



## PERSPECTIVE OF GOVERNANCE IN UNIVERSITY INSTITUTIONS IN VIRTUAL DIGITAL ENVIRONMENTS

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### KEYWORDS

*Educational innovation  
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### ABSTRACT

*Study was born in the construction of problem concepts in the deployment of a governance strategy in institutions under digital environments, a technical position of understanding from South America is raised, the initial hypothesis of knowing aspects and determining requirements, an efficient model of governance can be achieved from the use and application of ICT, which allow to argue the as of the process, The use ICT, TAC, TEP as change managers in virtuality, to interact in a disruptive way, the most important achievements of research to recognize the legal, digital and technological resource environment.*

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## 1. Introducción

With the COVID 19 pandemic arrival of the in the world, university management in virtual environments takes on a new boom, which establishes an understanding that magnifies the use of the web associated with academic training, face-to-face institutional processes become an urgent technological mediation, which tends to serve internal and external customers, seeking in these changes not to lose the quality and attraction that forced their new developments and mediations, for Al-Youbi et al. (2020), the value of the added by the labor force that is required in the universities, where it starts from the how the dynamics of attention on how the labor market behaves, and what is the affectation in the absence of a daily school life in the universities that force a technological mediation not only to the students, but, to teachers and administrators, but the impact is evident in academic enrollment. However, revenue versus organizational expenditures invite to merge departments and direct units of the operation, it is important to recognize that the resistance to investing in non-face-to-face modalities by university managers generates uncertainty about Latin American education. However, Rueda & Chamorro (2020), when identifying good and bad practices, which visualize a path on how virtually increases the value of student attention, without losing quality, without having precise organs of authority, which from the skepticism of students who have a negative expectation of how the appropriation of these disruptive models and applied by world need will be achieved, the quarantine forces universities to react effectively, to meet educational needs, promoting autonomous learning, identifying the importance of leadership oriented to institutional reality, where layoffs, adaptations, new expenses, less income lead to decide the proposed course of a mediated virtual education, but that in an advance on regionalization propose an educational cyber-culture.

For Ramírez (2020), the digital transformation of universities begins by recognizing an era of information accelerated by the need to take care of the individual, safeguarding their interests, adapting to the means and installed capacity, the role of the physical and digital structure for its investment have a direct coherence with those based on the new normal, these appreciations arise from the framework of transformation and development in Latin America related to the COVID- 19 pandemic, identifying the number of university campuses enabled, which does not recognize that efforts were increased by the arrival of the pandemic, where investment in competitive media was improved, in the improvement of websites, in the increase of marketing, according to potential customers who approach the reality necessary to subsist on the university-centered models of tomorrow.

The data that are reflected as the result of the research called perspective of governance in university institutions under virtual digital environments, tends to the understanding of the governance process in relation to the virtual education system, recognizing its aspects such as the world scenario with the COVID 19 pandemic, learning environments as elements of analysis, the existing Technological or IT infrastructure to respond to specific requirements, which generate new roles that must be assumed by the new rectors, managers, coordinators in the digital era, from the recognition of the governments of the universities, the identification of endogenous aspects of the organization, such as the new role of knowledge production in Latin America.

The use of ICT tools, the implementation of IT architecture, which relates the contribution that according to Fainholc (2016), in his work on the present of education and its future prospective in Latin America in relation to teaching in virtual environments, represents the exponential growth of the contributions that are coined in the new digital dynamics, in the XXI century, there are disruptive educational models, pedagogical currents that strengthen situations of lack of communication, where a reason such as the exponential growth of broadband use, the unbridled management of interconnection to meet decision making, the management of big data, data warehouse to feed the new trends of the community, the internet of things, as an efficient way to apply in the environment, force us to think of a new model generated by sensors, anticipated for people with limitations, the aids to help communication in different languages, are concepts and / or resources associated and associated with current training.

## 2. Research development

In Latin America, Fainholc (2016), begins with the transfer of information and communication technologies (ICT), when indirectly a learning environment such as Moodle is presented, which works as a free configuration platform, with open access and configurable with its academic ecosystem. Such deployment is also based on an object-oriented learning approach, developed in HTML hypertext languages and metalanguages such as XML, which allowed the effort of non-native digital pedagogues to generate experiments with the so-called MOOCs (Massive On-line Open Courses) that are a part of a scenario of interaction of the new educational models.

A country that addresses this problem like Argentina is Chile, however, as proposed by the authors Brunner et al. (2018), they reconsider the role of governance over academic capitalism, such as the wave that Chile has come since the beginning of the XXI century and that already in 2018 have singularities that allowed their entry into the university cloisters, from the how the theory of academic capitalism. In fact, it refers to the fact that it occurs in university institutions, as disseminated by issues of bibliometric analysis, who governs these models, the platforms, the altimetric results of their research activity, which is the new conceptual role, the first factor of impact webometrics is to analyze the university system of the country, where the modalities and their markets of action are identified, the ranking that generates competences at an exogenous level, and in concept of cybernetics is not exclusive to some, science is constituted in reason and sense of the new policies, laws that apply to the reservation of personal data, use of focused knowledge. In that sense, for the authors (Brunner et al. 2018), the governance of institutions leads to a status quo of private academic capitalism, only for the stakeholders of each institution.

With this perspective Brunner et al. (2018) according to the authors led by the Chilean Brunner who works to promulgate science, and to generate advances in Latin countries, rescues the value of the university and the professors who are the essence of the development of new state policies. For Chile, in the era of knowledge, it was vital to interpret who governs whom, where finding the link of basic, middle or "college education for countries of the 3<sup>rd</sup> world" leads to finding an abyss in the interests of students, those seen in state development plans, and in the knowledge generated in universities. All of them, become a good that for some, although not necessarily public, such as: the number of patents, the development of universities, intellectual property registries, researchers according to field of knowledge, the number of transfers made that according to Peters & Roberts (2015), they are competitive in the "new knowledge" that differentiates their service, the problem lies on how to make part in the development in a digital economy, if in the world each study refers to rigor that is visible in impact, how to take part in the development of the digital economy, how to apply in moments of technological social integration, how to generate communication spaces between academics, and the social actors, if each communication implies the use of new technology, these Pseudo languages, which in small subsystems seek improvement in understanding on the part of the rectors, teachers their use in front of technology and territorial need of their (now) virtual classroom

The aims of the study start from a governance perspective – and in a university institution under virtual digital environments in distance and virtual mode, as a general purpose, the specific goals are to find the state of the art on the perspectives of governance in university institutions under digital environments, taking as a reference their search in the period of exploration of recent years, with the results a socio-critical analysis of the results found against the trends of governance in institutions of recent years was carried out, as a last contribution a synthesis was made in a comparative way on the levels of e-governance in virtual university institutions in Colombia. Lit Review

He focused on what is the perspective of governance in university institutions under digital environments, where theoretical and conceptual references support their contribution, it begins with the connectivism of Siemens (2004) as a theory of learning in the digital age, which integrates principles of chaos theory, where networks, complexity and organizational associations set the tone for the development of interference, in that sense, universities with virtual programs emphasize collaborative contribution, the knowledge that is generated and applied is a component of vital importance in this theoretical put, at the beginning of digital transformation. Siemens (2004), raises how to learn in an evolutionary way, nothing is unrelated, complexity and systems provide ways of understanding the adaptation processes of virtual education.

Connectivism, in digital universities is guided by the instructions, guidance and knowledge management (QM) that is generated, constantly the subjects involved deliver knowledge in each related

aspect, metrics, the management of intelligent data, big data, in each scenario that learns from itself are aspects that from the scenario of use of Information and Communication Technologies integrate a tacit and implicit knowledge of each organization.

These effects make digital establishment users generate capacity to select relevant information, there is a high offer in the market, which invites them to participate without recognizing the high digital skills, just recognizing their importance is enough to select the appropriate model to impose, this makes the normal individual a critic of any model, These effects make digital establishment users generate capacity to select relevant information, there is a high offer in the market, which invites them to take part without recognizing the high digital skills, just recognizing their importance is enough to select the proper model to impose, this makes the normal person a critic of any model. In fact, this leads to each area being articulated for the same purpose, decision-making is already generated from and for the "Core" of the university, digital media and technological investment must have a continuous process of updating, which for users becomes a principle of investment reason, Siemens (2004).

Change is an aspect that is discussed in the theoretical construction because the tasks, actions of the directors of the universities are forced to understand what the dynamics, platforms, methods and designs are applied, according to Siemens (2007, 2010). Which is quoted by Almenara & Cejudo. (2015), ICT are training scenarios and learning theories, this seen from the transformation and restructuring of knowledge, which does not question the classic theories of learning but adapts to the educational model of each university to its legal and technological structure of each country, but turns its scenario into global phenomena, where it must transcend in achieving markets never thought for managers.

For this reason, an approach must be made to how ICT information and communication technologies, TAC learning and knowledge technologies and TEP empowerment and participation technologies are integrated, becoming emerging, independent, intervening technologies in the adaptation of digital universities, according to Bravo et al. (2018), ICT scholar analysis involves determining the development of digital skills in the community, from the perspective of their competences, enclosures to the characteristics of their environment. To understand this phenomenon, an analysis of government policies arranged in the countries that want to start with this technological immersion must be included.

For García (2018), there is the so-called Weiser fabric: Keys, evolution and trends of digital education, where a precise reflection of how virtual education is articulated e-learning (100% virtual), b-learning (mediated % virtual, % face-to-face), m-learning (mobile or portable), c-learning (virtual scenario in the cloud), p-learning (customizable learning), u-learning (learning outside the classroom), t-learning (transforming learning that links other media tv among others), where it is integrated as a fabric (network) direct associations of knowledge, devices, products, levels of deepening of the academic scenario, the tools to make decisions, for learning, for its dissemination, in the adaptation of the virtual model in the XXI century, technologies, their adaptations are the synthesis of which universities must build their academic scenarios thinking about globalized students with globalized situations.

On the other hand, we have the Technologies for Empowerment and Participation (TEP), this is complemented by the governance synergies in the HEIs; where social relations, the use of mechanisms do not generate limits, which allow consolidating work strategies, work environment with process control mechanisms, where users can approach and collaborate with each other as creators of content generated by consumers in a virtual community. Thus, for Panchana & Santos (2018), the technologies of empowerment and participation foster the understanding of collaboration, cooperation, collaborative work, which manages to account for better academic performance, a strategic management of the development aspects of each discipline, where strengthened dialogues are encouraged according to the need of the student. Therefore, PET scans allow to identify IT roles, associate them with aspects of knowledge and related learning, but most importantly it fosters the Core of the digital university from the beginning of the network.

This study related above, discusses the results of the review of earlier studies with the transformation of HEIs in Malaysia from the year 2010 to 2015, the analysis of these studies was organized and compared based on the categories of HEIs, recent studies on transformation involve these four main categories; APEX universities which are taken from private or public bodies, 3 main groups of educational institutions, polytechnics, community colleges, universities. Therefore, the findings revealed that the literature on the types of transformation of universities towards digitization is not yet an exhaustive method, since it indicates the lack of recent studies carried out on other types of transformation of existing universities, an aspect that forces to develop further studies on the

implementation of virtual modalities, which have as a reference to other types of countries. Hence, among the possible types of transformation of university colleges to university status proposed by Shariffuddin & Razali (2016), in the transformation of the teacher training college to relate virtual models associated with high technology, the use of 4.0 tools that, associated with data analysis, can consolidate robust ecosystems in the legal framework, in line with their advances in science.

A special recognition in the perspective of governance in university institutions under virtual digital environments emphasizes the problems faced by managers when their institution begins the stage of transition and change of modality, a study by Peña & Fernández (2013) recreates the work that relates the theory of Goleman (1995), where emotional intelligence becomes a tool of educational management for student leadership, since from the implementation phase it faces how to involve the members of the community, which has always had face-to-face dynamics, which does not have everyday dynamics of technological use, which do not recognize its usefulness in the educational process.

Peña & Fernández (2013), this study presents how emotions when analyzing their relationship, allows to show that change is assimilated more quickly by students, but has a personal cost for teachers, a slower understanding in managers. The study yielded the results associated with behaviors and emotions, which are related in digital organizations, it is crucial to decide the guidelines that are observed in their development and daily work, this opportunity to achieve an articulation that must become an emotional potential in students, teachers, and directors of universities.

Similarly, in this research Peña & Fernández, (2013), establishes how individual differences were detected in all study variables, which denotes that apparently the manifestation of emotional intelligence is related to the type of educational program that student's study, being the lowest scores in all cases those obtained by students in the administrative and technical economic areas evaluated. This could be due to the lack of an emotional education at the previous levels of studies, as well as the absence of a subject in the respective curricula that is focused on developing in students their level of emotional intelligence. Likewise, the study reflects how technological interaction modifies the *status quo* of students and how this relationship is directly proportional to academic results, in the virtual perspective it is necessary to have scenarios rich in information for decision making, a typical example of association of variables.

These differential findings detected in the research by educational program of study contributed by the authors Pineda & Allison (2008); Del Pino et al. (cited in Austin and Saklofske, 2010), in such a way that the results obtained in this work, as well as the absence of educational programs at the technical and higher levels studied, in which emotional intelligence is included within their curricular and extracurricular activities, as pointed out by Del Pino (2012), They raise on how to apply models in administrative faculties, which lack digital exercises, how their adaptation differs an unacceptable emotional behavior. In this sense, these results denote the need to propose the inclusion of emotional intelligence as part of the actions of public educational management in the observed programs, allowing the incursion with free courses of adaptation of the virtual context.

Researchers such as Kattoua et al. (2016), due to the rapid growth of internet technology, universities around the world are investing heavily in e-learning systems to support their traditional teaching and improve their learning experience and student performance, this scenario of exponential growth is experienced by universities, who start by their first foray into the business, but they lack technical equipment to meet their requests, however, the success of an e-learning, is based on the educational system, its adaptations, the pedagogical model, digital resources, the human talent necessary for its tactical deployment, depends on the understanding of certain background factors, which influence the acceptance of students and use of such e-learning systems, related to the country of origin, the dynamics of adaptation, as well as the comforts of use.

For example, Linden Lab, launched the second life "second life" in 2003 for public use, software that obtains a high impact from the management of avatars, which manage to have numerous options that in ordinary reality, would not be able to represent; is commonly used for educational trainings, synchronous encounters, learning environments

The proposed methodology is of a mixed type of exploratory design, where the Design Thinking Pande & Bharathi (2020) Method is applied. First, the analysis of the literature (bibliometric study) and the strategy followed (procedure) to make this review were carried out. Second, the collections and opinions on online university management provided by colleagues (stakeholders) involved in these

processes and / or functions. Finally, the application of the Design Thinking method to synthesize and propose an alternative of eventual university governance in online environments for your university.

The bibliometric search in databases such as Scopus, WoS, Clarivate, Latindex, Redalyc, Ebsco, Dialnet, Scielo, among other specialized bases, the type of scientific article delivered that without being original collects the most relevant information on a specific topic, to which is added a specific analysis related to the perspective of governance in university institutions under virtual digital environments: cases of Latin American countries, the sociocritical analysis of what was found is exposed to generate a dialogue of authors arranged in the center of knowledge, according to Guirao et al. (2008), this methodology implies the detailed, selective and critical study that integrates the essential information in a unitary and joint perspective, for the case of research as virtual education is addressed in South America.

### **3. Results**

The first step to relate as results is established in the state of the art resulting from the bibliographic review, which begins with the recognized for this new change of ruler in the digital era, is related to the transformation of Higher Education Institutions.

We started with Malaysia, from the educational strategy that is applied according to government policies, which seek to activate the country's economy, according to Mitter (2003) education must be contextualized, it does not move away from its reality without ignoring the state needs, which by investment plans generate a high influence on the support in their local bodies. Therefore, it is supported by the 4 laws applied in the state and approved by the Malaysian Parliament; the first of these, the National Council of Higher Education Act, which provides the necessary guidelines for establishing educational guidelines, according to (MOE, 1996a), the ministry as a state council to oversee the growth of higher education in Malaysia, was concerned with creating the necessary conditions to initiate educational models relevant to the country's need.

According to Ocaña-Fernández et al. (2019), Artificial Intelligence is applied in any area, without having a problem due to the volume of data to be processed, nor the time to be used for each data, neural networks are consolidated that are sufficiently supported by algorithms that through patterns, establish the potential markets to which the university has scope, the insertion of the institutions that work in stock markets, flexible, coherent with the offer and by levels of training, this relationship of the classical university against the digital university, has strategies that enhance its cultural development, government, strengthening the scientific work, technological, managing to unify work criteria supported by analytics that not only Google provides, also directive tools of Clarivate, Scival, use of Mendeley, developments of Altimetric which shows a geo-reference since the application, this act is for Morín (2018), It is the application of digital skills, from the revolution of new technologies, the designs of development environments, the knowledge society forged with databases and database ecosystems.

From the methodology applied Design Thinking, a socio-critical analysis of the associated model, for the Colombian institution in distance mode begins. Initial point (characterization University studied): Colombian higher education institution in the virtual and distance modality, 14556 students, number of graduates 33133, offer 32 academic programs, contributions to 7 localities or states in Bogotá, 857 employees, 614 professors, 123 research seedbeds and 18 research groups, coverage of 70% of the city, university programs professional technician 6 distance, 2 virtual, technology distance 4 virtual 2, professional distance 11, specialization distance 3, virtual 2, master's degree 2 virtual, courses and diplomas 2046 enrolled, 1603 enrolled, external offer 39, undergraduate graduate, students in entrepreneurship training 2035, students in professional practice 246, linked institutions 17 schools, free courses 432, presence in the country departments and state, atlantic, meta, Nariño, Cundinamarca, cesar, Santander, bolivar, volunteering 131, practices in social responsibility 1352, social development projects 12.

An important value is detonated in the university that is raised in the study, because its challenges and purposes of growth are linked to the realities of its installed capacity, however, the maturation time allows it to propose strategies that support the development of a culture of quality, the values and instances of work are recurrent with the goals and bets on the model its value and its academic offer propose a global diversification, the research is reflected in the developments of cooperative and collaborative work, its systemic infrastructure, the use of intelligent board for its classrooms are the models of openness, the recognition and monitoring of metrics and patterns from analytics arranged in

the cohesion of its infrastructure delivers results that allow modeling a new digital educational opening according to the future market.

The tendency to increase virtual offer programs, they constitute a new challenge in the model to be worked, their value in the new offer and as from the high quality accreditation models lead to continuous improvement, an increase route is presented according to the 2020–2025 development plan where the institution seeks to expand its offer with a policy and preparation of more managers landed to the requested model.

An important bet is established for a virtual model is to have a continuous staff, which from the availability in contractual issues, type of contract, ensures that the tacit knowledge of the virtual model positively affects the strategy, in the appropriate model it is recognized as the number of virtual teachers make up a value in the strategic challenge of the institution being consistent with the development plan and teaching plan necessary to meet the demands of the virtual model. Is an added value in the commitment of a virtual education model, its high competences involve the results in scientific models, extension, in the internationalization of curricula. In fact, their great value and qualification make these, a positive indicator of response to how the resource is appreciated, who develop models and consistent pedagogical strategies, so in the challenges posed they have coherence with them scope.

Establishes arguments about the efforts necessary to make this model an adaptive capacity for leadership, new installed capacities are generated, administrative, teachers, with a constant gradual increase that allows the model to guarantee academic attention, but with key administrative support in high-scope models. Cite Table 2 in the text of the article.

Analysis of indicators; for the indicator called "Monthly income of graduates" corresponding to Strategic Line 3 (Innovation in relevance), it is only measured at the University System level looking for how the virtual education model allows to promote a value of appropriation in graduates, for the indicators "Advice on entrepreneurship to students and graduates", it is promoted from administrative and academic units the promotion of their reality, the indicator "Virtual students in higher education programs" corresponding to Strategic Line 4 (Development of virtuality). This fact, shows how the university thinks of growth models in its added value from the virtual model, the indicators "Classes with emphasis or social impact", "Organizational maturity index" and "Digital maturity", the role of the institution is recognized, its impact on the environment, its high quality processes, its social impact, the value of research, as recognized worldwide, the indicator "Utilization of physical capacity" corresponding to Strategic Line 8 (Educational infrastructure), with the value of virtual mediation is conglomerated in the entire institutional attention capacity, for the indicator "EBITDA margin" corresponding to Strategic Line 10 (Financial sustainability), the goal was modified from the approval of the budget adjusted by the Covid-19 pandemic.

The articulation of the model and structural challenges according to each institutional commitment has important axes, the realization of strategic lines and the commitment of a value associated with the virtual model. Challenges posed according to the Design Thinking model, to establish the appropriation model was characterized as resolved and planned in institutional policies, its course from strategic planning, but involving how the virtual model becomes a growth scenario with educational quality, consider how to guarantee the strategic management and compliance of the megabytes of the institution, providing centralized monitoring and coordination tools, scenarios that from the mechanism of integral scorecards, favors the technical visibility of the virtual model, the use of intelligent board metrics as the work bet.

#### **4. Conclusions**

The study provides variants that force to develop a special interest in the reader, the initial question about what is the Perspective of governance in university institutions under virtual digital environments: cases of Latin American countries in the development of virtual models Universities have a continuous adaptive challenge of updating, variable that is associated with the level of interaction and internationalization of the curriculum, where it is not only enough to have mirror classes, it is directly related to the level of adaptation of managers to this modality. Therefore, an advance is given in the use of communicative tools necessary to enter closed communities of virtual experiences, knowledge networks, cooperation networks among other strategies.

Defining the profile of the university despite the knowledge of its history and its continuous adaptation must recognize the origin and phenomenon of work, marking regional historical milestones,

of local, national and international impact allow the academic success of its immersion in the digital age, relevant aspects such as the legal analysis of the country, the survey of the existing technological inventory, as there is the deployment of its tactics, the continuous reflection of joint training, as well as its association with more developed communities in this work dynamic, force to generate a positive attitude towards the change of disruptive model, analysis of trends among other aspects. The use of digital tools 4.0, visits to 360 simulators, Google 3D VR, insertion of artificial intelligence become weapons of development of the policy of digital universities that achieve an impact on cohesion and collaboration by having contact with social networks, management of E- Learning platforms, use of web management tools among other aspects of the framework of communicative Edu tools.



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