Off-campus Experiential e-Learning for Students during Construction Site Visits: Development of Innovative Mobile App in Safety Audit for Civil and Construction Projects

Project Number: 6000455

Principal Investigator: Dr Ivan Wing Hong FUNG

Grant Type: TDG

Abstract:

Accidents and deaths at construction sites have risen in the past few years, reaching 3,160 accidents with 24 fatalities last year - the highest in the past seven years. Safety audit is considered as a systematic tool to monitor the effectiveness of safety management performance of the civil and building construction industry. It is indicated that there is a lack of responsive or interactive instrument to assist civil and construction students the learning of effective safety and risk assessment on-site practices in civil engineering and building construction project. Current textbooks/ notes are primarily text-based standalone check-sheet type tools which are either accessed via paper or software interface at workstations. Nowadays, the current and growing movement of mobile applications in the construction technology curriculum [e.g. 4-D ArcGIS (India), ConSafeNet (USA) and 4-D BIM (Finland), etc.] is offering new means and approaches to improve the inefficiencies of paper-based / powerpoint-based learning methods in these areas. Based on the basic concepts of 14 elements of Safety Planning Model (TDGs 2011) and the contents of Educational BIM Safety Model (TDGs 2012), and aligned with Discovery-Enriched Curriculum (DEC) by EDGE at CityU, a new innovative educational mobile/iPad app for safety audit and risk assessment at construction site, i-safe, will be proposed with intensive student participation.

Along with "Discover & Innovate" culture, the experiential learning mobile app will be developed for construction students together with discovering different scopes of risk assessment at the site visits (e.g. builder's work, civil engineering work and renovation maintenance, alternation and additional work, RMAA, etc.). After providing a series of DEC with D&I activities, such as a new DEC Web equipped with Flipped Classroom concepts, Brainstorming workshops in planned tutorials & lectures, construction students can use i-Safe, with corresponding risk assessment for each scope of construction project/ work (during visiting & studying the real project sites) by using iPads pre-installed, and finally draft the Safety and Risk Audit Report to that specific sites. Student, like an actual safety inspector on site, will learn what it means to create new knowledge in risk assessment, how to communicate it, curate it, and cultivate it to benefit construction company through this type of off-campus experiential e-learning! Finally, selected output of the student report submission will be sent to specific construction site management team for their references, comments and even action! (which can encourage students in active learning!) All comments will be delivered to the students for feedbacks. Selected good reports will

be participated in OSHC Best Project Award Competition 2015-16, yearly held by Occupational Safety and Health Council in Hong Kong in terms of pubic and professional assessment.