

A Discussion of the Digital Transformation of Workshop Courses and a Proposal of Digital Instructions for Early Learners Utilizing a Digital Transformation Designing Method

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Abstract

In an attempt to effectively introduce Digital Transformation (DX) into a laboratory training course, this paper divided course topics into knowledge and practical skills, examined them from the perspectives of taxonomy, motivation, and self-efficacy, identified some issues inherent in the current training sessions, and made some suggestions for improvement. In addition, digital instructions are created through four processes and showed examples of four types of creation to be used in laboratory course classes for beginners on equipment training, three-dimensional (3D) scanners and 3D printers, and laser cutting machines. Then, after implementing facility training using digital instructions, a questionnaire to the students suggested that the digital instructional materials were effective in helping beginners acquire knowledge and skills with a high approval rate. In addition, doing visual training using digital instructions beforehand will enhance the efficiency of their entire study. It is also thought to help prevent the spread of viral infection if the students are able to spend less time in the workshop.

Keywords: Digital Instruction; DX; Motivation; Prototyping; Taxonomy