Design and Implementation of a Transportable Digital Learning Center

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Abstract

This research aims to construct a brand-new teaching and learning environment called Transportable Digital Learning Center (TDLC) which contains three important features: mobility, ready-made and self-contained features. TDLC is constructed for providing learning opportunities to (a) people in disaster areas with a temporary teaching and learning environment before their reconstructions finished; (b) people in undeveloped countries who do not have learning opportunities due to the lack of financial resources; (c) people in geographically isolated places like deserts or high mountain areas who do not have learning opportunities due to the isolation of their geographic locations. The mobility feature means that it can be transported to different geographic locations easily; The ready-made feature means that all the components of a TDLC such as access point, TDLC Server, power supply, Tablet PCs and charging devices used to provide a teaching and learning environment are all equipped inside the TDLC in advance; Self-contained feature means that it is unnecessary to provide it with any other resources like network connections and electricity to sustain its operation. Therefore, once a TDLC has been transported to its destination, it can be used to conduct teaching and learning activities immediately. In this paper, we describe the overall concepts, main components, system design and implementation, and teaching & learning activity design of TDLC. We also conducted an experimental English Situated Learning activity to evaluate the effects of using TDLC in the teaching and learning activity. Finally, some future research topics of TDLC are proposed.

Keywords: Mobile classroom, Mobile learning, Transportable Digital Learning Center, Situated learning.