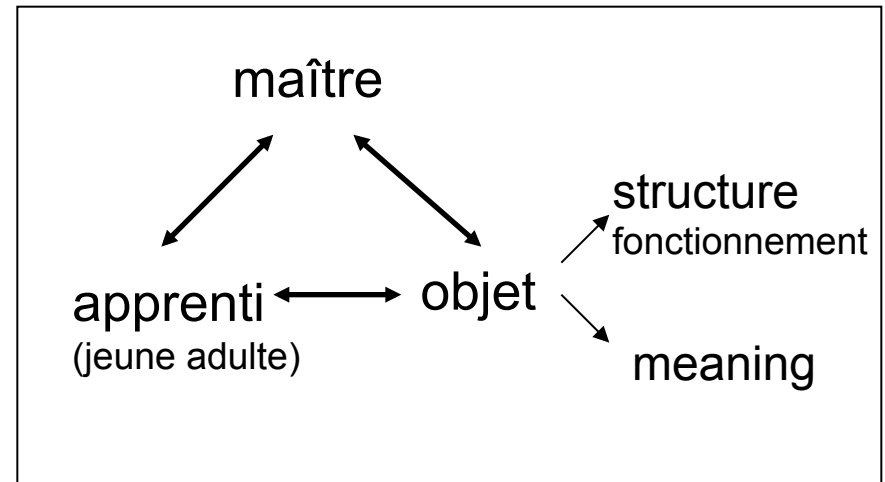
1 Learning and meaning

Le triangle didactique

Setting : *Cours théoriques*



Setting : *Atelier d'école*



Learning and meaning

- **Construction cognitive, mais aussi construction du sens.**
- **Conflicts socio-cognitifs dans la construction du meaning.**
- **Il ne suffit pas que la tâche soit signifiante aux yeux de l'enseignant pour qu'elle le soit aux yeux de l'apprenant.**
- **Une tâche peut être faussement « pertinente » car fondée sur un malentendu.**
- **Il y a toujours des malentendus! Donc des co-constructions des significations et des négociations sont nécessaires. Elles impliquent la prise en compte des différents points de vue des acteurs, y compris des acteurs que « cache » la machine ou l'objet de savoir.**

2 Context

Rejoindre
notre terrain ...

To reach our research field ...





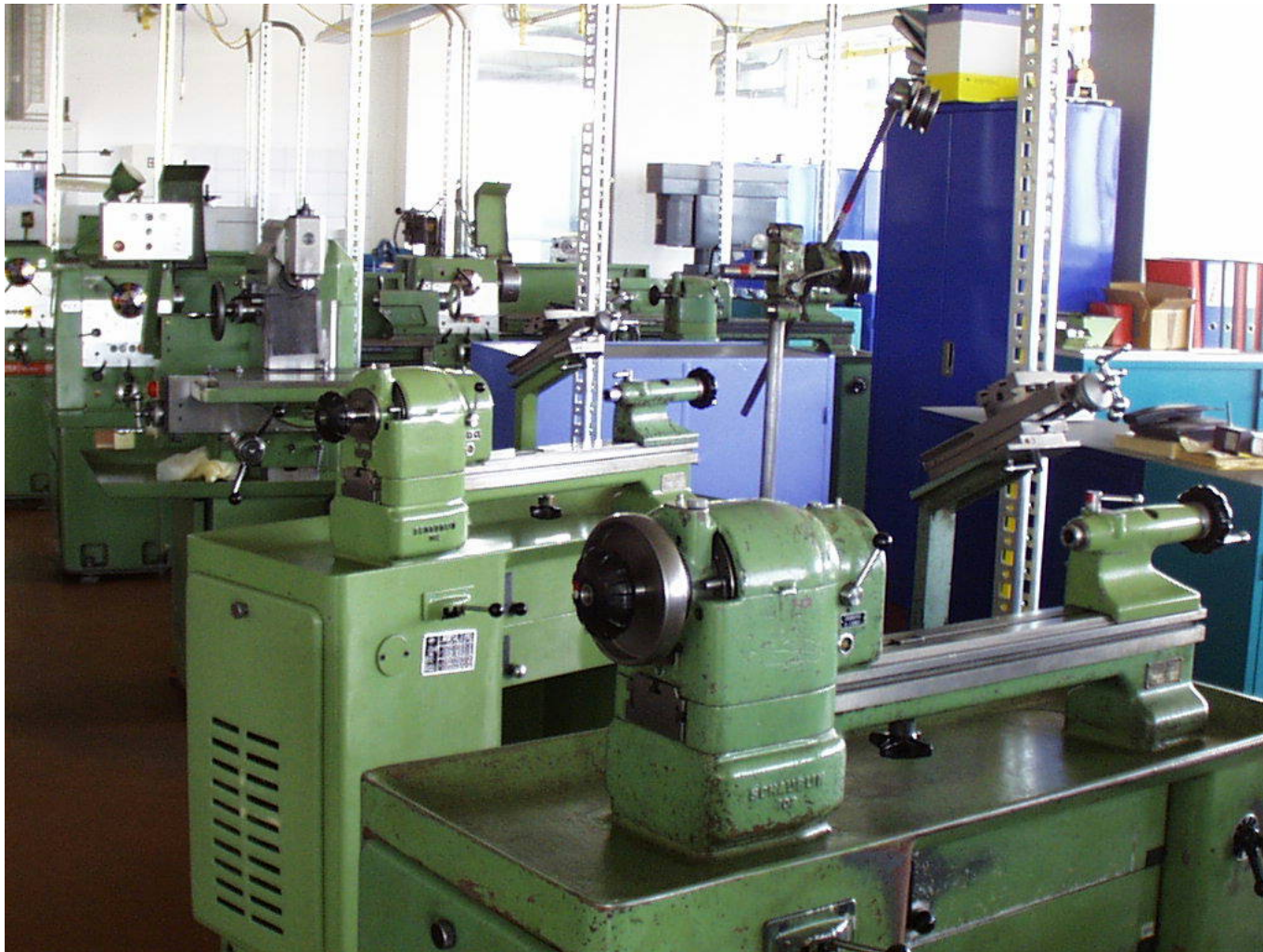
Sainte-Croix dans l' Arc jurassien

A small town up in the mountains.

Main industry : watch making, small mechanics



L' Ecole technique de Sainte-Croix (Vaud)
The technical school. Large classrooms for theory and ...



L' atelier d' école avec ses machines conventionnelles
Workshops for practical training, with conventional machining



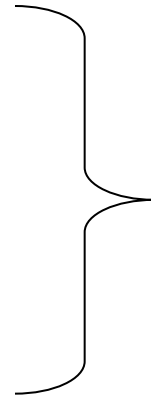
La cellule d'usinage automatisée
A Flexible Manufacturing System

The trade is undergoing a major technical change.
New skills and knowledge are needed.
Change for the school.

A new situation of training:

The Flexible Manufacturing System is

- Multiposts
- complexe
- often broken down
- not still standardized
- under development



perturbations
of traditional
training
practices

3 Our methodological approach

A) A monographical approach

- **Documents analysis** on the history of the technical school
- **Interviews** with the staff, the teachers and the students
- **Observation** within the workshops of the school.
- **Questionnaire** to the students of the school.

B) Analysis of a prototypical learning setting; practical in automation

- **Interviews** with the teachers.
- **Video recording** in the workshop
- **Confrontation** of the students to the video .

Face to this new training situation,

- the pedagogical goals,
 - the kind of competencies concerned,
 - the ways to learn,
 - the technological equipments

... are often interpreted in different ways by the students and the teachers.

4 Sharing the meaning of a learning situation is not immediate

Example 1 :

The school is proud to be able to initiate its students with advanced technologies... .

... but the technicians are disappointed to receive only an introduction, and not to really master this new approach to machining.

The school is proud, it is

- updating the curriculum in mechanics
- creating a new course with innovative practical work
- developing yet his reputation to be a technical school « à jour ».

Example 2 :

The Flexible Manufacturing System gained by the school is offering many advantages...

... But the technicians-students don't think to have the opportunity to learn seriously with a « school » machine which is not a real industrial machine. For them, it's a « gadget » (or a didactical material) destined to pupils and not to future professionals.

Many advantages :

This « didactical» system is:

- accepting to learn by ***essais et erreurs***
- favorising the ***observation*** of the machining operations
- with ***security.***

Example 3 :

The technical school proposes a general training in the field of the manufacturing systems, with the goal to valorise the development of ***transversal professional competencies***.

...but the technicians-students are talking with insistance on the ***professional specialisations*** they have chosen and on their ***specific professional identities***.

To go beyond this kind of misconstrues :

- The pedagogical objectives are to co-construct with the students. It's not sufficient to expose the aims at the beginning of the course,
- The course is focused on the master of the machines. Is missing a « theory of machines » to compare *school machines* and *industrial machines*, in the perspectives of the *technical object*, of the *tasks*, and of the *cognitive activity*.
- A « meta-regard » on the ways to learn is necessary. In particular, the role of team working, the management of not previous events, and the modalities of problem solving are to reflect and discuss with the students-technicians.

More details :

**Perret, J.-F., & Perret-Clermont, A.-N. (2004).
*Apprendre un métier dans un contexte de mutations
technologiques*. Paris: L'Harmattan.**

(English translation in preparation)

In english :

**Golay Schilter, D., Perret J-F., Perret-Clermont A-N., de
Guglielmo, F. (1999) Sociocognitive interactions in a
computerised industrial task. Are they productive for learning?
In Karen Littleton and Paul Light: *Learning with computers.
Analysing productive interaction*. (pp. 162-178). London:
Routledge**