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06 July 2006

## Ask whatever you like. Teacher-pupil interaction in new virtual learning environments



**We all grew up with the experience of going to school and learning that we had to ask permission when we wanted to speak in class, that it is the teacher who gives us permission to speak, that we should not interrupt when adults (teachers) are speaking. But, does the same thing happen in virtual learning environments as occurs in face-to-face education?**

### face-to-face education?

We all grew up with the experience of going to school and learning that we had to ask permission when we wanted to speak in class, that it is the teacher who gives us permission to speak, that we should not interrupt when adults (teachers) are speaking. What happens in our education system is that, whilst the children at infant school are free to express themselves, as we go up (?) through primary, secondary, baccalaureate and university education, we as pupils learn the rule that it is the teacher who establishes the rhythm and sequence by which subjects are taught. The teacher asks the questions and the pupils answer.

Thousands of studies carried out since the 1970s back up this affirmation. From Flanders and Landsheere to Bellack, studies focusing on what was called "teacher-pupil interaction analysis" the results have consistently shown that, in the classroom, teachers speak more than the pupils, that they ask more questions and that the role assigned to pupils is that of following the teacher's verbal discourse as he or she discusses the subject at hand. In a 1996 study, for instance, Shuell found that effective teachers are those that, amongst other things, give pupils time to think about their answers to questions, structure their teaching well to ensure that pupils learned, are redundant in their explanations, answer pupils questions, etc.

Throughout my experience as teacher and researcher, I have had occasion to corroborate these findings. However, over the last eight years my interest has lain in studying teaching and learning processes in virtual training environments. With my team, I direct the e-Learning Masters and Expert course at the University of Seville (<http://prometeo.us.es/master>), as well as engaging in other activities concerned with harnessing the potential that e-learning offers for enhancing training (see the Hércules website: <http://prometeo.us.es>).

The question we have been asking in our recent work is: does the same thing happen in virtual learning environments as occurs in face-to-face education? Are we reproducing the same old traditional patterns as regards organising and managing discourse and interaction in the new learning environments? To answer these questions, we have carried out a considerable number of studies in recent years, though there is not sufficient space here to list them all. Interested readers are directed to another article we have published (Marcelo and Perera, 2004).

Analysis of asynchronous interaction in e-learning

The study we present is based on analysis of the messages sent to the discussion forums of ten e-learning courses we have organised at the University of Seville. All our e-learning courses are developed through the

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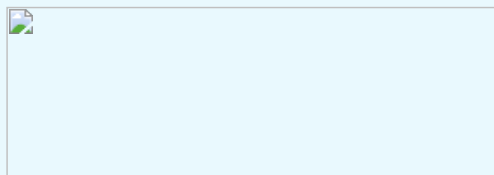
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LMS WebCT platform, which enables us to set up such forums as part of our e-learning courses. A total of 217 students have taken part in these courses, which have involved 29 tutors.



A total of 2,037 messages were sent to the forums linked to the 10 courses, distributed as in the Figure above. Analysis of this Figure shows, firstly, that teachers do not speak more than their pupils in e-learning courses. On the contrary, the percentage of pupil-generated messages is considerably higher than that generated by teachers: 66% of messages were sent by pupils compared to 34% sent by tutors.

To analyse these messages, we drew up a system of categories based on the model developed by Garrison and Anderson (2003), which establishes three main elements or dimensions in analysing online interaction: Social, Cognitive and Teaching Presence. Based on these three dimensions and some of the subcategories these authors established, we proceeded to generate our own categorisation system. This system of categories was developed semi-inductively: we created a first system based on the model established by Garrison and Anderson (2003); we generated the subcategories these authors used in their research; we selected two of our forums to initially apply the first system of categories; our research team of three codified each of the three forums independently (the coding unit chosen was the complete message); the team of codifiers, who had carried out the task of coding independently met to pool and compare the codings they had made; encountering new situations that could not be included in any of the initial categories, we established a new category; we then proceeded to codify all the messages.

As we have mentioned, the Social Dimension includes everything both pupils and teachers say that helps to create a group dynamic, promoting social relations, expressing emotions and enabling the group of pupils to affirm itself as such.



Within the Social Dimension, we observe references that might be classified as concerning cohesion. This category includes interventions in which the group identity appears in expressions such as: us/you, the group, companions, etc. It also includes such interventions as introductions, greetings, welcomes, goodbyes, etc, that is to say, formalities used in communication by groups. We can find three types of intervention in this category: those in which the speaker shows their identification with the group by such expressions as "Us", "You", "The Group", "Companions", etc; interventions in which the speaker uses communication formalities to introduce, greet and welcome; and those in which the speaker voices queries and/or proposals to the group as a whole in relation to subjects which may or may not be related to the course.

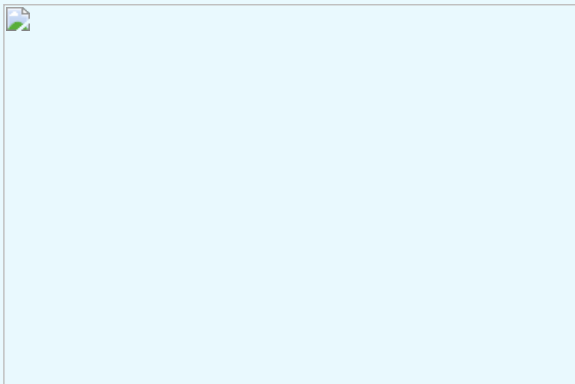
Discussion forums are not only spaces for social encounters. They also play an important role by providing a space in which tutors and pupils can interact with the purpose of learning. And as a space of encounter in the learning process in virtual forums, as in face-to-face classes, teachers and pupils interact, ask questions, put forward ideas, answer questions, etc. For this reason, a dimension is needed in order to analyse such processes from the educational point of view.

As our basis for studying the pedagogical moves or acts of forum participants, we took Bellack's work (cited in Marcelo, 1995), which focused on analysing interactions between teachers and pupils in four different types of teaching moves: Structuring, Soliciting, Responding and Reacting. Each of these moves in discourse are defined in the categorisation system and are defined as follows:

- The objective of Structuring moves is to initiate interaction, to launch a new subject. These are moves that can be made either by teachers or pupils.
- Soliciting or questioning moves are interventions by tutors or pupils requesting information and in the expectation of intervention by another person.
- Responding moves are produced as a consequence of an interrogative

that has been raised.

- Reacting moves are interventions concerning modifications or evaluations of interventions made earlier, clarifying, summarising or expanding upon earlier statements.



We stress particularly the four moves described above because they are, as we can see in the Figure, those that are most repeated. We can also observe that tutors are those that make the most interventions in the Structuring move category, though the number of initiating moves started by pupils is no lower. We can also see that pupils ask the most questions, though it is interesting to note that there is a similar number of answers to questions by tutors and pupils. This suggests that pupils also play a role as providers of knowledge which they make available to the other pupils on the course.

#### Some conclusions

With all the brevity that an article of this type calls for, we have attempted to present data on a line of research that is generating information and knowledge about how teacher-pupil interaction processes take place in virtual learning spaces. This information shows that, unlike what occurs in face-to-face training, in e-learning teachers speak and intervene less than their pupils; that processes aimed at directing and structuring discourse generally, though not exclusively, emanate from teachers; that pupils respond to as many questions as teachers, and that they do not wait for permission to intervene. All this enables us to state that virtual learning spaces do provide new vision and possibilities to develop more innovative learning processes that are more in consonance with the way adults learn. This is a subject that we develop extensively in our recent e-book (Marcelo, 2006): as long as we arm ourselves with the minimum sensitivity required to make full use of this new opportunity to generate a true learning environment, then e-learning can offer us the opportunity to usefully transform traditional teaching and training practices.

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