

# Chapter 14

## Assessment of University Students' Industry 4.0 Conceptual Awareness Levels

**Gamze Sart**

*Istanbul University-Cerrahpaşa, Turkey*

### **ABSTRACT**

*The results of the intensive digital transformation in the world are manifest in all industries. Developments within the scope of Industry 4.0 in educational organizations change the structure and functioning of educational institutions on the one hand, while affecting and changing student competencies on the other. The aim of this study is to evaluate the Industry 4.0 conceptual awareness levels of 890 students from the Faculty of Engineering, Faculty of Economics, and Faculty of Education Sciences at Istanbul University-Cerrahpaşa in terms of gender, grade level, and faculty. As a result of the analysis, it was seen that there was a statistically significant difference in terms of gender, faculty, and grade level. It was determined that male students, engineering faculty students, and fourth year students had higher conceptual awareness of Industry 4.0.*

### **INTRODUCTION**

In particular, the rapid and unpredictable development of communication and information technologies enables the transfer of information in real time. In this context, the ability of developed countries or societies to maintain their competitive capacity requires that they develop their own strategies to encourage their industrial production and service sectors to stay relevant and compete in a dynamic and fluctuating global market (Morrar et al., 2017:13). It has also revealed a process that has been noticed especially with the beginning of the 21st century, where the future of changes and transformations has already been determined, and the speed of change and transformation continues to rise to higher levels. The transformation that emerged with this process is called digital transformation (Hirschi, 2018:195). Digital transformation and solving the problem of adaptation is one of the biggest challenges facing the industry. These challenges manifest themselves not only in terms of technology but also in terms of

DOI: 10.4018/978-1-6684-6620-9.ch014

management, human resources and education (Ballantyne et al., 2017:3). Researchers and all stakeholders continue to discuss the future impacts and consequences of digital transformation, both in terms of literature and practice.

The age we live in is leading to a process in which technological developments are trying to mutually transform societies in the world in an interactive process and determine their direction. In other words, technological transformation or digital transformation leads to a radical change that significantly affects individuals, businesses and societies in many aspects such as socio-cultural, economic and technology (Magruk, 2016:277). With the impact of digital transformation, also known as Industry 4.0, there is an era in industrial production that enables faster, more flexible and more efficient processes to produce higher quality products at lower cost (Collins & Halverson, 2010:20). The technological, sociological and industrial revolutions of this period will increase productivity, change all paradigms, stimulate industrial growth and, most importantly, transform the profile of human resources (Pfeiffer, 2017:109). As a result of these developments, countries and businesses need to understand Industry 4.0 and establish policies and processes to adapt. Awareness of Industry 4.0, the essence of digital transformation, is one of the priority issues for all countries, developed or developing. Universities are educational and training institutions that have to provide young generations with the requirements of the age (Wallner & Wagner, 2016:157). Although there are debates about whether universities provide these competencies to their students, there is a need to end these debates and to create and implement the education and training vision, strategies and goals of universities within a new understanding and discipline, and to create and implement plans and programs within the normative framework (Puncreobutr, 2016:94).

Measuring students' awareness of concepts related to Industry 4.0 is a necessity for higher education policies, universities, students and industrial organizations. The aim of this study is to evaluate the Industry 4.0 conceptual awareness levels of 890 students studying at Istanbul University-Cerrahpasa in terms of gender, class level and faculty.

## **CONCEPTUAL FRAMEWORK**

In a rapidly digitalizing world, screens occupy more and more time in daily life. Data is constantly being generated from different sources. There is fierce competition for the information produced to attract the attention of consumers on different platforms (Bauer et al., 2015:419). In this context, Industry 4.0, in other words, the 4th Industrial Revolution affects the developments in the economic, social and political fields on a global scale. This issue is too complex and multidimensional to be evaluated only in terms of production systems (Kolberg & Zuhlke, 2015:1872; Gulicheva et al., 2017:132). Raising awareness of these different practices and technologies is extremely important. It is important for businesses to follow the changes and integrate them into their systems, and for educational institutions to implement them (Obitko & Jirkovský, 2015:219).

Another issue that started with Industry 1.0 and continues with Industry 4.0 today and on which studies are increasing day by day is the habit of using technology, in other words, technology addiction. With the development of technology, the number of people using technology increases, access to information becomes easier, it makes it possible to process and analyze big data and produce new information, and therefore it becomes an important element of economic and social change (Westerman et al., 2014:2). Technology addiction can be defined as the obsession with technology-related behaviors, which is

9 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/assessment-of-university-students-industry-40-conceptual-awareness-levels/316049](http://www.igi-global.com/chapter/assessment-of-university-students-industry-40-conceptual-awareness-levels/316049)

## Related Content

---

### Biometric Authentication in the Digital Age: Rights, Risks, and Responsibilities

Raymond Anthony, Bogdan Hoancaand Kenrick Mock (2012). *Human Rights and Risks in the Digital Era: Globalization and the Effects of Information Technologies* (pp. 125-141).

[www.irma-international.org/chapter/biometric-authentication-digital-age/64942](http://www.irma-international.org/chapter/biometric-authentication-digital-age/64942)

### Implicit Culture Framework for Behavior Transfer

Aliaksandr Birukou, Enrico Blanzieriand Paolo Giorgini (2011). *Handbook of Research on Culturally-Aware Information Technology: Perspectives and Models* (pp. 213-241).

[www.irma-international.org/chapter/implicit-culture-framework-behavior-transfer/45044](http://www.irma-international.org/chapter/implicit-culture-framework-behavior-transfer/45044)

### Are Satisfied Customers Willing to Pay More for Extra Services?: Moderating Effect of Perceived Risk on 5G Technology Acceptance

Xin Su, Xin Ma, Panwei Xiangand Umair Akram (2022). *International Journal of Technology and Human Interaction* (pp. 1-16).

[www.irma-international.org/article/are-satisfied-customers-willing-to-pay-more-for-extra-services/299359](http://www.irma-international.org/article/are-satisfied-customers-willing-to-pay-more-for-extra-services/299359)

### English Teachers' Practice and Perspectives on Using Educational Computer Games in EIL Context

Li-Jen Wang, Ying-Tien Wuand Chiu-Ming Hu (2016). *International Journal of Technology and Human Interaction* (pp. 33-46).

[www.irma-international.org/article/english-teachers-practice-and-perspectives-on-using-educational-computer-games-in-eil-context/158140](http://www.irma-international.org/article/english-teachers-practice-and-perspectives-on-using-educational-computer-games-in-eil-context/158140)

### The Interplay Between Human and Structure in IT Strategy

Tiko Iyamu (2014). *International Journal of Technology and Human Interaction* (pp. 83-100).

[www.irma-international.org/article/the-interplay-between-human-and-structure-in-it-strategy/114593](http://www.irma-international.org/article/the-interplay-between-human-and-structure-in-it-strategy/114593)