

# One Size does not fit all: A case study of combining networked learning methods and tools

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## Abstract

The combination of more than one pedagogical methods and tools in order to “fit” both with the learning objectives and constraints of the setting, seem to be a “raising” proposal, in contrary of stressing the pedagogical design, to fit with the available tools. This paper describes the work on the selection and integration of different pedagogical methods and tools in order to address specific needs of a given authentic educational setting. Asynchronous communication with LMS and synchronous communication with virtual classroom and collaborative networked activities are combined to support f2f traditional teaching of Algorithms to first year students of University of Macedonia, Thessaloniki, Greece. To support participants, we have designed well defined conceptual “spaces” to support them: a “virtual preparatory space” for the “class” work preparation (like a library), a “virtual classroom” for blended learning activities (like a class), a “private group space” for CSCL activities (like a desk), a “private room” for private discussion (like teacher’s desk), “small private rooms” for small groups activities (like a meeting table). Participants, instructors and students, had successfully switched among “spaces” and tools, students had participated actively, improved their performance and avoided typical mistakes in their exams .

## Keywords

Distance learning, blended learning, CSCL, instructional design, synchronous virtual classrooms, networked collaborative activities

## Integrating Networked Learning Tools: a case study

Blended learning, the combination of traditional educational activities in classrooms, supported by synchronous or asynchronous network mediated educational activities, offered from a distance, is one of the approaches that may be proposed to accomplish the learning objectives in higher education, being consistent with the values of traditional higher education institutions and having the proven potential to enhance both the effectiveness and efficiency of meaningful learning experiences (Garrison & Kanuka, 2004). Collaborative Learning (Kirschner et al, 2004), in parallel, is addressing the clear need for collaboration in Higher education and can be implemented by various tools. Our objective, during our study presented here, was to enrich the face-to-face classroom activities with new activities, both at the lab and distant, and that would involve more than one teaching approaches.

In our study, to achieve this, from one hand, we had to analyse, the specific educational needs, and the proposed methods, in combination with the pedagogical experience of the instructors, on the use of each method and tool and the technological characteristics and restrictions of available alternative tools. On the other hand, we blended the experiences and perceptions of the participants (instructors and students) concerning the teaching context that we were planning to integrate for them. Online activities did not replace traditional classroom activities, where first year’s undergraduate students of the Department of Applied Informatics of the University of Macedonia (UoM) attended Algorithms courses (Papadakis et al., 2006). We have decided to support traditional f2f teaching, with Synchronous Distance Learning in

virtual classrooms, where students are constituting a “class”, while located in various locations, and with Collaborative Learning among small groups (dyads or triads), where we expected negotiation and possible misconceptions to arise during problem solving activities.

The whole activity was organised in four phases (a) asynchronous web based preparatory work (b) web based synchronous teaching (c) collaborative problem solving activity as practice after theory (d) web based synchronous group discussion with meta-cognitive characteristics. Short activities successfully implemented in prior independent case studies, have been included. The integration of these activities brought up the need to set well defined conceptual “spaces” to support them. The “spaces” depending on their expected use were: a “*virtual preparatory space*” where students and teachers share material, communicated and prepared the “class” work (like a library), a “*virtual classroom*” for teachers and students to participate in blended learning activities (like a class), a “*private group space*” where students in dyads or triads would solve problems (like a desk), a “*private room*” for the teacher-student private discussion when private feedback and support was needed (like teacher’s desk), “*small private rooms*” for small groups meta-cognitive activities (like a meeting table). Various communication channels have been integrated to support the participants as video, audio, chat, synchronous drawing tool, etc. For the implementation of the above we integrated three environments (a) COMPUS, an e-class based LMS environment, (b) CENTRA, an environment to support virtual classroom settings, and SYNERGO (Avouris, et al., 2004), a synchronous collaborative environment.

## Discussion

A first round of analysis of the log files, records of the activities, and student’s questionnaires have been implemented. During the activity, participants adapted to the use of each space, participated actively in all tasks in each virtual space, and moved successfully through the available spaces. For example during their collaboration in the “*private group space*” using Synergo, when instructed, students moved to the “*virtual preparatory space*”, in CoMPUS, to get their instruction sheet, and later, they stepped in the “*private room*”, in CENTRA for extra support from their instructor. During the exams students have revealed deeper understanding of Algorithmic structures, than the average of their class, and better understanding especially in the aspects, they have handled during the activity. Students participated actively in the collaborative activities with similar behaviour, remaining on task. 85% of them have individually reproduced the activity in a video like format, before their exams. Teachers have used playback, too, to monitor students behaviour, and to identify existing misconceptions, especially during the collaborative activities in the private group space, which they were not able to attend, during the activity. Activities in Centra and Synergo, were reproduced in parallel, and gave us the opportunity to monitor paths that participants followed among spaces, and their behaviour in each space. We are now working in a second round analysis on these paths, and we expect to see what are the activities, tools and spaces that seem to be more effective for this setting.

## References

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