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***Deliverable D3.3***  
***Methodological Guidebook***

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## Executive Summary

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### What is Work Package 3's objectives and methodology?

The overall objective of work package methodology is to provide common research hypotheses, thus designing a pertinent work plan, highlighting intensive collaboration between work packages 2 to 6.

Its main challenge would be to overcome cross-national comparisons difficulties due to cultural, sociological, economical contexts and impacts on any qualitative approach and methodology applied.

The object of the research will be the evaluation and analysis of traditional and pilot E&T degree courses curriculum in Europe through quantitative and qualitative approaches. We will collect data concerning each national context (sociological, cultural and economical) of the current E&T curriculum, thus evaluating and analysing traditional and pilot E&T degree courses through their identifying using peculiar criteria that we have to define. Once defined, we will conduct a fieldwork qualitative analysis through interviews and focus groups aimed at female and male students in E&T degree courses, deepening our analysis through case studies, which will highlight our study subject. We will here work closely with WP4 and 5 leaders.

The work package methodology will be divided in three steps; each of these steps will allow both a deeper understanding of national context and impact and will improve our methodological cross-national comparison approach.

- The third step (**Task 3.3**) will drive us into the using and working with qualitative methodological tools. We have to overcome a challenge due to qualitative approach: in a previous project, PROMETEA: "Empowering Women Engineers in Industrial and Academic Research", STREP n° 017660 in FP6 from 2005 to 2007, basing our methodology on Womeng project experience, WOMENG, "Creating Cultures of Success for Women Engineers" HPSE-CT-200200109, we privileged qualitative approach. (For details on the methodological assumptions, see: Godfroy-Genin, Anne-Sophie, Pinault, Cloé, "The Benefits of Comparing Grapefruits and Tangerines, Methodology for Large-Scale Cross-Comparisons", in *European Journal of Engineering Education*, Taylor and Francis, Vol. 31, No. 1, March 2006, 23–33). Beyond Qualitative and Quantitative approaches to cross national comparisons exists a third way, which combines the other two's merits: the case-oriented method of comparison (RAGIN, 1987). Keeping the qualitative method's variables and its contextual approach, and quantitative method's ability to handle numerous cases to be compared; melting qualitative acuteness with quantitative globalize approach, (which would be a disadvantage for each of our methods, if used alone) we could imagine a system of "commuting", going back and forth between quantitative and qualitative methodologies in order to reach a good "seizing" of the problematic and issues. Ragin (Ragin, 1987) recommends here a Boolean algebra technique, in order to increase the number of cases to be compared: Boolean algebra is for sure an efficient cataloguing system, but its lack of flexibility



brings too much strictness applied on a so mobile “material” who is human being!

We will thus privilege CAQDAS tools, and more precisely software tools that use tree-like systems, highlighting conceptual categories systems.

In our previous project, PROMETEA, we had to manipulate tons of data, which we could browse using a database. Concerning HELENA project, we would try to use these qualitative software tools, which could replace our database tool, which has been efficient and useful but heavy to manipulate. How to compare efficiently and objectively the respective countries, using qualitative methodology? The state of the art will provide the framework of cross-cultural comparisons; the translation guidebook will add flexibility and acuteness to our main concepts-tools. We will use qualitative software tools in order to help us browse efficiently data. For example, NVIVO 7 is a flexible software tool, providing possibilities to work in numerous languages, allowing the emerging of “significations”, analytical and conceptual buildings which are keeping flexibility, and enhance manipulation of these highlighted conceptual categories. These tools are classifying ones, and build tree-like thematic. These tree-like thematic will provide us a global view, thus detailed, and will E&T and clarify main issues through qualitative results: providing us the ability to integrate a transversal analysis. In order to provide a good and efficient handling and using of these tools, a work package meeting will invite an expert to demonstrate how to use efficiently these tools.

### **Highlighting what we can do now concerning Deliverable 3.3 “Methodological guidebook”:**

At this stage of the research (month 10) the guidelines concerning fieldwork are not yet designed: different case studies, each one of them representing pertinently each national situation are on the merge to be chosen, we’re still discussing it. Graz meeting (18-19<sup>th</sup> of February 2010) main decisions will be:

- Presenting cases studies
- Agree on guidelines’ content, design and objectives.

This methodological guidebook has though two objectives and focus:

- Presenting a tool “how to design, realize, analyse, report interviews and focus groups”.
- Presenting CAQDAS, and focusing on Nvivo7/8: why this possible choice/presentation.

We don’t have here the data to fulfil what has been initially imagined in deliverable 3.3 (presenting Nvivo7/8, how it works, trying it, and working with it on data obtained in HELENA fieldwork. Deliverable 3.3 has been initially planned on month 24, but it has been decided later that its delivery month would be finally month 9 of the project. Without the fieldwork done, our D3.3 is though cut off its master piece (CAQDAS tool use on the obtained fieldwork data): it has been hence decided that we will deliver instead of what was foresee a “how to do an interview/focus group” guidebook”, and a



presentation of CAQDAS tools.

This methodological guidebook complete deliverable 3.2 “Methodological Guidelines” as it is done as a tool supporting researchers on the designing/doing/analysing/reporting of interviews and focus groups, and introduce them to the methodology WP3 team will use to explore qualitative data. We will try to support WP4, WP5 and WP6’s work for main deliverables, as we will try and use CAQDAS tools on the obtained qualitative data.



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