






“Academic management of university virtual education: An analysis from the perception of students, teachers, and managers”

AUTHORS	Carola Salazar-Rebaza  Monica Zegarra-Alva  Franklin Cordova-Buiza  
ARTICLE INFO	Carola Salazar-Rebaza, Monica Zegarra-Alva and Franklin Cordova-Buiza (2023). Academic management of university virtual education: An analysis from the perception of students, teachers, and managers. <i>Problems and Perspectives in Management</i> , 21(4), 532-544. doi: 10.21511/ppm.21(4).2023.40
DOI	http://dx.doi.org/10.21511/ppm.21(4).2023.40
RELEASED ON	Wednesday, 06 December 2023
RECEIVED ON	Wednesday, 24 May 2023
ACCEPTED ON	Tuesday, 26 September 2023
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

46



NUMBER OF FIGURES

3



NUMBER OF TABLES

2

© The author(s) 2023. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 24th of May, 2023

Accepted on: 26th of September, 2023

Published on: 6th of December, 2023

© Carola Salazar-Rebaza, Monica Zegarra-Alva, Franklin Cordova-Buiza, 2023

Carola Salazar-Rebaza, Doctor, Faculty of Business Sciences, Universidad Cesar Vallejo [Cesar Vallejo University], Peru.

Monica Zegarra-Alva, Master, Business Faculty, Universidad Privada del Norte [Northern Private University], Peru. (Corresponding author)

Franklin Cordova-Buiza, Master, Research, Innovation, and Social Responsibility Department, Universidad Privada del Norte [Northern Private University], Peru; Faculty of Business Sciences, Universidad Continental [Continental University], Peru.



This is an Open Access article, distributed under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Conflict of interest statement:

Author(s) reported no conflict of interest

Carola Salazar-Rebaza (Peru), Monica Zegarra-Alva (Peru),
Franklin Cordova-Buiza (Peru)

ACADEMIC MANAGEMENT OF UNIVERSITY VIRTUAL EDUCATION: AN ANALYSIS FROM THE PERCEPTION OF STUDENTS, TEACHERS, AND MANAGERS

Abstract

Currently, many universities are developing virtual education as an option for the training of future professionals. The objective of this study is to analyze aspects of the academic management of university virtual education from the perspective of students, teachers, and administrators. A mixed approach and non-experimental design were applied. Semi-structured interviews and surveys were used. The participants were 8 managers, 340 students, and 75 teachers from Peru, Colombia, Mexico, and Spain, from universities where virtual education is offered. The results show that 51% of teachers agree with the management, 50% accept the adequate use of technological tools, and only 20% say that virtual classes are effective. Concerning students, 45% agree with the management, but only 15% feel that they are attended to when problems arise in the virtual modality. The managers determine relevant aspects such as the importance of teacher training, having technological tools to ensure learning, and providing a comprehensive academic service, as is provided in the in-person modality. It is concluded that academic management in the virtual modality should prioritize the improvement of satisfaction levels of both students and teachers through adaptation processes, training, performance evaluation, attention, and problem-solving, as well as the use of virtual platforms that allow the development of competencies of the graduate profile and contribute to the comprehensive training of future professionals.

Keywords

virtual education, management, technology, university, competencies, leadership

JEL Classification

I21, I23, O15

INTRODUCTION

The virtualization of education is currently a worldwide trend whose use has intensified in recent years as a result of COVID-19. It is presenting itself as an alternative for the development of education according to the needs of students, despite the resistance to the development of this modality (Alboites, 2020; García Aretio, 2017; Azhari & Kurniawati, 2021). It is necessary to review training processes and implement changes within a process of continuous improvement (Tejedor et al., 2020; Vilela et al., 2021), understanding that this modality is positioning itself as a necessary option to achieve the goals of higher education in terms of coverage and guarantee of permanence. Thus, it is required to analyze the factors that threaten its relevance and quality (Segovia-García et al., 2022; Cordova-Buiza et al., 2022a).

UNESCO (2008), in the Final Declaration of the Regional Conference on Higher Education in Latin America and the Caribbean, refers to the importance of the role of the university in the advancement of humanity. Therefore, virtual education must be managed according

to the needs of the environment, taking into consideration that the lack of adequate management could harm affect its development and sustainability.

In recent years, there has been greater interest in establishing proposals on distance education management based on the experience of managers and adapted to the needs of the university environment. However, there is a need to establish factors or dimensions to adequately manage the virtual modality aligned to quality standards (Briceño Toledo et al., 2020).

1. LITERATURE REVIEW

Definitions and theoretical bases were reviewed to explain the main concepts related to the variable under study. About management, Münch (2010) indicates that the administration of educational institutions is a process where resources are optimized to achieve maximum efficiency, quality, and productivity. Likewise, Masclef and Medina (2011) point out that an essential role of university management is to ensure coherence between its identity, orientation, and performance, reaffirming the unique sense to which actions must respond, the answers to contextual challenges and the resolution of the tensions it faces and suffers.

Mintzberg (1991) states that the complexity of the processes and activities of universities make them atypical organizations. However, the notions of management have been appropriately adapted, referring to the need to lead processes of anticipation, transformation, and innovation in complicated contexts and to propose strategies with a participatory decision-making process to improve the university's own functions: teaching, research, and extension (De Donini & Donini, 2003). In addition, this type of management refers to the process through which the resources of a university institution are organized and administered to achieve the objectives set (Guevara Gómez et al., 2021).

As a result of the globalization of education, technological progress, and the need to offer quality educational programs, university institutions have found virtual education a great alternative to generate learning spaces (Crisol-Moya et al., 2020). Nowadays, quality evaluation is being applied to their processes to accredit their careers and programs through an approach that evaluates the result in the final product, which is the competencies acquired in the graduates (Bonney et al., 2004).

The evaluation of quality in the virtual modality requires permanent measurement to make adjustments and determine opportunities for improvement, so it is necessary to systematize it based on its operability and the achievement of institutional objectives. Given the above, Jung and Latchem (2012) argue that there is a wide difference between virtual education and traditional education, so it is not possible to apply the exact mechanisms and dimensions to assess the quality of the two modalities since parameters and models that adapt to the contexts in which they are developed are required. As Marciniak and Gairín (2018) point out, the dimensions of virtual education quality evaluation focus on the institutional context, technological infrastructure, students, teachers, and pedagogical aspects, establishing no single criterion regarding the dimensions for this evaluation. It can be specified that a quality management system promotes continuous improvement and involves all stakeholders as it seeks a high level of satisfaction (Carballo, 2013).

According to Rama (2012), there is a transformation of the tasks and jobs of professionals demanded by the existing occupational market. The use of computer tools favors incorporating a greater number of information and communication technologies (ICT), such as software and the Internet, in educational processes. Their use has increased exponentially in recent years, without institutions and individuals being prepared for this process (García-Peñalvo, 2021). It has been complicated, especially in state organizations, due to the lack of technological resources and the poor preparation of their collaborators. It is vital to create spaces for technological surveillance for its development and the necessary corrective measures (Rivas Echeverría et al., 2020), as well as the maximum dissemination of solutions contributing to university education.

Bigné et al. (2003) define the university as a multi-service organization, where the basic service is academic education and other peripheral services. As stated by Hernández Díaz (2021), it also includes enrollment processes, international relations, library, languages, sports services, infrastructure, social services, and health. It is important to have diversified services to meet the needs of the university community. On this point, García-Sanchis et al. (2015) determine dimensions of university service, considering complementary aspects to academic training and grouping them into support services for academic training, social services, and recreational and extracurricular services.

On the subject, different aspects of academic management in the virtual modality of university education are analyzed. In the case of adaptation, Bedoya-Dorado et al. (2021) developed research on university management during the pandemic in Colombia. They found that universities had to manage the acquisition of programs, platforms, and various tools for virtual education, in addition to digital bibliographic material and the flexibilization of the academic system, especially regarding the leveling of students with connectivity problems.

Álvarez Sierra (2021) proposes a management model where the link of efficient administration is reflected in its main activity, academic work. In addition, it takes into account principles of management through a flexible organizational system and specifies that management styles are required according to its operation and development.

Adaptation and the ability to manage change have been widely addressed. For example, Pekkola et al. (2021) point out that adaptive and flexible management involving knowledge, skills, attitudes, and state-of-the-art thought processes must be used. Failure to manage effectively can facilitate the loss of legitimacy and cause the system to collapse. The existing gap in terms of access to virtuality must be reconciled, taking into account that there are students with limited resources and some with better conditions for adaptation (Portillo Penuelas et al., 2020; Cordova-Buiza et al., 2022b).

Several studies are optimistic about the development of the virtual modality as a means that al-

lows learning and obtaining knowledge. Yong et al. (2017) indicate that technological evolution and its educational impact drive institutions to develop this modality. The study concludes that the implementation of virtual education policies requires highly trained professionals to manage the processes of creation, implementation, and management of this type of program. It is important to establish mechanisms to execute pedagogical processes, research, and links with society, with particular attention to student support through information and communication technologies (Ordóñez & Ramos, 2018; Rodríguez-Ahuanari et al., 2022).

Universities must establish a management model aligning with their internal reality and the external context. In this sense, Fossatti and Danesi (2018) analyzed the main aspects that improve management models. They concluded that dimensions such as initiatives for the adequacy of structures and processes, a good relationship with governmental and business institutions, political articulations, and entrepreneurial attitudes are essential for a successful management model. The role of the university in the social and economic development of society is emphasized.

Likewise, Morantes Higuera and Acuña Corredor (2013) developed a proposal for a management model under an institutional distance education system approach. They considered internal (organizational management, academic management, and quality management) and external components (market orientation and university social responsibility).

However, in a more in-depth analysis of the management of the virtual modality, it is established that there are few references. Carmona (2012) offers a generic criterion of dimensions, such as academic, technological, and administrative infrastructure, by the components indicated by the National Association of Universities of Higher Education Institutions.

A significant contribution is presented by Duarte and Lupiáñez (2005), who found that the management components in the e-learning training process are management of the learning process (students), management of the teaching process

(teachers), management of the context (technological learning environments), and management of support resources.

On the other hand, Hareger (2020) investigated the management of German university faculties from the contextual factors of their organizational structure, using a systemic analysis of the dimensions to interpret the results. The factors considered were the profile, type of university, number of students, and number of programs. The study showed that faculties usually have small support offices and that the profile and type of university are crucial factors in the organizational structure.

Currently, technological, economic, social, and scientific development has made the management of university education institutions more complex concerning internal and external factors. These factors include constant updating of curricula, characteristic aspects of the teacher, the promotion of research, and the application of ICTs. These aspects generated profound changes in its administration in the search for virtual university education to obtain acceptance in students' perception (Díaz et al., 2017). Based on this, Valle Barra (2005) develops a university management model based on indicators by relevant dimensions, one of them being the satisfaction of students, teachers, and employees, emphasizing that this measurement can be done through surveys that are easy to apply and process.

Regarding the problems of higher education, Kevans Espinoza (2020) analyzes the deficient management of some managers due to the lack of profile and experience to manage university institutions, pointing out the importance of the pedagogical dimension since the teaching-learning process flows through it.

Educational institutions were forced to undergo a drastic change in their operations, which implies exercising leadership in a situation where decisions have an impact on society, hence the need for democratic leadership that fosters proactive decision-making (Véliz-Burgos & Dörner-Paris, 2020; Salazar-Rebaza et al., 2022). As Figueredo-Díaz (2021) points out, administrative management processes can be carried out completely remotely, based on sequential planning, and supported by the use of the Internet.

In this regard, Field (2015) shows the work of managers, who often demotivate their staff with overly ambitious performance evaluations that only encourage short-term results and lack the vision to focus on long-term trajectories. Adaptation is erroneously approached with training that includes more aspects of form (use of virtual platforms) than of substance (how to adapt the content of a face-to-face class to the virtual class) (Fernández-Regueira et al., 2020).

According to the literature review, the objective of this study is to analyze the aspects of academic management applicable to virtual university education through the experience and perception gathered from university directors, teachers, and students who develop study programs in the virtual modality in order to establish guidelines for more effective management.

2. METHODOLOGY

The paper applied the mixed approach, descriptive, cross-sectional, and non-experimental design. The quantitative methodology presented the perception of teachers and students about the academic management of the virtual modality. The qualitative methodology focused on collecting data from the academic directors of the selected universities where the virtual modality is taught. The choice of the study unit is justified since all the universities analyzed provide virtual education, belong to different geographical regions, and have a significant number of students with similar socio-economic characteristics.

Regarding the sample (Table 1), for the qualitative research, the interview technique was applied to eight academic managers. A sample was chosen by the convenience approach and willingness to conduct the interview. The instrument was a semi-structured interview with 11 open-ended questions on the relevant aspects managers perform to manage the virtual modality. The interviews with the managers were conducted through virtual platforms, and the responses were processed and analyzed through Atlas IT.

Concerning quantitative research, the sample of students is determined by taking into account

Table 1. Sample of the study

Institution	Country	Interview	Survey	
		Academic managers	Teachers	Students
Private University of the North [Universidad Privada del Norte]	Peru	2	17	87
Cesar Vallejo University [Universidad César Vallejo]	Peru	2	18	105
Cooperative University of Colombia [Universidad Cooperativa de Colombia]	Colombia	2	12	64
ESIC University [ESIC Universidad]	Spain	1	13	48
Higher Technological Institute of El Mante [Instituto Tecnológico Superior de El Mante]	Mexico	1	15	36
Total		8	75	340

the probabilistic sample according to the student population of each university; the criteria for inclusion were students in the last two years of academic programs that are delivered in the virtual mode. Likewise, the study chose teachers who teach courses in this modality and who have at least 2 years of academic experience. The survey technique was a questionnaire with closed questions that was applied through Google Forms.

The academic managers supported the dissemination of the survey to the teachers of each university. At the same time, the teachers contributed to the application of student surveys, taking into account the previously established inclusion criteria. The results were tabulated for the presentation of frequency tables using descriptive statistics with the help of Microsoft Excel. Experts with experience in research and knowledge of university management validated the instruments. Several aspects related to research ethics were considered, such as integrity in preserving the anonymity of the participants' data.

3. RESULTS

3.1. Quantitative results

Data were collected from the application of surveys to both teachers and students to learn about their perception of aspects of academic management in virtual university education.

Figure 1 shows that the teachers' perception of the management of the virtual modality is adequate but not in its totality since it is necessary to establish points for improvement. Acceptance is shown especially in the use of technological tools and the continuous improvement process developed for university virtual education. However, only 20% of the teachers consider education in this modality effective.

From their perception (Figure 2), teachers consider that there are appropriate conditions to provide virtual education, such as course planning and feedback from managers, but they state that aspects regarding their performance evaluation

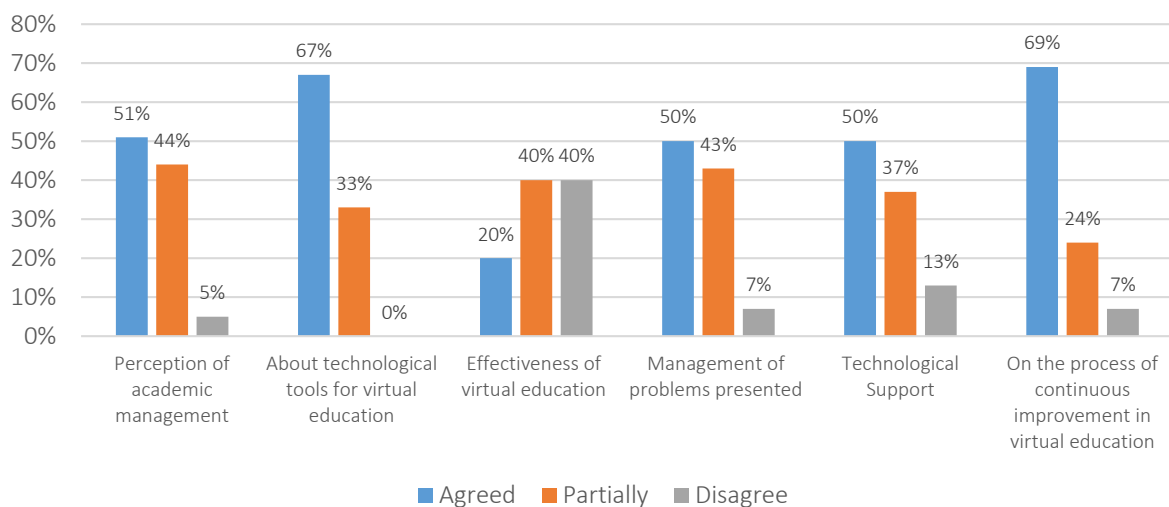


Figure 1. Teachers' perceptions of the university virtual modality

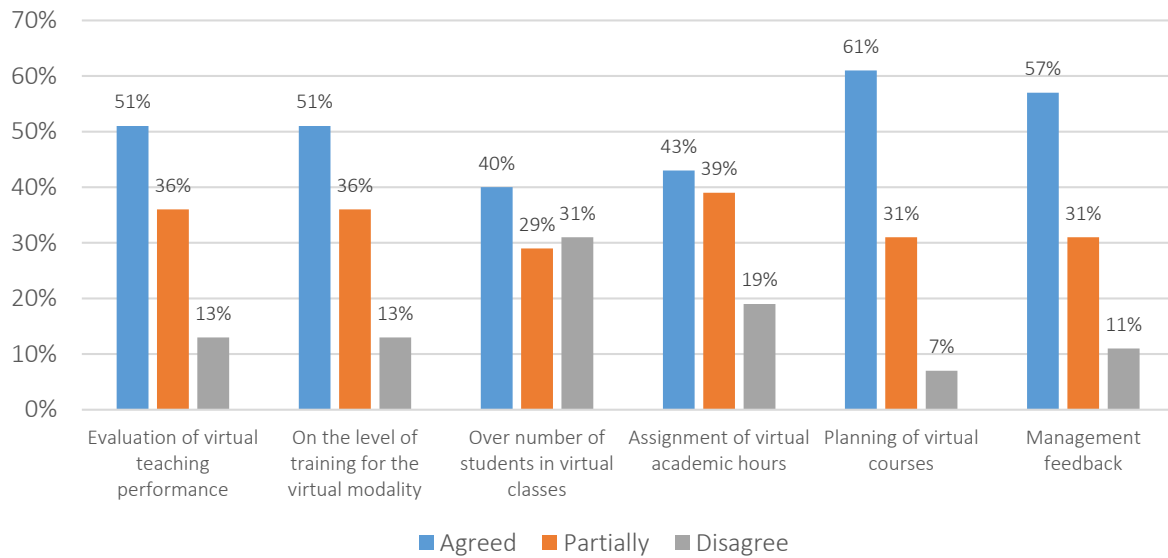


Figure 2. Teachers’ perception of the conditions for the development of virtual university education

should be reviewed since only 51% agree; moreover, the level of training they receive to teach in the virtual modality should be improved as well. In addition, a more exhaustive review is needed regarding allocating virtual academic hours and the number of students in these classes.

The results about the students’ perception of the university virtual modality (Figure 3) show that most do not fully agree with the academic management, especially concerning the effectiveness of virtual education, since only 27% of those surveyed agree. The problem is more acute in terms of attention to academic problems since only 15% agree with the problem-solving processes, and only 32% indicate that they receive adequate techno-

logical support. However, 51% of students say that, despite the deficiencies, they can develop their graduation competencies.

3.2. Qualitative results

The university education developed in the virtual modality focuses on changing the traditional elements of a class in the face-to-face modality. Thus, this study inquired about how the development of the virtual modality was managed through interviews with academic managers (Table 2).

In the pedagogical aspect, the interviewees pointed out that the virtual modality does not apply to all subjects, so it is necessary to analyze which sub-

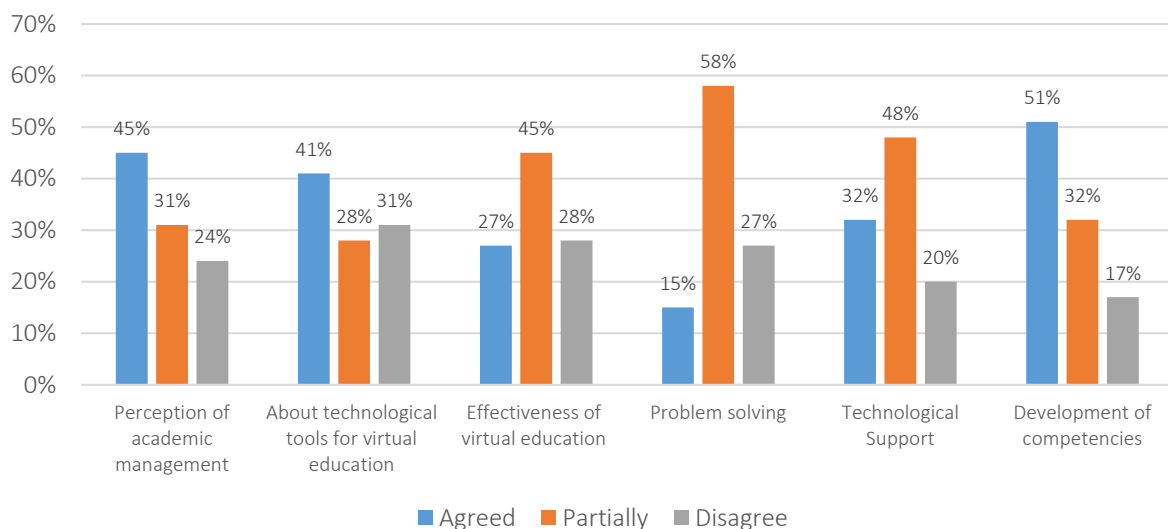


Figure 3. Students’ perceptions of the university virtual modality

Table 2. Aspects of the academic management of the university virtual modality

Aspects	Dimensions of management	Action plan
Pedagogical	Selection of subjects for virtual modality	Curriculum evaluation
	Teaching performance	Training and assessment
	Graduate Competencies	Labor market demand analysis
Technological	Plataformas virtuales	Virtual Platforms
	Technological support	Troubleshooting and contingency planning
Supplementary services	Diversification of areas	Attention to wellness, psychology, recreation, among others
	Measuring satisfaction	Application of surveys to determine opportunities for improvement
Administrative work	Remote work	Scheduling, connectivity, communication
	Redistribution of roles	Evaluate professional profiles

jects can be adapted to this modality. Concerning teaching performance, two critical points are focused on: having suitable teachers to obtain adequate satisfaction results, and measuring teacher performance, focusing on teachers as the main factor for quality service. What was expressed in the interviews indicates that the role of the teacher is a priority, understanding that it is the teacher who “engages” the student, or otherwise, the rejection of the teacher often generates desertion.

The result of the academic training is reflected in the competencies developed by the graduate, so the study inquired about the appreciation regarding the achievement of these competencies under the virtual education modality. Appreciations of the interviewees denote postures that it is soon to have accurate results in terms of the acquisition of skills. There is evidence of concern of the directors for the students who have been trained from the beginning of their professional life through the virtual modality, so the need to complement their graduation profile with some face-to-face activities is expressed. It also collects an optimistic view toward the future of university training. Above all, managers should rethink the new profiles that the market demands in graduates. The trend is toward an increasingly rapid development in the technological aspect and, in turn, soft skills that help graduates to adapt to new scenarios.

In the technological aspect, the virtual teaching modality is supported based on technological tools; therefore, directors focus on selecting tools that minimize the impact of transferring a face-to-face class to a virtual or remote class. The interviewees state that as a result of the pandemic, relevant decisions were made regarding acquiring platforms and various tools that would allow

classes to be developed adequately, which led to a period of adaptation for teachers and students.

Some testimonies highlight the strategies used, such as first designating teachers with some experience in virtual classroom management. In addition, the focus is on the training through their intentionality according to the competency to be developed. It is vital to have a team that provides assistance and technological support for difficulties encountered in using these tools.

The interviewees state how this aspect was managed, emphasizing the systems used to attend to requests and solve technology-related problems. They are aware that there are external factors, such as the state of the equipment, internet speed, etc., that do not allow a total solution. However, options are analyzed so that these inconveniences are not an obstacle in the development of classes in such a way that the technological gap is considerably reduced. It is evident that the management approach regarding the attention to technological problems is to avoid contingencies in the academic service due to adaptation. An important point that institutions must take into account in order to guarantee quality in training is to focus on difficulties in order to concretize the solution process or anticipate problems.

The academic service involves a series of complementary resources and services that allow students to develop their university life through other necessary activities. Academic procedures are necessary to obtain degrees and diplomas. Likewise, financial services, scholarships, libraries, psychological departments, recreation, extracurricular workshops, and student exchange, among others, are critical for the student to receive a quality education in a comprehensive and integral form.

The virtual modality promoted critical changes in these areas in order to be able to continue providing attention to students. The interviewees commented on the processes of adaptation of the staff to fulfill the most critical functions, initially focused on attending to countless queries from students and teachers. The application of strategies in the management of these services is a key point for the solution of problems in changing situations that may impact the development of academic training. It is necessary to measure indicators that allow to know the levels of satisfaction, in this case, to know the perception of students about the complementary services offered by the university.

In regard to administrative work, there is evidence of management in the use of tools that contribute to the measurement of performance and maintain interaction among collaborators in a similar way to that which was done with face-to-face work. They use platforms to maintain the connection between areas and to monitor progress. In the virtual modality, it has been necessary to apply different strategies to relocate, train, update, and follow up on remote work, which always generate different reactions and levels of response from employees. The interviewees expressed the magnitude of the effect of remote work on employees. Factors such as schedules, equipment, functions, follow-up, and use of platforms were the aspects that received the most attention in terms of management. The process of change is not simple and requires specific managerial skills for adaptation. The virtual or remote modality considerably affects the activities of administrative personnel as long as certain parameters are not established that allow the functions and tasks required by the company to be separated from the personal activities of each employee.

4. DISCUSSION

The aspects analyzed in this study are related to those indicated by Marciniak and Gairín (2018), who establish dimensions to evaluate the quality of virtual education (the institutional context, the technological infrastructure, students, teachers, and pedagogical aspects), establishing that there is no single criterion for this evaluation. Similar aspects in the model are proposed by Carmona

(2012), who points out as dimensions of virtual education the academic, technological, and administrative infrastructure aspects.

In the pedagogical aspect, managing the virtual modality focuses on four points. One of them is teacher training in the use of active methodologies in order to improve interaction, teaching, and evaluation in virtual learning. This statement is similar to what Crisol-Moya et al. (2020) pointed out when they refer to virtual education as a great alternative to generating learning spaces. However, management should focus its efforts on training, not only in the use of virtual platforms but also in the processes of adapting face-to-face content to virtual mode, as stated by Fernández-Regueira et al. (2020). In this aspect, the teacher's profile should be reviewed, as well as the functions to be fulfilled in the development of classes and outside them through the execution of some academic activities.

Performance evaluation is another of the points considered, which is relevant to offer a quality service. Its measurement is developed through student surveys and monitoring of performance by managers. This performance evaluation should be readjusted according to the results obtained periodically to adapt the criteria to the virtual teaching modality. Adequate performance should be recognized, promoting motivation and identification of teachers, which agrees with Field (2015), who shows the importance of structuring a performance evaluation with long-term results.

Another aspect refers to satisfaction. If students show a high level of satisfaction, desertion will be avoided, which agrees with Díaz et al. (2017), who stressed the importance of acceptance in students' perception. On the contrary, the recruitment of new students will be promoted.

The whole process is focused on the institutional academic objective that involves the development of the competencies of the graduate profile. Their formulation must take into account a correct choice of subjects that are taught under the virtual modality and those that must be offered in person. This agrees with Bonnefoy et al. (2004), who indicate that the graduates and the competencies acquired in their training are the final product of the

entire university academic process, so this measurement is essential to make the corresponding adjustments, accurately considering the demands of the labor market.

In the technological aspect, management focuses on technological tools to develop the virtual modality in the university institution, as well as internet access and the necessary learning equipment. It agrees with what is pointed out by Yong et al. (2017), in addition to Ordóñez and Ramos (2018), who highlight the importance of technological evolution and its impact on education as a boost to the development of this modality but emphasize technical support for efficient use of the tools. Likewise, the results determine the adaptation of the technological infrastructure with significant acquisitions, in similarity to what Bedoya et al. (2021) mention, such as the need to have programs, platforms, and various tools for virtual education, in addition to digital bibliographic material and the flexibilization of the academic system.

The existing technological gaps are analyzed. Many of them are related to the use of platforms, the lack of connectivity, as well as the lack of equipment necessary for virtuality. The results are similar to what García-Peñalvo (2021) indicates. It should be considered that institutions and individuals have been prepared for this process. The objective of management is to operationalize these aspects and solve the barriers presented through decisions that allow teachers and students access to virtual education. This is consistent with Pekkola et al. (2021), who mentioned the need for adaptive and flexible management. It is also consistent with Rivas Echeverría et al. (2020), who emphasize the importance of maximum dissemination of solu-

tions to technological problems that may arise. The main barrier is that there is no homogeneous level of use of these tools since it depends on the level of access and quality of the equipment, an aspect that is not present in the face-to-face modality. This is similar to Portillo Penuelas et al. (2020), who indicate the importance of closing the existing gap.

Academic management not only contemplates the pedagogical function but is supported by support services of various kinds: finances, information centers, employment exchange, and academic secretariat. García-Sanchis et al. (2015) determine the dimensions of university service through complementary aspects to academic training. In the virtual modality, these services must be adapted to provide students with solutions to their doubts and the requirement of corresponding procedures so that academic development is complemented through these services. This is similar to what Hernández Díaz (2021) points out, who emphasizes the importance of having diversified services to meet the needs of the university community, as well as Bigné et al. (2003) who consider universities as “multiservice” organizations. To this effect, management should focus efforts on adapting administrative personnel using customer service strategies that allow for an optimal level of satisfaction among users. One of the strategies is the adaptation of administrative functions through the reassignment of tasks, not overloading employees by establishing rigid schedules of attention that do not harm the personal lives of workers. In addition, it is vital to intensively use technological tools that are efficient communication channels to solve the situations that constantly arise in virtual university education.

CONCLUSION

The objective of this study was to analyze the aspects that comprise the academic management applicable to virtual university education from the perception of students, teachers, and managers of universities that make up the study sample. A partial acceptance of students and teachers on the management of academic managers is determined, being the points that need to be reviewed related to the effectiveness of academic training in this modality and technological support. It is deduced that managers should focus on strategies to raise satisfaction with virtual education.

The pedagogical aspect covers both the review and teacher training, the level of student satisfaction, performance evaluation, and the competencies of the graduate profile. It is one of the fundamental aspects

of university management that requires the proper linkage between pedagogical and administrative aspects to establish academic planning according to the quality requirements and the demand of the labor market. Moreover, performance indicators should be used to establish corrective measures so that students' perception reflects a higher level of satisfaction and at the same time, achieve compliance with the competencies stated in the graduate profile.

The management of university virtual education in complementary services and support resources should be planned according to the organizational structure and with the help of technological tools to achieve an optimal level of user satisfaction.

Regarding administrative work, it is considered that collaborators in administrative areas have an essential role that should contemplate their involvement in achieving the objectives of the academic training service integrally, but taking into account an adequate distribution of functions and policies that allow respect for daily work schedules in order to avoid problems of excessive workload.

The limitations that were presented were due to the plurality of the interviewees and people surveyed being from different countries; however, this was not a reason for multivariate results, showing that the problems are similar and the aspects considered in the academic management of the virtual modality can be applicable to universities in different countries.

For future research, it is recommended that virtual education management models be proposed, considering the aspects determined in the present investigation that allow their adaptation to different university academic contexts.

AUTHOR CONTRIBUTIONS

Conceptualization: Carola Salazar-Rebaza, Monica Zegarra-Alva.

Data curation: Carola Salazar-Rebaza, Monica Zegarra-Alva, Franklin Cordova-Buiza.

Formal analysis: Carola Salazar-Rebaza.

Investigation: Monica Zegarra-Alva, Franklin Cordova-Buiza.

Methodology: Carola Salazar-Rebaza.

Project administration: Monica Zegarra-Alva.

Resources: Carola Salazar-Rebaza.

Supervision: Franklin Cordova-Buiza.

Validation: Carola Salazar-Rebaza, Monica Zegarra-Alva.

Writing – original draft: Carola Salazar-Rebaza, Monica Zegarra-Alva, Franklin Cordova-Buiza.

Writing – review & editing: Carola Salazar-Rebaza, Monica Zegarra-Alva, Franklin Cordova-Buiza.

REFERENCES

- Alboites, H. (2020). Epidemia y Batalla por la educación [Epidemic and the Battle for education]. *El Cotidiano, UAM*, 35(221), 7-16. (In Spanish). Retrieved from <https://www.proquest.com/openview/9bb7c770c0c8929973cab3b8c4215dd5/1?pq-origsite=gscholar&cbl=28292>
- Álvarez Sierra, Y. (2021). Modelo de gestión universitaria complejo [Model of complex university management]. *Horizontes. Revista de Investigación en Ciencias de la Educación*, 5(17), 195-206. (In Spanish). <https://doi.org/10.33996/revistahorizontes.v5i17.167>
- Azhari, T., & Kurniawati, T. (2021). Students' perception on online learning during the Covid-19 pandemic: A case study of Universitas Malikussaleh students. *Proceedings of the International Conference on Social Science, Political Science, and Humanities (ICoSPOLHUM 2020)*. Lhokseumawe, Indonesia. <https://doi.org/10.2991/assehr.k.210125.009>
- Bedoya-Dorado, C., Murillo-Vargas, G., & González-Campo, C. (2021). Gestión universitaria en tiempos de pandemia por Covid-19: Análisis del sector

- de la educación Superior en Colombia [University management in times of pandemic by Covid-19: Analysis of the higher education sector in Colombia.]. *Estudios Gerenciales*, 37(159), 251-264. (In Spanish). <https://doi.org/10.18046/j.est-ger.2021.159.4409>
5. Bigné, E., Moliner, M. A., & Sánchez, J. (2003). Perceived quality and satisfaction in multiservice organisations: The case of Spanish public services. *Journal of Services Marketing*, 17(4), 420-442. <https://doi.org/10.1108/08876040310482801>
 6. Bonnefoy, C., Cerda, G., Peine, S., Durán, M., & Ponce, Y. (2004). Gestión directiva universitaria: Un instrumento para su evaluación [University management: An instrument for assessment]. *Revista de Psicología de la Universidad de Chile*, 13(2), 63-82. (In Spanish). <https://doi.org/10.5354/0719-0581.2004.17655>
 7. Briceño Toledo, M., Correa Castillo, S., Valdés Montecinos, M., & Hadweh Briceno, M. (2020). Modelo de gestión educativa para programas en modalidad virtual de aprendizaje [Educational management model for virtual learning programs. *Revista de Ciencias Sociales*, 26(2), 286-298. (In Spanish). Retrieved from <https://dialnet.unirioja.es/servlet/articulo?codigo=7500759>
 8. Carballo, E. (2013). Relación formación-gestión del conocimiento innovación-desarrollo local en los Municipios de Ciego de Ávila [Relationship between training-knowledge management, innovation and local development in the municipalities of Ciego de Ávila.]. *Revista Científica Nom Verba*. (In Spanish).
 9. Carmona, E. (2012). Modelo de gestión para los Centros de Educación a Distancia Universitarios (CEDU) [Model of Management for University Distance Education Centers]. In M. Levens (Ed.), *Modelos, recursos tecnológicos y mecanismos de gestión del conocimiento* [Models, technological resources and knowledge management mechanisms]. Conferencia llevada a cabo en el XIII Encuentro Internacional Virtual Educa, Panamá. (In Spanish). Retrieved from <https://www.amazon.es/Gestion-Conocimiento-Formacion-Innovacion-Desarrollo/dp/3848458993>
 10. Crisol-Moya, E., Herrera-Nieves, L., & Montes-Soldado, R. (2020). Virtual education for all: Systematic review. *Education in the Knowledge Society*, 21, 13. <https://doi.org/10.14201/eks.20327>
 11. Cordova-Buiza, F., Tapara-Sinti, J., Gallardo-Tello, N. E., & Robles-Fabian, D. A. (2022a). Level of financial education among university students of business: A study in the Peruvian scenario. *IBIMA Business Review*, 2022, 275437. <https://doi.org/10.5171/2022.275437>
 12. Cordova-Buiza, F., Hernandez-Zuniga, K., Julca-Carrasco, K., & Huerta-Tantalean, L. N. (2022b). Strategic management of E-commerce in commercial companies: A systematic review (2016–2020). *Proceedings of the European Conference on Innovation and Entrepreneurship*, 17(1), 141-147. <https://doi.org/10.34190/ecie.17.1.344>
 13. De Donini, A., & Donini, A. (2003). *La gestión universitaria en el siglo XXI. Desafíos de la sociedad del conocimiento a las políticas académicas y científicas* [University management in the XXI century. Challenges of the knowledge society to academic and scientific policies] (Documento de Trabajo N° 107). Universidad de Belgrano. (In Spanish). Retrieved from <https://repositorio.ub.edu.ar/handle/123456789/393>
 14. Díaz, C. B., Rodríguez, J. R., Fernández, A., Vanga, M. G., & Quintero, G. C. (2017). *Hacia el cambio en las Instituciones de Educación Superior* [Change at Higher Education Institutions]. Riobamba, Ecuador: Unidad de Publicaciones y de la Propiedad Intelectual, de la Universidad Nacional de Chimborazo (UNACH). (In Spanish). Retrieved from <https://editorial.unach.edu.ec/index.php/Editorial/catalog/book/26>
 15. Duart, J., & Lupiáñez, F. (2005). E-stratègies en la introducció i l'ús de les TIC a la universitat. RUSC [E-strategies in the introduction of ICT to the university. RUSC]. *Universities and Knowledge Society Journal*, 2(1), 100-106. (In Spanish). Retrieved from <https://rusc.uoc.edu/rusc/ca/index.php/rusc/article/view/v2n1-duart-lupianez.html>
 16. Fernández-Regueira, U., Gewerc Barujel, A., & Llamas Nistal, M. (2020). El profesorado universitario de Galicia y la enseñanza remota de emergencia: Condiciones y contradicciones [Galician University Teaching Staff and Emergency Remote Teaching: Conditions and Contradictions]. *Campus Virtuales: Revista Científica Iberoamericana de Tecnología Educativa*, 9(2), 9-24. (In Spanish). Retrieved from <http://uajournals.com/ojs/index.php/campusvirtuales/article/view/731>
 17. Field, L. (2015). Appraising academic appraisal in the new public management university. *Journal of Higher Education Policy and Management*, 37(2), 172-189. <https://doi.org/10.1080/1360080X.2014.991534>
 18. Figueredo-Díaz, O. (2021). Gestión digital universitaria: Una propuesta emergente en tiempos de pandemia [University Digital Management: An Emerging Proposal in Times of Pandemic]. *Revista Docentes 2.0*, 12(1), 95-107. (In Spanish). <https://doi.org/10.37843/rted.v1i1.259>
 19. Fossatti, P., & Danesi, L. (2018). Universidades comunitarias en Brasil: Por qué hay que perfeccionar su modelo de gestión? [Community universities in Brazil: Why do you need to improve your management model?] *Formación Universitaria*, 11(5), 75-84. (In Spanish). <https://dx.doi.org/10.4067/S0718-50062018000500075>
 20. García Aretio, L. (2017). Educación a distancia y virtual: Calidad, disrupción, aprendizajes adaptativo y móvil [Distance

- and virtual education: Quality, disruption, adaptive learning and mobile learning]. *RIED. Revista Iberoamericana de Educación a Distancia*, 20(2), 9-25. (In Spanish). <http://dx.doi.org/10.5944/ried.20.2.18737>
21. García-Peñalvo, F. J. (2021). Transformación digital en las universidades: Implicaciones de la pandemia de la COVID-19 [Digital Transformation in Universities: Implications of the COVID-19 Pandemic]. *Education in the Knowledge Society (EKS)*, 22, e25465. (In Spanish). <https://doi.org/10.14201/eks>
 22. García-Sanchis, M., Gil-Saura, I., & Berenguer-Contrí, G. (2015). Dimensionalidad del servicio universitario: Una aproximación desde un enfoque de marketing [Dimensionality of university service: A marketing approach.]. *Revista Iberoamericana de Educación Superior*, 6(15), 26-49. (In Spanish). [https://doi.org/10.1016/S2007-2872\(15\)30002-0](https://doi.org/10.1016/S2007-2872(15)30002-0)
 23. Guevara Gómez, H. E., Huarachi Quintanilla, L. A., Lozano Zanelly, G. A., & Vértiz Osoreo, J. J. (2021). Gestión del cambio en organizaciones educativas pospandemia [Change management in post-pandemic educational organizations]. *Revista Venezolana De Gerencia*, 26(93), 178-191. (In Spanish). Retrieved from <https://www.redalyc.org/journal/290/29066223012/html/>
 24. Hareger, I. (2020). Faculty management after higher education reforms – Exploring the organizational structure of faculties considering their contextual factor. *6th International Conference on Higher Education Advances*. Valencia. <http://dx.doi.org/10.4995/HEAd20.2020.11239>
 25. Hernández Díaz, J. M. (2021). Qué universidad para el siglo XXI? [Which university for the XXI century?]. *Revista Lusófona De Educação*, 52, 133-152. (In Spanish). Retrieved from <https://recil.ensinolusofona.pt/bitstream/10437/13093/1/%C2%BFQu%C3%A9%20Universidad%20para%20el%20Siglo%20XXI.pdf>
 26. Jung, I., & Latchem, C. (2012). *Quality assurance and accreditation in distance education and e-learning*. New York/London: Routledge.
 27. Kevans Espinoza, M. (2020). Gestión educativa y calidad de la educación superior tecnológica en instituciones estatales de Lima Metropolitana [Educational management and quality of higher technological education in state Institutions of Metropolitan Lima]. *Educación*, 26(2), 147-162. (In Spanish). <http://doi.org/10.33539/educacion.2020.v26n2.2229>
 28. Marciniak, R., & Gairín, J. (2018). Dimensiones de evaluación de calidad de educación virtual: Revisión de modelos referentes [Dimensions of Quality Assessment of Virtual Education: Review of Referent Models]. *Revista Iberoamericana de Educación a Distancia*. (In Spanish). Retrieved from <https://revistas.uned.es/index.php/ried/article/view/16182>
 29. Masclaf, M., & Medina, M. (2011). La problemática de la gestión universitaria desde la percepción de los funcionarios y gestores administrativos, el caso de la Universidad Nacional de Tucumán [The problem of university management from the perception of administrative officials and managers, the case of the National University of Tucumán. *XI Coloquio Internacional sobre Gestión Universitaria en América del Sur*. (In Spanish). Retrieved from <https://catalogosiidca.csuca.org/Record/UCR.000440052>
 30. Mintzberg, H. (1991). *Mintzberg y la dirección [Mintzberg and management]*. Ediciones Díaz de Santos. (In Spanish). Retrieved from https://eco.biblio.unc.edu.ar/cgi-bin/koha/opac-detail.pl?biblionumber=7612&shelfbrowse_itemnumber=28850
 31. Morantes Higuera, A., & Acuña Corredor, G. (2013). Propuesta de modelo de gestión para educación superior a distancia: una aproximación. [Proposal for a management model for distance higher education: An approximation]. *Revista del Instituto de Estudios en Educación Universidad del Norte*, 18. (In Spanish). Retrieved from <http://www.redalyc.org/articulo.oa?id=85328617007>
 32. Münch, L. (2010). *Administración. Gestión organizacional, enfoques y procesos administrativos [Management. Organizational management, administrative approaches and processes.].* Pearson Education. (In Spanish). Retrieved from https://www.academia.edu/12705991/Administraci%C3%B3n_Gesti%C3%B3n_organizacional_enfoques_y_proceso_administrativo
 33. Ordóñez, R., & Ramos, G. (2018). Gestión educativa universitaria apoyada en tecnologías de información y comunicación para formación semipresencial [University educational management supported by information and communication technologies for blended learning]. *Atenas*, 4(44). (In Spanish). Retrieved from <https://www.redalyc.org/journal/4780/478055154010/html/>
 34. Pekkola, E., Siekkinen, T., Kujala, E. N., Kannianen, J. P., & Laihonon, H. (2021). An assessment of COVID-19's impact on Finnish university leadership. *Knowledge Management Research & Practice*, 19(4), 510-516. <https://doi.org/10.1080/14778238.2021.1906773>
 35. Portillo Penueles, S., Castellanos Pierra, L., Reynoso Gonzalez, O., & Gavotto Nogales, O. (2020). Enseñanza remota de emergencia ante la pandemia Covid-19 en Educación Media Superior y Educación Superior [Emergency remote teaching in the face of the Covid-19 pandemic in Upper Secondary Education and Higher Education]. *Propósitos y Representaciones*, 8(SPE3), e589. (In Spanish). <http://dx.doi.org/10.20511/pyr2020.v8nSPE3.589>
 36. Rama, C. (2012). *La reforma de la virtualización de la universidad, el nacimiento de la educación digital [The reform of university virtualization, the birth of digital education]*. Universidad de Guadalajara. (In Spanish).

- Retrieved from <http://biblioteca.udgvirtual.udg.mx/jspui/handle/123456789/1871>
37. Rivas Echeverría, F., Márquez-Dominguez, C., Pérez, A., & Rodríguez-Clavijo, F. (2020). La importancia de la tecnología en momentos de pandemia [The importance of technology in times of pandemic]. *Revista Ibérica de Sistemas y Tecnologías de Información*, 2020, IX-XI (In Spanish). Retrieved from <https://www.proquest.com/scholarly-journals/la-importancia-de-tecnologia-en-momentos-pandemia/docview/2452331665/se-2>.
 38. Rodriguez-Ahuanari, V. G., Vega-Ramirez, M. A., Chumpitaz-Caycho, H. E., Espinoza-Gamboa, E. N., & Cordova-Buiza, F. (2022). Intelligent system for data protection in higher education institutions: A systematic review. *Proceedings of the 2022 IEEE International Conference on Smart Internet of Things* (pp. 94-99). <http://dx.doi.org/10.1109/Smart-IoT55134.2022.00024>
 39. Salazar-Rebaza, C., Zegarra-Alva, M., & Cordova-Buiza, F. (2022). Management and leadership in university education: Approaches and perspectives. *Problems and Perspectives in Management*, 20(3), 130-141. [http://dx.doi.org/10.21511/ppm.20\(3\).2022.11](http://dx.doi.org/10.21511/ppm.20(3).2022.11)
 40. Segovia-García, N., Said-Hung, E., & García Aguilera, F. (2022). Virtual higher education in Colombia: Factors associated with dropping out. *Educación XXI*, 25(1), 197-218. <https://doi.org/10.5944/educXXI.30455>
 41. Tejedor, S., Cervi, L., Tusa, F., & Parola, A. (2020). Educación en tiempos de pandemia: Reflexiones de alumnos y profesores sobre la enseñanza virtual universitaria en España, Italia y Ecuador [Education in times of pandemic: Reflections of students and teachers on university virtual teaching in Spain, Italy and Ecuador]. *Revista Latina de Comunicación Social*, 78, 1-21. (In Spanish). Retrieved from <https://dialnet.unirioja.es/servlet/articulo?codigo=7625686>
 42. UNESCO. (2008). *Declaración Final de la Conferencia Regional de Educación Superior en América Latina y el Caribe [Final Declaration of the Regional Conference on Higher Education in Latin America and the Caribbean]*. (In Spanish). Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000376753.locale=en>
 43. Valle Barra, M. (2005). Modelo de Gestión Universitaria basado en indicadores por dimensiones relevantes [University Management Model based on indicators by relevant dimensions]. *Revista Iberoamericana de Educación*. (In Spanish). Retrieved from <https://www.studocu.com/document/corporacion-universitaria-minuto-de-dios/sistema-de-gestion-universitaria-basado-en-indicadores-por-dimensiones-relevantes/31060905>
 44. Véliz-Burgos, A., & Dörner-Paris, A. (2020). Lo individual versus lo comunitario en tiempos de crisis sanitaria [The individual versus the community in times of health crisis]. *Propósitos y Representaciones*, 8(SPE1), e502. (In Spanish). <http://dx.doi.org/10.20511/pyr2020.v8nSPE1.502>
 45. Vilela, P., Sánchez, J., & Chau, C. (2021). Desafíos de la educación superior en el Perú durante la pandemia por la covid-19 [Challenges for higher education in Peru during the COVID-19 pandemic]. *Desde el Sur*, 13(2). (In Spanish). Retrieved from http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S2415-09592021000200002
 46. Yong, E., Nagles, N., Mejía, C., & Chaparro, C. (2017). Evolución de la educación superior a distancia: Desafíos y oportunidades para su gestión [Evolution of distance higher education: Challenges and opportunities for its management.]. *Revista Virtual Universidad Católica del Norte*, 50, 80-105. (In Spanish). Retrieved from <http://www.redalyc.org/articulo.oa?id=194250865006>