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INNOVATION IN THE CONTEXT OF EMERGENCY REMOTE EDUCATION, IMPLEMENTED BY HIGHER EDUCATION INSTITUTIONS IN GUARAPUAVA - PR

**INOVAÇÃO NO CONTEXTO DO ENSINO REMOTO EMERGENCIAL,
IMPLEMENTADA POR INSTITUIÇÕES DE ENSINO SUPERIOR, EM
GUARAPUAVA - PR**

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ABSTRACT

Innovation is one of the main phenomena in contemporary economies. It is highlighted as a competitive advantage factor and assists to the companies' survival, featuring as one of the development and growth sources. Thus, the present study aims to analyze the perception of the Guarapuava HEIs students about the innovations implemented by them, to confront the conditions imposed by COVID-19. Therefore, the research methodology is classified as descriptive about the objective, performed with a survey. The data was collected through 257 questionnaires and statistically analyzed. The innovations were analyzed from the perspective of eight strategy elements of services that have been grouped on three factors, according to the Exploratory Factorial Analysis. In general, the elements services, people, distribution, processes, promotion, show a positive trend from the students' perspective. Already referring to the price, productivity/quality and physical evidences, the averages points to the neutrality. The only question with high agreement concerns the fact that the HEI's have widely attended the pandemic related demands. The average of the factors was separated by institution, this way, it has been identified that the University Centers stand out for better scores, and from the Analysis of Variance it was possible to observe that there are statistically significant differences between some HEIs.

Keywords: Strategic Elements. Services. Processes. Quality.

RESUMO

A inovação é um dos principais fenômenos nas economias contemporâneas. Ela destaca-se como um fator que pode gerar vantagem competitiva e auxilia na sobrevivência das organizações, caracterizando-se como uma das fontes de crescimento e desenvolvimento. Assim, o presente estudo objetiva analisar a percepção dos estudantes das IES de Guarapuava quanto às inovações implementadas nas mesmas, para enfrentamento das condições impostas pelo COVID-19. A metodologia da pesquisa é descritiva quanto ao objetivo, realizada por meio de um levantamento *survey*. Os dados foram coletados através de 257 questionário e analisados estatisticamente. As inovações foram analisadas da perspectiva dos oito elementos estratégicos de serviços, que foram agrupados em três fatores, de acordo com a Análise Fatorial Exploratória. De maneira geral, os elementos serviços, pessoas, distribuição, processos, promoção, apresentam tendência positiva na perspectiva dos alunos. Já no preço, produtividade/qualidade e evidências físicas, as médias apontam para a neutralidade. A única questão com concordância elevada diz respeito ao fato das IES terem atendido amplamente as exigências relacionadas a pandemia. As médias dos fatores foram separadas por instituição, assim identificou-se que os Centros Universitários se destacam com as melhores médias, sendo que a Análise da Variância apontou diferenças estatisticamente significativas entre algumas IES.

Palavras-chave: Elementos estratégicos. Serviços. Processos. Qualidade.

1 INTRODUCTION

Living in the post-industrial society, which is led by information, the economic predominance of industry gives way to the service sector. Worldwide, this sector stands out due to job creation, participation in the Gross Domestic Product (GDP), and contribution to improving quality of life (FITZSIMMONS; FITZSIMMONS, 2014).

However, at the end of the first quarter of 2020 the whole world was ravaged by the pandemic of COVID-19, a scenario in which all economic sectors were impacted. Thus, in view of the constant changes in the market, the increase in customer expectations, and the competition between companies, it is possible to attribute a company's success beyond existing services, that is, to the creation of new services (LOVELOCK; WRIGHT, 2003).

It is within this context that the constructs relating to services and innovation intersect. For Gallouj and Djellal (2010, p. 30), services and innovation are two of the main phenomena for contemporary economies. It is worth noting Freeman and Soete (2008, p. 456), since according to them "their [firms'] survival and growth depend on their ability to adapt to the rapidly changing external environment, and to change it".

Still, due to the transversal nature of this research, considering the need for segmentation and the impact that the social distancing, often converted into isolation, imposed by the pandemic, it was decided to focus the analysis on Higher Education Institutions IES considering that they needed to reinvent themselves to meet the demand imposed by the current situation, different from anything that has ever been experienced by this generation.

Besides competitiveness (SCHUMPETER, 1950), the goals of innovation by these institutions are: improvements in the learning process; quality; commitment; and student retention (GUIMARÃES et al., 2019). Moreover, considering the moment of facing the conditions imposed by COVID-19, the need for the implementation of innovations is accentuated. This, because besides being the locus of knowledge creation and its contribution to the construction of an inclusive society and of diversified knowledge, IES are important organizations in the Brazilian socioeconomic context.

In this context, the research asks how the students of the IES in Guarapuava perceive the innovations implemented to face the conditions imposed by COVID-19? Thus to answer this questioning, the objective of the study consists in analyzing the perception of the students of the IES of Guarapuava as to the innovations implemented in them, to face the conditions imposed by COVID-19.

The purpose of studying the IES in the city of Guarapuava stems from the fact that they are generally analyzed from the teaching standpoint. Hence the interest in a look at the other strategic decisions it requires. The IES as a service provider, in the context of innovation during the COVID-19 pandemic, can innovate in its services, price (commonly referred to as investment in private IES, people, productivity and quality, distribution, promotion, processes, and physical evidence (LOVELOCK; WRIGHT, 2003).

The specific choice of this city is related to the growth in the offer of this service, making it a hub of higher education in the interior of the state of Paraná, currently with 4 IES (1 public and 3 private), which offer in-class courses and more than 15 institutions from all over the country that offer courses in the Distance Education format (DE).

Furthermore, the research is justified by the relevance of these organizations for the region, as loci of knowledge creation and their contribution to the construction of an inclusive society. It is also considered the need for continuous improvement of the branch, since its process is involved in knowledge-intensive activities, in which actions are intangible and directed to the mental stimulation of people (LOVELOCK; WRIGHT, 2003).

Thus, considering the changing environment imposed by an uncontrollable environmental force, IES need to innovate in both product and process formats to meet their customers' expectations, delivering value and quality. In addition to innovating, it is necessary to find out how the performance of innovation is recognized by its stakeholders. Therefore, this work can contribute to the generation of information and point out possible improvements, since information is the basis of competitive strategies.

In this way, the contribution of the article is based on this differentiated look for IES, in facing the conditions imposed by the pandemic. Focusing on innovation and management of the strategic elements that any service provision needs to exercise, the article presents a tool for measuring customer perception, in this case, the students.

2 THEORETICAL REFERENCE

The precursor of studies on innovation, Joseph Alois Schumpeter, in his first publication in 1911, already pointed out the need for organizations to innovate to maintain the value of their activities. Thus, innovation is characterized by him as the primary factor for growth and employment, in short, for economic development (SCHUMPETER, 1950).

For Real (2015) it is important to innovate continuously, regardless of the size of the organization, whether it works for profit or not for profit, whether they are business enterprises or social institutions, NGOs or societies. In this way, organizations do not necessarily need to be offensive innovators, but if they want to survive they can seek to establish a defensive or imitative innovative routine, for example (FREEMAN; SOETE, 2008).

In Schumpeter's (1997) view, innovation is 'creative destruction', characterized as a force, which introduces new ways of producing goods or services. This phenomenon is not only important for an individual organization, but increasingly is a source for economic growth in national proportion (TIDD; BESSANT, 2015).

Innovation can be defined as the "introduction of novelty or improvement in the productive or social environment that results in new products, processes or services" (BRASIL, 2004). In line with this, the fourth Oslo Manual (OECD, 2018) considers that innovation and innovation activities can happen in products (goods and services) and in processes. Still, it corroborates with Schumpeter (1988), that innovation can be the introduction of new products or processes, opening new markets, or discovering new sources of raw materials.

In this context, considering that the survival and growth of organizations depends on their ability both to adapt to the environment and to change it, there are numerous reasons that lead them to innovate. Innovations help them to face changes in technology, in the market, and the advances of competitors (FREEMAN; SOETE, 2008; TIDD; BESSANT, 2015). Furthermore, the decision to innovate comes from the intention to generate direct or indirect benefits for the organization and the community (OECD, 2018). This is driven by the ability to establish relationships, detect opportunities and take advantage of them (TIDD; BESSANT, 2015).

And so, "innovation is attributed the role of improving the performance of organizations, either in optimizing the use of resources or in the achievement of better market positions" (GUIMARÃES et al, 2013). Therefore, the variation in the growth rate of an organization is related to the flow of its technical innovations, and organizations that do not innovate are probably in a process of decline or stagnation (Freeman, 1984), which characterizes innovation as a source of market and competitive advantage.

IES, which belong to the service sector, make up the innovation system and are considered the locus of knowledge generation, distribution, and use. As the OECD (2018) reminds us, "knowledge is one of the most strategically significant resources for companies. How this is accessed and deployed is particularly important for firms directly or indirectly involved in innovation activities." So, being an important actor for the innovation phenomenon, IES must also innovate in their actions.

It is worth noting that the service sector has particularities that make its management different. Based on this assumption, in addition to the basic components of strategies for Integrated service management, the process, productivity/quality, people and physical evidence are also considered. These elements integrate "the coordinated planning and execution of marketing, operations, and human resource activities that are essential to the success of a service business" (LOVELOCK; WRIGHT, 2003, p. 21).

Characterized as the eight strategic elements of services, they can be taken as a reference for the analysis of innovations in IES, because "with markets and their protagonists in constant change, the possibility that IES can establish lasting competitive advantage no longer exists. [...] each one has to innovate incessantly in order to compete and survive" (TACHIZAWA; ANDRADE, 2006, p. 22). In consonance, for Guimarães et al. (2013), IES promote innovations to differentiate themselves, through new methods and services, which can contribute to the improvement in the relationship and quality.

One aspect that makes the relevance of studying innovations in IES more attenuating is the pandemic period, which started in the first quarter of 2020. COVID-19 or SARS-CoV-2 is the infectious disease caused by the new Corona virus, identified as recently as December 2019 (PAHO, 2020). Ferreira et al. (2020, p. 2) cite that "despite its lethality of around 3%, it can cause respiratory, enteric, hepatic, and neurological diseases, configuring itself as a virus of greater dissemination than others of the same species".

Social distancing was one of the prevention measures established to contain the viral pandemic. So, just like other organizations, educational institutions of all degrees paralyzed their face-to-face activities in early 2020. Ribeiro and Corrêa (2021, p. 144) recall that in Brazil, "the competent authorities in Brazil determined the closure of IES that had, therefore, to suspend their classes and face-to-face activities," continuing the activities through Emergency Remote Learning.

The pandemic situation imposed by COVID-19 is configured as an uncontrollable environmental phenomenon, which impacted all organizations, regardless of sector, branch of activity and size. For Pacheco, Santos and Wahrhaftig (2020, p. 124) "the year 2020 will go down in history for the human losses and the socioeconomic impact caused by the COVID-19 pandemic", with emphasis on the acceleration of digital transformation processes. For Ferreira et al.(2020), technology has become the main ally of IES

In this scenario, the statement of Tachizawa and Andrade (2006, p. 37) becomes absolute, for "the need to rethink IES has been emphasized, preparing them for the transformations that are occurring in the environment in which they operate", noting that the provision of teaching, research and extension services must be of quality and, concomitantly, it is necessary to ensure employees a good working environment.

In this context, it can be cited as challenges the adaptation from offline to online teaching modality, the continuous maintenance of the network or online platform, the difficulty of maintaining the motivation of students to have all the attention needed for learning, in addition to the lack of physical interactions, body language and support from colleagues (XIAO; LI, 2020).

Silva Filho and Rivera (2020) worry about the loss of the IES bond with the students, impacting on the increase of default rates, possible evasion of students, compromising the cash flow and difficulty to fulfill commitments in private IES. They also report the concern with people, as to the preparation and structure to develop their activities in this new context, in addition to the observation in relation to quality and productivity, due to losses and substantial delays in student learning. Still related to individuals, Bezerra et al. (2020, p. 8) recall that "[...] information on the psychological impact and mental health during the peak is still incipient. Previous research, however, has revealed broad and deep range of psychosocial consequences at the individual and community levels during infection outbreaks." Therefore, it is incumbent upon IES to pay attention in this regard, since people are one of the most relevant resources in service delivery (LOVELOCK; WRIGHT, 2003).

The study of Sousa et al. (2020) analyzes a IES from the actions and strategies developed in relation to institutional communication, aiming to inform and raise awareness of the public. The authors point out that in times of crisis, the proper use of disclosure channels can preserve the image and reputation of the institution, as well as serve society with accurate information and relevant content, with technical quality and of public interest.

Furthermore, decisions related to innovations influence quality and satisfaction. In the search to meet needs and expectations, Rocha and Baniski (2020, p. 2) recall that "consumers and users are attentive to the aspects inherent to quality in service delivery, and for this reason, organizations must consider the requirements imposed by consumers and users, based on strategies that enhance process innovation".

3 METHODOLOGICAL PROCEDURES

The objective of this study was to analyze the perception of the students of the IES in Guarapuava regarding the innovations implemented in them, to face the conditions imposed by COVID-19. For this purpose, a descriptive research was carried out, exposing characteristics, properties or relations existing in the researched context (SILVA, 2005).

The survey research enabled the data survey, with a questionnaire as research instruments (GERHARDT; SILVEIRA, 2009). With a quantitative approach, the study "describes the facts by means of statistical methods" (SILVA, 2005). To this end, each question in the questionnaire (Chart 1) was evaluated on a Likert-type scale, ranging from strongly disagree (1), partially disagree (2), slightly disagree (3), neither agree nor disagree (4), slightly agree (5), partially agree (6), and totally agree (7).

Table 1 presents the strategic service elements researched, as well as the sources used to substantiate the statements.

Chart 1 Research Questionnaire and Respective Authors of the Basic Theories

Category	Affirmations	Authors
Service	1. The IES where I study offers teaching in an innovative way 2. The IES where I study uses methodologies in which the student is the protagonist of his/her learning 3. The IES in which I study uses methodologies supported by technology 4. In addition to teaching, the IES where I studied offers other services, seeking to meet the needs of clients, with innovative solutions 5. In this pandemic period, the IES in which I study developed new services to serve students and the community 6. In this pandemic period, the IES in which I studied developed new products to meet the needs of students and the community	Lovelock; Wright, (2003); Fitzsimmons; Fitzsimmons (2014); Barcet (2010); Surdobo (2010); Gallouj; Djellal (2010)
Investment	7. The IES in which I study considers the reality experienced in this pandemic period, when establishing the investment amount charged for the services, form, place and term of payment	
People	8. The IES in which I study offers preparation/support to the collaborators	

	(teachers and employees) to attend the students and community, during the pandemic period	
Productive Quality	9. The way in which Emergency Remote Learning is being developed at the IES where I study has contributed to my learning 10. The way the services of the IES where I study are being provided have adequate quality levels 11. The IES where I study uses appropriate methodologies/tools to measure the satisfaction of students and the community with the productivity and quality of its services	
Distribution	12. The IES in which I study proposes innovative alternatives in the way to deliver its services, in relation to where, when and how they are provided (e.g. protocol, library, labs/offices, etc.) 13. The IES in which study uses innovative technological digital resources during the pandemic period to provide access to Emergency Remote Learning 14. The IES in which I study uses innovative technological digital resources during the pandemic period to provide access to community	
Promote Education	15. The IES in which you study develops innovative communications to promote its activities 16. The IES in which I study began to use new communication channels during the pandemic period (TV, Radio, Social Networks, Advertising, Sponsorship, Personal Sales, etc.) 17. At the IES where I study, the objective of the communications is to inform and make students and the community aware of the reality of the pandemic 18. In the IES where I study, the purpose of the communications is to persuade students and the community in relation to the choice for their services 19. At the IES where I study, the purpose of communications is to be remembered and to keep in touch with students and the community	
Process	20. During the pandemic period, the operational processes of the HEI in which I study began to use innovative digital resources	
Physical Evidence	21. The HEI in which I studied broadly met the requirements related to the pandemic (distance, use of alcohol and mask, sanitation of collective spaces) 22. The HEI in which the study is carried out frequently innovative changes in physical evidence, such as physical facilities, materials and equipment, vehicles, personal presentation of employees, etc.	
General	23. In general, I believe that the IES where I study is innovative	

Source: adapted by the author (2022).

The population of this research consists of all higher education level students, who use the in-class education services provided by the IES in Guarapuava. Of these, the study obtained 257 valid answers for the analyses. It is worth noting that the Cronbach's Alpha test was used to analyze the scale's reliability, which proved to be satisfactory for the analyses that

were performed, given that "the scale must consistently reflect the construct it is measuring" (FIELD, 2009, p. 593).

The data analysis procedures were made possible through the use of the Statistical Package for the Social Sciences (SPSS®) statistical software for coding the answers, data tabulation and statistical calculations (GIL, 2007). The procedures used were Descriptive Statistical Analysis and Analysis of Variance (ANOVA). Furthermore, Exploratory Factor Analysis (EFA) was used, a quantitative technique used to reduce variables into a set of factors, grouping questions with high correlation coefficients, as they may be measuring aspects of the same underlying dimension (FIELD, 2009).

With respect to temporal analysis, the study can be classified as cross-sectional-observational, because as Cooper and Schindler (2011, p. 146) report "cross-sectional studies are done once and represent a snapshot of a particular time." In the observational situation the researcher does not intervene in the results. It is worth noting that the dimension of time is a guiding principle of the present study, as it is developed in the context of facing the conditions imposed by COVID-19, which tends to be a temporal situation. Data collection took place between August and November/2021.

4 ANALYSIS AND DISCUSSION OF THE RESULTS

The municipality of Guarapuava, located in the South-Central mesoregion of Paraná, is characterized as the center of a micro-region, which is composed of 18 municipalities. According to IPARDES (2020), it has four IES, one State and three private. It is worth noting that "the higher education institutions (IES) available per municipality, consider the headquarters where these institutions are located and not their campuses and/or advanced centers" (IPARDES, 2020, p. 19).

These IES receive students from several cities in the microregion of Guarapuava (Campina do Simão, Cândói, Cantagalo, Espigão Alto do Iguaçu, Foz do Jordão, Goioxim, Guarapuava, Inácio Martins, Laranjeiras do Sul, Marquinho, Nova Laranjeiras, Pinhão, Porto Barreiro, Quedas do Iguaçu, Reserva do Iguaçu, Rio Bonito do Iguaçu, Turvo and Virmond), as well as other microregions (Pitanga, composed of Boa Ventura de São Roque, Laranjal, Mato Rico, Palmital, Pitanga and Santa Maria do Oeste), highlighting the socioeconomic importance of IES for Guarapuava and the entire region (IPARDES, 2012).

Thus, this section presents the analysis and discussion of the results of this study, beginning with the characterization of the sample, to then explore the findings concerning the approaches that contextualize actions concerning the eight strategic elements of services, demonstrating the perception of the students of the IES of Guarapuava regarding the innovations implemented in them, to face the conditions imposed by COVID-19.

4.1 PROFILE OF THE QUESTIONNAIRE RESPONDENTS

Table 1 presents the characterization of the respondents, according to gender, age, city where they live, IES they study and type of course they attend, considered important factors to understand the composition of the sample.

Table 1 Characterization of the respondents

Genre	Man = 30,4%	Woman = 68,1%	Outro/Não respondeu = 1,6%	
Age (years)	18 a 26 = 81,77%	27 a 36 = 12,5%	37 a 46 = 5,4%	47 a 56 = 0,4%
City they live in	Guarapuava = 75,1%		Outras (35 cidades) = 24,9%	
IES in which they study	UNICENTRO = 74,3%	Faculdade Guarapuava = 16%	Campo Real = 6,2%	Uniguairacá = 3,5%
Level	Graduação = 94,2%		Pós-Graduação = 5,8%	

Source: Research data.

It is noted the predominance of responses from the female gender, in line with what is observed in academia, i.e., an increasing participation of women even in courses that historically were attended predominantly by men (INEP, 2020). Still, a large majority of respondents are under 26 years old, also following the national trend, in which the average age of the student entering higher education is 19 years old, and the average age of the graduate is 23 years old (INEP, 2020).

The place of residence of 75.1% of the respondents is Guarapuava, while 24.9% live in nearby cities that are part of the microregion of Guarapuava and Pitanga (IPARDES, 2012). However, during the research period many returned to their cities and were monitoring remotely, so they reported living in distant cities, such as Brusque-SC, Cruz Alta-RS, Itararé-SP, Jacaréí-SP, Jaraguá do Sul-SC, Joinville-SC, Londrina-PR, Palmas-PR, and Rejente Feijó-SP. In all, 36 different cities were indicated.

In relation to the IES where the respondents studied, as the focus was on the four institutions headquartered in Guarapuava, the answers from students from others were disregarded for the tabulation of the data. It is noteworthy that UNICENTRO had the largest

participation in the sample because it is the largest, and also because it is the only public institution. Furthermore, the researcher had direct access to the course coordinators of two of the institutions, facilitating the sending of the questionnaire to the students and, consequently, obtaining a larger quantity of answers.

Finally, regarding the type of course, most of the respondents were undergraduate (94.2%). However, fifteen of the participants informed that they were attending post-graduation courses, one of them being a *lato sensu* post-graduation course, five a master's degree course, and nine a doctorate course. The means of the answers considering the two groups were evaluated and no statistically significant differences were found that would justify their exclusion.

4.2 INNOVATIONS IMPLEMENTED BY THE INSTITUTIONS AND THE STUDENTS' PERCEPTION

The sample of answers obtained from the students of the IES in Guarapuava demonstrates the students' perception, considering the descriptive statistical analysis and the Analysis of Variance (ANOVA). The observations were structured considering the grouping of the questions, according to the principal components, based on the Varimax rotation method, which extracted three factors with eigenvalue above or close to 1, from the AFE of the data. In this context, only question V23 was not included, since it is a general evaluation and would not fit properly into the composition of constructs or factors

It is worth noting that the normality trend of the data obtained by applying the questionnaire was also evaluated, considering the indicators of asymmetry and kurtosis, and that occasional problems do not impact the subsequent analyses, given the sample size is considered large, which indicates that "the larger the sample, the more likely it is to reflect the entire population" (FIELD, 2009, p. 33).

Thus, the three factors extracted through the EFA were named "Service Provided", "Delivery" and "Communication", representing the questions they contained. The internal consistency of the constructs was measured from the Cronbach's Alpha test, which measures the "degree to which the items of the instrument are homogeneous and reflect the same implicit construct", indicating that the data collection instrument is reliable and can be used with the assurance that transient and situational factors are not interfering (COOPER; SCHINDLER, 2011, p. 295).

The "Service Provided" factor was composed of the questions related to the strategic elements "Service", "Investment/Price", "People", and one of the questions related to "Productivity and Quality". Thus, Table 2 presents the averages related to it.

Table 2 Service Provided Factor

Element	Variables	Average	DP
Service	V01 A IES in which study offers teaching in an innovative way	5,09	1,471
	V02 A IES in which study uses methodologies in which the student is the protagonist of his learning	5,10	1,560
	V03 A IES in which study uses technology-supported methodologies	5,60	1,430
	V04 Besides teaching, the IES where I study offers other services, seeking to meet the needs of students and the community, with innovative solutions	5,51	1,544
	V05 In this last year, the IES in which I study offered new services to serve students and the community	5,46	1,508
	V06 In this last year, the IES in which I study developed new products to serve students and the community	5,11	1,670
Investment	V07 The HEI in which I study considers the reality experienced in this pandemic period and proposes innovative ways when establishing the value of the investment/prices, form, place and term of payment	4,71	1,628
People	V08 In an innovative way, the IES where I study offers preparation/support to the collaborators (teachers and other employees) to serve the students and the community, during this last year	5,05	1,646
Prod. and Quality	V10 The way in which the services of the IES in which you are studying are of adequate quality	5,04	1,678

Source: Research data.

In Table 2 it is possible to identify that the questions of the strategic element "Service" were positively recognized by the respondents, because it is noted that, although they represent "little agreement", the averages indicate a positive trend in the perception of the students. Of these, it is worth noting that the use of methodologies supported by technology was the question that expressed the highest average (5.60) and lowest standard deviation (1.430) of the factor, representing greater cohesion among the answers. This result corroborates Pacheco, Santos and Wahrhaftig (2020), who argue that the pandemic will be marked in history, being "one of its most significant effects the acceleration of digital transformation processes".

Likewise, the second best average (5.51) of the factor is related to the fact that the IES offers other services besides teaching, seeking to meet the needs of students and the community, with innovative solutions. This recognition occurs because the IES are always offering new services to the internal and external community, through the extension projects

of their courses such as, for example, a law office, health clinics, incubators in the management area, etc. (Field Diary, 2022).

Considering the tangible aspect, the average for the question if the IES developed new products to serve students and the community was 5.11. This question presented the second highest standard deviation of the "Service Provided" factor, pointing out that among the answers there is a greater variation among the respondents' opinions (1.670). This is attributed to the fact that people do not conceptually know the difference between product and services, being understandable because they are technical concepts, resulting in less cohesion (Field Diary, 2022).

Observing the students' perception as to the strategic element investment/price, the average shows neutrality (4.71), characterized as the lowest in the factor "Service Provision". This result may be due to the fact that most respondents are students of a public IES (74.3%), in which eventually the student needs to pay to access services, because there is no tuition charge for access to education. Thus, the perception of innovations in this sense is lower when compared to the other elements.

Finally, as pointed out in most of the questions of the "Service Provided" factor, although the averages represent a positive trend, they express "little agreement", showing that the actions and innovations implemented so far are not sufficient. This result must be analyzed by IES in order to recognize points for improvement, mainly because it reflects on their customers' perception of quality (Field Diary, 2022).

The average that signals this concern is the perception that the respondents demonstrated, in relation to the level of quality verified in the way the services of the IES in which they study are being provided. The average for this question was 5.04, indicating a positive trend, but with the highest standard deviation of the factor (1.678), which represents a greater dispersion among the answers.

The "Delivery" factor contains questions related to the strategic elements "Productivity and Quality", "Distribution", "Promotion and Education" and "Processes", as shown in Table 3.

As for the two other questions related to the "Productivity and Quality" element, the academics' perspective points out not only the lowest means and highest standard deviations of the "Delivery" factor, but also among the three factors extracted from the answers. This draws attention to the fact that the perception of respondents are neutral regarding the

productivity and quality of the way Emergency Remote Learning was developed in IES and contributed to their learning (4.60), as well as the perception about the methodologies/tools used for measuring the satisfaction of students and community, regarding the productivity and quality of services provided during this period (4.66).

Table 3 Delivery

Element		Variables	Average	DP
Productivity and Quality	V 09	The way Emergency Remote Learning is being developed at the IES where I study has contributed to my learning	4,60	1,852
	V 11	The IES in which I study uses appropriate methodologies/tools to measure the satisfaction of students and the community with the productivity and quality of its services	4,66	1,815
Distribution	V 12	The IES I in which I study proposes innovative alternatives in the way to deliver its services, in relation to where, when and how they are provided (e.g. protocol, library, labs/offices, etc.)	5,19	1,593
	V 13	The IES I in which I study uses innovative technological digital resources during the last year to provide access for students to Emergency Remote Learning	5,10	1,575
	V 14	The IES in which I study has been using digital technological resources during the last year to provide the community access to its services	5,10	1,579
Promotion and Education	V 15	The IES in which I study develops innovative communications, to promote the activities it develops	5,12	1,533
Process	V 20	In the last year, the operational processes of the HEI in which I study began to use innovative digital resources	5,35	1,480

Source: Research data.

In addition, the slightly higher level of dispersion points to less agreement among the sample. Seeking to explain this situation in which the IES felt difficulties in providing their services in the environment imposed by the pandemic, it is worth quoting Mélo et al. (2020, p, 15), who approach this was due to "lack of training for the use of digital tools, both by educators and students, in addition to the impact for students in socioeconomic vulnerabilities, who do not have access to the Internet and electronic devices.

It is worth remembering that "the evaluation of quality in services is highlighted in a relevant way in the management of organizations, both in the private sector and in public services, because both are inserted in a competitive and volatile economic environment" (ROCHA; BANISKI, 2020, p. 17). Therefore, IES must pay attention to this issue, because it influences the perception of students, who seek services that not only meet, but exceed their expectations.

The best factor average (5.35), refers to the use of innovative digital resources in the IES operational processes. In this sense, it is worth noting Pacheco, Santos and Wahrhaftig (2020, p. 98), who address how digital disruption impacts processes, and that "they have the potential to spread to all sectors of human activity, including, of course, the educational sector". Therefore, it is noted that IES have used digital resources to support the development of operational processes, with the pandemic serving as a trigger for the implementation of actions (Field Diary, 2022).

The second best average of the "Delivery" factor is found in the "Distribution" element, considering the place, time and how services are provided, and in the question regarding whether IES make available innovative alternatives in this sense, the average perception of students shows a positive trend (5.19). Although they "agree a little", the academics recognize that the institutions have used innovative alternatives, probably due to the online classes and other digital resources used (Field Diary, 2022).

The "Communication" factor is composed of questions from the "Promotion and Education" elements, as well as to that of "Physical Evidence," as shown in Table 4.

Table 4 Communication

Element	Variable	Average	Standar Deviatio
Promotion and Education	V16 A IES in which study you started using new communication channels during the last year (TV, Radio, Social Media, Advertising, Sponsorship, Personal Sales, etc.)	5,44	1,643
	V17 Na IES in which study, the objective of the communications is to inform and raise awareness of the pandemic among students and the community	5,49	1,601
	V18 Na IES in which study, the aim of communications is to persuade students and the community to choose its services	4,58	1,768
	V19 Na IES At the HEI where I study, the objective of communications is to be remembered and to maintain contact with students and the community	5,47	1,378
Physical Evidence	V21 A IES in which the study broadly met the requirements related to the pandemic (distance, use of alcohol gel and mask, sanitation of collective spaces, etc.)	6,00	1,411
	V22 A IES in which study performs innovative changes in physical evidence, such as facilities, materials and equipment, vehicles, personal presentation of employees, etc..	4,78	1,743

Source: Research data.

Regarding the strategic element of services "Promotion and Education", it is worth noting that most of the questions showed a positive trend in the respondents' perception. Except with respect to the objective of communications to persuade students and the

community about the choice for their services, which had an average of 4.58, expressing some neutrality in the perception of the respondents. In addition, it presents the highest standard deviation of the "Communication" factor, and there is, therefore, less coherence among the answers. In this way, this may be a point for reflection by the IES.

It is also worth mentioning that a positive tendency is noticed when considering the students' perception on the question whether the IES have widely met the demands related to the pandemic. This question, besides expressing the highest average of the "Communication" factor, is also of all the factors extracted from the questions (6.0) and presents one of the lowest standard deviation (1.411). Thus, although the respondents "partially agree", when ideally they should "totally agree", it can be seen that the IES have met the requirements imposed (Field Diary, 2022). These actions aim at the safety of students, teachers and employees, following the recommendations of health authorities (FERREIRA et al., 2020, p. 2)

In contrast, referring to innovative changes in physical evidence, the mean presents neutrality from the students' point of view (4.78) and a more representative standard deviation (1.743). This is an issue that IES should pay attention to, possibly being a point for improvement. However, it is worth mentioning that a representative part of the sample is composed of students from public IES and, in their defense, it is worth remembering that this type of IES usually suffers from cost cuts, so it is not possible to invest in facilities, new materials and equipment, however necessary (Field Journal, 2022).

Table 5 expresses the students' "General Evaluation" in relation to the perception of how innovative the HEI where they study is.

Table 5 General Evaluation

	General Variable	Average	Standard Deviation
V23	In general, I believe that the HEI in which I study is innovative	5,40	1,561

Source: Research data.

Following the propensity of most averages observed in the questions addressed, when analyzing the average of the "General Evaluation" it is possible to state that it presents a positive trend, although they still "somewhat agree" with the way the IES in which they study develop innovative actions. The standard deviation does not indicate significant disagreement among the respondents, which can also be noticed in most of the answers to the other questions.

This whole panorama must be carefully investigated and understood by IES because as Pacheco, Santos and Wahrhaftig (2020, p. 96) state "universities, research institutions and academia, in general, have been challenged to rethink their structures, practices and, especially, their offers of training and production of knowledge for society".

Seeking to know the results in more detail, the factor averages were separated by institution, as shown in Table 6.

Table 6 Average Factors per IES

	N	Service provided	Delivery	Communication
UNICENTRO	191	5,11	4,95	5,18
GUARAPUAVA	41	5,08	4,92	5,34
CAMPO REAL	16	6,07	5,84	6,15
UNIGUAIACÁ	9	5,69	5,37	6,00

Source: Research data.

In Table 6 it is possible to notice that in all factors, the best averages, which vary between 5 and 6 ("somewhat agree" and "partially agree"), belong to the Campo Real University Center. Imagining a ranking, the University Center UniGuairacá would occupy the second position, also with averages between 5 and 6. UNICENTRO comes next, with a lower average than Faculdade Guarapuava only in relation to "Communication".

Furthermore, from the point of view of the average of the factors, "Communication" presents the highest averages, containing most of the answers relating to "I partially agree". The "Delivery" factor, on the other hand, contains averages that indicate that the respondents "neither agree nor disagree", being an interesting factor to research the reason for neutrality, especially at UNICENTRO and Faculdade Guarapuava.

Table 7 presents a comparison of the means using the Analysis of Variance (ANOVA) to verify whether the differences between the means are statistically significant.

As can be seen in the three factors, the population means are not equal, because the F index shows this difference, as it is greater than 1 (COOPER; SCHINDLER, 2011). Also, it is noted that there are differences between the groups, since $p \leq 0.05$ (FIELD, 2009), and from the Tukey test are identified between which IES the differences are statistically significant, being highlighted the averages whose differences are significant.

Table 7 Comparing Averages

Factor	Institution	N	average	Standard Deviation	F	Sig
Factor 1 - Service provided	UNICENTRO	191	5,11	1,200	3,803	0,011
	GUARAPUAVA	41	5,08	1,373		
	CAMPO REAL	16	6,07	0,641		
	UNIGUAIACÁ	9	5,69	0,939		
Factor 2 - Delivery	UNICENTRO	191	4,95	1,250	2,634	0,050
	GUARAPUAVA	41	4,92	1,585		
	CAMPO REAL	16	5,84	0,815		
	UNIGUAIACÁ	9	5,37	1,212		
Factor 3 - Comunion	UNICENTRO	191	5,18	1,103	5,009	0,002
	GUARAPUAVA	41	5,34	1,245		
	CAMPO REAL	16	6,15	0,937		
	UNIGUAIACÁ	9	6,00	1,003		

Source: survey data (2022).

Thus, regarding the "Service Provided" and "Delivery", the difference is between the averages of the Faculdade Guarapuava and Campo Real, being statistically more significant in the case of "Service Provided" (greater variation among the factors). For the "Communication" factor, the difference is between UNICENTRO and Campo Real, but with the averages statistically less significant among the three factors. Then it is observed that the contrast is more pronounced between the Campo Real University Center and the other IES, gaining prominence in front of the innovations and other actions that contextualize the environment, implemented in the pandemic period.

5 FINAL CONSIDERATIONS

As an objective, this study proposed to analyze the perception of the students of the IES in Guarapuava regarding the innovations implemented in them, to face the conditions imposed by COVID-19. Thus, the research took place in a context in which students and IES still experienced the insecurity of returning to face-to-face classes. The three private institutions mentioned in the research had already resumed face-to-face activities, but still offered remote teaching as an alternative. The University kept only the classes through remote teaching, and face-to-face classes were resumed at the end of January/2022.

To sum up, among the results, it is worth emphasizing that although the averages of the answers for the "Service Provided" factor point to a positive trend, in general the students "somewhat agree" that the IES offer teaching in an innovative way (5.09); that methodologies are used in which the student is the protagonist of his/her learning (5.10); that they develop new products to serve students/community (5.11); and that they offer, in an innovative way,

preparation/support to the collaborators (teachers and other employees) to serve the students and the community, in facing the pandemic period (5.05).

Also from the answers, it is observed that in the perception of the students, innovations in secondary services offered by the IES (5.51) stand out compared to innovations in teaching (5.09). They also note that IES use methodologies supported by technology (5.6), probably due to the use of digital resources, which mediated the interactions in emergency remote teaching during the pandemic.

As for the strategic service element "Productivity and Quality", the results suggest that IES must pay attention to the students' perception of quality, innovating in teaching methodologies, especially in the context of distance learning. This reflection arises from the results found in the perception of respondents, who indicate that they "somewhat agree" that the way the IES ' services are being provided present adequate levels of quality (5.04).

Moreover, they remained neutral about the productivity and quality of the way the Emergency Remote Learning was developed in the IES and contributed to their learning (4.60), as well as about the methodologies/tools used to measure the satisfaction of students and the community, regarding the productivity and quality of services provided during this period (4.66). It is worth noting that these were the lowest averages among all the questions. Therefore, it is worthwhile for IES to reflect on the tools for measuring student and community satisfaction, seeking innovative and formative methods, as an alternative to the regulatory models used.

Among the strategic elements of the "Delivery" factor, it is worth noting that mainly because of the pandemic moment, which was a trigger for IES, they innovated in the use of technological and digital resources, for distribution of their services. In this regard, the students indicate a positive trend in the perception of innovations, mainly related to the use of digital resources in the IES operational processes (5.35).

Likewise, the results pointed out that IES can innovate in the communications that aim to persuade students and the community in relation to the choice for their services (4.58), since it was one of the lowest averages of the factor "Communication". In addition, they also "neither agree nor disagree" that IES make innovative changes in physical evidence (4.78), represented by facilities, materials, and equipment, among others. As for the compliance with the requirements related to the pandemic (distance, use of alcohol gel and mask, sanitization

of collective spaces, etc.), the average is characterized as the highest among all the questions (6.0), demonstrating that they "partially agree".

Finally, we sought to analyze a more detailed perspective of the results, looking particularly at each HEI taken into consideration. Thus, it is noted that in the perception of the students, the best averages in relation to innovation and the other relevant approaches to contextualize the actions, the University Centers stand out against UNICENTRO and Faculdade Guarapuava. A justification for the perception that students have of UNICENTRO may be the fact that usually public IES are not able to follow market trends with the same speed as private ones, because their adaptation capacity is slower.

We conclude that such results can help IES in contingency planning, such as the pandemic moment faced. It is clear that the pandemic of COVID-19 not only took countless lives, but also left considerable after-effects in Education. Educational institutions did not stop and good teachers may never have worked as hard as they did during this challenging period. Thus, the experience gained can add value to future decisions, in the search for continuous improvement and customer satisfaction. Thus, this work can contribute not only to disseminate information, but also be feedback to cause reflections.

As a limitation, it is worth pointing out that due to the need for social distance, which directly affected the face-to-face relationship between people, it also influenced the collection of answers for the questionnaires. Had it not been for a pandemic moment, the answers could have been obtained from the students at the moment of the face-to-face class, making it possible to obtain a larger quantity of answers. Specifically regarding the answers, several students reported difficulty in forming an opinion, either because they had been away from the IES for some time, or because they were freshmen and had not had this contact until then.

For future studies, we suggest repeating the study, considering a larger sample, especially of students from the IES in which participation was very low. With this, the information may become even more structured, and may help in decisions made by the administration of the IES. It is also suggested to analyze the perception of quality by students, since in services it is a key strategic element, to add value to the customer experience, generate satisfaction and competitive advantage for the organization.

REFERENCES

BARCET, A. Innovation in services: a new paradigm and innovation model. In: Gallouj, F. & Djellal, F. (eds.). **The Handbook of Innovation and Services**. Cheltenham, UK: Edward Elgar, 2010. Disponível em: <https://www.twirpx.com/file/565252/> Acesso em: 12 Jul. 2020.

BEZERRA, C. B *et al.* Impacto psicossocial do isolamento durante pandemia de covid-19 na população brasileira. **Saúde Soc.** v. 29, n. 4, 2020. Disponível em: <https://www.scielo.org/pdf/sausoc/2020.v29n4/e200412/pt> Acesso: 25 Nov. 2021.

BRASIL. **LEI Nº 10.973, DE 2 DE DEZEMBRO DE 2004.** Disponível em: <https://www2.camara.leg.br/legin/fed/lei/2004/lei-10973-2-dezembro-2004-534975-publicacaooriginal-21531-pl.html#:~:text=1%C2%BA%20Esta%20Lei%20estabelece%20medidas,218%20e%20219%20da%20Constitui%C3%A7%C3%A3o>. Acesso em 25 Jun. 2020.

COOPER, D. R.; SCHINDLER, P. S. **Métodos de pesquisa em administração.** 10. ed. – Dados eletrônicos. – Porto Alegre: Bookman, 2011.

FERREIRA, G. S. M. *et al.* Pandemia do COVID-19 e as possibilidades de ressignificação das atividades de gestão no ensino superior. **Revista Enfermagem Atual In Derme**, v. 93. Disponível em: <http://www.revistaenfermagematual.com/index.php/revista/article/view/814/676> Acesso em: 18 Set. 2020.

FIELD, A. **Descobrimo a estatística usando o SPSS** [recurso eletrônico]. 2. ed. – Dados eletrônicos. – Porto Alegre: Artmed, 2009.

FITZSIMMONS, A.; FITZSIMMONS, J. **Administração de Serviços** [recurso eletrônico]. 7ª. ed. Porto Alegre: AMGH, 2014.

FREEMAN, C. **Inovação e Ciclos Longos de Desenvolvimento Econômico**, 1984. Disponível em: <https://revistas.fee.tche.br/index.php/ensaios/article/view/336/565> Acesso: 30 Fev. 2020.

FREEMAN, C.; SOETE, L. **A Economia da Inovação Industrial.** Campinas: Unicamp, 2008.

GALLOUJ, F. DJELLAL, F. **The Handbook of Innovation and Services: a Multi-disciplinary Perspective.** França: Edward Elgar, 2010. Disponível em: https://books.google.com.br/books?id=r8dY6UJ979sC&printsec=copyright&redir_esc=y#v=onepage&q&f=false Acesso em: 30 Mar. 2020.

GERHARDT, T. E.; SILVEIRA, D. T. (org.). **Métodos de Pesquisa.** Porto Alegre: Editora da UFRGS, 2009. Disponível em: <http://meiradarocho.jor.br/news/tcc/files/2017/12/Gerhardt-e-Silveira.-M%C3%A9todos-de-Pesquisa-EAD-UFRGS.pdf> Acesso em 20 Ago. 2020.

GIL, A. C. **Como Elaborar Projetos de Pesquisa.** 4. ed. São Paulo: Atlas, 2007.

GUIMARÃES, J. C. F. *et al.* Inovação de Marketing em Instituições de Ensino Superior da Serra Gaúcha. **Revista Gestão Universitária na América Latina - GUAL**, v. 6, n. 2, p. 79-

105, 2013. Disponível em:

https://www.researchgate.net/publication/273209295_Inovacao_de_marketing_em_Instituicoes_de_Ensino_Superior_da_Serra_Gaucha Acesso em 13 Jul. 2020.

GUIMARÃES, J. C. F. *et al.* A Influência da Inovação no Ensino, Qualidade e Comprometimento sobre a Retenção de Alunos no Ensino Superior. **Revista Gestão Universitária na América Latina - GUAL**, n. 1, 2019. p. 249-269. Disponível em: <https://pdfs.semanticscholar.org/0cfd/2a67dae1166c5e837c6b14b0db29abef4530.pdf> Acesso em 13 Jul. 2020.

INEP. **Série Histórica por Município**. 2020. Disponível em:

<http://portal.inep.gov.br/web/guest/sinopses-estatisticas-da-educacao-superior> Acesso em: 29 Nov. 2020.

IPARDES. **Caderno Estatístico: Estado do Paraná**. 2020. Disponível em:

<http://www.ipardes.gov.br/cadernos/MontaCadPdf1.php?Municipio=19&btOk=ok> Acesso em: 13 Jul. 2020.

IPARDES. **Relação dos Municípios do Estado Ordenados Segundo as Mesorregiões e as Microrregiões Geográficas do IBGE - Paraná**, 2012. Disponível em:

http://www.ipardes.gov.br/pdf/mapas/base_fisica/relacao_mun_micros_mesos_parana.pdf Acesso: 30 Mar. 2020.

LOVELOCK, C.; WRIGHT, L. **Serviços: marketing e gestão**. São Paulo: Saraiva, 2003.

MÉLO, C. B. *et al.* Ensino remoto nas universidades federais do Brasil: desafios e adaptações da educação durante a pandemia de COVID-19. **Research, Society and Development**, [S. l.], v. 9, n. 11, 2020. Disponível em: <https://www.rsdjournal.org/index.php/rsd/article/view/9866> Acesso em: 26 Nov. 2021.

OCDE. **Manual de Oslo 2018: diretrizes para coletar, relatar e usar dados sobre inovação**. 4 ed. 2018. Disponível em: <https://www.oecd.org/science/oslo-manual-2018-9789264304604-en.htm> Acesso em: 30 Mar. 2020.

OPAS. **Folha informativa – COVID-19**. 2020. Disponível em:

https://www.paho.org/bra/index.php?option=com_content&view=article&id=6101:covid19&Itemid=875 Acesso em: 13 Jul. 2020.

PACHECO, R. C. dos S.; SANTOS, N. dos; WAHRHAFTIG, Ramiro. Transformação digital na Educação Superior: modos e impactos na universidade. **Revista NUPEM**, v. 12, n. 27, p. 94-128, 2020. Disponível em:

<http://revistanupem.unespar.edu.br/index.php/nupem/article/view/825> Acesso: 25 Nov. 2021.

REAL, M. C. **Gestão da Inovação**. Organizado por Universidade Luterana do Brasil. – Canoas: Ed. ULBRA, 2015. Disponível em:

<https://www.passeidireto.com/arquivo/42993238/livro-gestao-da-inovacao> Acesso em 10 Jul. 2020.

RIBEIRO, H. C. M. CORRÊA, R. Ensino Remoto na Educação Superior em Tempos de Distanciamento Social: uma investigação nas IES privada de um grupo educacional do Brasil. **Revista GUAL**, v. 14, n. 3, p.139-161, set./dez. 2021. Disponível em: <https://periodicos.ufsc.br/index.php/gual/article/view/79255/47183> Acesso em: 21 fev. 2022.

ROCHA, A. C.; BANISKI, G. M. Sistemas de Avaliação da Qualidade no Ensino Superior: um estudo comparativo em duas IES do Paraná. **The Journal of Engineering and Exact Sciences**, v. 6, n. 1, p. 15-22, 2020. Disponível em: <https://periodicos.ufv.br/jcec/article/view/9492/5235> Acesso em 25 Nov. 2021.

SCHUMPETER, J. A. **Capitalism, Socialism and Democracy**. 3^a. ed. New York: Harper and Row, 1950. Disponível em: <https://eet.pixel-online.org/files/etranslation/original/Schumpeter,%20Capitalism,%20Socialism%20and%20Democracy.pdf>. Acesso em: 01 Fev. 2020.

SCHUMPETER, J. A. **A teoria do desenvolvimento econômico**. São Paulo: Nova Cultural, 1988.

SCHUMPETER, J. A. **Teoria Do Desenvolvimento Econômico**: uma investigação sobre lucros, capital, crédito, juro e o ciclo econômico. São Paulo: Nova Cultural, 1997.

SILVA FILHO, R. L.; RIVERA, C. **Desafios e Soluções para uma Instituições de Ensino na Crise da Covid-19**. Brasília: ABMS, 2020. Disponível em: https://abmes.org.br/arquivos/documentos/26082020_ArtigoLobo.pdf Acesso: 22 Set. 2020.

SILVA, M. A. F. **Métodos e Técnicas de Pesquisa**. 2. ed. Curitiba: Ibepex, 2005.

SOUSA, K. A. *et al.* Gestão da Informação em Tempos de Crise: a experiência da Universidade Federal do Tocantins na Pandemia COVID-19. **Revista Desafios** – v. 7, n. Supl. COVID-19, 2020. Disponível em: <https://sistemas.uft.edu.br/periodicos/index.php/desafios/article/view/8863/16712> Acesso em: 19 Set. 2020.

SUNDBO, J. The toilsome path of service innovation: the effects of the law of low human multi-task capability. In: GALLOUJ, F.; DJELLAL, F. **The Handbook of Innovation and Services**. Cheltenham: Edward Elgar, 2010.

TACHIZAWA, T; ANDRADE, R. O. B. **Gestão de instituições de ensino**. 4 ed. Rio de Janeiro: Editora FGV, 2006. Disponível em: https://books.google.com.br/books?hl=pt-BR&lr=&id=y npcUb9voh8C&oi=fnd&pg=PA15&dq=Gest%C3%A3o+de+institui%C3%A7%C3%B5es+de+ensino&ots=PMQ7B__ROg&sig=Na3uNnyNOcL-LgYnFeGLpjG0V84#v=onepage&q=Gest%C3%A3o%20de%20institui%C3%A7%C3%B5es%20de%20ensino&f=false Acesso em 25 Jun. 2020.

TIDD, J.; BESSANT, J. **Gestão da Inovação**. 5 ed. Porto Alegre: Bookman, 2015. Disponível em: <https://books.google.com.br/books?hl=pt-BR&lr=&id=Jyj1BgAAQBAJ&oi=fnd&pg=PR1&dq=TIDD,+J.%3B+BESSANT,+J.+Gest%C3%A3o+da+Inova%C3%A7%C3%A3o.+5>

+ed.+Porto+Alegre:+Bookman,+2015.&ots=onqLKhyDFL&sig=uU9YO6X3q9QFCFHc4R7
cqhYhY3A#v=onpage&q&f=false Acesso em 10 Jul. 2020.

XIAO, C.; YI, L. 2020. Analysis on the Influence of Epidemic on Education in China. In:
DAS, V.; KHAN, N. (ed.). **Covid-19 and Student Focused Concerns: Threats and
Possibilities**, American Ethnologist website. Disponível em: [https://americanethnologist.
org/features/collections/covid-19-and-student-focusedconcerns-threats-and-possibilities/
analysis-on-the-influence-of-epidemic-oneducation-in-china](https://americanethnologist.org/features/collections/covid-19-and-student-focusedconcerns-threats-and-possibilities/analysis-on-the-influence-of-epidemic-oneducation-in-china) . Acesso em: 22 Set. 2020.