Students' critical thinking skills, knowledge and awareness of industry 4.0

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Abstract

In consideration of future employment, students should be prepared to meet the demands of industry 4.0. Industry 4.0 requires employees to be critical in analysing data and able to work flexibly across a range of business scenarios. Even more convincing is that the World Economic Forum survey on future job highlighted the essentials of critical thinking and problem-solving skills for future employment. However, currently, most employers stress their concern on fresh graduates lacking critical thinking and problem-solving skills. Due to the fact conventional wisdom takes for granted that educational institution is a place to develop and enhance students' critical thinking and problem-solving skills, therefore this study explores the level of KUPTM Kuala Lumpur students' critical thinking and problem-solving skills. This study also explores students' awareness of Industry 4.0 in order to understand their perspective of the future workplace. It also aims to determine whether there are differences between student's academic experience, programmes and gender. A sample of 150 students from KUPTM Kuala Lumpur completed the survey. The findings from this research help us to identify the level of our students' critical thinking and problem solving skills and their awareness about current industrial challenges. The findings can also be used for courses continuous improvement which to develop students with a higher capacity for reasoning and logical thinking. Students who graduate with a greater ability to critically think will not only be valued asset to the workplace, but will also have a bright prospect for the future.

Keywords

Critical Thinking; Industry 4.0; Globalization; Digitalization; Gender Differences

Introduction

National Industry 4.0 Policy Framework reported that Malaysia has significant shortage of demanded talents, skills and knowledge for industry 4.0, especially in the areas of Internet of Things, robotics and Artificial Intelligent. Even though programmers and engineers are extremely needed because they are directly related in the field, but other jobs are also important to support the operation of business in the industry. According to the World Economic Forum Report (2016), in general, Industry 4.0 will require employees who are able to be critical thinkers, problem solvers, innovators, communicators and who are able to provide value driven leadership.

The National Industry 4.0 Policy Framework reported that Malaysia manufacturing firms have limited understanding of required future skills and expertise and limited in terms of readiness to embark on Industry 4.0 transformation. It is difficult to imagine on how industry 4.0 is going to influence graduates employability, but to generate competent graduates, universities need to provide skills that support the industry 4.0. For example, in the era of advanced technology, accountant may not need to spend their time gathering and entering client data or may no longer focus on preparing financial reports and tax returns, but they may be extremely needed in assisting organization maximize value creation through smart financial strategies or measuring and reporting on the firms' environmental footprint (IMA & ACCA,