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An Analysis of the Digital University Phenomenon: Dilemmas, New Opportunities

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Abstract: Universities are institutions with a long history and have undergone many changes over the centuries. In recent years, these changes became significantly visible. This is due to the rapid development of technology. The digitalization has a major impact on the university's functions performing. But these processes are not linear or simple but are evolving into complex, ambivalent, and contradictory processes. Digital universities have reasonably taken their place in the education system. Together with the increasing of workloads, bureaucratization, the need for marketing control, the need to reduce costs, large-scale savings, these structures have developed active accomplishments using all channels and filling all possible variants of codes and formats, numerous and diverse actions, managed by digital and technological support. The purpose of this paper is to analyze the most relevant effects and dilemmas of the implementation of digital technologies in university education and research from the socio-material point of view of the phenomenon of "digital university". At these terms one proposes an analysis that goes from the particular to the general is conducted. First, the effects of digitalization on teaching and research are analyzed, some ideas about the possible future associated with digital technology are developed, and finally, some ideas about how to analyze the impact of technology in the university from a critical point of view are offered.

Keywords: digital university, information and communication technologies, technological change, digital pedagogy.

Introduction

The university as a concept has a long history. Over the centuries, this educational structure has adapted to socio-political conditions. However, the concept of higher education, its functions, applicants, etc., has changed in the context of scientific and technological progress and geopolitical processes. These processes have radically changed both the concept of universities and the goals of education itself. Universities are considered to be a key factor in every country's economic development and global competitiveness. Nevertheless, the means of achieving educational goals allow and improve with digital information and communication technologies (Brolpito, 2018). At the macro level, the phenomenon of digitalization of universities is understood broadly as the reorganization of social, cultural, and economic structures and relations, motivated by the generalization of digital information and communication technologies in all areas of human activity within modern society (Alkhowailed et al., 2020). At the micro level - first of all, its perception by the subjects of learning.

The modern university is looking for its place in the information society. However, a strategic mistake made by the leaders of modern universities is the formation of powerful IT systems and ignoring business strategies adapted to the digital era (Alzahrani et al., 2019).

Research Problem

Institutions in which a fundamental part of existence has always been the presence of educators, in the perspective of digitalization, are linearly changing in nature (Bygstad et al., 2022). In a highly competitive environment for students, digital universities are created. The classical university is transformed into a multifaceted, new structure with positive and negative sides. The conflicts and contradictions of the positions of the digital university occur primarily on the replacement of the values of previous generations (Xuetong, 2020). Being aware of the striking number of transformations caused by the implementation of digital technologies in the university and the change in people's activities in this context, we can talk about the changes in the social composition of the university.

Research Focus

In this paper, we propose a socio-material approach to the analysis of the phenomenon of the digital university. We focus on questions of how the relationship between subjects and objects (understood as being one and indivisible) affects the functioning of the digital university (Fuchs, 2020). We consider educational technologies that achieve certainty, functionality, and value only in the pedagogical models they promote, the forms of social relationships they build, and the educational goals they seek to achieve (Mosteanu, 2020b). Analyze the impact of technology together with the principles, processes, and parameters of design, implementation, deployment, and use that underlie the digital university and are the result of human decisions.

Research Aim and Research Questions

The work aims to analyze the most relevant effects of digital technologies in the university, an analysis that will offer alternatives to their usual use and predict its future reactively and proactively. The aim of the work predetermines the objectives: analysis of the impact of digital teaching; consideration of the impact of technology in the university from a critical perspective; general overview of issues of public management and hegemony in university governance in the digital era.

Research Methodology

The paper analyzes the learning opportunities and dilemmas in the digital university in the face of technological changes in material and functional terms, which are striking at the moment. From the perspective of the above, the paper analyzes in a systematic way the impact of the introduction of technology on the learning process. These configurations are considered within a material-functional and social perspective. From a social (or human) perspective, the classical university has changed radically. Due to space constraints, it is impossible to return to attitudes concerning the universality of e-learning or the introduction of virtual classes in universities. The paper focuses on practices that have become trending in the last 5 years. One of the complex concepts of higher education in recent times is the personal learning environment (PLE). The paper defines PNS as a socio-material structure of which each individual is a part, while a formal education is part of a larger whole that must be controlled and self-regulated individually. Some of these challenges proposed by PNS concern changes in the role of participants in the processes of learning, with the organization of teaching. The methodology of the work

includes a critical analysis of the main aspects of digitalization, namely the consideration of: the development processes of university information technology; new ways of project management; the specificity of digital universities in general.

Research Results

The Origins and Phenomenon of the Digital University

The Digital University is an entire association composed of thematic digital universities whose vocation is to make available to higher education institutions (faculty, students) digital educational resources for teaching (flipped classroom, face-to-face classes, supplementary resources, distance learning, etc.). The technical and pedagogical quality of these resources is verified by scientists competent in each disciplinary field. These resources are free and publicly available in most cases. The digital university includes the following areas of study: Health and Sports, Engineering, Economics and

Management, Humanities (Arts, Literature and Languages, Humanities and Social Sciences), Environment and Technology Development. The Digital University focuses on the entire university community: faculty, students and serves to provide a pedagogical complement to teaching, management, development, and implementation of digital policies.

Thematic Digital Universities (UNTs) were first established in 2003 by the Ministry of Higher Education in Europe. For example, French digital universities are not traditional university institutions, as they do not count students and do not grant degrees or diplomas. Despite their different organizational and legal forms, they are groups of higher education institutions that produce, disseminate and interact with the support of the state by providing digital (free educational) resources. Digital universities were subsequently coordinated in the form of the 1901 Association Act. Beginning in 2019, their number began to grow significantly. One digital university is capable of integrating more than one hundred institutions of higher education and research (Doroshenko et al., 2021). Digital universities were created to unite and promote the use of digital technologies during classes in higher education. This association involves the production of digital educational resources, most of which are freely available through websites. These resources are intended to assist faculty in their work, thereby contributing to renewed pedagogy and digital innovation in higher education (See Table 1).

Table 1

The Main Tasks of Digital Universities

| New possibilities for digital universities |
|---|
| 1. Supporting students from the beginning to graduate school, supporting them in mastering their first foreign language L1, to increase their level of success in the job market. |
| 2. assistance in orientation for applicants. |
| 3. Advocacy for lifelong learning. |
| 4. Dissemination of knowledge for the development of the country. |
| 5. Promote distance learning, especially for people who cannot attend (people with disabilities, skills in war, prisoners, etc.). |
| 6. Promote digitalization and support institutions to implement applications related to digital pedagogy. |

- 7. Co-creation and management of multi-partner digital-oriented projects.
- 8. Promoting international mobility and integration of international students.

Source: formed based on the author's analysis.

The phenomenon of the “digital university” is a shared vision of the future of education and digital pedagogy. It aims at developing collective actions, projects of production, and re-engineering of resources for the audience, and promotion of the actions of each institution of higher education.

Elements of the Digital University Model

Digital universities provide and distribute many educational resources, often partially funded by the state. They are also available for general use. Among the elements present in the digital university, we single out the following: digital library, digital campus, electronic student card, electronic dean's office, information system of management of the university catering point, university boiling point (space for teamwork), the introduction of educational disciplines using AR and VR and virtual simulators, development of online courses by the leading world MOOC platforms, “digital diploma” model based on blockchain technology, development of courses supplementary to the digital university. Let us describe the main objectives of the highlighted elements of the digital university (See Table 2).

Table 2

The Dilemmas and Goals of Digital Universities

| Purposes | Details |
|-----------------------------------|---|
| Legal policy | Help with non-credit modules. Facilitating students who were not allowed to attend. |
| Protection of interests | Promoting the integration of students with disabilities |
| Professional support | Preservation of rare disciplinary knowledge and skills. Supporting the transformation and implementation of the learning offer. |
| Development of partnership | Supporting the evolution of pedagogical practices, including through digital technologies. Creating or participating in multi-partner projects. |

Source: formed based on the author's analysis.

We believe that digital universities contribute to the renewal of pedagogy by promoting pedagogical creativity through the use of digital technologies. They have become key players in pedagogical transformation through digital technologies and complement their work and contributions.

Digital technology drives innovation in higher education

In the last five years, digital technology has formed the basis of the strategic response of Ministries of Higher Education. The present digital strategy was launched together with the emergence of the Covid-19 pandemic with two goals: to ensure the proper functioning of universities and to promote student success in a crisis (Alkhowailed et al., 2020). The growth of digital technology every day offers new opportunities for innovation and transformation of higher education. In a fast and changing world, higher education institutions are engaged in a pursuit of innovation: they are constantly rethinking their

pedagogy, renewing their infrastructure, and finding new ideas to offer their students a better learning experience. The goal is often to be national and international leaders. In this respect, the most significant innovations of the digital university stand out as follows (See Table 3).

Table 3

A Brief Overview of Important Digital Innovations in the Higher Education Sector in Recent Years

| Innovations | Description |
|------------------------------------|---|
| Massive open online courses | Open online courses are offered by institutions of higher education around the world. These are free trainings that allow any student to become a participant. A certification system exists for certain courses and requires a financial contribution. Topics are often varied, from math to social sciences to personal development or health. These courses, open to all, democratize access to knowledge. They are a godsend for students |

Source: adopted from (Doroshenko et al., 2021).

In the context of the new possibilities of digital universities, the dilemmas associated with this phenomenon should also be identified. As the “education of the future,” digital universities carry significant weight in terms of information transfer and are especially suitable for people who already have certain competencies in the traditional learning system. For a mature person, for example, it is more appropriate to take part in an online refresher or retraining course than to actually travel to a learning space. For those who are at the beginning of the learning process, attendance is indispensable. Even so, the intertwining and correlation between the traditional and digital university should be assumed. As the administration of information or educational records by virtual means, especially the teaching component, digitalization is indispensable. Regarding the physical learning process - the pedagogical relationship cannot be replaced by computer tools that create the illusion of human relationships. With digitalization, education can manage the learning process, in part covering the requirements of distance learning, considering the sudden transition, the completeness, and the novelty of the teaching-learning experience. But anyway, not all universities are ready to go digital for lack of understanding that they are dealing with a completely “new consumer”, because of the failure of financial implementation of the introduction of new methods and because of the lack of trust in new technologies.

Discussion

In the context of the dilemma Floridi (2020) puts forward the idea of an important trigger for the use of digital resources in universities - digital literacy. That is, building knowledge, skills, and confidence in using new technologies and devices to achieve an educational goal. Aagaard (2020) calls the transition of education to new media and communication atypical and unnatural. According to the scholar, this forced experiment, national and global, will leave deep traces of what must happen at the level of many components - organization, technology, curriculum, learning management, etc., and offers a stage-by-stage assessment of this dynamic process from within, relying on the necessary filtering further evaluation of the phenomenon of the digital university. The option of online learning and the emergence of digital universities is a solution to crisis situations, but not an alternative to what

education is intended to achieve in conventional settings (Aitchison et al., 2020). A similar view is expressed by Brown and Green (2018). The authors consider digital universities as an attempt to maintain and continue the presence of the university with a substitute that can only be perpetuated in a consistent and tendentious way, given the ratio between effort (multiplied by faculty and students) and the effects achieved (half or even a quarter). In contrast to this assertion, Lazar (2022) believes that the digitalization of education is meant to edit the natural process, translated and reduced by the limits of crisis frameworks. Digitalization of education cannot be criticized or abolished but must be accepted and realistically materialized if conditions require it and it is hardly the only option to preserve the educational process. According to Ma and Feng (2021) education, always and everywhere, is conditioned by context, by definitions. A true educational system, in that it has its basis, is carried out in relation to some value constants, procedural or substantive, beyond the conjuncture and the incidental. Beyond time or event, it is desirable for education to be technically enabled and digital universities in this sense are life-saving structures (Martzoukou et al., 2022). Regardless of the indicators of the technical base, the abilities of the teachers, the propensity of the teaching content to recode didactically in relation to the new context, the process of teaching, learning, evaluation is diminished, it loses consistency, quality, naturalness. Not all dimensions of education can be covered by the new formula: relational dimension, cooperative dimension, objective implementation of assessment and feedback, monitoring and performance incentives, individualization and personalization of learning suffer (Sayaf et al., 2022). Digitalization of education and the implementation of digital universities is not only the use of technology. IT processes and management must be properly regulated (Mosteanu, 2020a). All successful changes and implementations must have clear visions and strategies. Universities must invest in providing staff, academics, and students with the necessary training in digital technologies and combine them with effective support networks (Floridi, 2020). Solidarize, because there is no specific way to achieve educational outcomes through digital technologies but listening to education actors can provide valuable insights and experiences. By enabling working institutions to test new ways of working with digital technologies, with the necessary support, the digital university can turn from a phenomenon into a reality.

Conclusions and Implications

Today, digitalization is affecting all productive sectors of the social spheres. Trends toward the progressive digitalization of higher education have been particularly active over the last five years. The digital university is a field of the latest ideological battle. But conflict must give birth to proposals. And to enter this field, it is important not to lose sight of their three main characteristics:

1) the digital university phenomenon is a socio-technical imagination, a vision of the desired future that is collectively supported, institutionally stabilized, and publicly executed;

2) the digital paradigm is changing. The digital context has become a common characteristic, evolving in unpredictable ways. In higher education we are talking about profound changes, which in turn lead to didactic consequences;

3) the digital university is a socially material reality. That is, the digital university aims at defining the practices of teaching, research, management, and dissemination of knowledge. And it is necessary to take into account the networks of each actor (people, technologies, norms, etc.) constantly building and reconstructing these practices. After all, we should not forget that technology is created, developed, and implemented by people with specific interests and needs. For the same reason, they are receptive

to change, more critical, democratic, open, and flexible practices. The digital university is the product of a complex relationship established between technology, people, and educational standards. The university today is already digital, although it does not yet offer anything significantly different from the classical university.

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