Fostering 4.0 Workforce: A Case Study of Business-Engineering Integration Project

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ABSTRACT

This study aims to determine how to foster workforce 4.0 attributes to university students. Workforce 4.0 attributes consist of cognitive and physical abilities, process and system skills, content and social capabilities, problem solving abilities, technical aptitude, and efficient resource management. The researcher uses Communication for Business Result Course (in which she is the instructor) as a case study. She applies design thinking concept in the learning process throughout the course. The target population of this study consists of students registered in this course. As the researcher intends to deeply understand the students' experiences, attitudes, and interactions, qualitative research methods were applied. The sample consisted of four students who worked in the same team on a business-engineering integration project in this course. The researcher gathered data through participant observation along with in-depth interview. In addition, the researcher applied quantitative methodology by using structured questionnaire as an additional tool to retrieve measurable degree of the students' workforce 4.0 attributes that compares before and after working on this project. The interview, as well as the questionnaire, are used as a form of cross-checking information or so called triangulation, in order to ensure that the data accurately depicts the samples' feedback and the accuracy of conclusions drawn from the data. The results indicate that the integrated pedagogy of designing thinking and project-based approaches resulted in successful fostering of the nine 4.0 workforce attributes among the students. This integrated pedagogy could be a model to develop workforce 4.0 for the Higher Education System.

Keywords: Integration project based learning, 4.0 workforce, Thai University students.

INTRODUCTION

The global workplace is dramatically changing due to the impacts of the fourth industrial era. The fourth industrial revolution shifts the industry process from automated factory to intelligent and integrated digital systems. A study by Deloitte, the world-renowned multinational professional services network, forecasted that from 2018 to 2028, up to 4.6 million industrial jobs will be created. However, around half of those new jobs have potential to be unfilled due to the