**Title**
Teaching Communication Theory at the Politecnico di Milano. An experience.

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**Abstract**
In the academic year 1999-2000 the Politecnico di Milano (Como campus) introduced a new course called "Sociology of Communication (Theory of Communication)". The course was offered, as an elective one, to engineering students in their 4th or 5th year, in the curricula of "Information Technology" and "Management", and intended to present the complex phenomenon of human communication. The goal was to complement technological aspects of communication (dealt with in several other courses of both curricula), with the humanistic ones.
Namely, the contents of the course were semiotics, theory of languages and texts, history and sociology of communication, public speaking. Space was given also to the theories studying the diffusion of a technological innovation in a given community, and to communicative aspects of computer mediated communication, training and education.
The course was evaluated through a specific questionnaire intended to assess students' satisfaction not only just at the end of the course, but also after some months and/or when they had left the university and entered the job market.
Responses from the students – their participation to the course as well as their responses to questionnaire – have been very encouraging, so that a complete curriculum for a "Laurea Specialistica" (equivalent to a Master in anglosaxon countries) in Informatics Engineering with a special emphasis on communication is currently under development and will start in October 2003.

**The context**
Within the curriculum of Informatics of Politecnico, a research group (that was the founder of the HOC – Hypermedia Open Centre Laboratory; http://hoc.elet.polimi.it) has started to be involved into Hypertext applications since the late 80's; the interest was commuted, over time, to Multimedia applications, hypermedia and the WWW. As far as the web is concerned, experimental courses were started in '93 and regular classes in '96.
Since several applications were developed along the years (ranging from eLearning to cultural heritage, from e-commerce to e-business, etc.), with a variety of "real" partners, researchers started to realize that beside technical competence and business-management competence, a new type of competence was required: understanding the communication requirements and processes that were behind these new applications (Cantoni & Paolini 2001). It soon became clear that, although computer scientists could not (and should not) become "communication experts", they nevertheless needed to understand what communication was about, and how to discuss communication issues.
In addition, it also became clear something that could have been detected before: in many "traditional activities" of a professional in computer applications, communication skills were important ingredients. Eliciting requirements, organizing documentation, testing usability, convincing a customer, reporting to a manger,

keeping a project team well motivated, presenting a paper, making a public speech are all activities requiring sophisticated communication skills. It was a surprise to realize that these skills, crucial for the professional success of an (informatics) engineer, were not considered at all in the existing curriculum (Paolini 2002).
From the above considerations, prof. Paolo Paolini, specifically interested in innovative e-applications, made the proposal to prof. Pierluigi Della Vigna (at the time coordinator of the Como campus of Politecnico di Milano) and to prof. Roberto Negrini (at the time coordinator of the teaching organization of the Como campus) for the introduction of a course about communication: they gladly accepted.

**The course "Sociology of Communication (Theory of Communication)"**
In the academic year 1999-2000 the course started, being named "Sociology of Communication" being that title the best possible approximation to its goal among the fixed list of titles of academic subjects available at that time in Italy, but specifying in brackets that its scope would be wider: "Theory of Communication"; since then it has been offered four times.
In the following lines it will be described along five parameters: 1. *target audience*, 2. *objectives*, 3. *contents*, 4. *teaching strategies & timing*, 5. *evaluation*. If not stated explicitly, all what follows can be applied to all the past four editions.
1. *Target audience.* The course is offered to students enrolled in the School of Engineering (Politecnico di Milano, Como campus), following a curriculum in Informatics or in Management; it is an elective course, except for students who want to specialise in communication. Involved students are attending their fourth or fifth year in a curriculum of five years.
In a concerned population of approximately 90 students (those enrolled in both engineering curricula in the fourth and in fifth year), the first year only 10 students attended the course, while in the following years they grew up to 25 (2000-2001), 42 (2001-2002) and 52 (2002-2003).
2. *Objectives.* Its main objectives are, as explicitly stated in the very first lesson:

- to promote a reflection on communication, its relevance and its dynamics. To provide students with theoretical tools – gathered by different disciplines – useful to analyze, to interpret as well as to better communication;
- a specific emphasis is put on the "personalization" of communication (emphasis on the addressee), on computer mediated communication and on corporate internal communication and on communication in communities of practice.

If we take into consideration the various kind of knowledge involved, we could say that course objectives are:

- at the level of knowledge: to know what is meant by "communication", its structure, history and practices;
- at the level of skills: to be able to analyze and interpret communication acts and artefacts, to be able to design and realize good quality communication acts, like doing an oral/written presentation, writing a summary, interacting via email, running a website, etc.
- at the level of attitudes: to be aware of how important high quality communication is in one's life and in all social communities.

So the course has both a theoretical side – equipping students to analyze and interpret communication – and a practical one – helping them to become better communicators.
3. *Contents.* The course is roughly divided into three areas:

- theory of sign, language and text: elements from semiotics, linguistics, text linguistics and pragmatics are presented and discussed, so to promote learners' attention to human communication and its many facets;
- history of communication practices, from orality to mass and electronic media: an historical perspective is taken, especially important in a community used to keep only the newest technologies, leaving apart and forgetting the previous ones as well as the non linear processes through which new technologies are invented, diffused and adopted. So, beside showing the milestones in the "technologies of the word" – from orality to hand-writing, from press to periodicals, from radio to television, from hyper-multimedia to the Internet – some lessons are devoted to diffusion theories, stressing the zigzagging processes an innovation goes in a given society from adoption up to diffusion or rejection; in particular, the non-technological aspects of diffusion are presented and discussed (e.g.: social and cultural context, market and economical elements, perceived attributes, and, of course, communication);
- some relevant communication practices: mainly public speaking, pedagogical communication and computer mediated communication. Elements taken from rhetoric, psychology and pedagogy are presented, and many exercises done to help learners improve their communication skills, mainly in public speaking and in educational/training contexts. Much attention is devoted to computer mediated communication and the Internet, stressing quality criteria to assess website content and communication; being many of the students IT experts, the "humanistic" side of technological artefact is stressed. The first year a brief seminar on time management was offered, but it wasn't replicated the following course editions – although students appreciated it very much – due to a lack of time.

4. *Teachers, teaching strategies & timing.* The course is offered in the first semester – from September to January – twice a week, for four hours each time, for a total of about 100 hours.

Lessons are done in a very interactive way, allowing much room for students to make questions, interventions and suggestions; many communication exercises are proposed in class, as well as for further practicing. Students have to do a collaborative project in groups of 3 to 6 people, and some lessons are devoted to group tutoring activities.

Being communication at the same time the subject taught and the tool used to teach it, a specific attention is devoted to meta-cognitive reflections, helping students becoming more aware of the communicative dynamics and streams that occur in the class and outside it.

Although the course is fully *in praesentia*, some messages are sent via email, all the displayed materials are made available in electronic form, and email exchanges are quite frequent between teacher and students.

In October 2002 a manual as been published, based on the teaching experience (Cantoni & Di Blas 2002): it presents a significant part of the contents covered in class, and is divided in the same three subject areas as the course is.

Lorenzo Cantoni – from the University of Lugano (Switzerland) – lectured during the first three academic years, assisted by Nicoletta Di Blas, who lectured in the year 2002-2003 assisted by Caterina Poggi.

5. *Evaluation.* Apart from studying all the contents covered by the lessons (since 2003 summarized in the book), students have to choose two journal articles from a given list and to read them for the exam.

In the first two editions of the course, the mark was given as follows: 70% to the group project, which is presented both orally, in a plenary session in front of all colleagues, and in a written form (20% to oral communication quality, 20% to written communication quality and 30% to project contents), and the remaining 30% was earned in an oral exam – sat individually by each student – about all the materials covered in class plus the read articles.
The last two years maintained the overall exam organisation, but 50% of the mark was awarded to the group project, and 50% to the oral exam.
Students were deeply involved, and worked hard both alone and in group, hence average marks are quite high, 28.9 in 2000-2001, 28.3 in 2000-2001, 27.9 in 2001-2002 and 28.0 in 2002-2003 (46 out of 52 students have already sat the exam)[1].

**A first evaluation of the experience**
Students enrolled in the first four editions of the course were emailed an evaluation questionnaire in February 2003, email addresses students provided for communication during the course were used, and some of them were not working any longer.
Altogether 125 questionnaires were sent (see Annex A for the complete questionnaire text), and 41 filled-in were returned, meaning a response rate of 32.8%.
One may wander whether respondents could be considered enough representative of the students group, or they are just the students more positive toward the course, hence their answering to the questionnaire. On one hand, the questionnaire accompanying letter stated clearly that it was to be used for a scientific research and to better the course, on the other hand, the average mark of the respondents is 28.3, while the average of the concerned group is 28.1: this suggests that the questionnaire is not biased by the marks students got.
Answers to yes/not and multiple choices questions are summarized in table 1.

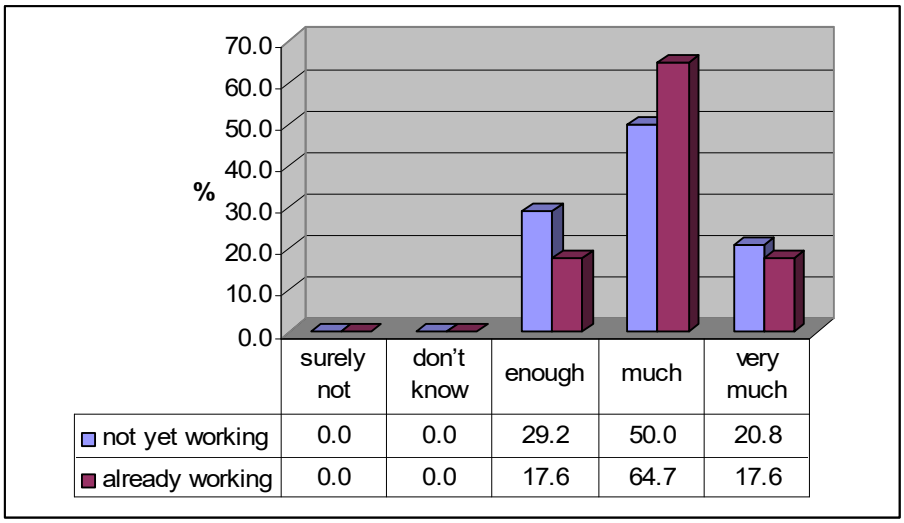
| | |
|---|---|
| Academic year | 99-00: 4<br>00-01: 8<br>01-02: 19<br>02-03: 10 |
| Year in which they attended the course | 4th: 2<br>5th: 39 |
| Curriculum specialization | Informatics: 30<br>Management: 11 |
| Examination mark | 24/30: 1<br>27/30: 10<br>28/30: 12<br>29/30: 8<br>30/30: 5<br>30/30 cum laude: 3<br>N/A: 2 (they had not yet sat the exam) |
| Not yet/already graduated | Not yet graduated: 30<br>Already graduated: 11 |
| Not yet/already working | Not yet working: 24<br>Already working: 17* |

[1] 30/30 cum laude are made equivalent to 31.
* 9 students were working while studying, 3 graduated students were not yet employed at the time they responded to the questionnaire.

| | |
|---|---|
| The course was useful for me | Surely not: 0<br>Don't know: 0<br>Enough: 10<br>Much: 23<br>Very much: 8 |

Table 1: answers to yes/not and multiple choices questions.

As it can be seen in the table, all the respondents found the course useful; the same answer pattern can be seen for already working people as well as for not yet working ones: see table 2.




| | surely not | don't know | enough | much | very much |
|---|---|---|---|---|---|
| not yet working | 0.0 | 0.0 | 29.2 | 50.0 | 20.8 |
| already working | 0.0 | 0.0 | 17.6 | 64.7 | 17.6 |

Table 2: answers to question 9, "The course 'Communication Theory' has been useful for me (surely not/don't know/enough/much/very much)".
Figures indicate the percentage, absolute values are: *not yet working people* – enough: 7; much: 12; very much: 5; *already working ones* – enough: 3, much: 11, very much: 3.

The same answer pattern applies also for management (11 – enough: 2; very: 6; very much: 3) and informatics (30 – enough: 8; very: 17; very much: 5) specializations. Moreover, there is not a significant difference in the evaluation of course usefulness by students who got different marks, so that it can be said that the appreciation is equally distributed among all the different sub-groups.
When it comes to the reasons respondents gave, why they judge the course useful, four main areas can be found (all 41 respondents answered to this question).
First of all, an increased ability in public speaking and/or in writing is listed (26 times): they mention that they can better address their target audience, stay on time when doing presentations, prepare more effective visual aids, present and defend projects, take part in an interview, manage a class experience.
Second, 13 times it is mentioned an increased awareness of communication issues, as well as a better capacity of understanding communication, of devising different communication strategies, and of bettering interpersonal communication.
Third (10 occurrences), respondents underline a better understanding of communication issues involved in computer mediated communication, such as human computer interaction, usability, website design and evaluation, netiquette.
Fourth (7 occurrences), "general culture" is listed: a better understanding of the world, of media history and sociology, of movies' structure, in general of a relevant life issue.

While 5 respondents did not propose any suggestion for improving the course, and 5 more answered they do not have any relevant suggestion; the suggestion proposed the most (12 times) is that of reducing the first "theoretical" part of the course (presenting the basics of semiotics, language and text theory). This reduction should be balanced by more "practical" activities intended to exercise public speaking, interpersonal communication, and so on (11 occurrences). Three respondents would like to emphasise the area of Internet communication.

**Some conclusions and future directions**

Let us summarize what we can conclude from the experience carried on so far:

- students liked the new course, since they enrolled gladly and they followed, in many cases, requesting projects and/or thesis;
- the impact of the course was felt immediately on a wide basis within the curriculum itself: most students improved dramatically their communication skills, either oral or written;
- the impact of the course was felt, deeply, on a specialized basis: many students developed projects where they used (in a sophisticated manner) what they had learned. Examples are development of museum applications, usability studies, development of 3D shared worlds, requirement analysis, etc.;
- even with faculty members, not strictly interested, the idea that communication could be part of the "knowledge body" of an engineer has become a common place.

On the above ground, starting in October 2003, a new "Laurea Specialistica" (equivalent to a Master degree of Anglo-Saxon countries) will be offered by the Como campus of Politecnico: *Informatics Engineering (for Communication)*. The focus is on advanced Informatics technologies, Telecommunication and Communication Sciences. As far as Communication Sciences are concerned, up to 10 different courses (5 European Teaching Credits each) will be offered. These courses cover basic knowledge (theory), advanced technology-based applications, usability analysis and general communication skills (written and oral ones) useful for all the engineers.

This type of curriculum is unique, so far and to our knowledge, in Italy, and may be in Europe: we are confident that it will attract students from all over the country.

**References**

Cantoni, L. & Di Blas, N. (2002) *Teoria e pratiche della comunicazione*, Apogeo, Milano

Cantoni, L. & Paolini, P. (2001) *Hypermedia Analysis: Some Insights from Semiotics and Ancient Rhetoric*, "Studies in Communication Sciences", 1: 33-53

Paolini, P. (2002), *Perché la comunicazione per gli ingegneri?*, in Cantoni & Di Blas 2002: xi-xvi

**Annex A: the questionnaire**

1. Academic year in which I attended the course "Communication Theory"
2. Year in my curriculum in which I attended the course "Communication Theory"
3. Curriculum specialization
4. Got mark
5. I'm still enrolled at the Politecnico [not used, due to inconsistencies]
6. I graduated already (yes/not)
7. I have a job (yes/not)

8. (If 7 is yes) of what nature (say briefly field and role)
9. The course “Communication Theory” has been useful for me (surely not/don’t know/enough/much/very much)
10. The course “Communication Theory” has been useful for me because (say briefly – if applicable – the reasons due to which what you have learned at the course turned to be useful / application areas, max 3)
11. What changes I would like to do to the course I attended (say briefly which fixing activities you suggest, max 3)

(12. Further elements you think could be useful for our research).