

Potential and limits of a constructivist methodology for open and distance language learning : A case study

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*Tous les moyens de l'esprit sont enfermés dans
le langage; et qui n'a point réfléchi sur le lan-
gage n'a point réfléchi du tout*

(Alain, 1932: 66).

1. The constructivist learning approaches

In the field of the science of education, the constructivist current breeds the Piagetian idea according to which subjects are endowed with an energy potential and capacities that allow them to apprehend reality by a conceptual iterative restructuration, realized through their experiences. This developmental approach postulates that knowledge is constructed in the learner's subject mind and not transmitted by teachers or by mediated supports.

Vygotsky's studies (1934, ed. 1978, ed. 1997) have revealed that, if learning is a process of appropriation of reality, it is also a process of appropriation of *tools* that allow learners to apprehend this reality and that language constitutes one of these tools.

Researchers' work that follows the socioconstructivist current adds to that assessment of an intrapsychic elaboration of knowledge through the language bias, the interpsychic elaboration of a social interaction.

It has thus been demonstrated that the succession of interindividual confrontations might allow the construction of cognitive schemes and

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that the new competences acquired might lead to a greater autonomic activity of the subject and then to new constructions (Doise & Mugny, 1981; Perret-Clermont, Schubauer-Leoni & Grossen, 1991: 17-40). These interactions lead to the apparition of sociocognitive conflicts. The competitive relation that it produces must be perceived as a positive factor motivating learning on the level of attitude as it leads to a negotiation on the cognitive and relational level that usually leads to the adoption and the appropriation of a solution commonly elaborated. It also seems that social motivation can induce cognitive motivation.

Influenced by cultural psychology research (Brown & Campione, 1995: 11-33; Bruner, 1997 and Perkins, 1995: 57-71), we can perceive in this action-oriented approach a way to immerse learners in a «culture of shared artifacts» and to contrast the *culturality* of knowledge with the universality of knowledge. In this last perspective, culture can be compared to a filter that allows us to make sense of reality through symbolic, intellectual and material means. This approach recommends, among others, attending to the participation of the individual in quest of adaptation to the culture, the research of a joint attention centered on the task and on a common language and actions, as well as the systemization of the questioning of initial knowledge.

According to Vygotsky's (Vygotsky, 1934, ed. 1978, ed. 1997) vision of education and in perfect opposition at this point to Rousseau's ideas¹, the educator's role is to assist the learner actively in the resolution of new problems he or she faces. This assistance can be obtained through precise techniques. Thus, while introducing the notion of «shoring», Bruner (1981 & 1996) has indexed, among others, techniques of enrolment, of reduction of the degrees of liberty, of the maintenance of the orientation, of signalization of determinant characteristics, of control of frustration and of presentation of models.

The socioconstructivist approach seems to allow a construction of knowledge and a development of competences that lead the learner to a certain autonomy in social life and in the pursuit of his learning processes.

1. Cf. the conception of «negative education» in *L'Émile* of Rousseau (1762, ed. 1966).

2. The socioconstructivist approach and the action-oriented approach of language learning

In the more restrained context of linguistic teaching process integrated in a socioconstructivist pedagogical approach, the process of learning could be defined as a «co-construction of knowledge by mutual shoring among peers or by contact with the users of the target-language (Catroux, 2006: 3)».

We might be slightly tempted to modify Catroux's already quite precise definition by adding a second prefix «re» between «co» and «construction» to indicate the preexistence of representations of the culture-languages, of representations of their learning process, of meta-representations and to point out the fact that these *initial representations* can also be questioned during the learning process. Let us finally add that it should not only concern the construction of knowledge, but also of *competences* that knowledge can contribute to effect. Thus, the adjusted definition of the learning process of constructivist obedience² that has been carried out for the development of competences of communication in foreign languages, in the mediated learning environment to which we shall refer, could be the following: *co-(re)construction of knowledge – and of inherent competences – by mutual shoring among peers or by contact with the users of the target-language.*

In the specific context of open and of distance language learning, the precepts of the socioconstructivist approach of learning seem more than ever to join those of the action-oriented approach of learning and of the use of the language lauded by the *European Common Reference Framework* (2001: 15 and following). Indeed, if we begin by accepting Lebrun's proposal of interactivity, defined as «a potential state dynamized by pedagogical and didactical situations in which knowledge, and mainly learners and teachers interact (Lebrun, 2002: 79)», we can, according to the results of Schwier and Misanchuk's (1993) work, distinguish, in any learning sequence organized in a mediated environment, four «modes» of communication, characterized among others by the degree of interaction and the type of interactivity they allow. There are reactive, proactive, mutual and interpersonal modes.

2. The length allocated to this publication does not allow the presentation of the *constructionnist* dimension that significantly contributes to the increase of the efficiency of the socioconstructivist approach.

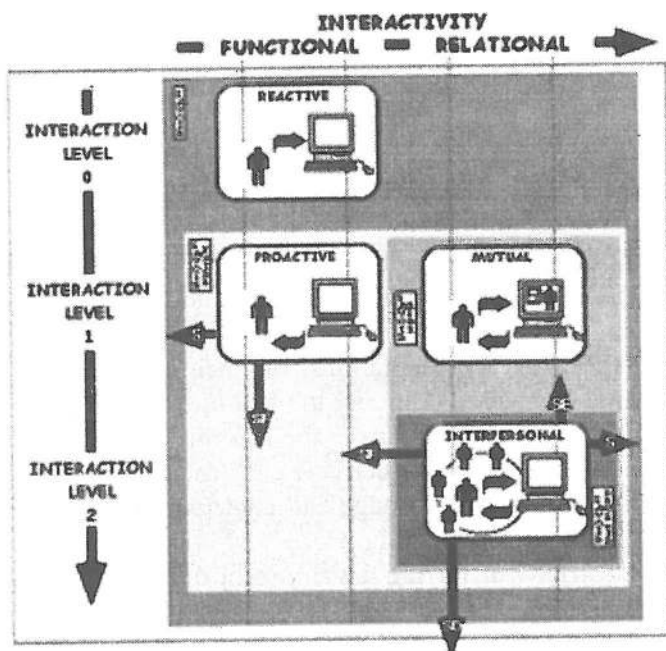


Figure 1. – Figuration of the organization of concepts of reactivity according to Lebrun & Vigano (1996a & 1996b)

The constructivist approach of course privileges interpersonal mode situations of communication that, by the fact that they only take into account human interactivity, give the mediated environment one of its original social functions, that of *mediator* of thoughts.

The learner finds himself or herself placed in a community of people in which he or she plays a motivated role: he or she is a social actor on whose status is centered the whole action-oriented approach presented in the *European Common Reference Framework*. (2001: 15 and following).

3. The case of a course of initiation to the composition techniques of scientific texts

In this communication, we shall report the results of the validation that has been attempted for the following hypothesis: *The constructivist approach applied in a mediated learning environment induces a quantitative and qualitative increase of the relational interactivity.*

Our observations concern the sequence of a course called *Composition Techniques of Scientific Texts*, organized for the first time during the autumn semester of the 2006-2007 academic year at the Section of Linguistics and of Didactics of Languages of the Department of French Language and Literature of the Aristotle University of Thessaloniki. The participants are Greek-speaking students for whom French has the status of a foreign language.

The on-line learning platform used for this course was the *Moodle* platform, chosen for the resolutely socioconstructivist orientation of the pedagogical objectives predominant in its conception.

In addition to the classical functions of a content management system, Moodle proposes functions that authorize the administrative management of not only the learners, the process of learning, the resources and knowledge, but also, and mainly, the tools of collaboration between peers or with the teacher. The four tools used in the case of this course were the *homework*, which allows the uploading of a personal file on the site; the *open forum*, which allows anyone to start a discussion; the *one topic forum*, which allows the organization of a discussion presented on a single page; and the *wiki*, which allows the creation and the commented and carefully archived edition of collective web pages.

Concurring evaluation processes were used progressively or at the end of the course. The data corpus they rely on is constituted as follows:

1. by logs listing 56,453 actions made on the platform by 530 students/course from August 2003 to May 2007;
2. by databases containing gross scores and final marks obtained by the students participating from October 2007 to January 2008, with the same teacher, to four courses based on the Moodle platform, among which is the one on which our analysis is made.
3. By answers offered to three questionnaires³ proposed in the framework.
 - of a survey on the use, during the same period mentioned, of the Moodle platform, conducted by Stafylidou (2007)⁴ and in which 50 users participated;

3. These questionnaires are all composed of multiple-choice questions, open- and short-answer questions and free-answer questions.

4. This study was conducted in the framework of research leading to the composition of a Master 2 dissertation.

- of an experimental evaluation of the courses of the Section of Linguistics and of Didactics of Languages of the Department of French Language and Literature of the Aristotle University of Thessaloniki that allowed the gathering of the answers given in January 2007 by 67 users of Moodle, among whom 22 participated in the course that our analysis mainly studies;
- of a more exhaustive evaluation (683 evaluation records taken into account), realized in June 2007, this time of 29 courses organized in this same section⁵.

The observation of these four data corpora allowed the establishment of a temporary list of variables⁶. Univariate statistical analysis (analysis of distributions) and bivariate (correlation research) have then allowed the elimination of redundant variables, a crossing of certain results, the neutralization of parasite variables and the perspectivization of certain obtained values.

4. Conclusions

The interpretation of the results of this analysis allows us to reach the following conclusions:

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5. Only the access to numbers that concern the observed course and to the section's average score for each evaluation criteria has been authorized.
 6. These variables are, for the logs: *horodate; ip address; session identification number, number of the click, of the course, of the student, of the interlocutor, of the task carried out, of the tool; for the databases: gross scores; notes; for Stafylidou's research: number of the course(s), of the student; access site; technological pre-acquirements; anterior or parallel use of another platform; time of use; number of uploaded files; signaling of registration problems, of connection, of files deposit, of calendar, of homework deposit, of forum use, of resource access; judgment on the degree of facility of use, on the variety degree, on the facility degree, on the motivation degree, on the satisfaction degree; general impression; for the sections' courses evaluation: identification number of the student, of the course, of the teacher; judgment on the course: first impression; favorite course feature; least appreciated course feature; difficulties encountered; estimation of the efficiency degree of the hours devoted to studying; desired changes; degree of adequacy to the professional/academic project; judgments on the teacher: first impression; knowledge; contact; evaluation; student's attitude; initial motivation; declared absence rate; explanation of the absence rate; weekly duration of the preparation/study; other judgments; impression on the teaching/learning sites; opportunity of the moment of the day when the lesson occurs; suggestions.*

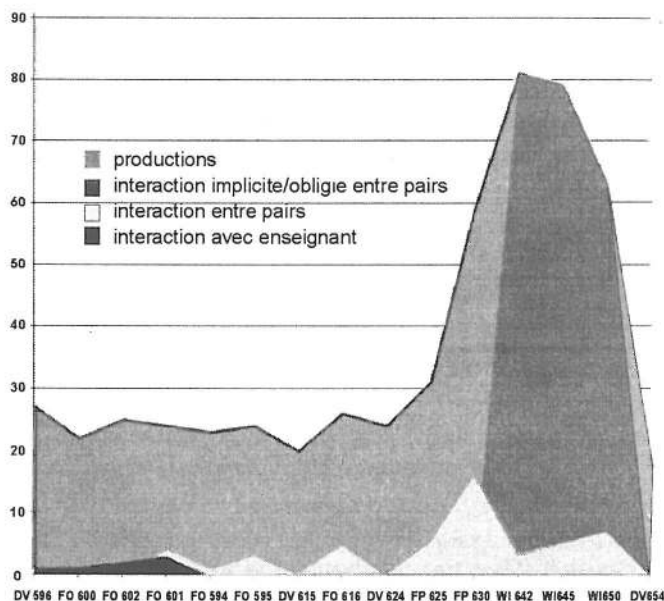


Figure 2 – Evolution of the registered activity rate week by week (by types of interaction and by tool used)

On the *interactivity* level, the evolution of the registered activity rate (Cf. Figure 2) indicates that

1. the time learners devoted to the activities of this course is markedly more elevated than the average time devoted to other courses⁷, whether they were organized in a mediated environment or not;
2. the importance of the activity rate is linked among others to the choice of the tool used for the construction of the artifacts;
3. there is also a close correlation between the activity rate, on one hand, and the importance of the number of possibilities permitted and the obligations of interaction imposed by the tool used⁸, on the other hand;
4. a progressive effacement of the teacher's presence – «knowledge giver» – to the profit of the peer's presence is manifested, already

7. Time devoted to the realization of activities for this course: 2h09; average time devoted to other lessons: 1h48.

8. The average activity per tool type used may vary from 7 to 61% of the total activity.

during the first weeks, by a total regression of the interactivity rate with the teacher⁹;

5. the activity rate is not necessarily proportional to the personal and/or domestic technology equipment rate¹⁰. To support this fact, we have observed that students who only have access to the platform from the university desktops proved to be more active.

On the motivation level, the following conclusions are drawn:

1. The observed correlation between the activity rate and the quality of produced artifacts leads to the conclusion that the course is motivating¹¹.
2. This hypothesis is confirmed by an almost nil absence rate, which the learners themselves explain mainly by their *feeling of learning*, their *interest* in the course and the *pleasure* of participating to the activities¹².
3. This hypothesis is also confirmed by the fact that the majority of students that have not attributed the maximal efficiency mark to the course ask for better technological equipment at the university and an increase in the number of activities to do on the platform¹³.
4. The increase of consciousness, by the learners, of the fact that they act as social actors is also manifest: for an example, in their judgment on the course and contrarily to the one they made on the other courses organized with the Moodle platform, they give priority to the utility criteria before those of interest or pleasure¹⁴.

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9. The figure 2 shows clearly the link between the activity rate and the potentials of interactivity peculiar to each type of tool: Homework (DV) 7%, Open Forum (FO) and One Topic Forum (FP), 25% and Wiki (WI) 61%.
 10. The Bravais-Pearson's coefficient is significant and close to 0.5.
 11. The Bravais-Pearson's coefficient is significant and superior to 0.9.
 12. The nil absence rate is mainly justified by *the feeling of learning* (27%), *the interest in the course* (22%) and *the pleasure of participating* (22%).
 13. 29% of the students do not attribute a maximal degree of efficiency to the course and propose an increase of the number of activities to carry out, notably by the addition of elective activities.
 14. For the considered course, the learners refer mainly to the utility of the course (86%), to its interest (41%) and to the pleasure of participating in it (27%). Inversely, for the other courses organized with the same platform, only 33% of the learners refer to the utility of the course, 58% to the interest it arouses and 58% to the pleasure of participating to it.

This increase of consciousness equally contributes to the increase of motivation and confirms the action-oriented character of the adopted didactic perspective.

5. The metacognitive competences equally seem particularly developed, since a more important proportion of students than in the other courses, whether they were organized in a mediated environment or not¹⁵, they recognize that their difficulties are more linked to their cognitive profile than to any other factor.
6. As for the autōnomization of learning, it is confirmed by the fact that the interaction with the teacher has progressively proven to be useless¹⁶ and by the fact that learners claim, in their majority and for all the courses organized on the Moodle platform¹⁷, to have surpassed their difficulties of the use of the platform alone.
7. However the system of evaluation seems to be a demotivating factor¹⁸. This phenomenon can be partially explained by the fact that the marks awarded are not the only reflection of the quality of the artifacts¹⁹ and by the fact that the initial representation learners have of the role that evaluation can play had not been questioned. The fact that the highest rate of satisfaction was attributed to the use of the «homework»²⁰ tool seems to reinforce the validity of the latter explanation.

Our research has definitely not allowed us to judge the quality of the learners' competences or performances: the amount of exploitable data

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15. 82% of the learners attribute the origin of their difficulties to their cognitive profile, versus 68% of the learners participating in other courses organized with the same platform.
 16. This presence is no longer perceptible in Figure 2, since the organization of the activity FO 594.
 17. 64% of the questioned students, according to Stafylidou's study (2007).
 18. 50% of the students declare themselves to be fully satisfied with the evaluation system versus 64% in the other courses organized with the Moodle platform.
 19. This can be, among others, explained by the fact that the correlations between the scores, the marks and the quality of the artifacts are moderately significant, and that the degree of contribution of each learner is not easy to determine and mainly to note that the functions of evaluation are not limited to the only evaluation of the quality of the productions.
 20. Here it concerns the upload of individual productions – thus non-collaborative, this time – for evaluation.

available to examine this matter²¹ was insufficient. Only the notions of interactivity and of motivation were analyzed and only four tools of mediated collaboration were taken into account in this case study.

It remains, however, that, in the context of the considered course, the results validated our hypothesis by showing that the constructivist approach applied in a mediated learning environment induces a true quantitative and qualitative increase of the *interpersonal interactivity* and of *motivation*, to the intensification of which this type of interactivity seems to contribute greatly.

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21. The respect of the anonymity at the moment of the completion of the questionnaires prevents us from matching, during the data analysis, the marks to certain other variables.

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