

**Leading House: Technology for vocational training**  
Un programme de recherche de l'Office fédéral de la formation  
professionnelle et de la technologie

## Project 1

# Fostering autonomy through on-line scaffolds across learning contexts

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# (1) Context

## **Three conjectures :**

- An important goal of learning a profession at the workplace is to become autonomous.
- Asking and receiving help when needed fosters autonomy at work.
- Mobile technologies enlarge the possibilities to ask for and to receive help “just in time”.

## (2) Research questions

### **Two main questions:**

- What are apprentices' attitudes towards help?
- Are apprentices help seeking behaviours at the workplace the same as at school?

## (3) Research design

### Two studies

- **Study 1:** Analyse the apprentices' ability to communicate their problems and needs via a mobile phone.
- **Study 2:** Compare the apprentices' attitudes towards and judgments about help seeking at the workplace and at school.

## (4) Current phase

### Study 1 : Subjects

10 volunteer apprentices in car mechanics

- 2 in year 1
- 2 in year 2
- 2 in year 3
- 4 in year 4



All of them working in garages of 10-15 people

# Study 1: Setting

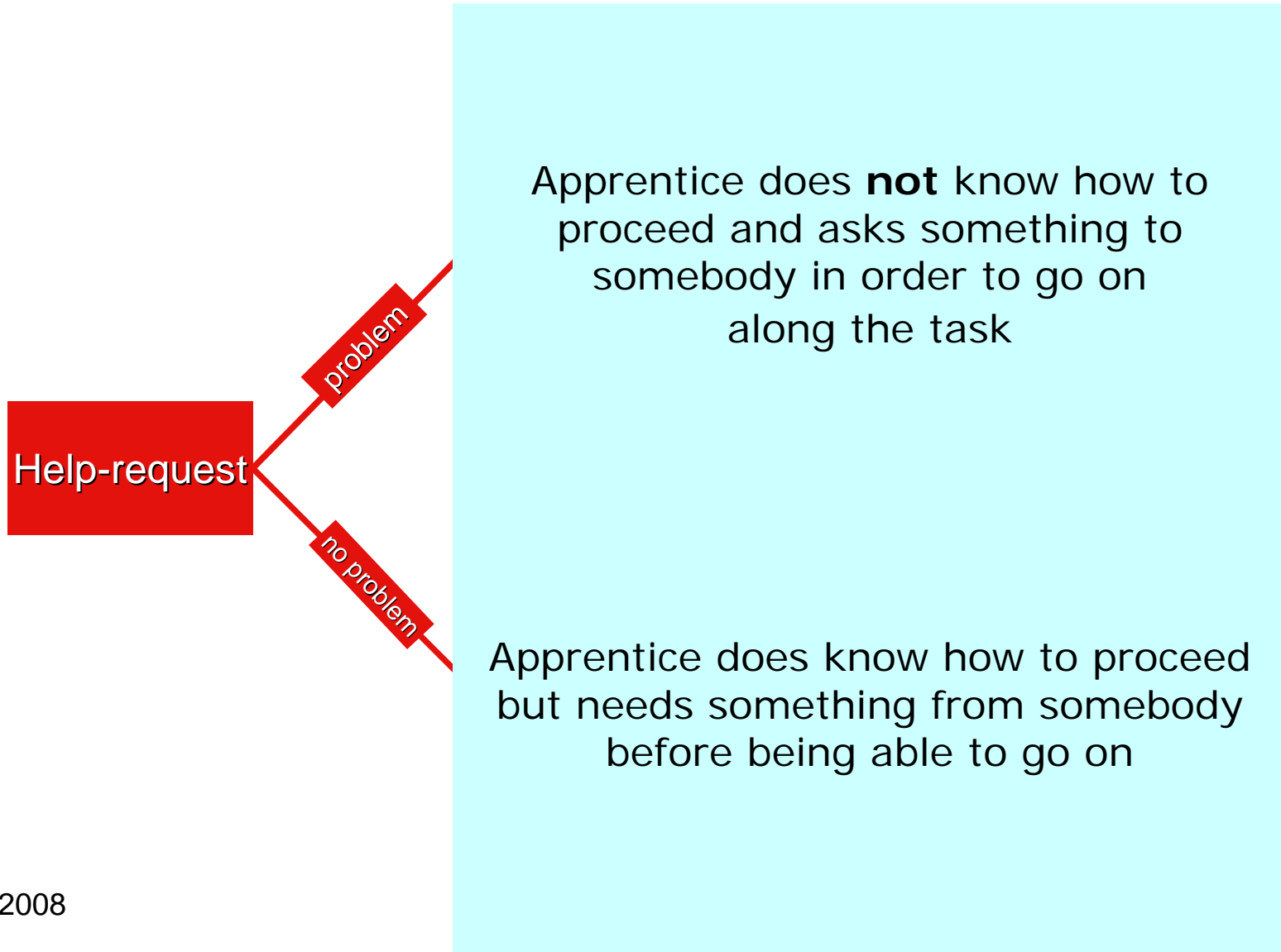
- Apprentices were equipped with mobile phone and handfree headsets
- Research assistants called them 7 times for an hour each time (over 3-5 weeks)
- Apprentices had to describe thoroughly what they were currently doing
- All records were transcribed and analysed (3 more apprentices in year 3 are still to be transcribed)

# Study 1 :

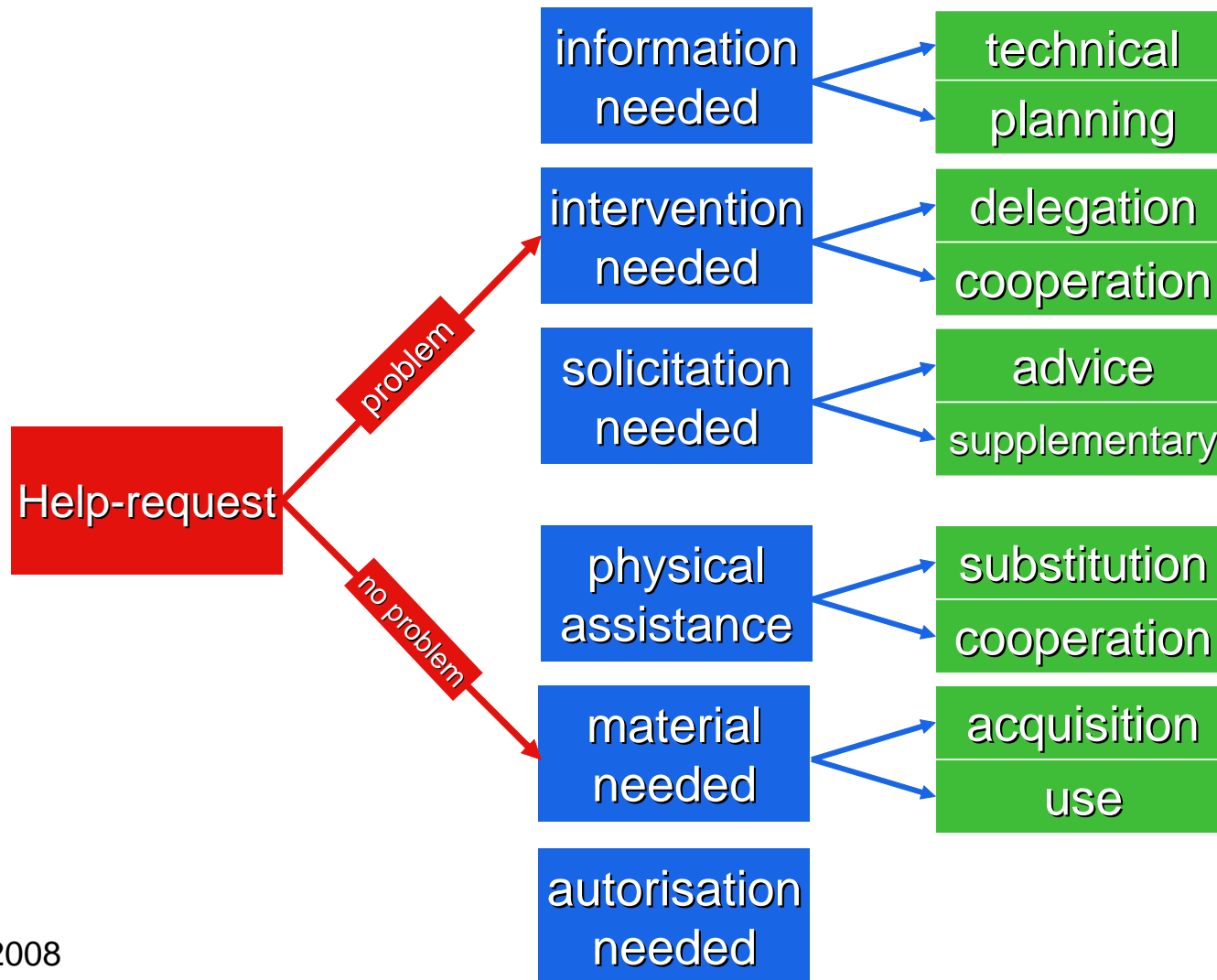
## Focus

- Verbal interactions with co-workers (questions, help-requests) initiated by the apprentice
- Recipients of such help-requests (supervisor, fellow mechanics, store department, secretary, client, ...)
- Nature of such help-requests
- Effects of such help-requests on locations of actors within the garage

# Study 1: Typology of Help requests



# (4) Current phase Interviews – typology of Help request



## (4) Current phase

### Interviews - Specific help-request (w/problem)

Apprentice does not know which type of screws is needed for that type of wheels.	<i>Technical information needed</i>
Apprentice does not know whether he should bring the car back to the customer when work is done.	<i>Planning information needed</i>
Apprentice does not know how to reinstall a brake disk; colleague does it for him.	<i>Intervention needed: delegation</i>
Apprentice does not know how to purge the cooling system; both end up doing it together.	<i>Intervention needed: cooperation</i>
Apprentice asks an other apprentice to lift the car his working on instead of him.	<i>Physical help substitution</i>

## (4) Current phase

### Interviews - Specific help-request (w/ problem)

Apprentice requires help from a colleague to check the car blinkers.	<i>Physical help-cooperation</i>
Apprentice checks a car. He hears a whistle near the exhaust pipe. He requires help from one of his colleagues to tell him, what he thinks.	<i>Solicitation needed : advice</i>
Apprentice has to change the wheels of a 4x4 car. The apprentice notices that the wheels have special rims that need a special pressure. At that time, the wheels don't have this special pressure. The apprentice asks for supplementary informations to know who changed the wheels and put the wrong pressure.	<i>Solicitation needed : supplementary</i>
Apprentice needs to replace the wipers. He goes to the Parts Dept and asks colleague there to hand him a new pair of wipers.	<i>Material : part acquisition</i>
Apprentice asks colleague next to him whether he could borrow a specific tool.	<i>Material : borrow</i>
Apprentice has to put some gaz in the car. He asks for the autorisation to do it.	<i>Autorisation</i>

## Study 1 : Findings

### Number and Frequency of the diverse types of help-requests observed

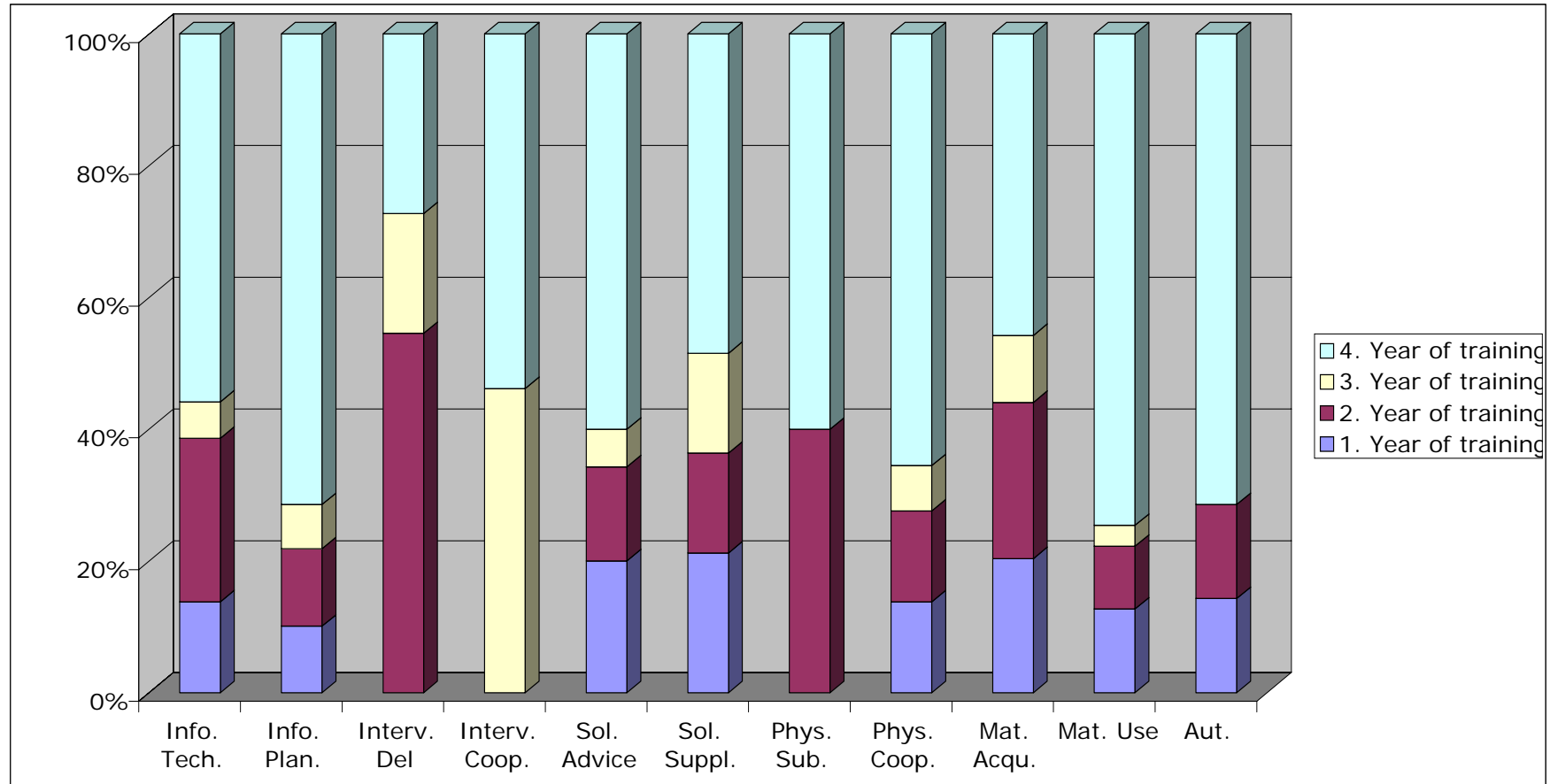
<b>Type of request</b>	<b>Number</b>	<b>%</b>
Technical information needed	113	24
Planning information needed	102	21
Intervention delegation needed	7	1.5
Intervention cooperation needed	10	2.1
Solicitation needed: advice	56	11.8
Solicitation needed: supplementary	49	10.4
Physical help-substitution needed	4	0.9
Physical help-cooperation needed	24	5
Material: acquisition	43	9
Material: use	55	11.7
Autorisation	12	2.6
<b><i>Total</i></b>	<b>475</b>	<b>100</b>

## Study 1: Findings

Globally,

- Help-requests on problems : 70.8 % of all requests
  - Requests for information : 45 %
  - Requests for intervention : 3.6 %
  - Sollicitation : 22.2%
- Help-requests without problem : 29.2 %
  - Requests for material : 20.7 %
  - Request for physical help : 5.9 %
  - Request for autorisation: 2.5%

# Study 1: Findings Graphic



## Study 1: Findings

### Concluding remarks

- Help-requests are common while training at the workplace
- Two thirds of them mean « I have a problem »
- Approximately 33 % resulted in move from the apprentice, another 40 % in a move from the helper\*
- Mobile phone were not considered as intrusive

# Study 2 : Help Seeking Questionnaire

## PROJET DUAL-T

garçon

fille

Date de naissance (jour/mois/année) : \_\_\_\_/\_\_\_\_/\_\_\_\_

Initiales (Prénom, Nom) : \_\_\_\_\_

Apprenti en (profession) : \_\_\_\_\_

Année : \_\_\_\_\_

Filière

CFC

Maturité professionnelle

Ce questionnaire nous permettra de voir si votre manière de réagir à une situation problématique est la même à l'école et dans l'entreprise dans laquelle vous travaillez.

Le questionnaire comporte 46 questions. Répondez spontanément à toutes les questions dans l'ordre. Il n'y a pas de bonne ou de mauvaise réponse. Pour que les résultats soient corrects, il est important que vos réponses soient tout à fait sincères. Vos réponses resteront strictement confidentielles.

### Consignes :

- Pour chaque question, tracez **une croix** dans la case qui correspond à votre choix, entre pas du tout et tout à fait vrai pour moi
- **jamais deux croix** par ligne,
- pas de croix entre les cases,
- ne pas oublier de question.

04.02.2008

QUESTIONNAIRE	Pas du tout vrai pour moi	Tout à fait vrai pour moi
Dans l'entreprise où je travaille, le plus important est de me débrouiller tout seul.	1 2 3 4 5 6 7	
Lorsque j'ai une difficulté à l'école je n'hésite pas, je demande de l'aide au professeur.	1 2 3 4 5 6 7	
À l'école, je me sens bien si je m'en sors tout seul.	1 2 3 4 5 6 7	
Je pense que poser des questions dans l'entreprise où je travaille peut m'aider dans la réalisation des tâches.	1 2 3 4 5 6 7	
À l'école j'ai peur de poser des questions.	1 2 3 4 5 6 7	
Dans l'entreprise où je travaille, je ne veux pas que le chef d'atelier remarque que je ne comprends pas ce qu'il faille faire.	1 2 3 4 5 6 7	
À l'école, je préfère demander de l'aide au professeur qu'aux collègues de classe.	1 2 3 4 5 6 7	
Dans l'entreprise où je travaille, je préfère demander des conseils aux autres apprentis, plutôt que de le leur demander de faire à ma place.	1 2 3 4 5 6 7	
À l'école, j'ai parfois peur d'être ridicule.	1 2 3 4 5 6 7	
Dans l'entreprise où je travaille, je ne veux pas que les autres apprentis, les ouvriers et le chef d'atelier voient que j'ai des difficultés lorsque je suis en train de réaliser une tâche.	1 2 3 4 5 6 7	
À l'école, l'enseignant nous permet de poser des questions pendant les classes.	1 2 3 4 5 6 7	
Dans l'entreprise où je travaille je préfère demander de l'aide au chef d'atelier qu'aux autres apprentis ou aux ouvriers.	1 2 3 4 5 6 7	
Je pense que poser des questions à l'école peut m'aider à faire les exercices.	1 2 3 4 5 6 7	
Lorsque j'ai un problème dans l'entreprise où je travaille, je demande de l'aide aux autres ouvriers.	1 2 3 4 5 6 7	
À l'école je veux dépasser mes difficultés moi-même.	1 2 3 4 5 6 7	
Dans l'entreprise où je travaille, demander de l'aide peut m'aider à faire mieux mon travail.	1 2 3 4 5 6 7	
À l'école j'essaie de me débrouiller tout seul sans demander de l'aide.	1 2 3 4 5 6 7	
Dans l'entreprise où je travaille, si je demande de l'aide je peux devenir plus compétent.	1 2 3 4 5 6 7	
À l'école, en posant une question, j'aurais peur de paraître ignorant.	1 2 3 4 5 6 7	
Dans l'entreprise où je travaille, si j'ai besoin, je préfère demander de l'aide aux autres apprentis plutôt qu'au chef d'atelier ou aux ouvriers.	1 2 3 4 5 6 7	

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## Study 2 : Subjects

160 Apprentices

From various technical professions

In Year 1 to 4 of their training

Two schools (Fribourg and Bulle)

# Help Seeking Questionnaire - References



## **Help Seeking – formal source**

Perceived Achievement Goal Structure and college Student Help Seeking  
Stuart A. Karabenick (2004)

## **Help Seeking Avoidance – because I feel competent**

Determinants of Help Seeking: Relations Between Perceived Reasons for Classroom Help-Avoidance and Help-Seeking Behaviors in an Experimental Context, Ruth Buttler (1998) - Determinants of Help Seeking, "Reasons for not requesting Help in Math Class" Questionnaire, Study 1

Student's Perceptions of the Teacher and Classmates in Relation to reported Help Seeking in Math Class. Richard S. Newman & Mahna T. Schwager (1993)

## **Availability Help Seeking**

Students' perceptions of the teacher and classmates in relation to reported help seeking in math class. The elementary School Journal, 94(1), 3-17  
Newman, R.S., & Schwager, M.T. (1993)

## (4.3) Help Seeking Questionnaire - References



### **Spontaneous Help Seeking**

Student's Perceptions of the Teacher and Classmates in Relation to reported Help Seeking in Math Class. - Richard S. Newman & Mahna T. Schwager (1993)

Perceived Achievement Goal Structure and college Student Help Seeking  
Stuart A. Karabenick (2004)

### **Adaptive Help Seeking**

"Should I Ask for Help?" The Role of Motivation and attitudes in Adolescents' Help seeking in Math Class. Allison M. Ryan & Paul R. Pintrich (1997)

### **Formal Versus Informal Source**

Perceived Achievement Goal Structure and college Student Help Seeking  
Stuart A. Karabenick (2004)

### **Personal development**

Student's Perceptions of the Teacher and Classmates in Relation to reported Help Seeking in Math Class. Richard S. Newman & Mahna T. Schwager (1993)

# Help Seeking Questionnaire - References



## **Help Seeking Avoidance – because I feel competent**

Determinants of Help Seeking: Relations Between Perceived Reasons for Classroom Help-Avoidance and Help-Seeking Behaviors in an Experimental Context, Ruth Buttler (1998) - Determinants of Help Seeking, "Reasons for not requesting Help in Math Class" Questionnaire, Study 1

Student's Perceptions of the Teacher and Classmates in Relation to reported Help Seeking in Math Class. Richard S. Newman & Mahna T. Schwager (1993)

## **Help Seeking Avoidance – Not to look incompetent**

Determinants of Help Seeking: Relations Between Perceived Reasons for Classroom Help-Avoidance and Help-Seeking Behaviors in an Experimental Context, Ruth Buttler (1998) - Determinants of Help Seeking, "Reasons for not requesting Help in Math Class" Questionnaire, Study 1

## **Help Seeking Avoidance – Not to look stupid**

Determinants of Help Seeking: Relations Between Perceived Reasons for Classroom Help-Avoidance and Help-Seeking Behaviors in an Experimental Context, Ruth Buttler (1998) - Determinants of Help Seeking, "Reasons for not requesting Help in Math Class" Questionnaire, Study 1

## Study 2 : Results

### **At school significantly more than at the WP :**

Apprentices ask their classmates for help more often at school than they do at the WP

Apprentices judge more important to use their « own brain » to solve questions at school than at the WP

Apprentices see asking for help more welcome at school than at the WP

## Study 2 : Results

### **At the WP significantly more than at school :**

Apprentices would ask other mechanics for advices at the WP whereas at school they would rather ask others for answers

Apprentices judge asking questions more helpful at the WP than at school

Apprentices are more likely to see asking help as a way to improve the quality of the work to be done at the WP than at school

## Study 2 : Results

### **At the WP significantly more than at school :**

Apprentices judge more important to work things out by themselves at the WP than at school

Apprentices see getting help from a formal source as more important at the WP than at school

Apprentices refrain from asking help in order not to look incompetent at the WP more than at school

It is also more important for them not to look stupid at the WP than at school

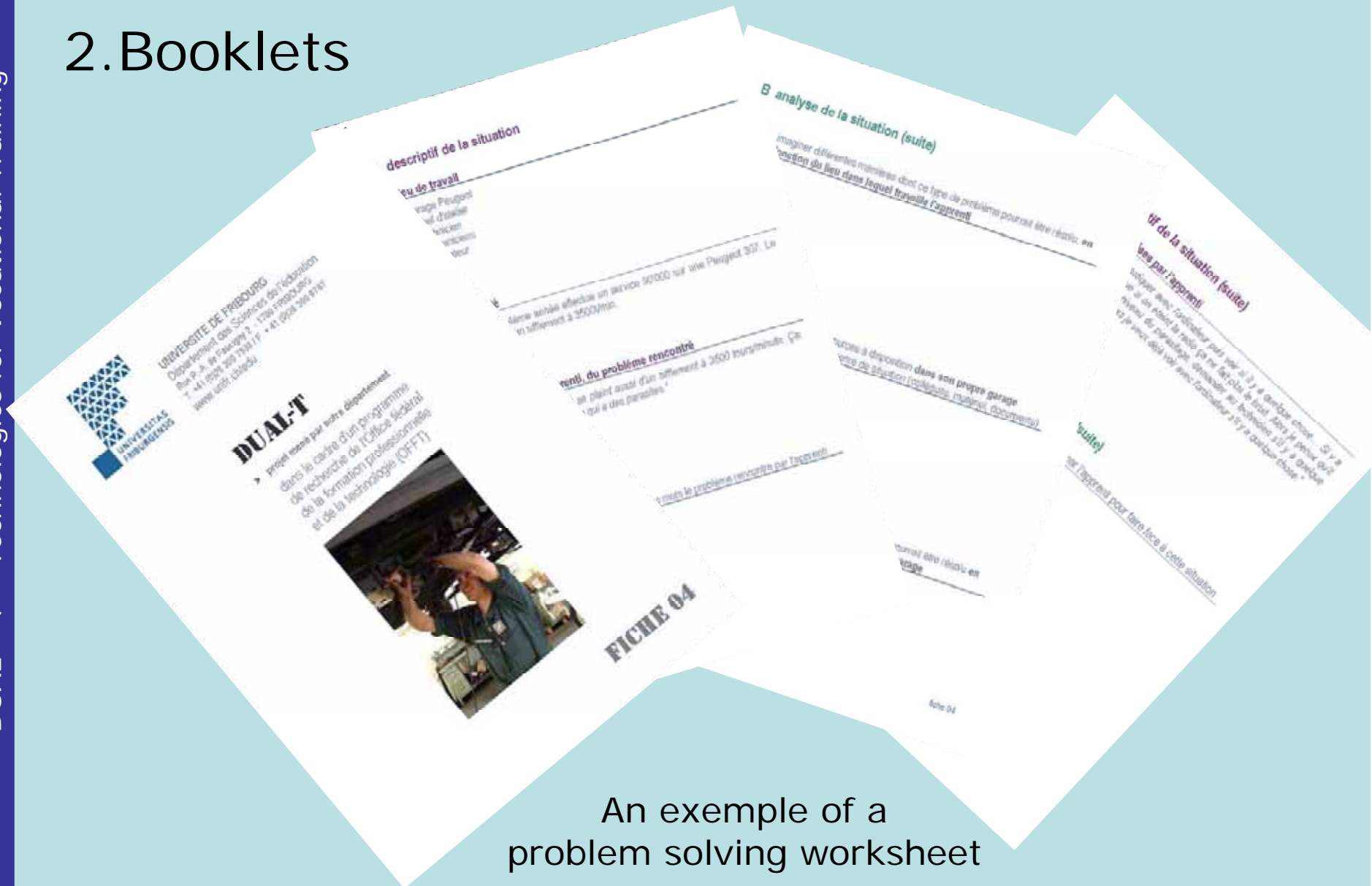
## (5) Next phases

### Study 1 :

1. Ask Experts to analyse the quality and the understandability of the apprentices' problem description.
2. Extend the procedure to other professional domains (through project 4) in order to test the typology of help requests.
3. Together with IFFP – Lausanne, bring experienced problems to the school (booklets).

# Study 1: Next Phase

## 2. Booklets



An exemple of a problem solving worksheet

## (5) Next phases

### Study 3 :

Use Pocket PCs as tools to receive help and to exploit available sources of help, such as internet data base on a given car model.