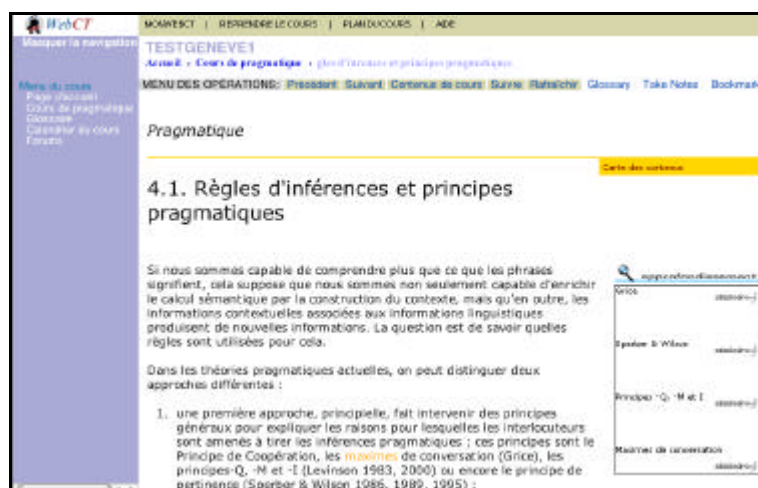


# RELEVANCE AND e-LEARNING. RELEVANCE IN CONTEXT, CONTENT AND ACTIVITIES IN e- LEARNING<sup>1</sup>

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**KEYWORDS:** relevance, communication, cognition, e-learning

*This paper is about why and how e-learning should concern itself with relevant information. Our analysis is based on a field test (spring 2002 at the Department of linguistics, Geneva) of the courseware Pragmatics, one of the Swissling project modules (Swiss Virtual Campus). Our main thesis is that e-learning should have as its main concern the way by which information is made relevant for the learner. We will use some basic concepts of cognitive pragmatics (Relevance Theory) to give a scientific foundation to this approach, concepts originating in cognitive science and in the study of human communication.*

## INTRODUCTION

After our first field test for a pragmatics courseware at the University of Geneva (may-june 2002), we made a qualitative and quantitative evaluation, leading to some expectable and other non-expectable conclusions (cf. Moeschler 2002). The main expectable conclusions are as follows:

- The best results occurred within the sub-group of students (Group 1) which was completely tutored (on-line sessions in presence of tutors, precise calendar, weekly homeworks), whereas the worst ones concerned the second group (Group 2) which was partly tutored, partly obliged, but free in managing the content of the courseware.
- The test was a complete failure for the third group of student (Group 3) which was completely free concerning the modalities of working (the average of login is the lowest and was reduced to printing time, cf. Figure 1):

<sup>1</sup> I would like to thank Annik Bovier, who actively participated to the conception and relation of the Pragmatics courseware, and Sebastien L'haire, responsible for design and implementation.

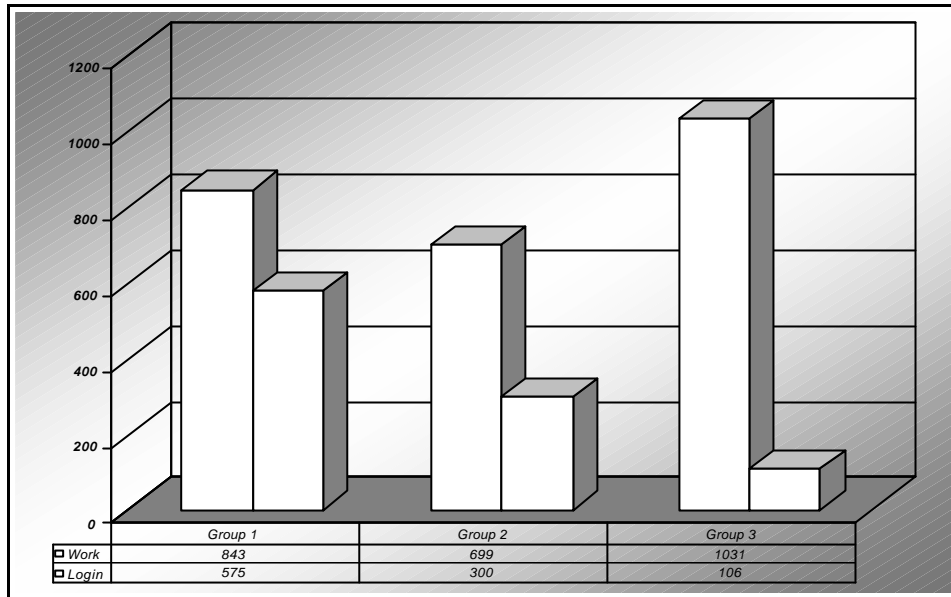


Figure 1: Working vs login time

The unexpected outcome was an amplification of the gap between the best and the weakest students, made manifest in the qualitative evaluation of the course (Figure 2).

#### Variation in results between 4 tests (TP)

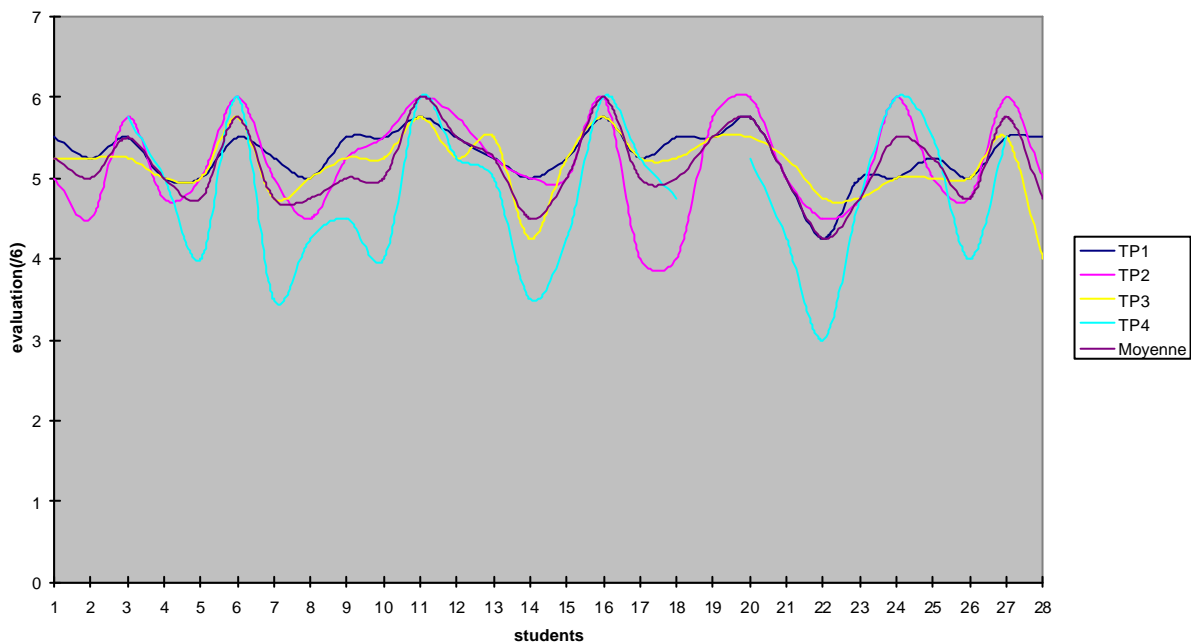


Figure 2: comparison of tests evaluations

If we take these results seriously, we get aware of two basic facts: first, e-learning cannot deliver content and prescribe activities in the absence of any coaching or tutorial; second, e-learning should preserve autonomy, variability and freedom in learning processes. The means to conciliate these two contradictory aims questions about the nature of contents presented in an e-learning courseware, and more precisely their relevance. To sum up, I would like to suggest that e-learning should be more sensitive to *relevance* of context, content and activities, instead of proposing a way of standardizing information within templates and other electronic tools.

## WHAT IS RELEVANCE AND RELEVANT INFORMATION?

Relevance plays a crucial role in cognition and in communication (Sperber & Wilson 2002, Reboul & Moeschler 1998). As cognition is concerned, human beings seem to be sensitive to processing of relevant information and try to minimize cognitive efforts (processing efforts) while looking for cognitive effects. As far as communication is concerned, communicators tend to maximize relevance using two criteria, their capacities and preferences. Following Relevance Theory (Sperber & Wilson 1995), I will show that two criteria can be used in e-learning development: the optimization of cognitive efforts and effects by learners, i.e. the maximization of relevance.

How can we define relevance in communication, and how can we be sure it is achieved in communication? In Relevance Theory, relevance is a balance between cognitive efforts and cognitive effects. Cognitive efforts are processing costs. For instance, cognitive costs will be greater if the same information is presented in a single window rather than in two. Cognitive effects are gains obtained during the cognitive process and can be of three types: the addition of a new information, the strengthening of an old information and the eradication of an old information.<sup>2</sup> Finally, relevance is defined comparatively: the more cognitive efforts, the less relevance; the more cognitive effects, the more relevance.

As relevance is concerned, we can imagine four types of devices, linked to the successful or unsuccessful balance of relevance (figure 3):

<i>Cognitive efforts</i>	<i>Strong</i>	<i>Weak</i>
<b>Cognitive effects</b>		
<b>High</b>		Relevance achieved
<b>Low</b>		Relevance not achieved

Figure 3: types of e-learning devices

Relevance is achieved when high cognitive effects are obtained. When low cognitive effects are obtained, information processed cannot be said relevant (or relevance is not high enough), and the communicative process, as a result, has failed.<sup>3</sup> So the best devices will be those producing high cognitive effects. These situations can be reached while strong cognitive efforts are required, but also when weak cognitive efforts are the case. But in this second case, it is predictable that no new information will be processed, because of the weak cognitive efforts invested. Strengthening activities are typical of this type of relevance achievement, that is, activities which require rather weak cognitive efforts but produce enough cognitive effects to justify the learning process.

To sum up, we can see that relevance is best achieved in a learning process when a strong cognitive effort is balanced by a high cognitive effect. This means that in order to be efficient, e-learning should convey maximal information while requiring a strong attentional and cognitive effort.

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<sup>2</sup> What I claim is that these three types of cognitive effects must be permanently effective during the e-learning process.

<sup>3</sup> Note that this situation is not a rare case in education and e-learning: the learner is making processing efforts expecting some cognitive effects, but gets no sufficient gains to balance his cognitive efforts.

## HOW TO PRODUCE RELEVANCE IN E-LEARNING?

So far, so well, but how can we reach relevance in the production of e-learning courseware? Before answering this question, I need to give a last theoretical background information. In verbal communication, what communicators and addressees are exchanging is not explicit information, but mainly implicit information, as shown in the following setting:

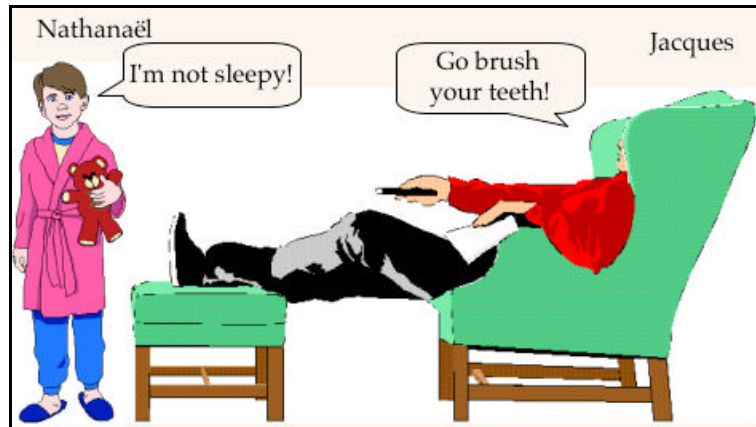


Figure 4: a small verbal exchange between Jacques and his son Nathanaël

This very trivial example of verbal communication shows that in order to understand Jacques's turn, Nathanaël must access some basic contextual assumptions, like "One brushes one's teeth before going to sleep" in order to draw the conclusion "Dad wants me to go to sleep", and that Jacques must access the contextual assumptions "One goes to sleep when one is sleepy" in order to get the conclusion "Nath does not want to go to sleep now and refuses to brush his teeth now". In other words, communication implies inference, that is a deductive process based on contextual assumptions or premises, leading to contextual implications.

Now, what seems to be a commonsense principle in modern education is the explicit form of the content and instruction given to the learners. In other words, teaching implies explicitness, whereas the question of relevance is generally taken for granted.<sup>4</sup> This explicitness has led to focus on the development of e-learning from a set of design and activities constraints, imposing an organization of the content, without taking into consideration the nature of that content. If we now focus on what should be implemented in e-learning, the question of content organization becomes a crucial question, and needs a clear answer.

In communication, a relevant information is processed in a cognitive environment which makes manifest a set of assumptions. What should be manifest in the e-learning environment is thus a set of information, those which allow the learning process to take place. So instead of focusing a major part of the development of courseware on the development of templates, it should be simpler to focus on the cognitive environment of the learner. This environment is not restricted to what he can access throughout the electronic tools he is using, but also include the set of knowledge he has in store (long-term memory), the set of knowledge he is acquiring (middle-term memory) and the set of knowledge he is just using while processing (short-term memory).

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<sup>4</sup> This is one of the last privilege of the teacher, who presupposes that what is taught is worth to be processed and learned by the students. e-learning cannot take this presupposition for granted, because the purpose of e-learning, the expectations of the learners are not identical to the ones occurring in face-to-face learning.

So, relevance should be a concern at a each step of the courseware production, as well relevance is the main preoccupation of the learner at any time in his learning process. For instance, a link to an enrichment file should provide relevant information, and not a digressive information, access to a glossary should help and not delay the learning process, etc. (cf. Figure 5 and 6 from the Pragmatics courseware).

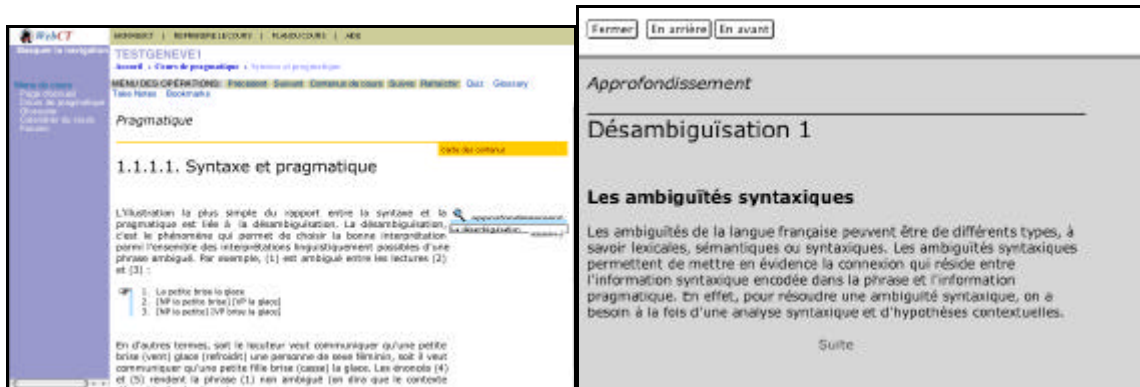


Figure 5: an example of relevant link

Now, the last point I would like to illustrate is the question of *content organization*. If relevant information must be processed, relevant connected information must be accessible. As far as the Pragmatics courseware was concerned, we started the conception of the courseware by a general *conceptual map*, which will be accessible in the final version of the courseware on the form of a *geographical map*. Figure 6 present the conceptual map and figure 7 the future portal of the courseware, allowing the access to different chapter of the course:

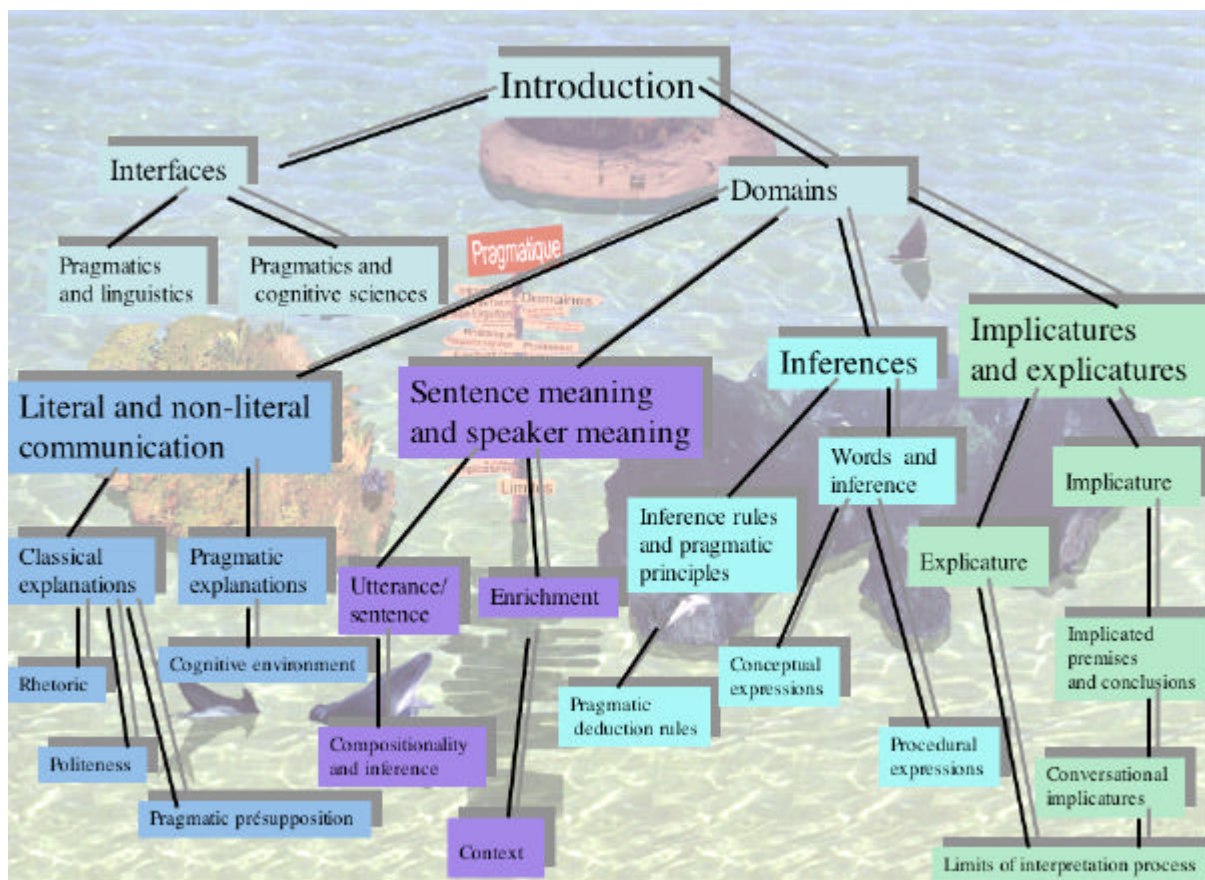


Figure6: conceptual map for the Pragmatics courseware



Figure 7: portals for the Pragmatics courseware

In these pictures, we use the island metaphor for the general conceptual map, and the metaphor of the baby exploring the island for a specific topic (here, literal and non-literal communication is conceived as a paradise pool with cascade, allowing multiple choice directions).

## CONCLUSION

This paper aimed to focus on the need for both producers and users of e-learning courseware to process relevant information. Relevance, defined as a balance between cognitive efforts and effects, should be a guide line for any type of information: content information, links, glossary, activities, etc. Rather than emphasizing explicitness in design and templates, e-learning should focus on manifestness of the cognitive environment accessible for the learner. This is a necessary condition to make compatible the two constraints defining e-learning: minimal standard in presentation and variety in use.

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