Chapter 6
Designing Adaptive Learning Space by Integrating Technology to a Sustainable Classroom

Nükhet Hotar
Transport and Urban Development, Union for the Mediterranean, Spain

Bahar Baran
https://orcid.org/0000-0002-9179-3469
Department of Computer Education and Instructional Technology, Dokuz Eylul University, İzmir,, Turkey

Ayça Tokuç
Department of Architecture, Dokuz Eylul University, İzmir, Turkey

Esra Bukova Güzel
Mathematics and Science Education, Dokuz Eylul University, İzmir, Turkey

Ferit Serkan Akdoğan
https://orcid.org/0000-0002-5912-8469
Institute of Educational Sciences, Dokuz Eylul University, İzmir, Turkey

Emre Karagöz
https://orcid.org/0000-0002-4887-8168
Distance Education Application and Research Center, Dokuz Eylul University, Turkey

Lütfiye Özge Güney
https://orcid.org/0000-0003-1717-5379
Distance Education Application and Research Center, Dokuz Eylul University, Turkey

Cem Yıldız
Distance Education Application and Research Center, Dokuz Eylul University, Turkey

Şirin Nur Yacı
https://orcid.org/0000-0001-8212-221X
Distance Education Application and Research Center, Dokuz Eylul University, Turkey

DOI: 10.4018/979-8-3693-3641-0.ch006

Deniz Eraslan
Distance Education Application and Research Center, Dokuz Eylul University, Turkey

Aylin Dizdaroğlu
Distance Education Application and Research Center, , Dokuz Eylul UniversityTurkey

Seda Nur Apdik
Structural Construction Design, Dokuz Eylul University, İzmir, Turkey

Murat Tanaslan
Civil Engineering Department, Dokuz Eylul University, İzmir, Turkey

Özgür Bozdağ
https://orcid.org/0000-0002-5389-5739
Civil Engineering Department, Dokuz Eylul University, İzmir, Turkey

ABSTRACT

It is imperative to consider what adaptive and innovative learning spaces should include if higher education institutions want their students to be open to learning, creative thinkers and digitally literate. This chapter of the book starts with a review of sustainable learning spaces and continues with the introduction of technological developments (AI, IoT, Hybrid Education, VR, etc.) that transform traditional learning spaces into innovative spaces that better meet the needs of learners in terms of pedagogy, interaction, progress, measurement and assessment. Finally, the meta-classroom model, developed as a result of a project by authors from different disciplines such as educational technology, architecture, computer science, etc., is presented as an adaptive learning space model for higher education. This model prioritises diverse learning needs, takes into account the thermal comfort and indoor air quality of stakeholders in the classroom, enables lifelong learning and encourages learners' creative thinking and problem-solving skills in a collaborative learning environment.

INTRODUCTION

Innovative teaching methods, developing technology and the need for green campuses establish important reasons for redesigning old-fashioned learning spaces to provide quality education in higher education. Decision-makers can see building learning spaces as a redesign and construction process if they think only about the physical and manipulative parts of learning spaces. However, stakeholders using learning spaces are social and emotional beings, so evidence-based scientific research studies about learning spaces are quite necessary since they are limited