Computing and Virtual Resources as Tools in Botanical and Environmental Teaching/Learning and Research in the COVID Pandemic Crisis

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At the beginning of current year 2020, the confinement caused by the Covid pandemic was announced. The activity of the factories, services, leisure places, and, of course, universities was stopped. It was a necessary madness, and we adapted to this madness in record time. 'What to do?' we wondered. Searching the best response, the online activity took center stage. we thought that Current generation of students (Generation Z) have had access to the Internet, computers, smartphones and/or other devices like tablets, since their early childhood. In general, these students are at the forefront of adopting new technology platforms in comparison to older generations. In addition, the young people of today respond in a special way to impulses that are not caused by the material reality of the moment, but by virtual realities and through digital stimuli. In this sense, and after analysing all action possibilities in the confinement circumstances, we re-discovered that new information and communication technologies (ICT) provide the possibility of designing realistic, authentic, global, even fun, distance-learning environments [1]. Students at bachelor, master and PhD levels must have a space, either real or virtual, where acquiring knowledge and skills according to their own time and pace of learning. The computing and virtual resources as ICT are perfect tools when presence learning activities are not possible, because of they provide the necessary teaching/learning space in form of virtual space, where any situation and idea is possible to display, to analyse and to develop. Among the list of ICTs applied in university teaching (at all levels, research included), virtual teaching methods are especially relevant. Virtual teaching play an important role in teaching strategy, and one of its tools is virtual reality (VR), which emerged from video games, from which augmented reality (AR) emerges [2]. These resources have been useful to promote learning in cases as the confinement that we have lived.

The Botanical and Environmental teaching/learning and research are special because they require shared field trips and laboratory activities. The magister classes, as well as meetings, have been replaced by on-line sessions and video-conferences, trying to encourage interaction between participants. However, the field trips and laboratory activities are experimental and on-site activities, and it is very difficult for developing them in other form. For the transformation of these activities, the use of VR and AR has been essential. The students have accessed the videos of excursions through QR codes, which were previously recorded at times prior to the Covid crisis. This multimedia material is available on YouTube and stored on a digital platform of the university. The laboratory practices have been delivered through interactive online sessions using microscope images and plants and landscapes' photographs, other virtual forms to know plants and their environments.

Maintaining scientific research on botanical and environmental field has been even more complicated. In this sense, resources as internet programs for virtual trips have allowed to visit and to examine landscapes, as well as to set-up and run simulations to evaluate the effect from specific factors. There are also plant virtual collections and virtual herbaria for studying the plant species. By the other hand, the use of computing programs for realising questionnaire and interviews has enabled us to continue on the ethno-pharmacology and ethno-botany research. Other resource that we would like to point up is the open-access journals because they are virtual journals that form a great virtual library which is available worldwide.

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Why am I commenting all these computing and virtual tools and their specific application on botanical and environmental field? The main reason must be searched on the changes in our life form that the Covid virus has produced. The world has never before faced a pandemic such as the COVID-19 influenza pandemic with worldwide effect, rapid contagion for all population groups and high number of victims. In this framework, containment associated with risk class caused confinement measures and paralysed the daily life activity. Computing, virtual and open-access resources have allowed teaching as well as research performance. We must not forget what has happened. We should be cautious and be prepared for other possible pandemics. We need to have good computing and virtual tools which allow to continue the daily life activities even when the confinement exist throughout the world.

Bibliography

1. Kirkley BSE and Kirkley JR. "Creating next generation blended learning environments using mixed reality, video games and simulations". *Techtrends* 49.3 (2004): 42-53.

2. Johnson L., *et al*. "NMC Horizon Report: 2016 Higher Education Edition". Austin, Texas: The New Media Consortium (2016).

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