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A pioneer in the development of education technology

If you want to discover how technology will change higher education provision in future, Rome-based International Telematic University Uninettuno, a wholly online institution, which claims to be a pioneer of educational technology, may be a good place to start.



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UNINETTUNO

It has more than 25,000 students in 167 countries and enrolments jumped by 40% this academic year. It teaches programmes via nine languages – Arabic, English, French, Italian, Greek, and more recently taught in Chinese, Spanish and Russian.

Its students learn in interactive virtual classrooms incorporating augmented reality environments such as Second Life. And the entire platform is used as a research laboratory to test and apply new software to teaching and learning – talking textbooks and 3D holographic technology are among the developments currently being studied.

The research activities are led by President and Rector Maria Amata Garito, a professor emeritus of psychotechnologies in the university's faculty of psychology, who as a researcher focuses on training structures and methodologies, comparative education and new technologies applied to teaching and learning processes.

Garito designed and directed the first Italian distance university in 1992, NETTUNO Consortium, she designed the Arab Open University in Kuwait on behalf of UNESCO and designed and directed the only European television of knowledge, RAI NETTUNO SAT.

She has authored more than 100 publications, including a book entitled *The University in the XXI century, between tradition and innovation*, and has earned international and national prizes for her work, including the International E-learning Award (Academic Division) assigned by the International E-Learning Association.

That sharp rise in enrolments at Uninettuno "is due to students' positive feedback and the result of our extensive network of partnerships and collaborations with foreign institutions", Garito told University World News, and the university now claims to have "the highest number of American students of any Italian university".

She says delivering provision via the internet or other forms of technology has made it possible for the university to recruit some of the best professors in the world to teach a course or conduct a video lesson.

Another strength is that course materials are prepared in the language of teaching directly by the professors and materials are not mere translations. "Multi-language teaching is one of our strengths, because we are able to offer course material that targets the specific needs of students in a particular part of the world, like say the Arab world," Garito says. The use of nine languages ensures that international distance teaching is not limited by language.

In addition, courses and course materials are updated continuously to reflect new digital market demands and the rapidly changing global higher education marketplace, "especially in vocational areas that are most impacted by technology and digital innovation," she says. Since its establishment in 2005, Uninettuno has worked to strengthen relations and collaborations with other universities, especially in the Mediterranean and Arab worlds.

It was born from the work of NETTUNO Consortium, a network of 43 Italian and foreign universities, and the related Mediterranean Network of Universities, a network of 31 universities from 11 countries of the Euro-Mediterranean Area (Algeria, Egypt, France, Jordan, Greece, Italy, Lebanon, Morocco, Syria, Tunisia and Turkey).

Uninettuno now has 31 technological centres in Italy and across the world, which provide a physical space for students to follow the courses by distance mode, participate in training activities by video-conferencing and take exams.

Undergraduate, graduate and vocational training courses are offered in economics, engineering, law, psychology, communication sciences, cultural heritage, medicine and more. It has clinched agreements and collaborations with a number of foreign universities and institutions to offer 'blended' – often bilingual – masters degree courses. Some of its international partners include the London School of Business and Finance, the London College of Contemporary Arts, the Berlin School of Business and Innovation and the Open University of Hong Kong.

Democratising access

Since its establishment, one of the university's main goals has been that of 'democratising' access to knowledge through new technologies, such as television and the internet. Indeed, it has its own satellite TV channel, UniNettuno University TV, which broadcasts across Europe, Africa and the Middle East via the satellites of Eutelsat (channels 812 Sky Italia and 701 Tivùsat).

"Through our satellite channel we can reach people who do not have access to the internet and give them the chance to update their skill set and knowledge of a particular topic. Via our free-access satellite channel, anyone can follow our video lessons, watch students defend their theses, follow special events of the university and more. For this, we have won the Hot Bird TV award [given by Eutelsat TV] five times," Garito says.

As part of this mission, in 2017 it set up a 'University for Refugees', offering free higher education and professional training to refugees being held in refugee camps in Europe and the Middle East. "This is the project that gives me, and the rest of the university, the greatest joy," says Garito.

However, Uninettuno has also sought to carve a place for itself in the international distance learning space for its novel use of emerging technologies and their application to the higher education setting.

Through its collaborative software and e-learning platform, the university has created a digitised and multimedia learning environment, in which students watching modular video lessons can exploit a wealth of hypertextual links in real-time to enhance learning and understanding of the course material, said Garito.

Assisted by tutors, students benefit from a system of online chats, forums and wikis, where they can carry out unique collaborative learning and sharing processes.

"One of Uninettuno's strengths is that we have developed our online learning platform internally and can conduct research into the latest technologies first hand and explore how we can successfully apply these to the learning process. This is definitely unique in the world," she says.

Experimenting with Second Life

This has led Uninettuno researchers to experiment with and apply augmented and virtual reality environments to teaching processes and create three-dimensional (3D) learning environments and virtual laboratories like Second Life, favouring real-time interactions between students and teachers.

"Some tutors and professors hold class debates in the virtual world of Second Life," Garito says. "I myself use Second Life for one of my psychology classes and it is remarkable how students' avatars often remain in this virtual space long after I have logged out; there they continue to discuss and debate course material, often in a Second Life cafe or community space."

The university uses the latest technologies to create collaborative learning environments in which the student is at the centre of the learning process.

"In almost all of our courses this year, professors and tutors are using the 'Interactive Classroom' – an interactive inclusive virtual space for groups of 25-30 students and the professor or tutor, who prepare and study topics beforehand, and in which they, themselves, lead discussions face-to-face and in real-time.

"In traditional universities this would never happen. According to our research, students participating in these virtual classrooms appear less shy and are more open and communicative; all positive factors which in the end enhance learning," Garito says.

Students also meet on forums and in chats, where they discuss topics related to their courses, Garito says. "Forums and wikis are interesting because they often result in the creation of new course material and wikis by the students themselves, and this is an extremely important evolution in the learning process."

Talking textbooks

The university has also developed a prototype of an augmented reality (AR) textbook, complete with interactive virtual reality (VR) learning applications. The textbook is called 'Talking Textbooks' (Libri che parlano) and the course material literally comes alive when pointing a smartphone in front of the computer screen, allowing students to view videos and interactive 3D reconstructions of people, places and things about the topic in question.

"This is our latest prototype, which we have not yet brought into our virtual classrooms due to a lack of funding; however, it is just one idea of how emerging technologies like VR and AR can be used in teaching today," says the rector.

Da Vinci's hologram explains

The use of holograms in teaching is also currently under study by the university's researchers. "The ways we could use 3D holographic technology in the learning process has great potential – imagine learning about Leonardo da Vinci's inventions directly from a hologram of Da Vinci himself, as he explains them to you. Or think of a hologram of Luigi Pirandello [a poet who died in 1936] as he recites one of his poems," Garito says.

"Indeed, if we could create holograms of the world's most important historical figures, give them a voice and bring them inside the homes of all people, this would be an incredibly immersive and emotional experience for students and humanity in general. The holographic presence, albeit digital, would greatly enhance and augment learning. We are working in this direction and would be very pleased if we could realise this development in the near future," Garito says.