Chapter 7
IT in Higher Education—Possibilities and Prospects in an Era of Economic Crisis

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ABSTRACT

A 21st Century Classroom is a learning environment that incorporates current critical thinking, problem solving, communication, and collaboration skills into traditional core knowledge instruction. Fostering this space will enable students to integrate core subjects and lead to a deeper understanding of global awareness and greater economic, civic, health and environmental literacy. Skeptics have argued that transforming higher education, especially to attenuate its cost is something, which we know, but we cannot get it. However, information technology is a way to achieve this required transformation. This chapter explores how information technology might help achieve this transformation to advance higher education, and its prospects for success.

1. INTRODUCTION

Information Technology (IT) means the use of hardware, software, services, and supporting infrastructure to manage and deliver information using voice, data, and video (North Dakota Information Technology Department, 2014). IT also included the Internet and World Wide Web (WWW). IT is an essential element for endorsement and assessment of courses taught in higher degrees. IT also provides support to teachers for communicating with various stakeholder and to students to adapt to new environments. Both teachers and students view IT as a change agent for producing a large, positive impact on their camps lives. IT provides numerous learning services for both faculty and students. Higher education institutions (HEIs) must include exchange of knowledge as part of these learning services. This exchange of knowledge occurs among faculty, students, and staff that are specialists in their relevant fields of knowledge. As such, the HEIs as whole can benefit from this pool of specialized knowledge to improve their decision making. In order better educate citizens so that they are able to live in an ever more complex

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world, IT resources should be commoditize so that they become mobile and easily accessible. Technology is changing and fusing into higher education at a rapid pace. The trend is leading us towards a world where IT will become so pervasive and every HEI will adopt IT to improve higher education. Being highly flexible, IT provides us various options about how best to apply it. While some choice may be straightforward, other require a careful reflection on the university values that will be expressed by the use of IT. The purpose of this chapter is to explore how information technology might advance higher education, and its prospects for success.

2. HIGHER EDUCATION

As of 2011, the latest figures available in 2014, the US has a total of 4,599 Title IV-eligible, degree-granting institutions: 2,870 4-year institutions and 1,729 2-year institutions (National Center for Education Statistics, 2012). The US had 21 million students in higher education, roughly 5.7% of the total population. About 13 million of these students were enrolled full-time which was 81,000 students lower than 2010 (National Center for Education Statistics, 2013). In 2009, 21.3% of the adult population above 18 years had attended college, but had no degree, 7.5% held an associate’s degree, 17.6% held a bachelor’s degree, and 10.3% held a graduate or professional degree. The historical gender gap had practically vanished. New England and Colorado had the highest proportion of college graduates, and the South Central states the lowest (Census Beureau, 2012). In 2011, 76.4% of people aged 25-54 in the EU-27 had at least an upper secondary education level, compared to 57.3% of those aged 55-74. Those who had high educational attainment amounted respectively 28.8% and 17.6%. Just over one third (34.6%) of the population aged 30 to 34 in the EU-27 had a tertiary education in 2011 (Eurostat, 2013).

Before exploring IT and its potential roles in higher education, this chapter will take a look at some key demographic facts about higher education. By 2012, there were around 13 million students studying in European universities. In USA, the largest group of students was in 2-year colleges (Sedghi & Allen, 2012).

2.1 Students and Institutions

Across the globe, HEIs vary greatly with respect to number of students and type of institutions. By 2014, research and doctoral universities in USA accounted for less than 10% of HEIs and enrolled more than 25% of total number of students. Most small 4-year and master’s institutions in USA were private and comprised almost 20% of all the institutions (Jackson, 2012). However, these institutions only enrolled 5% of total number of students. There were many specialized HEIs (such as business, health, medical, and engineering) but they enrolled a very small number of students. While the student enrolment distribution in HEIs didn’t follow the Pareto distribution (80-20 rule) but it was close. 33% of all HEIs in US enrolled 80% of the total number of students (National Science Foundation, 2014). There are now between three and seven students per computer on average in the EU; laptops, tablets and netbooks are becoming pervasive, but only in some countries. Interactive whiteboards are present in schools (over 100 students per interactive whiteboard), as well as data projectors. More than nine out of ten students are in schools with broadband, at most commonly between 2 and 30Mbps on average in the EU. Most schools are connected at least at basic level (for example, a website, local area network, virtual learning environment) (European Schoolnet, 2013).