



**UNIVERSITÀ DEGLI STUDI DI BERGAMO**

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***Integration of  
E-tutoring in a  
Blended Learning  
Course in  
Mathematics***

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# Summary

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- Tutorship project
- Role of the holistic tutor
- Conclusions

# Preliminary considerations

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- School and university are, in general, the places where society can create for its students the possibilities to express to the fullest their own learning abilities.
- These possibilities arise when both learning and teaching exist in constant interaction when the student is assigned a pro-active role.
- E-learning technology represents a fundamental resource in such an approach. It allows for a level of flexibility that permits lecturers to follow a creative teaching pattern of active teaching even in subjects where the theoretical aspects are prevalent, such as **mathematics**.
- Teachers and lectures are finding that mathematics is held in low regard by many students who fail to apply themselves and as a consequence have more difficulty in mastering the subject.

# Some note on tutoring and autonomous learning

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- tutoring can be appreciated for its role in creating relationships of varying kinds and therefore seen in a more complex light of “tutoring process”.
- type of relationship different levels co-exist:
  - *inter*-personal that is reworked by degrees (in a co-progression between the participants)
  - *intra*-personal sense (that is, of personal development.)
- “tutoring process” as a whole brings into focus questions on dependence and autonomy.
- within a tutorial process the student can develop the skill of “resilience”, that is, the ability to bear, tolerate (to a certain degree) and rework hardships (included those on a psychological level) that are inherent in an educational life which can derive from minor failures, beaurocracy, personal management, expectations etc.
- tutorials lead by lecturers, remain discipline specific and essential in the discovery and understanding of crucial subject points and those on which to work during the tutorials themselves.
- Considerations that emerged from teaching experience lead us to define a tutorial function of a different level that is less discipline based but rather focuses on more specific collaborative relationships.

# E-learning in a Mathematics course

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- Starting from 2004-2005 the Advanced Mathematical Methods course in the Economics faculty was delivered in blended learning mode.
- The course took place with modules each one over 4 weeks and the activities contained therein echo the classroom structure of the course by developing topics and deepening knowledge through practical activities, tests and exercises.
- The lecturer noted how interaction in the e-learning part of the course was solely lecturer-student, with students constantly referring to the lecturer's superior skill and knowledge of the subject completely bypassing other students.
- Students divided into two broad camps:
  - average-low ability students, who preferred to undergo practical activities, exercises and tests and showed little interest in participating in forums or more collaborative problems
  - average-high students who participated actively in more complicated problems and showed some willingness to interact with fellow students, or rather would respond to any adjustments made by other students to problems set by the lecturer.
- The lecturer was interested in drawing out the average-low level students in order to give them the confidence to participate more and therefore learn to interact more spontaneously with their peers in an elearning context.

# E-learning in a Mathematics course

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- The following year (2005-2006) a tutor system was instigated whereby certain students from previous courses who had demonstrated both skill in the discipline and active interest in the e-learning part of the course were engaged as tutors.
- The **idea** being that someone who was closer to the students themselves would be able to assess their needs, abilities, be able to oversee their online participation and bring out those who needed it.
- As the student-tutor had already participated in the course previously as students it was felt that they would have certain pre-requisites, namely:
  - they have enough subject knowledge to answer questions posted up in discussion rooms;
  - having had personal experience of life as a students on the course they would be able to understand, capture and resolve any difficulties that students on the course were having.

# Tutorship project

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- The project regards the involvement on the tutorial on-line and in presence activities of **three tutors**.
- Each tutor has
  - a different context and various tasks in order to support the different needs of the students and their particular approaches to study. In 2 hours weekly face to face time with the students the tutors can have personal contact with them in order to facilitate on-line collaboration and to have a good feeling of the going head of the course.
  - a personal forum and is in close contact with the teacher of the course in order to resolve problems and to ask for a direct intervention of the teacher if needed.
- In weekly meetings with the lecturer the tutors discuss problems and organize the activities of the next week.
- It is important that each tutor has very clear environment and a high level of autonomy in proposing and performing activities.

# Tutorship project



- Three tutors involved have been assigned the following roles:

<b>Tutor</b>	<b>Context</b>	<b>Tasks</b>
<b>Traditional tutor as discipline expert</b>	Each week this tutor takes a lesson face to face in which he proposes the solution to exercises and suggests some others which will be published on the e-learning course. In this way there is a connection between the activities in the classroom and the on-line communication.	Creates practical activities in the classroom and posts up problems for students to discuss on the website
<b>Tutor facilitator</b>	Frequently most students in mathematics courses had problems in using e-learning in an efficient way to create texts, publish materials, post messages. The tutor facilitator aids the students in this aspect.	Supports students in the production and publication of materials
<b>Holistic tutor</b>	This tutor participates in some of the lessons and is available for discussions with the students taking some appointment, if needed, for individual work.	Supervises students in their individual study paths by making suggestions and encouraging the use of all the available tools

# Role of the holistic tutor

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- The idea behind the holistic tutor is a senior student who becomes a reference point for the current student other than the lecturer, where different dynamics take place in the relationship. The tutors role is much more informal and allows as student who may not be too confident in his or her ability to make contact with a far more approachable figure.
- The use of the word holistic denotes a role that encompasses all aspects of both the course and the students' path through it.
- The holistic tutor not only operates on a didactic level but also maintains a watchful eye on the students' welfare. This role serves especially to promote life-long learning skills in conjunction with subject matter.
- The aim of using a holistic tutor is to create a figure that the student can refer to for whatever issue he/she may want to discuss.

# Conclusions

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- We have discovered in the course of examining a mathematics module over 3 academic years that the use of tutors in a blended learning environment, both in the classroom and online can be highly beneficial for students.
- Through the experience we have undergone we have decided to change the role of tutor from a disciplined based “teacher” to one which is more focused on the students’ interests, and so have created different tutoring roles.
- Evidently, these roles are in many ways “tailor-made” that is, they match skills senior students demonstrated when enrolled on the course as students.
- In this way we hope to bridge the divide between lecturer and student, between mentor and learner and allow students to develop for themselves skills that go beyond the subject matter in order to develop possibilities that signify that the students themselves will be able to fully partake in the tutoring relationship in an equal manner.
- In a subject such as mathematics, such a relationship is keenly sought if the students are to develop a fuller understanding of the discipline. Furthermore as university students it is imperative that they gain expertise which goes beyond disciplines and enhances their lifelong learning skills.