Strategic Role of Tertiary Education and Technologies for Sustainable Competitive Advantage

Patricia Ordóñez de Pablos  
*Universidad de Oviedo, Spain*

Robert D. Tennyson  
*University of Minnesota, USA*

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Chapter 1
Educational Foundations Supporting IT in Higher Education ................................................................. 1

   Robert D. Tennyson, University of Minnesota, USA

Technology has always been welcomed in higher education as a means to improve student learning. However, technology application in higher education is usually driven by the technology fad itself without support from educational foundations in learning. This chapter argues that successful employment of IT in higher education requires a careful consideration of basic foundations in learning philosophy and learning. These foundations provide both the theoretical and empirical support to sustain technology as an integral component of technology in higher education learning. In addition to the historical and contemporary comments on educational foundations, examples are provided to assist the reader in implementing the suggestion to strengthen learning by the promise of technology to improve learning in higher education.

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Improving Managerial Training Services in Project-Oriented Organizations with an
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   Constanta-Nicoleta Bodea, Academy of Economic Studies, Romania
   Maria-Iuliana Dascalu, Politehnica University of Bucharest, Romania
   Patricia Ordoñez de Pablos, University of Oviedo, Spain

This chapter proposes a recommendation mechanism to enhance the managerial training in Project-Oriented Organizations (POOs). The mechanism is presented within the framework of an innovative system used to provide support to POOs during the acquisition and implementation of training services. The recommender engine has, as inputs, the knowledge gaps of the employees given by an assessment system and the alignment in RDF/XML format between two ontological representations: one for the management documents provided by POOs and one for the training curriculum offered to the POOs. The recommender engine makes suggestions for adapting the training curriculum to the POOs’ needs, by translating the ontology alignment result into a user-friendly form and by identifying Web resources suitable to fill up the knowledge gaps. The outputs are smart recommendations meant to personalize the training curriculum to POOs and, thus, to increase the competitiveness of POOs.
Chapter 3
The Social Role of University Entrepreneurship ................................................................. 103

Carmen Păunescu, Bucharest University of Economic Studies, Romania
Ramona Cantaragiu, Bucharest University of Economic Studies, Romania

This chapter discusses the dimensions and characteristics of social entrepreneurship in universities and its role in developing sustainable communities. It argues that by building on social responsibility practices and creating an identity of a society-oriented university, one which is driven by a social mission and humanistic values and a sense of moral commitment to its communities, higher education institutions are more likely to succeed on the global market characterized by an increasing competition and a high degree of internationalization. Therefore, by understanding the driving forces which determine the social entrepreneurial behavior of the academic community, universities will be more successful in driving social transformation and achieving innovation. While the view of social entrepreneurship in university put forward in this chapter is far from complete, the authors see it as an important first step to enhance theoretical understanding of the phenomenon and facilitate future research.

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Lluís Jovell Turró, Autonomous University of Barcelona, Spain
Montserrat Peñarroya Farell, Autonomous University of Barcelona, Spain

The introduction of IT in the learning process has completely transformed the way in which training is taught today, and the process of attracting new students has changed. This chapter discusses the changes in communication to new students and describes the main techniques to attract them to the Website of a business school or educational institution.

Chapter 5
Fusion between Dry Knowledge and Wet Brain ................................................................. 128

Shigeki Sugiyama, University of Gifu, Japan

With globalization, people, goods, and thoughts move without limitations of time, place, and people. Because information technology and the internetworking advancements have already made global communications possible, it is now possible to make anything come into reality. On the other hand, there should be another point to think about, that is to say, there must be people to make the things happen, which will be closely related with higher education. This chapter explores the present situations of education and knowledge and researches the problems that may not make them happen. By using these results of the studies, this chapter introduces a future direction of the capital on the next generation’s higher education by showing a fundamental principle of “fusion between dry knowledge and wet brain.”

Chapter 6
21st Century Higher Education Trends in Sultanate of Oman ........................................... 140

Neeta Baporikar, Ministry of Higher Education CAS-Salalah, Oman

Education is all pervasive. It is rightly said that “to educate is to enlighten,” and the only way for developing either the self or the nation is through education. This is well understood in most of the developed countries, but due to globalization, the world over this realization is dawning. Sultanate of Oman is one of the most developed countries in the Middle East. Blessed with a visionary leader, the younger generation of the nation is set to achieve its full potential. Higher Education is definitely a means to achieve that end. It is one of the strategic areas pursued with intent and motive. This chapter traces the history of higher education in Oman, identifies the 21st century higher education trends, and reviews the best practices, which can be adopted for evolving a comprehensive and holistic higher education.
Chapter 7
More than Changing Classrooms: Professors’ Transitions to Synchronous E-Teaching

Lorayne Robertson, University of Ontario Institute of Technology, Canada
Wendy Hardman, University of Ontario Institute of Technology, Canada

The transition from the lecture hall to the online teaching environment requires more than a change of venue – it requires role changes as well as a shift in focus from delivering content toward designing a learning environment where students can build skills for learning and collaboration. The research described in this chapter employs a case-study method to capture the perceptions of a small cohort of university professors participating in a synchronous e-training program to prepare them for synchronous e-teaching. Participating professors possessed a range of diverse prior experiences with teaching and e-teaching, creating unique training challenges. Data include the video-recorded training sessions as well as focus group and individual interviews held one year post-training. The findings indicate that, although the intended training focus was not the primary outcome realized, this study provides some insights into planning and delivering e-training for similar transitions to synchronous online teaching for tertiary instructors.

Chapter 8
Indian Education System in the 21st Century

Rabindra Ku Jena, Institute of Management Technology, India
Amruta Gahlod, Institute of Management Technology, India

Education plays a vital role in developing a nation culturally, economically, and socially. That is why every nation focuses on this sector. For its improvement, all endeavors are made through formal education, non-formal, and distance education. The trend of education, particularly distance education, has developed considerably in developed countries and developing countries. Information technology plays a pivotal role for the development of education. This chapter introduces Indian Ancient Education System and structure of Indian Education System, and argues on distribution of schools throughout all categories of middle management, senior management, from state level to central level. The chapter focuses on all forms of education systems and ICT in school education systems with accreditation systems supported to nurture the Indian education system globally.

Chapter 9
E-Learning, Fuzzy Methods, and Sign Language Video to Enhance Teaching for Hearing Impaired

Athanasios Drigas, National Center for Scientific Research – Demokritos, Greece
Dimitris Kouremenos, National Center for Scientific Research – Demokritos, Greece
John Vrettaros, National Center for Scientific Research – Demokritos, Greece

This chapter discusses the e-learning methods that were used within the Dedalos project for the teaching of English (as a second language) to deaf and hearing impaired people through the use of Sign Language. Firstly, special educational e-content was developed using modern digital and animation technologies, which was divided into educational levels in accordance to the special needs of the deaf and hearing impaired students. In addition, this special educational content was embedded in a newly developed e-learning environment aiming at the distance training of the aforementioned target group. Apart from the educational material, special evaluation tests were embedded in the e-learning environment towards the assessment and evaluation of the skills of the students. Finally, an intelligent taxonomy system was used for setting the e-content to the right level as well as for the realization of the evaluation process. The procedure can be used in tertiary education.
Chapter 10
Neo-Liberal Governance in Higher Education: The Quest for Enhanced Reputation

Paul Morrissey, University of Bristol, UK

This chapter analyzes the emerging trend in tertiary education to manage institutional reputation, and it offers evidence from case studies in developed and emerging economies to support the analysis. The evidence presented suggests that this activity is global in scope and is associated with the ever-increasing competitive environment in which universities and other tertiary colleges find themselves. The management of reputation appears to revolve around the core activities of research and teaching and the development of an international environment, suggesting a convergence of governance at the micro level. The purpose of the chapter is to provide a new perspective on neo-liberal governance in HE, and to show how the current emphasis on international competition and the knowledge economy affects individual institutions in different national systems in different ways. The chapter also points to the challenges that the quest for enhanced reputation may present managers.

Chapter 11
Some Important Aspects to Enhance the Quality of the Technical Education System for Better Industry-Institute Interaction

Jayant G. Joshi, Government Polytechnic, India

The outcome of technical education system is fresh engineers/technicians who are the backbone of the industrial sector. It is the responsibility of faculty members, institutions, and industries to enhance the quality of this outcome to (a) achieve higher production rate and (b) manufacture the quality products to satisfy the customer needs in the global market. It is essential to update the curriculum, Teaching-Learning (T-L) process, and practical skills of faculty members according to the industrial requirements. This chapter presents different important aspects that can be scientifically implemented in technical education systems to escalate the quality of fresh engineers/technicians. The quality deciding factors are: industrial exposure to faculty members through the industrial case studies, inclusion of interdisciplinary subjects in the curriculum, implementation of structured project work, and planned industrial training for students. Another important element is to create the research and development environment in polytechnics and engineering colleges to inculcate the research capabilities amongst the students. In each aspect of this chapter, flow diagrams, models, implementation methodology, role of faculty members, students, institutions, and industries are presented and discussed. These aspects facilitate to generate intelligent, multidisciplinary skilled, and innovative technical manpower. Thus, the fruitful industry-institute-interaction can be achieved.

Chapter 12
Information and Communication Technology (ICT) Research Output and Utilization in Selected Southern African Universities

Luckson M. Kaino, University of South Africa, South Africa
Choshi D. Kasanda, University of Namibia, Namibia
David Mietwa, University of Zimbabwe, Zimbabwe

This chapter analyzes the contribution of academic research outputs in ICTs towards the improvement of economic and social development of communities in Botswana, Namibia, and Zimbabwe. The findings reported emanate from a study that examined ICT projects undertaken at the universities of these countries and how the projects benefited the communities to realize the Millennium Development Goals (MDGs). The findings indicate that studies in ICTs were used as either an object or instrument of inquiry, and a number of challenges were associated with the dissemination and utilization of research outputs.
In addition, the MDGs were not deliberately factored in the ICT research agenda, and their treatment was by accident rather than design. The authors recommend that in order for research outputs to address the MDGs, the universities should put in place explicit policies that emphasize production of knowledge relevant to community, and dissemination and utilization strategy policies for research outputs.

Chapter 13
Research and Practices on Teaching Mode of Engineering Courses Driven by Software Platform

Yiping Yang, Capital University of Economics and Business, China
Yue Qiu, Capital University of Economics and Business, China
Xi Zhang, Tianjin University, Tianjin, China

This chapter introduces a model of “Problem refining + Paper presented + Project application + Software development + Patent declaration” on the basis of teaching practice and scientific research for many years. This is a mode of researching and practicing on engineering courses based on cloud computing. The main goal is to help students to understand and grasp the core technology of engineering courses. The employment situation of engineering graduates is very serious, while enterprise is lack of engineering employees that can be used. The reason lies in talent training problems. And this model can help us improve the teaching quality. In order to get the market recognition, meet the demands of the development of future work, and obtain competitive ability of quality control, the mode should be modeled and systematic.

Chapter 14
Teaching Basic Calculus Using SAGE

Katerina Tsarava, University of Macedonia, Greece
Spyros T. Halkidis, University of Macedonia, Greece & Model Experimental School of the University of Thessaloniki, Greece
Pantelis Venardos, Model Experimental School of the University of Thessaloniki, Greece
George Stephanides, University of Macedonia, Greece

This chapter presents an attempt to review basic calculus concepts to high school students with the help of a Computer Algebra System, namely SAGE. A review lesson on limits and derivatives as well as an introduction of the bisection method for finding roots of continuous functions is presented. The evaluation of the lesson by the students is analyzed. The aim of this chapter is to examine the power of SAGE in reviewing basic calculus concepts, presenting the advantages and disadvantages of SAGE compared to other Computer Algebra Systems, as well as the benefit from using a computer system in making concepts such as the squeeze theorem for computing limits of functions more clear.

Chapter 15
Pedagogy-Based Technology Enhancement in Tertiary Education

Yacine Atif, UAE University, UAE

Formal instruction still occurs predominantly in classroom environment, despite the rapid progress in online learning. The authors present digital patterns for classroom instruction to support classroom learning and assist instruction developers. They advocate design patterns and learning activities to encapsulate digital educational resources into pedagogically sound reusable components. This chapter proposes pedagogical patterns to drive content providers to meet learner profiles in regular tertiary education environments. Taking their roots from behavioral learning discipline, these patterns are digitized as part of a separate process in learning production workflows. The authors describe the overall organization
of a learning production enterprise and position the pedagogical factory to drive the supply of learning contents in increasingly digitized tertiary education institutions. This chapter reunites digital patterns to support personalization and conversational pedagogies in classroom contexts.

Chapter 16
Entrepreneurship, Information Technologies, and Educational-Based Virtuous Circles in Post-Industrialized Economies ................................................................. 312

José Manuel Saíz-Alvarez, Nebrija University, Spain

Information Technologies are transforming traditional educational models based on new communication skills. Using a comparative analysis, the scope of this work is two-fold: (1) to study the importance of entrepreneurship and R&D in tertiary education and (2) to analyze which conditions must change in order to contribute to adopt this new IT-based model by the more traditional countries or university institutions that do not research, arguing they are focused on short-term goals only. Using a single OLS econometric model, the author demonstrates that R&D in companies and universities, both public and private, are complementary, R&D applied in education guarantees future positive externalities and creates IT educational societies, while globalization favors capital and human resources mobility, not only nationally but also internationally.

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