Chapter 4
Future Ready Universities:
Embracing the 4th Industrial Revolution

Prema Ponnudurai
Taylor's University, Malaysia

Logendra Stanley Ponniah
Taylor's University, Malaysia

ABSTRACT

The sands of education are constantly shifting, and in order to stay significant, higher educational institutions (HEIs) need to reinvent themselves in the Fourth Industrial Revolution. With high global unemployment rates of fresh graduates and internal institutional challenges, future conscious HEIs understand the importance of the need to redesigned curriculum, content, and assessments to prepare graduates for employment. Through a detailed evaluation of the newly developed Taylor's curriculum framework (TCF), this chapter will elaborate on the core purposes of this curriculum framework and the governing principles in redesigning a curriculum that focuses on the 21st century needs. By shifting the focus from teaching to learning and by redirecting the focus of assessment from knowledge base to skills base, HEI graduates will be equipped meet the needs of industry, the Fourth Industrial Age and beyond.

INTRODUCTION

Since Prometheus stole the fire of knowledge from right under the noses of the gods on Mount Olympus and bestowed it upon mankind, humans have not stopped fiddling with it and creating striking innovations all throughout their evolution. (Ancient Greek Mythology)

There is an ancient Sanskrit adage; '*mattha pitta guru devam*'. Every Indian child would have had this old proverb instilled in their lives at a very early stage of life. The essence of this in order of importance is first in your life is your Mother (matha), followed by your father (pitta), then is your teacher (guru), and then comes God (devam). This proverb is as relevant today as is the role of a teacher as we move into the 4th Industrial Revolution (IR). Therefore, it is essential for educators to see the importance of

adapting to these changes by taking stock of their pedagogical genres in order to navigate through these times of technological advancements.

Throughout history, educational institutions have stood the test of time and have adapted to the different stages of societal, political and economic developments. Similarly, it is time to evolve towards the impending Industry Revolution 4.0 (IR 4.0) which is seen to be engineered by technology and heavily data driven. Looking at the past, the world has gone through 3 stages of revolution since the 18th century, the first being the 1st Industrial Revolution (IR) when 'agricultural societies became more industrialized and urbanized. The transcontinental railroad, the cotton, electricity and other inventions permanently changed society' with support from water and steam technology (History.com). The emergence of mechanizations allowed societies to be productive and provided a foundation for progress. Building upon this, emerged the 2nd IR in the 19th century which saw the development of other natural resources like; gas, oil and electricity. These discoveries further fueled the inventions of the telephone, telegraph and various transportation modes like the car and planes. The next wave of revolution was at the beginning of the 20th century, which brought about the invention of nuclear energy and the emergence of electronics.

Deeply rooted by the 'internet of things' (IoT) the 4th IR is fast approaching and is about to take on the world as never experienced before. This revolution, as we are witnessing, is increasing connectivity between devices and accelerating the availability of data through the evolving IoT, allowing them to interact with devices, services, and people on a global scale and is the central enabler of Industry 4.0 (Falkenthal, 2015). It is defined as an era of rapid expansion of digital technology and data - driven societies. Research in the area of IoT has indicated an estimated 50 billion devices would be connected to the Internet by 2020 (Evans, 2011), whereby devices will be highly distributed and heterogeneous devices will be interconnected and communicate in differently and autonomously (Barnaghi et al. 2012). During this period, it is foreseen that there will be greater reliance on technology, data and connectivity which will be readily available at our fingertips. As argued by Leong and Latif (2018), this era brings challenges for educators to promote digital experiences which lead to effectiveness and holistic contribution to the learning process. Hence, how will higher educational institutions (HEIs) and academics transform through these times, not just to adapt but leverage on these advancements to stay relevant in these unknown times?

OBJECTIVES

It is believed that this can only be achieved with the re-evaluation of the current social construct between, academic, industry and graduates. Therefore, the main objectives of this chapter will be two-fold; to identify current internal and external weakness in global university practices in the transformation of the university as an enterprise and recommendations leading to transformational teaching and learning methods.

Overall, these challenges can be divided into internal and external hindrances which will pose as a deterrence to fully embrace the 4th IR in the educational sector;

11 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/future-ready-universities/242453

Related Content

"The Fact That the Author Was Male Instead of Female Provided for an Objective Opinion": Implicit Bias in the Classroom
Julia Ferrara Waity, Jennifer Vandermindenand Kristin Robeson (2020). *International Journal of Innovative Teaching and Learning in Higher Education (pp. 44-60).*
www.irma-international.org/article/the-fact-that-the-author-was-male-instead-of-female-provided-for-an-objective-opinion/265506

The Student Experience of Video-Enhanced Learning, Assessment, and Feedback
James McDowell (2020). *Technology-Enhanced Formative Assessment Practices in Higher Education (pp. 20-40).*
www.irma-international.org/chapter/the-student-experience-of-video-enhanced-learning-assessment-and-feedback/232895

Challenge-Based Learning in Higher Education: A Malmö University Position Paper
Cecilia E. Christersson, Margareta Melin, Pär Widén, Nils Ekelund, Jonas Christensen, Nina Lundegrenand Patricia Staaf (2022). *International Journal of Innovative Teaching and Learning in Higher Education (pp. 1-14).*
www.irma-international.org/article/challenge-based-learning-in-higher-education/306650

Manufacturing Companies
(2019). *University-Industry Technology Transfer in the UK: Emerging Research and Opportunities (pp. 120-147).*
www.irma-international.org/chapter/manufacturing-companies/218763

Hardware-Free Network Internals Exploration: A Simulation-Based Approach for Online Computer Networking Course
Qian Liu (2024). *International Journal of Innovative Teaching and Learning in Higher Education (pp. 1-16).*
www.irma-international.org/article/hardware-free-network-internals-exploration/339002