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(Re)configuring of university extension in the face of COVID-19: the contribution of a postgraduate program

(Re)configuração da extensão universitária no enfrentamento da COVID-19: a contribuição de um programa de pós-graduação

(Re)configuración de la extensión universitaria ante el COVID-19: el aporte de un programa de posgrado

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Abstract
The COVID-19 pandemic has caused numerous social, health and educational problems. Social media began to contain an excessive amount of information about the new coronavirus, making it difficult for people to find material

from reliable sources. Therefore, a space was created to build knowledge and clarify doubts about SARS-CoV-2 and COVID-19, in addition to developing discussions on educational, technological tools and scientific advances in the search for clarifications and solutions for the confrontation of the current pandemic. The actions were carried out in the virtual space of Instagram, using the lives features, which were broadcast on the @morfotecnologiaufpe profile and took place on Wednesdays at 20 pm and lasting 60 min. The discussions were conducted by mediators, professors from the PPGM-UFPE, and one or two invited experts on each topic addressed. Viewers were able to follow the mediator-guest interaction in real time, in addition to being protagonists of the dialogue through comments and questions. The discussions developed stimulated critical thinking, combating misinformation and valuing science and technology in dealing with health problems. It also corroborates the reorganization of extensionist practices, which are of paramount importance to guarantee the articulation between the university and the community, in the construction of knowledge and in the academic improvement of students and professors. The experience highlighted that the use of social media is an effective tool in health education actions, as it enables accessibility to knowledge through the resources of an Information Technology Platform.
Keywords: University extension; COVID-19; Health education; Teaching; Instagram.

Resumo

A pandemia da COVID-19 acarretou inúmeros problemas de cunho social, de saúde e educação. As mídias sociais passaram a conter excessiva quantidade de informações sobre o novo coronavírus, dificultando o acesso das pessoas a encontrarem materiais de fontes confiáveis. Por isso, houve a idealização de um espaço para construir o conhecimento e esclarecer dúvidas sobre o SARS-CoV-2 e a COVID-19, além de desenvolver discussões sobre ferramentas educativas, tecnológicas e avanços científicos na busca por esclarecimentos e soluções para o enfrentamento da atual pandemia. As ações foram realizadas no espaço virtual do Instagram, utilizando o recurso de *lives*, as quais foram transmitidas no perfil @morfotecnologiaufpe e aconteceram às quartas-feiras, às 20 h e com duração de 60 min. As discussões foram conduzidas por mediadores, docentes do PPGM-UFPE, e um ou dois convidados especialistas de cada tema abordado. Os espectadores puderam acompanhar a interação mediador-convidado em tempo real, além de serem protagonistas do diálogo através de comentários e perguntas. As discussões desenvolvidas estimularam o pensamento crítico, o combate à desinformação e a valorização da ciência e tecnologia no enfrentamento de problemas sanitários. Corroboram, ainda, para a reorganização das práticas extensionistas, de suma importância para garantir a articulação entre a universidade e a comunidade, na construção do conhecimento e no aperfeiçoamento acadêmico de discentes e docentes. Toda a experiência destacou que a utilização de mídias sociais é uma ferramenta eficaz em ações educação em/para saúde, uma vez que possibilita acessibilidade ao conhecimento através dos recursos de uma Plataforma de Tecnologia da Informação.
Palavras-chave: Extensão universitária; COVID-19; Educação em saúde; Ensino; Instagram.

Resumen

La pandemia del COVID-19 ha traído consigo numerosos problemas sociales, sanitarios y educativos. Las redes sociales comenzaron a contener una cantidad excesiva de información sobre el nuevo coronavirus, lo que dificulta que las personas encuentren material de fuentes confiables. Por eso, se creó un espacio para construir conocimiento y aclarar dudas sobre el SARS-CoV-2 y el COVID-19, además de desarrollar debates sobre herramientas educativas, tecnológicas y avances científicos en la búsqueda de esclarecimientos y soluciones para enfrentar la actual pandemia. Las acciones se realizaron en el espacio virtual de Instagram, utilizando la función de vidas. Los live se transmitieron en el perfil de @morfotecnologiaufpe y se realizaron los miércoles a las 20 h y con una duración de 60 min. Las discusiones fueron conducidas por mediadores, profesores del PPGM-UFPE y uno o dos expertos invitados en cada tema abordado. Los espectadores pudieron seguir la interacción mediador-invitado en tiempo real, además de ser protagonistas del diálogo a través de comentarios y preguntas. Las discusiones desarrolladas estimularon el pensamiento crítico, el combate à la desinformación y la valorización de la ciencia y la tecnología en el abordaje de los problemas de salud. También corroboran la reorganización de las prácticas extensionistas, de suma importancia para garantizar la articulación entre la universidad y la comunidad, en la construcción del conocimiento y en la superación académica de estudiantes y profesores. Nuestra experiencia resaltó que el uso de las redes sociales es una herramienta eficaz en las acciones de educación en salud, ya que posibilita la accesibilidad al conocimiento a través de los recursos de una Plataforma de Tecnologías de la Información.
Palabras clave: Extensión universitaria; COVID-19; Educación para la salud; Enseñanza; Instagram.

1. Introduction

Two important pandemics have been caused by Coronaviruses since the beginning of the 21st century, the Severe Acute Respiratory Syndrome (SARS-CoV) in 2002, and the Middle East Respiratory Syndrome (MERS-CoV) in 2012. Since then, researchers in the field of infectious diseases have warned of the emergence and re-emergence of epidemics and pandemics, calling attention to the fact that this scenario is not a matter of "if", but of "when" it will happen (Wolfe, 2011).

Today, the world is experiencing the greatest health crisis in history. In December 2019, a new outbreak was noticed after a massive admission of patients with common clinical symptoms of pneumonia in the local hospitals of Wuhan city, China. This incidence has dragged the attention of many physicians, followed by scientists and regulatory agencies across the world. Upon further investigations, the World Health Organization (WHO) confirms the novel Coronavirus named SARS-CoV-2 was responsible for these clinical symptoms, and further declared this diseased condition as COVID-19 (He et al., 2020; WHO, 2020).

This disappointing outbreak of the COVID-19 (Coronavirus Disease 2019) situation spreading throughout the world was announced as a pandemic disease by WHO. COVID-19 had already been recorded in about 90 countries as of March 5, 2020, with a daily exponential increase in new cases of infection and thousands of deaths. On March 11, 2020, the World Health Organization declared COVID-19 a pandemic of international importance (WHO, 2020). About three months passed from the first cases until COVID-19 was officially registered in Brazilian territory, with the first case on February 26, 2020, and the first death on March 17 of the same year (Ministry of Health, 2020; Werneck et al., 2020).

SARS-CoV-2 Viral shedding occurs from respiratory tract, saliva, faeces and urine resulting in other sources of virus spread. Human-to-human transmission occurs through common routes such as direct transmission, contact transmission and airborne transmissions through aerosols. Cough, sneeze, droplet inhalation, contact with oral, nasal and eye mucous membranes are the common modes of spread (He et al., 2020; Umakanthan et al., 2020). For these reasons, social distancing and isolation are recommendations from the World Health Organization, medical and scientific communities and various government sectors around the world to control the spread of SARS-CoV-2 (WHO, 2020a,b; Ministério da Saúde, 2020). In this challenging scenario, Brazil, through Law n. 13,979, of February 6, 2020, published guidance on various measures to deal with this emergency. Among many others, the strategies of social isolation and quarantine were recommended in order to protect the community and reduce the contagion speed.

The last pandemic and the resulting isolation and social distance derailed the conventional methods of doing university extension and promoting health education, forcing extension educators to reconsider how to continue their actions to provide answers to Society in a scenario that the world is frightened with an unpredictable and hasty impact of the infection, and the data is changing day by day.

The university extension established by Resolution CNE/CES nº 7, of December 18, 2018, of the Ministry of Education, aims to promote the return of academic education to the external community (Brasil, 2018). Corroborating this objective, the concept of Extension adopted by the Federal University of Pernambuco (UFPE) and built in the Forum of Pro-Rectors of Extension of Public Institutions of Higher Education in Brazil, set out in the National Policy for University Extension, is conceived as: *"Interdisciplinary, educational, cultural, scientific and political process, aimed at transforming interaction between universities and other sectors of society".*

The university extension has a transforming and essential role in society, since it contributes to the construction, dissemination and discussion of knowledge produced within Universities. This knowledge is then shared and/or applied to the country's social realities and needs, especially in the surrounding communities. It is in this reciprocal action, between the academic environment and the community, that extension actions contribute to the professional and social training of students from the most diverse areas; making them citizens and, above all, humanized professionals integrated with their social commitments (Silva et al., 2020; Diniz et al., 2020).

University extension is undoubtedly one of the academic tools of higher education institutions (HEIs) that lost a lot of space with the pandemic. Among the main challenges imposed by the COVID-19 pandemic in programs, projects and extension actions, social distancing and isolation stand out (Diniz et al., 2020; Silva et al., 2020). As well as the wide dissemination of "fake news" and the low interest or impossibility of the population to access scientific knowledge show the

numerous gaps between health, education, science and technology and society in general. It is precisely to shorten this gap that university extension becomes so important and adapting its actions in times of isolation proved to be indispensable. In view of this, the role that HEIs have assumed is essential in providing and building correct information and instructing the understanding of the COVID-19 pandemic, its effects and contingency, in addition to strengthening research and scientific innovation and carrying out actions to assist the population community (Diniz et al., 2020).

In recent years, social media have been used to communicate and share information during public health emergencies, such as Ebola, Zika Virus and Dengue, and remain in a relevant role and as the main means of disseminating information during the pandemic scenario. People use social media both as a channel to express opinions and as a source of information. However, the excessive amount of information about the new coronavirus can make it difficult for people to access materials from reliable sources, in addition to facilitating the spread of disinformation on social media (Faria et al., 2020). During the pandemic, Instagram has been widely used in lives with various cultural, political, religious, educational themes, in the promotion of individual and collective health and the dissemination of scientific and technological knowledge. Thus, during the spread of COVID-19, Instagram became a widely used tool to publish information about the new coronavirus in the form of images, videos, music, text posts and lives, with thousands of daily views (Menezes et al., 2020; Ribeiro & Moscon, 2018).

It is in this scenario that university extension, more than ever, must assume its social responsibility and contribute with projects and actions with the community. Thus, the idealization of this project was based on the Public Health Emergency of International Importance and on the need for Risk Communication and Community Engagement as an essential part of facing COVID-19 and facing the following concerns: how to act in the face of this new reality? How to contribute to the fight against the pandemic in the local-regional context? How to use digital media to overcome the barrier of physical distance? Therefore, following the distancing and social isolation imposed by COVID-19, this extension project was designed with the aim of building and disseminating a series of lives with real-time broadcasts, and later made available, on the Instagram profile of the Postgraduate Program in Morphotechnology (PPGM-UFPE).

The lives were designed to build knowledge and clarify doubts about SARS-CoV-2 and COVID-19, in addition to developing discussions about educational, technological tools and scientific advances in the search for clarification and solutions to the current pandemic. As well as bringing together teachers and students of the PPGM-UFPE with members of other Postgraduate Programs at UFPE and other HEIs, students from elementary and high schools and the community in general.

2. Methodology

This is an experience report based on theoretical-practical experiences on the planning, development and execution of university extension actions during the Covid-19 pandemic. The actions were carried out using Information Technology Platforms, tools that have allowed dynamics involving interdisciplinary speakers and the integration of groups of students and professors and the general community. The project was approved in Public Notice 2020 - 01 - Accreditation of Extension Programs and Projects of the Federal University of Pernambuco (N° SIGProj: 358233.1996.154004.03082020) and carried out between March and October 2020.

The entire methodological process was planned and developed by UFPE students and professors through remote work and mediated by virtual platforms. All authors contributed in the stages of construction and design of the project. Real-time broadcasts, also known as lives, were broadcast on the @morfotecnologiaufpe profile and took place on Wednesdays, at 20 pm and lasting 60 min. As for the time of performance, this period was chosen in order to provide online monitoring of the transmissions by those leaving the daytime work shift. The research on the use of lives as an educational instrument allowed not only the qualitative and descriptive reporting of the training experience, but the shared construction of knowledge between

educators and interdisciplinary health professionals about a problem that encompasses society as a whole, in its multiple dimensions: the pandemic caused by Covid-19 (Neves et al., 2021).

Discussions were always led by a mediator, a professor at PPGM-UFPE, and one or two guests, always experts in the area of the topic to be developed. The guests, one at a time, were called to share the broadcast with the mediator, both of whom were watched simultaneously. After the broadcast, the lives were made available on our page for free access, and they can still be shared with other social networks like Facebook, Twitter and WhatsApp, which makes it particularly popular.

The dissemination of the lives took place through the sharing of banners and virtual cards through the multiplatform messaging application WhatsApp and on virtual social networks, Instagram and Facebook, at least 72 h in advance of the transmission. In addition, in the last 24 h prior to the broadcast, we used Instagram stories and WhatsApp group reminders to encourage participation. In the stories of the main broadcast channel on Instagram, a link to previous questions was made available, without excluding the option to send questions during online broadcasts through chat.

The recommendation was that moderators and guests should participate in the broadcast from their own homes, using computers or smartphones with internet access and prioritizing a light and quiet environment. Discussions among mediators and guests were provoked through questions from followers/viewers, who followed and clarified doubts throughout the broadcasts of the lives. The evaluation of each live was performed through access to real-time broadcasts, discussion between mediators and guests, follower-mediator-guest interaction, and visualization of the posted material. In addition, the group held periodic meetings with the aim of evaluating actions and proposing new themes according to the “portrait” of the pandemic and based on suggestions from followers and polls on our page.

3. The Experience and its Discussion

In Brazil, the COVID-19 pandemic made it impossible to carry out teaching, research and extension activities in person, which resulted in the interruption of many activities in HEIs. In health and education, this reality exposed and weakened individuals, causing relationships to be built and lived through other elements and forms, different from those previously established (Albuquerque, 2020). Thus, the Covid-19 pandemic has changed several patterns of society, including the way people communicate, such as the increase in real-time broadcasts through social networks, driven by the “Stay at Home” campaign, and of the use of virtual meeting platforms such as "Google meet". This way of relating, through social distancing, began to be used on a large scale, including by authorities, artists, teachers and several other professionals (Di Franco et al., 2020). Among the tools available on social networks, one especially draws attention to the development of this research: the use of lives.

The (re)adaptation of extension projects through digital tools during the pandemic and social isolation highlights the potential of extension teachers and students to reinvent themselves and fulfill their social commitment. Instagram has been used to help disseminate information about public health problems around the world, including COVID-19, as it facilitates the communication process, reaches a large number of people at the same time and is an easily accessible tool (Seltzer et al., 2015; Niknam et al., 2020; Menezes et al., 2020). In this context, the present project provided an innovative, unique experience with relevant results, which allowed the academy to interact with the community, social participation, construction and sharing of knowledge and provoked important social reflections.

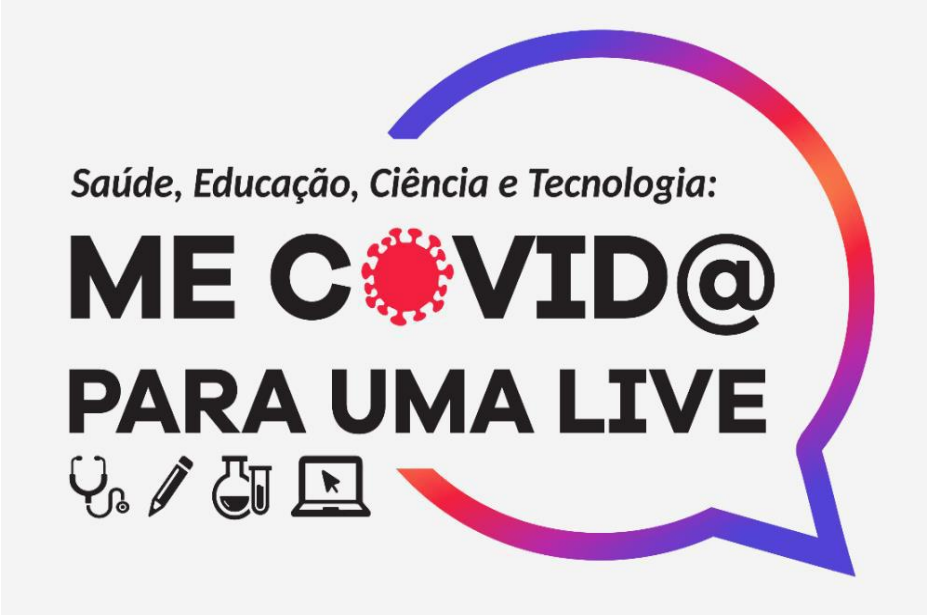
Currently, the most used social media are Facebook, YouTube, WhatsApp, Instagram, WeChat, Sina Weibo and Twitter (Niknam et al., 2020). Regarding Instagram, we highlight its wide reach as it is one of the largest digital tools in terms of number of users on the internet. It is a location-based mobile applicative that offers different ways to take photos, use editing tools, stream and post videos and short texts, with feedback provided through comments and likes.

Also noteworthy is the ability to instantly share with other users in the applicative itself and also on other social networks, such as Facebook and Twitter (Ribeiro & Moscon, 2018). Currently, there are about 1200 followers on @morfotecnologiaufpe with different profiles, especially professors and undergraduate and graduate students from UFPE and other HEIs from the most different academic areas, teachers and students from high and elementary schools from public and private networks. People, who are directly connected, follow publications and receive notifications about activities developed and programmed. On Instagram, there are no tools to number viewers of the live after broadcast, which limited monitoring the actual number of the audience. However, during the lives, this number exceeded 200 viewers and after the lives were published this number went from 500 views. For those unable to watch in real time, the broadcasts were recorded by IGTV, an Instagram video app for Android and IOS operating systems that made it possible to record videos of up to 60 min in length and share them on the user's Instagram feed for later access and viewing. Due to the time allowed for recording and the need for objectivity and dynamism in the transmissions, the time for each live was a maximum of one hour.

In Brazil, most scientific and technological research, innovation and development take place on university campuses (Oliveira & Moraes, 2016). It is important to highlight that university professors-researchers were not immunized, being susceptible to the fatalities imposed by Covid-19, and they also assumed their professional and social commitment, working tirelessly to face COVID-19, despite the overload and accumulation of activities (remote teaching, research, extension and administration). Thus, on behalf of all the people reached in this extension project, the Postgraduate Program in Morphotechnology, coordinators and extension members of the project: HEALTH, EDUCATION, SCIENCE AND TECHNOLOGY: ME COVID@ PARA UMA LIVE declare immeasurable gratitude to the professors- researchers who provided their time, knowledge and experience to hold discussions and disseminate scientific knowledge in an ethical manner in the face of COVID-19.

Aiming at transdisciplinarity and interdisciplinarity, this project had the voluntary contribution of professionals from different areas, namely: psychologists, biomedical doctors, doctors, epidemiologists, immunologists, biologists (bachelor, graduate and environment), pharmacists, statistician, nutritionist, pedagogue, philosopher, chemist and veterinarian. During the lives, these professionals addressed: biological and phylogenetic characteristics of SARS-CoV-2 and other coronaviruses; immune response to COVID-19; evasion mechanisms of SARS-CoV-2 and other coronaviruses; clinical findings of COVID-19; transmission mechanisms and prophylaxis; social and environmental changes; importance and values of the Unified Health System (SUS) in the fight against COVID-19, comprehensive health in the pandemic scenario; mental health; graduate professors and students in remote activities and the post-pandemic scenario; coronavirus diagnoses and advances and perspectives for the laboratory diagnosis of SARS-CoV-2; technological tools applied in the fight against COVID-19; fractal analysis applied to the research of SARS-CoV-2 and other coronaviruses; pregnancy, fetal development and breastfeeding in the face of SARS-CoV, MERS-CoV and SARS-CoV-2 infection; technological advances in science imposed by the COVID-19 pandemic; cardiorespiratory and vascular disorders in COVID-19; engagement of science in the search for drug candidates and pharmacological therapy; the targeting and reuse of vaccines and drugs against SARS-CoV-2; vaccine development; the contribution of Universities and Research Centers in the fight against COVID-19. The visual identity of the project was strategically defined to connect our action proposal with the themes we intended to develop (figure 1). (TNR font 10 – justified – space 1,5).

Figure 1 – Project visual identity.



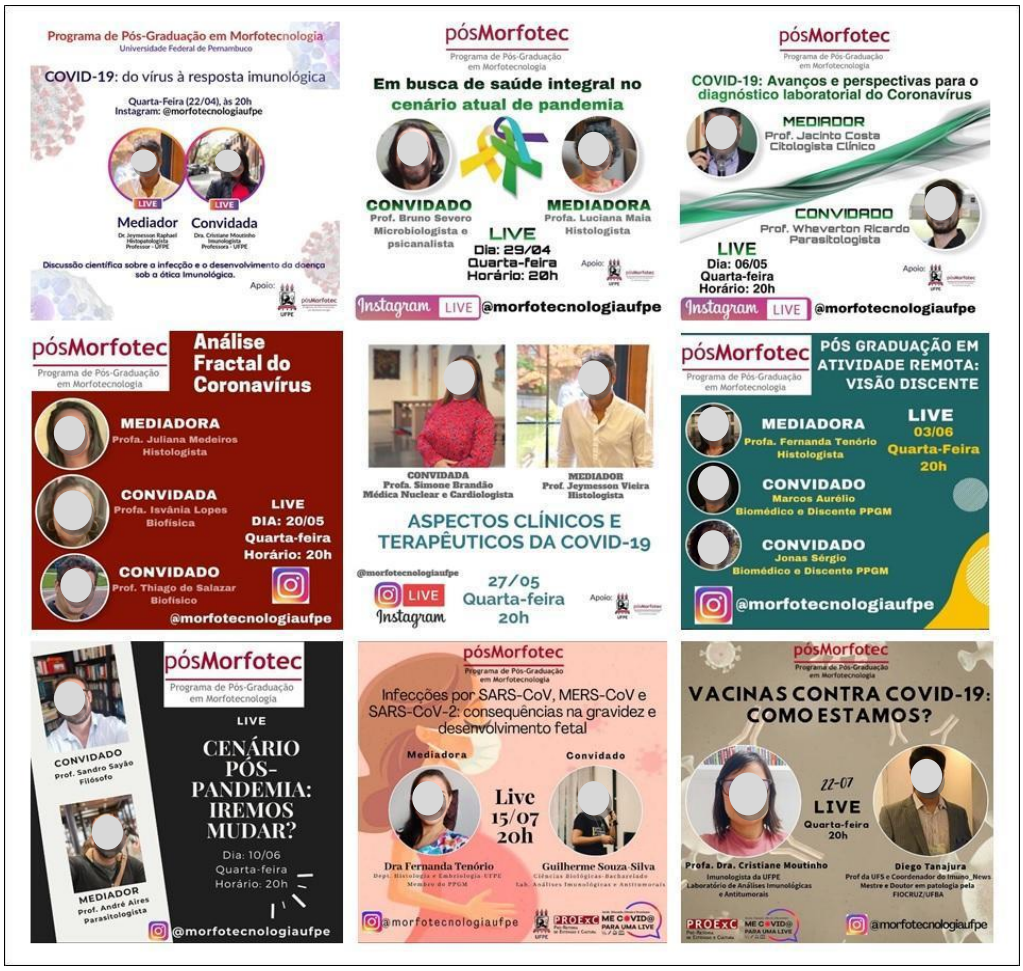
Source: Authors' personal archive.

For each live, an e-card was made using the Canva@ platform. The cards had the title/theme, photos and presentation of the mediator and guest, as well as the day and time (figure 2). The cards were posted on the instagram page @morfotecnologiaufpe, followed by a brief text presenting the theme that would be developed, as well as hashtags (#) with keywords. In addition, the cards were kindly posted on the instagram feed @ascom and @proexc and in a very expressive way by followers of our page.

During the lives, viewers made comments or questions via text messages, which were viewed on the same broadcast screen, generating simultaneous interaction, in addition to previous comments on cards and private messages. Soon, spectators felt motivated and became protagonists of the initiative, appropriating new knowledge. According to Kesia et al. (2019), emancipatory research, that developed from a critical perspective, is also a political act, as it makes it possible to change the status of knowledge of a social group. Thus, this interaction model encourages public participation and greater attention from those who watch the transmission.

According to Delmazo and Valente (2018), the absence of analysis and confirmation of many propagated news can imply the dissemination of fake news, despite the democratization of information. News that can bring a series of social consequences, sometimes irreparable, depending on what is spreed. This information without scientific basis has hindered decision-making, the access to the knowledge about the new coronavirus and adherence to prophylactic actions during the pandemic. There is little information about the new virus and its transmission dynamics and there is still a lot of research to be done, even after discoveries. Today it is known that the main route of transmission of SARS-CoV-2 is through respiratory secretions from infected humans, as well as contact with contaminated objects and surfaces. In this context, the first lives were directed towards actions to promote individual and collective prophylactic measures to reduce the risk of transmission of SARS-CoV-2. Such measures included hand hygiene with soap and water or gel alcohol, social distancing and isolation, quarantine of the infected, respiratory etiquette guidelines and correct use of masks. On the occasion, there was strong interaction between mediators, guests and spectators who followed the live, where they questioned the theme and clarified doubts. Our results corroborate with Lunn et al., (2020), who declared that quick, honest, empathetic and credible information makes communication effective and promotes collective and individual actions and decisions that are useful in dealing with public health problems.

Figure 2 – Illustrative scheme of some of the cards made.



Source: Authors' personal archive.

Folowing, the live *"mental and integral health in the COVID-19"* discussed the issues in mental and integral health during the pandemic. Concern about the mental health of the population intensifies during a serious social and health crisis. COVID-19 causes psychological and social disturbances that affect the coping capacity of the whole society, at varying levels of intensity and spread (Ministry of Health, 2020). Therefore, COVID-19 has caused a feeling of complete insecurity, from the collective to individual perspective, from the daily functioning of society to changes in interpersonal relationships, in addition to the fear of being infected and developing the infection or being a potent transmitter of SARS-CoV-2 to family and friends (Lima et al., 2020 ; Ozili & Arun , 2020). Emergency efforts from different areas of knowledge - among them Psychology - were required to propose ways of dealing with the context that permeates the crisis. The pandemic taught the society to go through experiences that were marked in their lives. Experiences not only in the field of health, economy and education, but also in mental issues.

During the live *"In search of integral health in the current scenario of the pandemic"*, the discussion pointed to important findings that, during a pandemic, it is likely that many people and social groups may experience a high load of negative experiences and emotions, raising the need to psychological care. Additionally, ways of dealing with the pandemic and preserving mental and physical health, especially for students and teachers were discussed. It was highlighted that suffering and anguish, especially in the emotional and social sphere, affect people infected or not, causing symptoms such as fear, irritability, anxiety, depression, feelings of abandonment and even suicidal desire. Social distancing was a starting point for discussions, cause despite the benefits of contain the disease, and it often implies experiencing unpleasant situations that can affect the mental health of those involved (Brooks et al., 2020). It was important to understand that the consequences of

this pandemic will be greater than the number of deaths and economic losses, with regard to mental health. In this context, interventions and online services were offered by psychologists, psychiatrists and social workers to assist and accompany the psychologically affected population. These services welcomed all kind of individuals, helping them to face the pandemic and even reduce or prevent future emotional, psychiatric and psychological problems in the post-pandemic scenario (Lima et al., 2020). In addition to the discussions on mental health, the assistance from NUTES (Núcleo de Telesaúde da UFPE) and NASS (Núcleo de Apoio à Saúde do Servidor) that offer free psychological support service through qualified listening to all members of the UFPE academic community, students, technicians or teachers, were addressed. The discussion of the mental health of health professionals was also highlighted, as the health systems of many countries collapsed, health professionals are exhausted by the long working hours and the most effective control method of the disease, which is social distancing, has a considerable impact on the mental health of this population (Brooks et al., 2020). Also with regard to health professionals, Carbonari et al. (2020) highlighted that the large volume of work and physical and emotional stress caused by the pandemic directly impacted the health of professionals who provided care to such patients, leading to intense suffering. These are skin lesions caused by the use of personal protective equipment and other pains, a feeling of suffocation due to the continuous use of masks, sleep deprivation and long working hours, dealing daily with intense emotional issues such as the fear of contracting the disease and having to change of place with the patient they care for, doubts about treatments whose results are still uncertain, the need to choose between which patients will receive the available resources, having to live with the reality of countless deaths on a daily basis, the feeling of guilt for the choices made or the feeling of powerlessness, experiencing conflicting feelings of motivation, altruism and self-preservation.

One of the great challenges in the fight against the pandemic was the diagnosis with sensitivity and specificity by laboratory tests, since the Diagnosis was a critical component of the overall COVID-19 prevention and control strategy. COVID-19 has challenged biomedical engineering in the search for new laboratory diagnostic tools, in addition to the enormous demand on infrastructure that required rapid and unprecedented increases in testing capacity for SARS-CoV-2, at all levels of the health system. The advances and perspectives for the laboratory diagnosis of the coronavirus was the subject of the live *"COVID-19: Advances and perspectives for the laboratory diagnosis of the coronavirus"*. The stages of elaboration and validation of diagnostic methods, application and difference between methods and techniques in direct diagnosis (detection of the virus, such as RT-PCR) and indirect (detect the immune response to the virus, antibody research) were addressed. A discussion was held on the three main applications related to the stage of infection: early detection of exposure to the virus, before the onset of symptoms, the diagnosis during the acute form and monitoring of the clinical course and the screening of exposure to SARS-CoV-2. Were mainly address the importance that all tests for SARS-CoV-2 are linked to public health actions to ensure adequate clinical care and support and to carry out contact tracing in order to break transmission chains.

Besides the projected difficulties in the health field, the educational field also felt the impacts of the pandemic: face-to-face classes were suspended; teachers, parents and students had to suddenly adopt teaching strategies through Communication and Information Technologies (ICT); and teachers were forced to work more emphatically on health education to collaborate with the prevention of Covid-19 (Neves et al., 2021). The Distance Learning (EAD) modality in Brazil has been implemented for many years, conducted by qualified and duly specialized professionals, in addition to having all the necessary technological support to teach classes, develop, and apply teaching and assessment activities. However, the rapid spread of COVID-19 around the world has brought great impositions on Brazilian education, which had to undergo emergency adaptations, running over the structural and professional planning process necessary for this modality. In addition, students also underwent profound changes in the teaching modality, often without having access to the necessary means. Therefore, two PPGM-UFPE masters were invited to report the challenges and personal and academic experiences during the remote model in front of the pandemic during the live *"Graduate in remote activity: student vision"*. With this, it was necessary to adapt to the

new reality and the solution found to minimize the situation of isolation and to continue the postgraduate teaching was the use of emergency remote teaching. Remote classes are characterized by teaching mediated by technologies, synchronously and asynchronously (Scipião et al., 2022).

Students reported difficulties in initiating and/or completing experiments, charges to extend deadlines for defense and qualification of projects and obstacles to depositing theses, dissertations and diploma requirements. However, the most challenging was the new teaching model – remote online classes, which adds to the emotional overload of the postgraduate student, which still needs to reconcile virtual classes with the family routine and the epidemic scenario itself. Still in this scenario, with the extensions, one of the consequences of the pandemic will be the reduction in the academic production of the Graduate Programs and the accumulation of advisees by advisor. Since the beginning of the pandemic in Brazil, the university has suspended classes and, as a result, graduate students can no longer access physical collections and libraries, essential for graduate activities, in addition to the physical space to study.

Graduate students also reported difficulty in maintaining a routine of work, studies and writing of dissertations/theses, failing to meet the previously established goals. In this way Academic production issues were highlighted, where a duality was evident, in which some students are working exaggeratedly, self-demand followed by exhaustion, and on the other hand, students who are stagnant and without motivation. These sensations are addressed in the studies by Hamza et al., (2020), which highlighted difficulties in adapting to the new reality, which allows us to infer that they can significantly contribute to student and professional development, since the emotional state is not in balance. Sometimes, the absence of support and companionship leads individuals to states of lack or low expectations, with compromised levels of autonomy, cognitive abilities, motivations, academic performance and psychosocial development, leaving this public very vulnerable to mental illnesses, such as depression (Hamza et al., 2020). Postgraduate studies demand a lot from their students and professors. However, in the midst of the pandemic, graduate students reinvented themselves in a technological teaching model and did not stop believing in education and research, as demonstrated by the adaptation of the most varied scientific events in a virtual way and by the increase of the demand for complementary courses in distance learning. Flexibility in teaching and activity deadlines was also reported by the professors, even postponing the final date in case any student had problems or difficulties in the execution.

According to Anderson (2019), education does not exist outside the social or technological contexts in which it is inserted. Therefore, more and more educational institutions, teachers and students are introduced to the new teaching-learning tools. On the other hand, Bittencourt, Fialho and Ponce (2020) emphasize that it is necessary, for the use of ICT in the educational field, that students and teachers have digital equipment with Internet access, in addition to the ability to operationalize such tools. This situation worsens for most families with low income, especially residents of rural areas, riverside and other peripherals populations, for whom educational practice has other singularities. It was reported that internet access was not the only obstacle faced by graduate students in emergency remote teaching. The lack of infrastructure at home to participate in remote teaching activities (appropriate environment, equipment, cooperation from other residents) caused difficulties in participating in synchronous classes, carrying out activities in a collaborative way with the other students and concentrating while carrying out activities academics and classes.

Covid-19 affected all age groups, sexes and patients with or without previous chronic diseases, being considered a universal pathology, however, some specific risk groups such as the elderly and patients with cardiovascular diseases are more likely to evolve to death or have severe complications. Thus, most of those infected, who progressed to a more severe form of COVID-19 had comorbidities; cardiovascular diseases are frequent, characterized by the development of myocardial injury, hypoxia, ventricular dysfunction, thrombosis, myocarditis, arrhythmias and shock. These important prognostic complications are responsible for longer hospital stays and high mortality rates (Nishiga et al., 2020)

In these patients, proper management includes a series of protocols that involve intervention and interaction between different sectors of the hospital and the multidisciplinary team - a topic discussed in the lives *"Clinical and therapeutic aspects and COVID-19: from the virus to the immune response".* During the discussion, the classification, definition of cases and immune response to COVID-19 was elucidated, namely: Mild disease (uncomplicated disease), Moderate disease (uncomplicated pneumonia), and Severe disease (Acute Respiratory Distress Syndrome - ARDS and Shock (most of the time it will be septic)), in addition to the important findings in the chest imaging exams.

Pregnancy is a period with several physiological changes, and this public presented several complications during infections caused by the SARS - CoV and MERS- CoV viruses (Mascarenhas et al., 2020). Due to the high risk of morbidity and mortality, the World Health Organization has classified pregnant women as a risk group for Covid-19. Faced with the knowledge gap in the unfolding of SARS-CoV-2 during pregnancy, the project carried out the live *"SARS - CoV, MERS - CoV and SARS-CoV-2 infections: consequences for pregnancy and fetal development*". It was highlighted that the number of infected pregnant women was lower than that of the general population; however, they were more vulnerable to the more aggressive manifestations of the disease when infected. It was discussed that most infected pregnant women have mild symptoms, such as fever and dry cough, however, in women in the second half of pregnancy, fatigue, dyspnea, diarrhea, nasal congestion and runny nose may occur and in some cases have more serious complications, such as severe acute respiratory syndrome (SARS). During the live, mediator and guest reported that some studies describe that pregnant women infected with SARS-CoV-2 have an increased incidence of preeclampsia, justified by endothelial damage caused by placental oxidative stress and antiangiogenic effect, premature rupture of ovular membranes, which causes gestational diabetes, hypertension and proteinuria, increased liver enzymes, renal failure and even thrombocytopenia in pregnant women with COVID-19, as reported in the studies by Mendoza, et al. (2020). Brazil included pregnant women as a risk group for COVID-19 based on the physiological changes of pregnancy, which tend to generate aggravation in infectious conditions due to the low tolerance to hypoxia observed in this population. In addition, the need to protect the fetus represents greater responsibility regarding the provision of prenatal care (Mascarenhas et al., 2020). Pregnant women infected with SARS-CoV-2 and who develop severe symptoms associated with a comorbidity are more likely to experience an emergency cesarean delivery or premature delivery, which increases the risk of maternal and neonatal death. Some maternities and hospitals, as a way to prevent COVID-19, have adopted isolation protocols at the time of delivery, not allowing a companion before, during and after delivery.

Researchers are also dedicated to the research, discovery and development of pharmacological alternatives for the treatment of those infected with the new coronavirus. In this perspective, were held a discussion on replacement or reuse of drugs and vaccines against COVID-19. The mediator and guest highlighted research in *in vitro* and *in vivo biological assays and in silico* methods - computational molecular modeling. In summary, it was argued that the researches were looking for therapeutic alternatives with the objective of reducing time and costs in the research and development of drugs and vaccines for the treatment of COVID-19. Numerous therapeutic and prophylactic protocols, without any scientific evidence, were widely applied. The dissemination of these protocols were strengthened on social networks, WhatsApp groups and even by political and religious representatives. A good example of this was the dissemination of some laboratory and clinical research that reported satisfactory results for the use of chloroquine, hydroxychloroquine and ivermectin (but there was not enough studies to guarantee their safe use for COVID-19), and with that the population caused a shortage of these drugs in several pharmacies, leaving patients who needed to use them without access to the drug (Santos-Pinto et al., 2021).

In addition to facing the realities of the new pandemic on a daily basis, fighting fake news was another commitment of the project in all the lives presented. In all the discussions held, were highlighted the importance of seeking information based on research and scientific evidence reported by responsible and ethical authorities.

The emergence and consequences of the new coronavirus were discussed within the environment and society context during the live: "*The resilience of organisms in time of a pandemic"*. The discussion addressed the origin of the new coronavirus and the impacts of human activities on the environment. It was clarified that coronaviruses are frequent in nature and that they are hosted in mammals such as bats, which are widespread throughout the world and an essential part for the balance of the ecosystem, as they are flower pollinators and seed disseminators. Like any living thing, they co-evolve alongside their guests, the coronaviruses. This has been going on for millions of years without them suffering any harm. In the case of Covid-19 it is a disease of zoonotic origin that comes from wild animals and has acquired the ability to reach different species – including the ability to infect humans – through a process called spillover, as reported by Plowright et al. (2017). As reported by guests and mediators, researches showed that the emergence of diseases is a consequence of deforestation and the invasion of humans in the natural habitats of hosts and pathogens. According to the United Nations Environment Program (2020), about 60% of emerging infectious diseases in humans are zoonotic and are directly related to environmental imbalance and ecosystem health. As an example, there is Ebola, West Nile virus, bird flu, Rift Valley fever, H1N1 influenza virus, Zika virus, Middle East respiratory syndrome (MERS) and sudden acute respiratory syndrome (SARS), infections responsible for thousands of deaths and losses in the economy. Regarding the SARS-CoV-2 virus natural origin has been proven, being initiated by the contact of host animals with humans. Studies prove that the virus genome is similar to that found in bats and pangolin (Zhang et al., 2021).

Mediators and guests addressed the inversely proportional relationships between the economy and the environment. In the context of the pandemic, while the economy continues to have low indicators due to the interruption of several industries, companies, general commerce and tourism; in the environment, positive results were observed due to such an economic brake, as observed in lakes, seas, forests and in air quality, especially in large cities. Social manifestations about the impact of the COVID-19 pandemic on the environment were intensely observed on the internet through images and videos of landscapes, previously hidden by layers of sludge, waste or gases from atmospheric pollution; now clear and visually recovered (Souza, 2020). Mediator and guests provoked the spectators by questioning whether such changes would remain and whether they would provoke permanent results in the lifestyle in large cities, in the environment or if this scenario would only be in the pandemic moment. An increase in waste was also highlighted, as the increase in the production of solid hospital waste was mentioned. Borges (2020) points out that the Brazilian Association for Energy Recovery of Waste (ABREN) warned, through a report, the Ministry of Health about the increase in the volume of this hospital waste generated by the new coronavirus, exposing the population and the environment to hazards from untreated contaminant material.

In the action were approached mathematical and computational models by fractal method that is able to obtain the degree of complexity of a structure. In the live, the researchers explained how fractal analysis is able to perform detailed identifications and the genetic sequences of the three coronaviruses that caused severe acute respiratory syndrome in humans: SARS-CoV, MERS-CoV and SARS-CoV-2. Identification that makes the diagnosis of the disease and the understanding of the spatial dynamics of the spread of the infection and of different strains of the coronavirus more viable and accurate. In the live *"Sequencing of SARS-CoV-2 strains at UFPE: when, how and why"?* The mediator and guests highlighted that genomic sequencing is an essential tool for understanding the biology and characterization of the virus, allowing for research aimed at molecular surveillance, diagnosis, viral attenuation, understanding the response to drug treatments and the host's immune pressure. Studies showed that the new coronavirus has greater similarity to bat SARS-like coronaviruses, sharing 88% nucleotide similarity. In the live, the importance of molecular biology and bioinformatics was also highlighted to understand transmission in different contexts and identify possible groupings of local transmission, as well as follow the evolution of the variability of SARS-CoV-2, generate information that serve for the definition of new diagnostic methods; taking into account mutations existing in the circulating strains in the State of Pernambuco.

During the development and application of the project, no safe vaccine against COVID-19 had been approved. However, "the vaccine race" was going on around the world. As of October 2020, 214 vaccines against the new coronavirus were being developed, 51 of which were in the testing phase. Soon, were perform the live - *Vaccine against COVID-19: how are we?*. On the occasion, many concepts were clarified, such as vaccine and immunization, types of vaccine, production processes, stages of pre-clinical and clinical trials, and evaluation by regulatory bodies. It was discussed that experts recognize that the only way to achieve herd immunity is with a vaccine and the first step for this depends on a candidate that proves to be effective, safe and capable of being administered to the population in a massive way. The high investment and interest of many pharmaceutical industries for vaccine research against COVID-19 was highlighted. The health emergency made public authorities and private companies spare no effort to pay for the work of scientists. Far beyond the dedication of scientists and financial support, the production of the vaccine against COVID-19 was the result of different methodologies used for its project - advances in technology and innovation, faster and simpler, such as viral vector vaccines (AstraZeneca, Janssen and Sputnik V) or messenger RNA vaccines (Pfizer and Moderna), product of much work in previous research. It is in this context that the production and approval of vaccines against COVID-19 was achieved in record time, about 9 months. Despite promising research, our guests declare that the success of COVID-19 control will not be the result of vaccination alone. They highlighted that a major challenge will be large-scale production to reach the world's population. We are talking about the production of billions of doses, without considering that the protection can be reduced after the application of two or more doses and the interval that this immunization needs to be repeated and the viral mutations.

Certainly, numerous questions remain and need to be answered. The *post-pandemic scenario: will we change?* was discussed in live. *Will our worldview change after a pandemic? Will reflections make us emerge different from this global health crisis? Will there be appreciation of science, technology and innovation in the post-pandemic scenario? Will there be more investment in research and training of human resources? Will the science sectors join efforts to solve health and social problems that have been historically neglected for decades? Will individuals be willing to act and think contrary to their personal and financial interests in favor of the greater collective good?* This is how the mediator and guest reflected and provoked our spectators. According to Santos (2020), these changes do not automatically mean positive responses and a better society. It is essential to actively reflect on our worldview, actions and consequences for both ourselves and the community around us. For changes to bring a systematically positive impact to post-pandemic society, an epistemological, cultural and ideological transformation is necessary, which will be the basis for the desired political, economic and social changes.

It is known that even in the face of numerous scientific and technological advances for understanding and coping with SARS-CoV-2 and COVID-19, there are still unknowns about the virus and the new infection. Faced with the uncertainties imposed by the COVID-19 pandemic, there is only few certainties - the existence of the collapse in health and the detriment of basic education, culture, sport and leisure generated by social distancing and isolation. We believe that answers to all questions in this horizon of thousands of deaths, collapse in the health system, historical losses in the educational and cultural process, damages to the economy, will only be possible through Science, with the University being a central figure in the provision of services and in the training of excellent human resources for the ethical growth of the country.

According to Almeida (2020), the concept of extension used here is based on the dialogic interaction between the university and the social sectors, through a relationship marked by dialogue and exchange of knowledge, overcoming the discourse of academic hegemony and replacing it with the idea of alliances with social movements, sectors and organizations. In our experience, we showed that the discussions developed on Instagram in lives aroused critical thinking, the feeling of concern about the pandemic scenario and the new virus, the fight against misinformation and the increase in awareness and appreciation of health, education, science and technology in the country with tackling health problems of international interest. In addition, undoubtedly one of the biggest changes and results of the new coronavirus pandemic is a "different/new" society

that understands that solutions go through science and the promotion of collaboration between many researchers and research teams in the most diverse fields of science, technology and innovation to assist the entire world society.

We share the refutations of Diniz et al., (2020) regarding the limited interest of teachers and students in participating in extension programs and projects, especially when we talk about remote activities and during a pandemic. In part, this may be related to the history that, unlike research, extension does not offer members of the academic community a "*status and visibility"* as researchers have with their scientific and technological discoveries and contributions. Therefore, in this context, many students and professors are not attracted to coordinate and/or participate in university extensions, an activity where coordinators and extensionists invest a lot of time to plan and carry out actions, requires a relatively large team and their results do not always generate products of interest to the editorial boards of many journals.

Our study included extension actions in Permanent Health Education and Health Education, since in the context of SUS, permanent health education corresponds to the entire professional learning process articulated with the reality experienced by professionals at work. Health education, on the other hand, refers to the training of anyone, professional or not, to adopt practices that are beneficial to individual and collective health. According to Freire (2011), permanent education takes place from the inclusion of man and the awakening, in himself, of the awareness of this inclusion; that is, the subject aware of himself and the world is self-directed to seek to be more, to know more. As people are not empty boards, everyone must be articulate and together build knowledge considering the environment and its needs. In this process, the role of the educator is to guide the student towards humanization, with a view to global citizenship, especially in times when "[...] the Covid-19 pandemic has created unprecedented conditions in all areas of social life" (Estelles & Fischman, 2020).

4. Final Considerations and Perspectives

Extension actions provide articulation between the university and the community, through the sharing of knowledge between researchers and professors from the most different areas of health and education, aiming to promote the construction of knowledge and face COVID-19. Here was showed that university extension is of paramount importance in the academic and personal training of undergraduate and graduate students and the general public, as the benefited individual is stimulated to enjoys learning, thus causing social changes.

The magnitude of the COVID-19 pandemic sent every educator to the necessary attitude of reinventing himself. Our experience highlighted that the use of social media is an effective tool in health education actions and in the promotion of health education, as it enables accessibility to knowledge through instagram resources. Extension actions understand and reinforce the value and recognition of the University as an interdisciplinary space in the construction and dissemination of knowledge and in the dialogue between knowledge. The present project fitted the characteristics of the extensionist work, even with the sense of restlessness and the ability to mobilize, individually and in groups, although organized remotely. These skills are fundamental in building extension action in this period of social isolation. Therefore, it is wished the University to continue to commit itself to being a social pillar and attentive to the delicate historical moment that the society was going through in pandemic. That opportunity in social actions, as well as, structure and funding for the promotion of university extension can be expanded and that new actions are committed and framed with the post-pandemic future. Although the lives have had a good acceptance, one cannot fail to highlight their limitations. Thus, we believe that the University will continue to commit itself to strengthening its social role and individual and collective contributions in the construction of knowledge, attentive to the delicate historical moment that we are going through in this pandemic, and that new extension actions are designed and committed to the future after –pandemic.

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