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# TIME MANAGEMENT IN VIRTUAL COLLABORATIVE LEARNING

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## Time management in virtual collaborative learning: the case of the Universitat Oberta de Catalunya (UOC)

#01 TIME MANAGEMENT IN VIRTUAL COLLABORATIVE LEARNING:  
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## ABSTRACT

The purpose of this article is to reveal the aspects of online collaborative learning in which the time factor plays an important role.

## KEYWORDS

*Collaborative learning; Time factor; Management; Online environments*

## INTRODUCTION

This article summarises a research project on collaborative work in virtual environments, conducted to find out what occurs in processes of collaborative e-learning in terms of the agents involved and, specifically, to extract the main benefits of the use of collaborative e-learning enabling us to identify two key elements in relation to the time factor.

One such element is the common stages for all groups:

- A) Team creation,
- B) Consolidation,
- C) Implementation, and
- D) Closure.

The influence and impact of different management styles on the work of each team are presented as two categories:

- A) Project organisation and preparation, and
- B) Project monitoring and closure.

This research was conducted by the Edul@b research group,<sup>1</sup> which has a research track on collaborative work and learning in virtual environments at the Universitat Oberta de Catalunya (Open University of Catalonia, UOC).

The UOC is a fully online university created 15 years ago that uses Information and Communication Technologies (ICT), particularly the Internet, as a means for

students, online tutors and instructors to interact with one another, and a specific educational model that has been developed since its inception. Student enrolments have increased dramatically in recent years, from 200 students in 1995 to over 45,000 at the present time.

The cooperative e-learning methodology has been applied in a number of educational and training activities since 1998, when it was incorporated into two courses as a pilot project. This methodology is now a consolidated course component, systematically applied and planned through a wide range of educational actions.

## METHODOLOGY

### THEORETICAL AND METHODOLOGICAL APPROACH

The virtual environment provides innovative opportunities for collaboration, communication and knowledge production, and increases the chance to learn and work as a team, thus far limited to physical working environments (Harasim et al., 2000).

Hence, this article uses the terms "cooperative" and "collaborative" interchangeably in the context of group work or teamwork, although some authors offer a different definition for each. Our view is that cooperative or collaborative work does not mean work performed by a team in which each member completes a certain section; instead, it involves an organisational structure that allows team members to work together (Guitert, M. & Giménez, F., 2000). The clarity of the ultimate aim is extremely important in cooperative or collaborative work and this overall aim must be clear to and accepted by all group members. The ultimate aim must be

broken down into a series of specific individual aims to ensure that the whole team works towards it.

Cooperative e-learning allows students to exercise the skills most highly prized in the workplace: working to rules that they have had to develop themselves as opposed to following pre-established rules; working in teams (which requires cooperative organisation and the planning of work), and developing interpersonal, communication and negotiation skills (obtaining the consensus required for decision-making, coordinating and integrating different ideas and viewpoints to reach common overall approaches, conflict resolution, etc.).

Several authors (Dillembourgh, 1999; Collis & Moonen, 2001; Garrison & Anderson, 2000; Harasim, 1995; Hiltz, 1998; Laurillard, 1998; Brindley, Walti & Blaschke, 2009; Garrison, 2006; Cabero & Román, 2004; Roman, 2003; Thompson, 2005; Suárez, 2004, 2007, 2009; Romero, 2008; Roberts, 2005; Brindley, Walti & Blaschke, 2009) argue that technology



facilitates collaborative learning because it requires active participation from

students (Paulsen, 1992). Collaborative learning leads to added value and new understandings with group members. Etymologically, collaborate means "to work together" and implies the idea of achieving objectives, of creating something new or different through collaboration, which is something more than simply exchanging information (Kaye, 1992).

We must also take into account the role of the time factor in virtual learning environments, as evidenced by the literature in the field (Bullen, 2010, in Bates et al., 2010; Barberà, 2010), although temporality is a key characteristic of the core concepts of CSCL - interaction, communication, learning, knowledge building, technology use - (Reimann, 2009; Reimann, et al. 2009; Zumbach et al., 2009).

At the UOC, this collaborative e-learning model (Guitert et al., 2007) begins by placing the student firmly at the centre of the learning process and basing all of the educational resources around him or her. Not only does the UOC give students a "virtual campus", it also provides other elements, such as teaching materials, a virtual library and a continuous assessment system, resulting in a truly integrated system offering all of the required support for a successful e-learning experience.

The student is seen as being at the centre of his or her own learning process and the other components are provided so that he or she can manage and control the process.

The role of the teachers at the UOC is to equip students with the tools and guidelines to facilitate their learning processes, while also responding to their needs. Instead of functioning as mere sources of information,

the online tutors become facilitators of learning.

At the start of the course, a learning process and working methodology are established for each student in the course plan, which also plans the content and assessment criteria for each subject. The purpose of this is to focus and guide the student's work in each term. The course plan is a basic tool for facilitating learning. The continuous assessment system is outlined in the course plan for each subject. Over the term, a series of activities must be completed and these are guided and assessed by the instructor responsible for each subject.

This assessment system ensures that students gain as much as they can from the course and that they reach the set goals in each subject. It also allows them to plot the continuous development of their learning process, evaluating and measuring their progress on a daily basis.

In the virtual classroom, students interact continuously both with online tutors and with their classmates, experiencing the joy of learning and generating knowledge by sharing ideas and proposals and resolving queries about course content, either individually or as a group. The virtual classroom provides students with planning, communication and evaluation functions and resources.

Collaborative work is a fundamental element of this ICT-based teaching model and any such model that sees the student as the centre of the learning/teaching process.

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## RESEARCH METHODOLOGY

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This research has assumed the postulates of the interpretative paradigm (Cohen, Manion & Morrison, 2005), seeking to obtain a holistic

view of the phenomena and the situations to be analysed in order to explain and understand them. It has also assumed the postulates of the critical paradigm regarding the usefulness of the research, given that it favours change.

The main purpose of the research was to find out what occurs in collaborative e-learning processes in relation to the agents involved, in order to determine the main benefits of collaborative e-learning and the key aspects of the efficient planning and management of its development and improvement.

To this end, the design of the research uses two methodologies based on the qualitative approach: the multiple case studies method (Stake, 1995; Yin, 2003) and action research techniques (Elliott, 1991).

In the research conducted over recent years, the most relevant elements of collaborative work with respect to the time factor are: the temporal stages of the groups and the importance of efficient time management.

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## STAGES OF DEVELOPMENT OF AN E-LEARNING TEAM

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Observation and analysis of the practical application of cooperative learning reveals that the virtual group tends to go through four stages in relation to the time factor. These stages are team creation, consolidation, implementation and closure.

The above four stages are all critical to the success of the virtual team, since they involve making decisions on diverse fundamental aspects of the process (communication, organisation and planning and the role of the tutor, inter alia).

Therefore, an effort has been made to systematise these stages and describe them as accurately as possible in order to be able

to recommend activities to facilitate student/teacher dynamics and on-going assessment throughout each of the four stages.

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### A) GROUP CREATION

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This phase begins when the teacher announces the group work activity on the teacher's notice board and it is completed when the group informs the teacher that it is ready to begin work.

We must remember that, as the setting is virtual, the students do not know one another. Therefore, groups will be formed on the basis of their virtual introduction to one another. Once formed, they inform the teacher.

Activities designed to allow students to get to know one another and provide information on the concept and organisation of collaborative group work.

During the group formation phase, the teacher's role is to facilitate activities and foster student interaction and mutual knowledge of one another.

In this phase, students are more dependent on external guidance since they do not yet know one another and will normally have had little - if any - experience of cooperative e-work.

During this phase, then, the teacher provides support and guidance to students.

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### B) CONSOLIDATION

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By the consolidation phase, the teams have been formed and are ready to undertake the programmed activities. Students previously had access to the general virtual "classroom",



while now each group has its own specific space, access to which is limited to group members. While the group dynamic is beginning to develop, the class dynamic is maintained. This is a period in which students continue to get to know one another and learn about and compare working methods and strategies, etc.

Our work has revealed this stage to be extremely important in the case of on-line group work, for two main reasons:

- 1) This stage is immediately prior to the beginning of the learning task.
- 2) It is a time at which all group members have the chance to begin to feel at home in the group work context. In a face-to-face situation, once a group has been formed, it comes together and begins to organise its activities. In a virtual on-line setting, a longer period is required for all members to get organised, get to know one another and make decisions.
- 3) Therefore, activities must be designed to facilitate internal group unity and a working dynamic, while also allowing them to establish social interaction - an important factor in the virtual setting, where there is no face-to-face contact. All of this is essential if the group is to subsequently produce work of high quality.
- 4) The virtual setting demands that aspects such as group organisation, work planning, the system and the frequency of interaction between group members and decision-making must be foreseen from the outset.

During consolidation, the teacher will frequently play the role of guide or leader in one of the following ways:

**A)** He or she may regulate the organisation of tasks within each group, by providing information, initiating activities, establishing

a system of communication and task planning, etc., or

**B)** He or she may provide support to the groups, fostering the development of the right climate for the consolidation and completion of tasks.

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### **C) IMPLEMENTATION**

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When the group has organised itself and acquired its own working dynamic, it enters a third phase: project or task implementation.

Observation and evaluation of various groups of different types has shown that groups work more efficiently when the basis for group functioning has been well established in the consolidation phase, since all members understand the parameters to which they must work.

From this point on, all decisions taken concerning planning and organisation, systems and frequencies of interaction, etc., must be applied to the subject content.

This is the phase in which academic results must be achieved. However, as mentioned above, its success is highly dependent on the previous stages. In the cases we have analysed, activities at this stage are closely linked to course objectives and methodology.

During the implementation phase, it has been observed that the teacher tends to play a monitoring role, intervening when the group needs help to overcome a problem or conflict, yet remaining sufficiently distant for the group to function and develop autonomously.

The teacher does not intervene directly at this stage, nor does he or she protect or control it excessively. If a problem occurs, the teacher tends to wait and create the

conditions in which the group members ask for help.

When the group has presented its completed assignment, the teacher evaluates the work done and returns it with feedback designed to help the students improve both in relation to the task and to their functioning as a group.

It has been observed that, as teams grow in autonomy, the teacher's role diminishes progressively to the point where he or she only provides help when explicitly asked by the team or when further progress is impossible without intervention.

When a conflict occurs (a member drops out without warning, failure to meet task deadlines, lack of consensus due to one member dominating the group, etc.), group members often ask the teacher to intervene.

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## D) CLOSURE

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Once the group has completed the project or programmed activities, the next phase is closure.

This phase involves the winding-down or dissolution of the group. At this point, it is important for the group to carry out a joint, overall assessment of the entire process and the results attained, not just in terms of the final product, but also in terms of the working process of the team. In the majority of the cases we studied, this phase simply involved presenting the product of the group work. The students are given self-evaluation and co-evaluation forms covering various aspects of the process.

At this final stage, the role of the tutor is to encourage the students to consider and discuss the process, consolidating the activity with shared feedback and evaluation.

Having described the phases of the process of on-line group work projects, we will now turn to the importance of optimum management of the working process for groups

## RESULTS AND DISCUSSION

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### TIME DIMENSION: THE IMPORTANCE OF EFFICIENT MANAGEMENT OF VIRTUAL GROUP WORK

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According to Pereña (1999), group work projects involve the coordination of three vital dimensions:

1) The technical dimension of the task and the nature of the activity undertaken. Certain technical skills need to be applied to complete the task in hand.

2) The management variable: this serves as a catalyst permitting optimum functioning

of all project components. Management is a special factor that integrates and harmonises the use of the various resources; it is decisive in terms of the overall result.



3) The human or social dimension: although perhaps not very evident and frequently ignored, a teamwork project entails a complex set of interpersonal relations involving many different points of view and interests.

Our study has shown that management is extremely important in an online or virtual setting, since the mainly asynchronous nature of the activity means that all aspects of the process must be appropriately managed and planned. Failure to achieve this could mean

that students spend too much time organising themselves, to the detriment of the academic task.

To examine the impact of management actions on the work of the groups studied, these actions have been divided into two separate groups in relation to time factors:

- Project organisation and preparation: planning, distribution of tasks and responsibilities, and initial agreements.
- Project monitoring and closure.

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## 1) PROJECT ORGANISATION AND PREPARATION: PLANNING, DISTRIBUTION OF TASKS AND RESPONSIBILITIES, AND INITIAL AGREEMENTS

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The actions in this initial phase include planning, the identification and distribution of tasks, decision-making processes, initial agreements and information exchange, and planning of the work schedule. The initial phase is closely linked to the consolidation stage described above.

These actions are performed by students in this initial phase. As pointed out by Pereña (1999), in any group work project, this organisation and preparation phase is extremely important. The characteristics of a project may require a preliminary or number of preliminary preparatory phases. These are vital for the project to get off to a good start, and thus deserve special attention.

It is no exaggeration to say that the success or failure of a project depends on these preparatory phases, although some people tend to downplay their importance in their impatience to see concrete results.

Our study shows that this stage is even more important in the case of asynchronous group work. This means that the planning of cooperative e-learning projects must focus particularly on preparation and organisation and must seek the most appropriate tools for this purpose.

The actions carried out in this initial phase are as follows:

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### A) PLANNING AND DISTRIBUTION OF TASKS

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It is important for students to be aware of the overall number of tasks that need to be completed in each project. This way, they know what awaits them and what the final

result should be, and can organise and plan their work schedule accordingly. In certain subjects, students have to prepare the work schedule taking into account their own availability and coordinating this with the schedule of the other members of the group.

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## B) DISTRIBUTION OF TASKS

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Once students know what tasks they must complete and have planned working procedures for this purpose, tasks and/or responsibilities must be distributed among the various group members (coordinators of specific sections, secretary, person in charge of contact with the teacher, etc.).

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## C) AGREEMENTS

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In the area of agreements, the projects studied revealed three approaches:

- Students are encouraged to reach initial agreements.
- Students are offered a set of agreements that they must apply.
- Students receive no instructions on agreements.

Where students were encouraged to reach agreements, they either established a number of these or prepared internal procedures, regulations and criteria for group members. In the majority of groups, the agreements covered the following areas:

- Communication and information exchange: frequency of contact between members, response times, waiting times, etc.

- Decision-making methods, i.e. how decisions are to be made: by majority, by consensus, through a coordinator, by means of sporadic synchronous meetings, etc.

- The task to be completed: progress tracking, division of work, systematic pooling of progress, etc.

- Use of the virtual space: where completed work should be stored, the group member responsible for the organisation and functioning of each space, etc.

- Conflict prevention: what to do when a member does not participate, what to do if a member drops out of the group, how to deal with conflict, etc.

In short, in virtual group work projects, this initial preparation and organisation phase favours group dynamics. It is therefore highly important that this phase take place, rather than having students enter into direct contact with the tasks to be completed. It is also vital that students receive clear guidelines from the outset.

The time given over to this initial phase and its importance are determined by the nature of the educational project, regardless of whether it is explicitly taken into consideration and evaluated.

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## 2) PROJECT MONITORING AND CLOSURE

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According to Germel (1999), monitoring means examining a situation to detect variations from a given reference situation with the purpose of finding out where corrective action needs to be taken. Monitoring is not limited to the end of the

project, but is rather an integral feature of the process, from start to finish.

In our study of the cases on which this article is based, we identified two levels of project monitoring and closure in group projects at university level: firstly, and as





part of the continuous assessment process adopted by the UOC, the monitoring of group progress by students and the monitoring and evaluation carried out by the teachers, and secondly, closure actions taken by the tutor and the students. In this case, the teacher's actions also included evaluation, albeit as part of the final evaluation at this point.

The teams created mechanisms enabling them to monitor the process from three perspectives:

- Monitoring of time scales
- Monitoring of project outcomes
- Monitoring of the working process of the group, usually in relation to the initial agreements and procedures

In subjects in whom the work of the group is evaluated as an integral part of the course, external monitoring is part of the continuous assessment.

In courses that did not explicitly include the monitoring component, students either got lost, developed their own mechanisms for monitoring and evaluation or looked for other alternatives. Several teams held

## SOME REFLECTIONS

A new perspective is beginning to emerge on the subject of teaching methodologies in higher education. To ensure that this change is not restricted to the purely cosmetic level of formal change and that it actually leads to changes in teaching and learning, we must develop working methodologies that foster the exchange and construction of knowledge based on student interests, dialogue, discussion and questioning, in such a way as to promote the active and responsible involvement of students.

regular meetings or prepared individual internal reports to analyse their progress when sections of the task had been completed and submitted to the teacher.

The closure and assessment of the project are directly linked to the final evaluation. In cases of ongoing monitoring and assessment, the project closure included consideration of the process and continuous assessment adopted. By contrast, it was observed in other cases that project closure and discussion only concerned the mark obtained by the project outcome, i.e. the working process of the group was not taken into consideration. In several cases, closure was a twofold process involving the presentation of the project outcome, and personal self-assessment by group members, together with a final group assessment.

In cases that included a final assessment system taking into account all aspects of the process, through self-assessment and a final assessment, it was observed that students were more conscious and appreciative of the procedural learning that had taken place.

Closure comprises individual self-assessment, co-assessment and the consensus-based group assessment and final report.

These virtual learning contexts create new possibilities for education, which should be incorporated into higher education as part of our drive to improve the overall quality of education. To conclude this article, we would say that there is strong evidence to indicate that time is a key element in collaborative learning. We have named two key elements: stages, and from the standpoint of group development and planning, the time management of the group.

Nonetheless, beyond innovations and new possibilities, the recommendations of the European Higher Education Area on the importance of group working skills must be taken into consideration. In order to promote the use of the virtual methodologies described in this article, the UOC research team will continue to work along these lines

to create guides for students and teachers, clear definitions of user needs in relation to tools (Perez Mateo & Guitert, 2009) and an ontological model in the context of collaborative work and e-learning, as well as further research into collaborative learning in virtual environments in relation to the time factor.

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## Footnotes

<sup>1</sup> See <http://edulab.uoc.edu>. The original group that carried out research on collaborative work was TACEV (Cooperative Work and Learning in Virtual Environments, 1998).

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