Guest Editorial Preface

Special Issue on Digital Transformation: Challenges and Trends in Education

2020 and 2021 probably have been the most challenging years of education for both teachers and students. From the night to the day, teachers had to "know" how to teach online by providing a sort of Emergency Remote Instruction for all students. On the other hand, all students had to be experts and feel comfortable and motivated to be and study online. But, of course, this is the vision of a fairy tale. In reality, both teachers and students faced many challenges and made many mistakes. Many of the solutions implemented were not effective or efficient with the necessary effect on the learning outcomes. Nevertheless, there were some experiences and, more important than that, many teachers analyzed and reflected on their pedagogical implementations and results. This special issue is partially, the result of this reflection.

In this issue, readers will find a series of papers describing the challenges faced by teachers and learners during the pandemic crises, some of the solutions implemented and the results obtained. In the article "The Effect of Experience, Expectation, and University Readiness on Learning Satisfaction in Pandemic," authors analyze students' experience, expectations and campus readiness on students' learning satisfaction during the pandemic crisis. Results show that it is possible to be satisfied with distance learning as long as the studies programme is prepared according to some requisites.

The paper "Virtual Education Impact During Pandemic Times: The Case of Higher Education in Ecuadorian Context" discusses the problems brought by COVID-19 and the need to reinvent the methodologies used. The case brought by the authors can be inspirational for other educators, and it stresses the need and importance of collaboration with different specialists.

We all agree that during the COVID-19 outbreak, students and teachers faced an increase in stress and anxiety and understanding whether or not students could cope with the environment and the technology was (and still is) extremely important to understand what kind of changes are needed in the teaching and learning process. This is the contribution of the paper "Technostress Among Higher Education Students During the COVID-19 Outbreak."

The paper "The Pandemic's Impact on Technology Access and Course Progress for Information Systems Students" discusses the inequalities students face in accessing the technology, resulting in lower achievement. This topic may be worth revisiting in a few years as the effect of this situation might not be only for those with less access to the technology but something transversal to all students. One might think that the difficulty of having access to the technology was THE factor. Still, in reality, as mentioned at the beginning of this preface, there were more factors involved, including the lack of competencies of teachers in preparing the courses to be offered online. Moreover, one cannot forget that stress and anxiety also work for the teachers.

Besides the challenges faced by all the educational actors (students and teachers) during the COVID-19 lockdown, issues concerning the best pedagogy and the use of technological tools such as games or simulations, together with strategies for motivating students, were also a significant concern. Aligned with this discussion, we have the example of the paper "Internet of Things, Interdisciplinary Pedagogical Assessment, and the Promotion of Learning." In this work, the authors

explore the challenges the school faces nowadays, involving the students' motivation on how to adopt the technology. The authors give the example of embracing the Internet of Things in a course in the 3rd basic education cycle.

In the paper "MIDI-AM Videogames Usability in Virtual Learning as a Digital Pedagogical Tool in Emerging Economies," the authors analyze educational video games' usability as a pedagogical tool in primary early childhood education, particularly in virtual environments of emerging economies. The study explores the relevance of challenging games in the learning process. Results show that the use of video games is positive. Nevertheless, some challenges need to be faced and dealt with.

Another solution to motivate and engage students is forums. In the paper "Enhancing Student Engagement and Structured Learning in Online Discussion Forums: The Worksheet Video Walk Formula," the authors present the Worksheet Video Walk Formula, and they discuss the pedagogical challenges in designing and implementing it together with the implications for teacher presence in discussion forums, learning outcomes, student satisfaction and online pedagogy in large classes.

In the paper "Didactic Model Aiming at the Use of Digital Information and Communication Technologies in Science Education: Theoretical and Methodological Foundations," the authors present a work where they seek the construction of a teaching model that may guide natural sciences teachers around the design of proposals for implementing Digital Information and Communication Technologies, based on science education challenges and the Critical Meaningful Learning Theory. The result – Design-Based Research – allows the development of a model and validates the potential of technologies to meet the challenges science teaching entails.

The first and ultimate desire and objective of any course is to prepare students for the job market, hoping their skills, competencies and knowledge is completely aligned to what the employers need and expect from them. The paper "Diagnosis of Future Demand for the Design of University Courses" contributes to this discussion by exploring a method to determine future needs and competencies required to prepare future professionals careers, aligned with the demands of the job market and environment.

This series of papers is a small contribution to the discussion around the digital transformation and the challenges and trends in education in this area. Due to the pandemic situation, it is natural that the difficulties concerning the emergency of remote instruction have been one of the main focuses of researchers in the last months. This is reflected in the number of articles on this topic. Another issue concerns the use of technology and the engagement and motivation of students in the classroom. Finally, we align what the school offers and what the job market demands. The purpose of any educational institution is to prepare the student, the youngster, for the market. These papers constitute some examples of the reflections, challenges, and analyses taking place in the big educational system stage. We hope they bring some light to the discussion concerning the digital transformation in education. Finally, we wish that the reader enjoys it as much as we have enjoyed selecting and preparing this special issue.

Thank you very much,

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