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TELETUTORIALS AND VIRTUAL CLASSROOMS: IS IT POSSIBLE TO AVOID FORMING HABITS?

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THE TECHNICAL AND EDUCATIONAL TOOLS

This contribution is based on research that was carried out within the framework of the project entitled “Technology tools and forms of pedagogical communication” (FNRS 5004-47955)\(^{10}\). The results presented relate to one of the focal points of the research, the object of which was to analyse tutor interactions within the context of mediatised communication tools, namely a virtual classroom.

In technical terms, this tool is the “New Gate” WEB-MOO interfacing, in other words, the connection between the virtual environment of the MOO tools (TECFAMoo) and the WEB. This interface was already presented in public at the IN TELE 99 symposium in Yena in 1999 (Peraya. & Brouze, 2001). New Gate has three zones:

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   2

   1      3
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*Figure 1: The three interface zones of NewGate*

Zone 1: Strictly speaking, this relates to the “MOO client”, which enables the user to move within the environment. This zone is also used to type in commands in order to influence the environment and to communicate in writing with the other people involved.

Zone 2: main display zone for the WEB layer, which gives a representation of the room location and the objects being used. This is also where the documents that the teacher wants to show to the students are displayed.

Zone 3: secondary WEB layer display zone: this makes it possible to display WEB layer documents which are in reduced format, or which contain information that justifies a permanent display, such as the study timetable.

Thanks to this lightweight standard interface, students can use the virtual classroom to participate in group study sessions from home, or from one of the IT rooms of the university. They just need a computer connected to the Internet. The teacher, or trainer, benefits from the same flexibility of access. They can prepare study aids such as information sheets or files, assessment questionnaires, use any document that can be accessed on the WEB as a teaching

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\(^{10}\) This is a Poschiavo Project subsystem that was initially run by the Swiss Institute of Pedagogy for Professional Training (ISPFP) in Lugano in collaboration with the Department of Psychology of the University of Neuchâtel.
resource, and consult their students responses in either real or delayed time. Moreover, they may also analyse the exchanges that take place after the lesson, in order to complete their teaching by giving appropriate feedback.

This environment also provides all the possibilities included in a conventional MOO environment:

- group and public communication between the different participants, and also interpersonal or private conversations (function page),
- the use of communication modalisation functions such as the emote, the mood, verbs, etc. This range of possibilities represents as many utterance modalisers as it reintroduces utterance indicators, and relational and contextual values into the latter;
- the spatialisation of the tools, as they have been created in accordance with the cognitive interpretation framework attributed to them by the class metaphor: the seats, the notice board, the division of space into different zones for each work group, etc.

The virtual classroom is a synchronous communication space that is also equipped with control and regulatory instruments adapted to specific teaching requirements. Thus, the teacher and the students can comment on each person’s work contribution as soon as it is displayed and can be viewed by everyone. Today, one of the well-identified difficulties of this type of virtual environment is caused by the lack of collective reference space for users - this obliges them to contextualise everything, and prevents them above all from using deictic functions of language. This problem is partly solved through the display instrument controlled by the teacher.

INTERACTION ANALYSIS
During one of the postgraduate STAF classes, the students had to give a presentation on the state of progress of their work in this virtual classroom. In 1998/1999, five seminars were automatically recorded, converted and prepared in order to create a definitive corpus of 1397 interactions that could be encoded and then statistically processed.

The study (Peraya, 2000a) first analyses the constraints of the media resource that are due primarily to its one-track nature and to the loss of all that constitutes the “carnal coefficient” (Weissenberg, 1999), or the analogical aspects of communication. It particularly demonstrates how conversational units are formed according to the display constraints pertaining to this instrument. It then throws light on various themes relating to mediatised training and communication resources.

The participation rate
This preliminary analysis deals with the individual behavioural patterns of the subjects, and not the characteristics of the mode of communication used in a virtual classroom. However, we thought it interesting to see whether behavioural patterns observed could be based on a functional division of roles in the pedagogical relationship, and whether they were comparable to those observed through the use of more conventional teaching methods.

According to the initial results, the observed participation rate did in fact seem to show distinctions between the different participants, thus making it possible to individualise the teacher’s behaviour and, to a lesser extent, that of two other participants. Moreover, we tried to find out whether these behavioural patterns could be used to establish certain hypotheses relating to the type of the tutorial within the context of such a mediatised teaching resource. Among the range of indicators used to take account of the relative participation rate of each contributor, the intervention rate expressed as a percentage of total interventions remains an interesting one, as it allows comparisons with other published results to be made. The value
of this indicator for the teacher was 40.6% of all interventions, which is hardly surprising: the teacher's predominance can also be observed in all other teaching methods. One will recall older studies on the verbal interactions in face-to-face classes, particularly Tausch (1962, 1970), of Glauss (1954) or of Floyd (1960) all three quoted by Postic (1977:163) or those of Postic itself. In the primary classes, Tausch, which is based on the word count pronounced, finds a proportion of 41% for the pupils and 59% for the teachers. In classes of 13-year-old pupils, Clauss as for him observes that the teachers formulate 80% of the verbal acts. The proportion observed by Floyd is slightly lower, that is to say 71% of the activity allotted to the teacher. Lastly, Postic observes the relative share of interventions of the professor and the pupils during fifty minutes of course and obtains a relatively stable proportion between 30 and 36% of interventions of pupils for 70 to 64% of interventions of the teachers. The author concluded: "Whatever the variations between the figures given, those clearly show the dominating share of the Master in the school dialogue, whereas it believes to grant a bigger part to his pupils. It is him which emits, receives, control the whole of the communications in the class by centering them on him".

The studies of Cerisier for primary teaching clearly show the influence teaching style on the communication flow. This brings up further questions as to whether or not other influencing factors can be observed, such as the activity of teaching/learning, the training of the teachers and their age. One can as imagine as the weight of the dialogical behavior learned such as described Postic in certain particular activities more significant as in others and in particular in this case, being the presentation to the teacher of the first drafts of the work of the students in a process of formative evaluation. That would suppose also the incapacity of the teacher and also of the students to undoubtedly transfer part of the role from the trainer on the collective of the students and to thus create a dynamics between the pairs. In other words, it would agree with the implicit model and the rules of what Michele Joulain named the school dialogue (1990). Lastly, at the university level, within the framework of the communication mediated by computer, many studies, particularly that of McDonald and Gibson, show that the participation rate of the teacher or the tutor in a virtual work environment is similar to face-to-face situations and borders the 50%.

Two other participants – studentsassistants – accounted for an intervention volume which, although much lower than that of the teacher, was significantly higher than that of their colleagues. If the volume criterium is adopted as one of the "pedagogical dialogue" criteria (Joulain, 1990), they could be said to follow a behavioral pattern that is closer to that of the teacher. If the volume of their interventions during the various sessions is also observed, particular attention will be given to the fourth session, during which these two show the highest relative individual weighting indicators, while the teacher accounts for the lowest participation volume.

It can therefore be assumed that these contributors have taken on part of the responsibility for conducting the seminar, which is also reflected by the semantic analysis of the interventions. Some of the questions and comments come directly from these two participants. Whenever considerable interindividual variation is observed, it is also accompanied by a certain level of intraindividual variation. For example, the percentage of interventions made by the teacher fluctuated between 51.2% during the first seminar and 37.3% during seminar 3. Even though the teacher remains the main contributor and assumes the role of managing the seminar and assessing the work almost entirely, their dominance seems to weaken and stabilise at around 37-38% (seminars 3, 4 and 5). This is doubtlessly due to the fact that a larger number of students took part in these sessions (9 or 10). The one exception is seminar 4, which was attended by only six people, and during which contributors 7 and 5 took on enormous importance, accounting between them for an intervention percentage almost equal to that of the teacher – 34.6% and 38.9% respectively. This would therefore confirm the existence of a
relief effect that could serve as an invaluable aid in the management of tutorials, with a view to the mutualisation of the latter, thus constituting a first concrete response to the cost actually incurred by a tutorial using this type of training resource.

**An intervention typology: the dimension and length of the interventions**
The relational episodes of beginning and ending a session are quite similar in content to those observed during videoconferences. On the other hand, interruptions in episodes affecting content due to the arrival of a new participant are characteristic of synchronous communication resources. The automatic announcement of a new participant is in fact the only way in which the other participants can be informed of their arrival. However, this unfailingly represents significant intrusion and an actual interruption that almost always triggers a secondary relational episode. Conversely, the late arrival of a new contributor at videoconferences is perceived visually, and hardly interrupts the current thread of conversation at all.

On observing the development on the number of "content" type interventions, a rather constant increase of 54-63% can be noted over the sessions, which could lead to the assumption that the use of this teaching instrument improves progressively with regard to the main task – namely, the presentation and analysis of students’ work. On the other hand, the relative distribution of control and relation interventions does not seem to comply with any clear logic. The only thing that appears to be established is the impact that the number of participants has on the number of control interventions. These more than double when the number of participants increases from 6 to 8 or 9 contributors.

It could therefore be assumed that half a dozen participants could constitute the critical limit for an interactive group using such a teaching instrument.

**CONCLUSION**
This study throws new light on the analysis of virtual training and communication environments, thus enabling new questions to be raised, and doubtlessly contributing to the development of the paradigm. Numerous studies have been carried out on the role of spatialisation and the spatial metaphor in virtual environments (by Dillenbourg, Mendelsohn & Jerman, 1996; Hesse & Schwan, 1996; Peraya 1999, 2000b; and others). All agree on the importance of the spatial metaphor as a cognitive interpretation framework (Lakoff & Johnson, 1980/1985), which helps users to realise the task and improves the suitability of the environment in which they reproduce "natural" behavioural patterns typical of real space, especially as far as the respect of proxemic constraints is concerned (Verville & Lafrance, 1999). The fact that teachers and learners reproduce the behavioural patterns adopted in a real class in the virtual context of a virtual classroom appears to us to challenge the status of the metaphor. Is it really what determines the behaviour of the actors in the process under study, or is it the resonance of the task itself, the routines that provides structure on both a cognitive and behavioural level – is it the familiarity with the role and positions of each person in a training process that represents the determining factor? The fact that the forms of communication modalisation provided for by the system were hardly used, if at all, by the contributors can most probably be explained by the cognitive cost to the student, or even by ergonomic failure. However, it could also simply be because the task did not make their use necessary. In other words, the role of the metaphor in relation to that of the task itself would most probably need to be relativised. And perhaps one should also ask which conditions and in which cases the metaphor could constitute a positive element, and in which others it could, on the contrary, help to reproduce conventional habits, thus thwarting innovative behavioural patterns.