A Smart University for a Smart City

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ABSTRACT

The use of technological devices has changed the way individuals interact with their university environment. This paper examines the use of a smart context as a link between individuals and their university environment through an exemplification of the urgent problems deriving from different domains and technological systems, as well as of information and communication devices employed in university teaching-learning contexts, to improve the quality of higher education and individuals’ cultural life. When does the university become “smart”? It is not sufficient that universities define themselves as smart places to underline the main challenges they must face in their efforts to become and remain smart. The article recognizes a university as a “smart” institution when it has its roots in the understanding and critical awareness of the basic knowledge, in the identification of the more realistic competencies and the search for the meanings of a “smart university community” that pursues high quality. The paper concludes with an account of the experience of the ICT Centre of the University of Ferrara, who try to achieve these goals, implies the adoption of innovative perspectives, and discusses the building of a new culture putting in the middle a “smart university” and its cultural principles.

Keywords: Information and Communication Technology University Centers, Smart City, Smart Community, Smart Model Quality Assurance System, Smart University

1. INTRODUCTION

The use of technological devices has changed the way individuals interact with their university environment and live within it. This report focuses on the use of ambient intelligence as a link between individuals and their university environment through an exemplification of the most urgent problems deriving from the potential of ambient intelligence and from the different domains and technological systems, as well as from the information devices employed in university teaching-learning contexts, in order to improve the quality of education and quality of life of individuals.

The report closes with the experience carried out by the E-learning Centre of the University of Ferrara of which the author is part and contributor since its establishment.

The improvement of higher education, thanks to the adding of new technologies, has changed the way individuals interact and live within the university context, the community, the environment and the territory. The use of a university ambient intelligence, as a link
between individuals and their environment, is determined by the potential acquired by the different technological domains in terms of information and communication efficacy, especially in specific learning contexts such as distance learning, in order to improve the quality of education and the professional profiles of those who live and work in a complex society. This report tries to explain how a university technological environment or domain might serve to better answer to individuals’ needs and to the desires of all those actors involved in the university context. It also helps to reflect on the need we have nowadays to technologically shape academic areas and environments starting from the arrangement of contexts able to provide advanced skills and competences while improving the quality of the relationships between students, teachers, staff and the interested public. This means to pursue a high quality ICT network that, available to everybody, everywhere and at anytime, can change teaching and learning conditions, as well as life conditions in and outside university, designing smart and practical areas of cultural and social wellbeing.

2. E-LEARNING CENTRES VERSUS UNIVERSITY ICTS

The development of University Centres able to help higher education creating an Italian common area for ICTs (E-learning Centres or University ICTs) is only the first attempt towards this direction, as the need of digital skills represents nowadays a true emergency that arises every day worldwide even in response to university pedagogical needs and in direct correspondence with the Centres for teaching and learning (Challis, Holt, Palmer, 2009, pp. 371-383). These latter may be considered as a set of infrastructures characterized by the sum of educational, research and service resources as employed and performed by teachers, students and administrators. The aim of such infrastructures is to create “real and virtual environments” able to strongly support teaching, research and services, providing better learning conditions to students and optimal teaching conditions to all teachers at all levels, even in third cycle education. In this context, these infrastructures may represent an efficient tool to support new education trends.

Technological infrastructures provide indeed the necessary prerequisites to develop optimal conditions for a more accurate didactic planning in terms of objectives and organization, and for the best management of university services and courses, as well as for a more significant inter-institutional and territorial connection. ICT systems, considered cross-wise, may support a specialized education and a research of excellence when focused on research and education “methodological axes”. Assuming that the efficient use of ICTs relies first of all on the behaviours of those who work in that context, there are no doubts about the importance of examining the reception models of the technological and e-learning tools available to research, teaching and laboratory activities. In particular, those e-learning activities that have encouraged learning and teaching have become important components that tends to include, even if often underused at educational level, a “decentralized” idea of education, integrated and intra and inter-communicative between the campus components, the flows of information, the constituents and the different infrastructures and services (is increasingly available at community service centers such as telelearning centers, and “cyber cafes” ecc.), between teachers, staff and students, between education and research, between past and new procedures etc.

All this has become particularly interesting following the new European Directives on education, which outline four objectives that may be enhanced by ICTs:

- Expanding access to all levels of education;
- Improving the quality of education;
- Enhancing lifelong learning; and
- Facilitating non-formal education.
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