



Science communication during the pandemic through a university radio program in Ecuador

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Abstract

The importance of the contributions to society in the production of new knowledge by academia is unquestionable, but there is a great difference between universities in Latin American countries and those in the so-called first world countries. Among the differentiating gaps, in addition to the structural elements, the need for the social appropriation of knowledge and strengthening of scientific culture should be emphasized, and this is not possible without the communication of science, technology and innovation. Hence the interest of the present work, which evaluates the actions, during the pandemic, of the radio program I-100, of the Catholic University of Santiago de Guayaquil (UCSG), to maintain the process of communication of scientific research results of the institution and the socialization of knowledge. A mixed methodological approach was applied in the study and aims to analyze the actions implemented to maintain, during the pandemic, the communication of research results of the UCSG through the university radio program I-100, incorporating new media and different productive routines, following the conditions of isolation imposed by the pandemic and trying to use as much as possible the digital spaces also enhanced in conditions of social isolation.

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KeyWords: science communication, socialization of knowledge, university radio, pandemic.

DOI Number: 10.14704/nq.2022.20.8.NQ44671

NeuroQuantology 2022; 20(8): 6463-6475

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Introduction

The contribution of the university to social development through the production of new scientific and technological knowledge is recognized today by most authors and by relevant international organizations that go so far as to build development agendas on these bases (Castro et al., 2017; Díaz-Canel, 2020; Núñez, 2009; Núñez and Montalvo, 2015).

However, it would be necessary to emphasize that this is a highly complex problem, especially in Latin American countries, in which university institutions do not have the scientific tradition, research culture, or infrastructure of European, North American or Asian countries with greater development.

It is no coincidence that in the most recent university ranking, the QS World University Rankings 2021-2022, which evaluated almost 9,000 universities, evaluated 3,000 and published the positioning of the best 400, the top 10 are in the United States or England, while the best positioned Latin American university, the University of Sao Paulo, is in 43rd place, followed by the second in these latitudes, the prestigious National Autonomous University of Mexico, in 157th place. Most of the remaining Latin American universities occupy positions of more than three digits and this reflects a substantial difference from those of developed or first-world countries (QS World University Rankings, 2021-2022). For these reasons, Núñez Jover (2009) affirms:

The issue of the interrelations between science, technology and social development is perhaps the most important and complex that can be raised in STS studies from the perspective of underdeveloped countries (...). How can science and technology favor social development, what models of development can foster the rise of science and technology, and above all, their orientation towards social objectives? (p.1).

In the opinion of the Cuban expert, this requires a well-equipped scientific structure, but also a system of relations with society, with the productive and educational sectors. He warns against the danger of confinement and defends the need for the democratization of knowledge.

To this end, he asserts:

The risk that Science and Technology operate in the sense of widening the inequalities and contradictions of this time and not in the sense of their solution, is a real risk. I believe this is one of the major challenges of the democratization of science. Instead of encouraging the private appropriation of knowledge, the social appropriation of science should be pursued. When speaking of social appropriation we are referring to 1) the process by which the people gain access to the benefits of knowledge. For this, the majority interests must be represented in the networks of actors that define the techno-scientific trajectories and their impacts. 2) The process by which people participate in activities of production, transfer, adaptation and application of knowledge. An extended scientific culture should be understood as the social capacity to use scientific knowledge in social and personal decision-making (Núñez Jover, 2009, p.12).

One of the processes that could contribute significantly to this social appropriation of science is its communication and, linked to it, the construction of a strong scientific culture, both processes that require a great deal of attention and priority in Latin America.

But both the process of scientific communication and the sharing of values related to scientific and technological culture are inserted today in a globalized world (Barbón et al., 2019).

In a time like the one we live in, with high levels of interconnectivity, it would be unthinkable the socialization of any knowledge without the competition of communication in the new digital scenarios, because as Castells (2009, p.2) points out: "culture is extremely influenced by the phenomena of globalization and digitalization". Likewise, the role of the university in the context of social demands for innovation must be pondered (Gil Álvarez and Socorro Castro, 2017).

This paper presents some experiences of the case that constitutes the object of study: the scientific popularization program I 100, of UCSG Radio, which is part of the programming of the radio and television system of the Catholic University of Santiago de Guayaquil.



This program, which saw the light in June 2018, was created to socialize the research results of professors, researchers and students of the UCSG, before the university community and society in general; contribute to making visible and make known in an understandable way some of the new knowledge produced in this high house of studies, and thus support the construction of meanings and sense of science, technology and innovation, and the strengthening of scientific culture in its broadest sense.

The objective is to evaluate the results of the communication strategy implemented during the pandemic to maintain the broadcasting of programs with new media and different productive routines, under the conditions of isolation imposed by the pandemic and trying to use as much as possible the digital spaces also enhanced in conditions of social isolation.

This study is based on the following research question:

- How were the scientific, technological and innovation results of the Universidad Católica de Santiago de Guayaquil communicated during the Covid-19 pandemic in the radio program I 100 Investigación Científica of this educational institution?

The general objective is to:

- To analyze how the scientific, technological and innovation results of the Universidad Católica de Santiago de Guayaquil were communicated during the Covid-19 pandemic in the radio program I 100 Investigación Científica of this educational institution.

As specific objectives:

- Systematize the theoretical references on the subject.
- Identify the characteristics of the communication of science, technology and innovation in the studied area.
- Determine the audience levels reached by the program.

The study is of mixed type, quantitative methods were applied for audience monitoring and qualitative methods were used for the content

analysis of the programming in 2020.

The results show that the flow of information on the subject of science, technology and innovation was maintained, despite the pandemic, with an adequate thematic balance as a reflection of the university scientific production, and audience levels were maintained, at the same time, the situation of isolation forced to assume new productive routines such as teleworking, the use of digital resources and the use of social networks, which represented a benefit for the program.

Democratization of knowledge and communication of science, technology and innovation

The late twentieth century saw a rupture in traditional schemes of knowledge production and relations between the university and society. The model of the isolated university, enclosed in its famous ivory tower, was challenged by others more related to the needs of the contexts and society, such as the well-known model of Sábato's triangle, which postulated the unavoidable need to incorporate an approach of interrelation between the university and society, assumed in two important dimensions: the governmental sphere on the one hand and the business sphere on the other.

A new way of evaluating the relevance of university institutions and their mission in society was emerging and took on new dimensions from the viewpoint of Gibbons (1998, p.1), who stated that "a new paradigm of the role of higher education in society has been gradually emerging over the last twenty years".

In this regard, he added:

In the 21st century, higher education will not only have to be pertinent, but this pertinence will also be judged in terms of products, of the contribution that higher education makes to the performance of the national economy and, through this, to the improvement of living conditions. While it is to be expected that arguments of varying weight and coherence will emerge from all sides pointing out the limitations of this pragmatic approach, it is assumed here, moreover, that no argument or justification will carry similar weight. Relevance will have to be



demonstrated, not once but continuously. Economic imperatives will sweep aside all that oppose them and "if universities do not adapt, they will be left behind" (Gibbons, 1998, p.1-2).

Linked to this new paradigm is a new way of conceiving the production of scientific knowledge, the so-called Mode 2, which identifies marked differences with the traditional way of producing knowledge through the so-called Mode 1.

The research processes conceived from the traditional point of view, in the so-called Mode 1, are characterized, in the opinion of the aforementioned author, by the determination, with a disciplinary approach, from the academy, of the object of study, the methods and procedure, the validity and the recognition of the contributions. Such determinations are made to a large extent on the basis of the criteria of research groups and, on occasions, of prominent figures in the university world, and likewise, the disciplinary structures and conventions establish the criteria of legitimacy and validity of the knowledge produced and recognized.

This characterization is illustrated by the author himself when he asserts that:

The research structures that have been implemented in universities are supported by a set of practices that ensure that the results are scientifically sound. These research practices establish what will be considered a contribution to knowledge, who will be able to participate in its production, and how accreditation will be organized. Together, these practices have generated what we know as the structure of knowledge disciplines, a structure that in turn has come to play a fundamental role in the management and organization of universities today (Gibbons, 1998, p.10)

But in the opinion of this expert and others, what society demands in the 21st century is the rupture of the sort of watertight compartments in which research processes were enclosed, and the gradual incorporation of a new way of conceiving inquiry and the production of new knowledge: mode 2. In this regard, according to the aforementioned United Nations expert, he states: "there is already sufficient evidence that a new

and distinct set of cognitive and social practices is beginning to emerge, which are different from those governing Mode 1" (Gibbons, 1998, p. 4).).

Mode 2 is oriented to the production of knowledge in response to societal needs, characterized by transdisciplinary approaches, focused more on the collective than the individual. Five features are identified by Gibbons in his conceptualization of Mode 2, presented in the late 1980s: 1. knowledge produced in the context of application; 2. transdisciplinary character; 3. organizational heterogeneity and diversity; 4. greater social accountability; and 5. a more broadly based system for quality control (Gibbons, 1998, p. 6).

This orientation towards the production of knowledge in response to the needs of the environment corresponds to the new criteria for evaluating the role of universities and the recognition of their usefulness and sense of life, in what constitutes a new paradigm that points to the sense of pertinence that will mark the route of the changes that must be introduced in the world of academia. Mode 2:

presents the topography of the intellectual landscape - the research environment - in which universities will have to participate in the future...they will have to become porous institutions, more open and dynamic in the search for alliances and partnerships than they are today. ... these changes are far-reaching and profound and are helping to set the context in which relevance will be interpreted (Gibbons, 1998, p.17).

These processes of transformation that are unfailingly taking place, albeit at a slow pace, are related to the concept of democratization of knowledge and knowledge conceived as a public good.

However, this democratization of knowledge begins in the very process of its production, in research, which, according to Day (2005), does not conclude until it is communicated.

Then, as part of its substantive research process, the university should be concerned and engaged in making known its scientific research results, its results in terms of new knowledge (Trelles, 2008; Figueredo et al., 2017).



Science communication: an emerging discipline

Science communication, as a very young discipline, suffers from marked polysemy, as happens with communication in a general sense (Trelles, 2015; Fernández and Batista, 2016; Valero and García, 2018). Various meanings are attributed to the concept and at the same time, its object of study is assumed through other conceptual approaches such as scientific dissemination, socialization of knowledge, and scientific journalism, just to mention a few (Daza & Arboleda, 2007).

To clarify the positions that support this study, some considerations of the concepts that are taken as a starting point are presented.

For some scholars of these topics, science communication, science popularization, public communication of science, and science dissemination can be valued similarly, since they deal with the same activity (Tonda, 2005).

On the other hand, other authors argue that it is not the same phenomenon, since there are substantial differences that differentiate the communicational approach from the popularization approach, for example, Huergo (2001) approaches to the concept of communication not as a process that occurs at the media level, but as a process of sharing that enriches culture. From this position, he criticizes the transmission and unidirectional nature of the popularization of science and the postulates on which it is based, in which it is assumed that "to communicate is to transmit to the public (divulgare), generously, something that an actor or a specialized social sector possesses and has built".

The authors of the present work agree with this last position, the criterion that science communication, together with technology and innovation, is a process of shared construction of meanings and senses, in which the protagonists of the communicative fact must intervene, both those who produce and emit as well as those who receive, especially in this 21st century, in which concepts such as emitter and receiver have been left behind to make room for other more dialogic and participatory approaches such as the prosumer, who produces and consumes

meanings, or the emirec, who emits but also receives (Malcher, 2013).

The radio

The arrival of digitalization and the rise of new technologies marked transformations in radio, which has been one of the main platforms for the development of technology-mediated sound in an environment marked by new audiovisual narratives, which represent a paradigm shift in the traditional way of creating content. The application of these changes now serves to extend the life cycle of the communicative product, to reach, maintain and expand audiences, as well as to design more interactive proposals.

Nowadays, a radio station can transmit by analogical wave, also be digital, but also broadcast on the Internet, generate podcasts, intervene in social networks, be on a cell phone, on a watch, or the TV set:

Today, radio can and must remove stigmas, obligations and pressures: it can go back to being radiodrama, continue being radio art, and start being a documentary. Invent the #MiniRadio, the MaxiRadio, the reality radio, the radiofilm, the radiomeme, the radiogif, the narratives with Whatsapp messages, and the radio in the transmedia world. Today, radio is in a thousand places, hidden there, waiting for someone to decide to use it (Godinez Galay, 2020).

On the other hand, there are the radio expressive modes-i.e., the genres, formats or structures and resources (techniques of manifestation and dissemination of contents that are a distinct part of various genres).

Radio discourse, as an acoustic phenomenon, allows the interaction between transmitter and receiver, who nowadays exchange their roles and is determined by a series of technical and human mediations.

On the other hand, the definition related to communicational issues acquires a distinctive nuance receiving the name of Agenda Setting, a name that comes from the notion that the mass-media "are capable of transferring the relevance of an issue in their agenda to society" (McCombs, 1996, p. 17). The mere fact that citizens and protagonists are taken into consideration in the



process of issue selection, and that certain issues are not imposed on them, is a step forward towards the awareness of both the media and support for the development of citizenship.

Likewise, the conception of mediations is appreciated from different statements (Serrano, 2007).

It was Freire (1970) who, starting from the need for expression in individuals, according to the recognition of the self and relying on Sartre's ideas (1957), proposed that, although the media are fundamental for citizen instruction, giving importance only to reception would not be enough, but interaction is required.

Radio has consolidated the transformations of sound knowledge over time. From analog to digital, and from unidirectional to possessing services such as images, graphics and data, it has now been equipped with new instruments that make it more personal and interactive.

Digital transmission, production and reception systems have been available for several years now. This improves sound quality, eliminates interference and offers added services - information, advertising and other formats - through a small screen.

There is an increasing number of receivers for digital radio. These are also spaces tailored to a specific micro-audience to which it is directed, almost exclusively. The transmutations range from broadcasting to reception.

In today's radio -digital and online-, the synchrony of exclusively radio listening is broken. The listener can listen to what he/she wants in deferred mode and without being subject to its linearity. In short, it is an on-demand reception that grants more freedom and favors personalization, considered one of the most important trends in journalism in the 21st century (Rodero, 2020). This type of radio takes into account the possibilities of interactivity to integrate listeners into the programming through chats, e-mails, forums and other variants.

Materials and methods

The research has a mixed character (Hernández-Sampieri and Mendoza, 2018). The method used is the case study. Yin (1994) points out that the

case study is empirical research that analyzes a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and its environment are not evident. As techniques used: bibliographic and documentary analysis, whose essence is in the collection, selection, classification, evaluation and analysis of key materials for the research (Devés, 2016). Torres, 2018). That technique will be employed to collect the necessary initial information on the topic.

Participant observation (Hernández-Sampieri and Mendoza, 2018) was used the deepening the features that characterized the transformation processes in the construction of the communicative product, which is joined by the qualitative content analysis technique, which was applied to the study sample.

The sample design was intentional, as it corresponds to the case study, and the totality of the editions produced during the year 2021 was selected (a total of 26), with census criteria.

The category of analysis was taken as Communication of science and technology during Covid-19 in a university radio program.

And as its dimensions:

Dimension 1. Innovation of discourse construction process for S&T communication in I 100:

1.1. From face-to-face to virtuality. Media convergence: from AM frequency to digital spaces.

1.2. Expansion via social networks.

1.3. Other changes in production routines: recording scenarios, use of software, presenter's interactions with guests, communication channels used.

Dimension 2. Elements of the communicative product

2.1. Main topics addressed

2.2. Participation of science protagonists, composition by domains and faculties or careers; student participation.

2.3. Sources of scientific production: doctoral theses, research projects, articles, research awards to professors and student research contest awards



2.4. Levels of audience reached in the traditional and digital areas.

2.5. Incorporation into the national network of university radio stations in Ecuador.

Results and discussion

The results obtained for Dimension 1: Innovation of the discourse construction process for S&T communication in I 100 are presented below:

1.1. From face-to-face to virtuality. Media convergence: from AM frequency to digital spaces.

As is well known, the pandemic caused by COVID-19 forced a reinvention of production and service processes at a global level, given the obligation of social isolation to avoid a further proliferation of contagion of the dangerous disease, and thus, try to reduce the number of deaths due to this disease and other complications associated with it.

UCSG Radio did not escape from this need, and as part of its programming, I 100 incorporated innovation in its production routines. Decisions were made that would change the processes and routines followed up to that moment.

From the radio studio in which program recordings were made with the direct assistance of producers, directors and technicians of various types, it switched to recording by teleworking, which required the adaptation of certain spaces in homes to transform them into studios.

And the incorporation of media convergence to the program, which ceased to be a program broadcast only on AM frequency radio waves, to become an audiovisual communication product shared on university television, social networks and podcasts.

This implied investment in high-end telematic equipment that guaranteed technological support, high-resolution video cameras, adequate light sources, backgrounds, and access to high-capacity Internet services. Incorporating the learning of new ways of preparing for the conduction of the program, such as wardrobe and makeup designed for audiovisual communication, to the study of the place and how to place the script in such a way as to be able to look at the

camera while consulting it, without the use of a teleprompter.

It was a complex process that generated high levels of stress in the participants, due to the insecurity of not achieving a product with the necessary quality, and required a period of trial and error in which the participants of the technical team, the host of the program and the interviewed researcher protagonists participated.

1.1.2. Expansion via social networks

Currently, the analysis of listeners, users and audiences moves to the analysis of digital generations, where how to connect with millennials is part of the discussion in many communication strategies. For Ruiz (2017) the internet has favored the active role of citizens, who as prosumers are part of the popularization of science and are those who through this channel learn, share and participate Oca et al. (2020), (Islas et al., 2018).

As technology evolves, radio has managed to cross the barrier between one format and another, creating mergers and reaching audiences with greater precision. For the space I-100 (Scientific research), the authors worked on the dissemination of the programs that have been made in conjunction with the research professors, through Facebook and Twitter, in its broadcast, to reach more audiences as a strategic part of popularization of science through digital platforms and its reception by the UCSG community. This action started when virtuality was implemented as a way of working and the modalities of being able to access more homes were intensified, focusing on the facilities of new technologies.

The format used was the same as traditional recordings, consisting of half an hour in real-time, using the original parameters of the radio, two blocks of 13 minutes each, with their respective presentations.

The language used is simple and descriptive to reach all types of audiences with the various topics discussed from the academies, clear and precise interviews, in which the driver uses the lived experiences of the researcher teacher, thus allowing to captivate the attention of listeners and generate reflections or critical points of view



on the different topics addressed, analyzed and adapted for the community in general.

With the use of social networks what has been done is to bring the radio product closer to the public, giving them other consumption alternatives that are not exclusively focused on 1190 am dial, but, allowing them to consume this space at any time, according to their time, increasing the visual resource and interactivity through the messages they can leave on the program and radio accounts on Facebook and Twitter.

Finally, adding the visual part, providing, when the explanation deserves it, clapperboards and graphics that facilitate the understanding of certain topics and the ease of being able to consume the product on any mobile device, which further contributes to the dissemination, socialization and democratization of science.

1.1.3. Other changes in production routines: use of software, presenter interactions with guests, communication channels used, etc.

During the pandemic, the radio and the programs sought a safe way to transmit their content with the use of technology that was part of the tools available to the station, but there was no need to use them because of the daily presence of operators, technicians, announcers and producers in the studios.

When the confinement and the willingness to take extreme biosecurity measures of isolation, to avoid the massive and deadly contagion of the pandemic, it was necessary that, despite the risk that meant going to the radio studios, a group of staff went to the facilities of UCSG Radio for the technological tools that would enable teleworking through platforms and networks of links between the computers of the radio and the houses where their employees lived. It was an unprecedented event, but at the time it was a priority need.

In a short time, no more than two weeks, the radio staff was able to transmit programs from the homes of their employees, that is, operators, editors, announcers and producers were teleworking, a phenomenon that, in those first weeks of the pandemic, was only occurring in the first world.

The platforms that were used at that time, today are in daily use, but, at the beginning of the pandemic, few knew of their potential to communicate in digital spaces, we can cite: Zoom, Meet, Microsoft Teams, and StreamYard, among others that enabled connections between producers, sources, interviewees and the public.

To maintain the communication process in its double direction, the audience, no longer only used the telephone line or text messages to give their opinions or points of view, now did it using audiovisual networks that had and has great power and influence in the public expression of our era.

The platforms for teleworking are now an indispensable tool for the informative, educational and entertainment tasks in radio and are here to stay. They are now a great auxiliary of radio and television stations, even more so, if the audiences, as is the case of universities, have young generations that make technology their daily work.

Regarding Dimension 2. Elements of the communicative product, the following results were obtained

2.1. Main topics addressed.

Table 1. Subjects covered.

Subjects covered	Number of programs
On the state of research at UCSG	1
About the internationalization process at UCSG	1
Economic and business studies	6
Social Sciences, Humanistic Studies and Arts	5
Integral Health	3
Habitat, design and construction	3
Technologies and Production	5
Total	24

Source: Own elaboration.

As can be seen, the approach to research results was maintained in each of the UCSG's knowledge domains, with a predominance of the themes of the Economic and Business Studies domain, with 25 percent of the programs produced, followed by the domains of Technologies and Production and Social Sciences, Humanistic Studies and Arts, each with a presence of 20.8 percent of the editions.



With this, an integrated view of the production of new knowledge in the fields of knowledge of various areas, careers, faculties and programs of the UCSG was achieved.

2.2. Participation of science protagonists, composition by domains and faculties or careers; student participation

The protagonists of science, technology and innovation who participated in the program were classified according to their research role and the recognition received for their results.

Table 2. Composition of science, technology and innovation stakeholders participating in the program.

Science protagonists	Presence in the program
Professors/Researchers	22
Students	6
Total	28 *

Source: Own elaboration

* Note: In some programs, more than one interviewee participated.

This composition of program participants reveals the incipient research participation of students in this year of pandemic, although it is fair to point out that this has now increased, which has been positively influenced by the presence in the classroom on the one hand and the organization of events and student scientific conferences on the other.

2.3. Sources of scientific production: doctoral theses, research projects, articles, research awards to professors and prizes in student research competitions

Table 3. Sources of scientific production.

Sources	Presence in the program
Research projects	6
Doctoral theses	5
Prizes for investigative teacher contests	7
Awards for student research competitions	6
Results of research not linked to research projects	4
Total	28

Source: Own elaboration

It is important to highlight that the sources of scientific production addressed in the editions of I 100 reflect the situation presented by the UCSG in 2021.

It can be seen that the most important source is the one related to awards obtained by professors and students in research competitions, which constitutes 46 percent of the editions of the year. As for the number of research projects as a source of knowledge, it represents 21.4 percent of the issues, and this corresponds to the low number of new research projects of the institution in the year 2021, which barely amounted to 10, in which undoubtedly the pandemic had a decisive influence.

Another important source of knowledge production is doctoral studies, and this was reflected in the program, with 17 percent in the overall composition of the programs. Award-winning research papers constituted the third source that nourished the content of the programs.

2.4. Audience levels achieved in the traditional and digital areas

After the year 2020, in which the pandemic severely impacted society globally and in all its manifestations, in the year 2021, the production process of programs in I 100 was resumed. The recordings were resumed, now in teleworking conditions, as explained above, and the same broadcast schedule from 10h30 to 11h00 on Saturdays and its reprise on Sundays at 17h00, to which was incorporated the publication of podcasts on social networks and the UCSG television channel.

To evaluate audience levels at this stage, this indicator was analyzed during the months of June and July of this year, to monitor whether the program was indeed reaching its audiences under the conditions of the so-called "new normal" in pandemic conditions.

The results showed that in the city of Guayaquil it was ranked 6th, among 15 radio stations, which is a very outstanding positioning, taking into consideration the profile of the program. In this parameter the station reaches 9,631 listeners, in 597 average households, taking into account the indicators in the high and medium level, between



the ages of 17 to over 40 years, in all sexes, including heads of household and housewives.

In the month of June 2021 in the broadcasting schedule from 10h30 to 11h00, the program's broadcasting reaches a fairly high position considering the previous years, being at 7 with an average of 11,277 listeners and a total of 690 households at the local level.

However, according to the slot established within the programming, there is a change in the genre it is intended for, not reflecting not as cultural education, but sports, which in one way or another stigmatizes the presence of this indicator over the cultural educational slot.

The aforementioned situation is recurrent in the month of July, when the parameters by genre persist in sports over educational/cultural, obtaining the 7th position, with an average number of listeners of 11,277 and an audience in households of 690.

In conclusion, it can be interpreted from these results that UCSG Radio is in a good position at a general level, in terms of audience and presence in hundreds of homes. The spaces offered by the station, among which is the program under study, represent an alternative oriented to the field of education and culture, which is preferred by the audience, and this acceptance is expressed in its permanence in the tuning or connection with the spaces offered by the station, including I 100, a program that in the last two years has stood out as number 1 in this genre and at the same time has maintained the 10h30 slot within the top 10 of AM radio stations, locally, remembering that the station is transmitted to the entire province of Guayas.

2.5. Joining the national network of university radio stations in Ecuador

UCSG Radio is part of the University Radio Network of Ecuador (RRUE), which is part of the International University Radio (RIU), an academic organization of great value whose objective is to disseminate the activities of universities locally and internationally through open and digital signal stations using streaming platforms, popular among new audiences and which is composed of 265 universities and 358 stations in 18 countries.

UCSG Radio presided over RRUE for several years as a radio station that meets the requirements of a university radio station, serving the community with more than 70 percent of its programming grid dedicated to the education and training of its audience.

The network is made up of the Catholic University of Santiago de Guayaquil (UCSG); the Central University of Ecuador (UCE); the Technical University of the North (UTN); the Latin American Faculty of Social Sciences (FLACSO); the Salesian Polytechnic University, based in Guayaquil (UPS); the Universidad de las Fuerzas Armadas (ESPE), the Universidad Estatal de Milagro (UNEMI), the Universidad San Gregorio de Portoviejo (USGP), the Universidad Técnica Particular de Loja (UTPL), the Universidad de las Américas (UDLA), and the Universidad Andina Simón Bolívar, Quito (UASB) (RIU, 2022). These academic institutions played

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an important role in addressing issues related to the pandemic. The task was not easy for any of these centers of higher education, the confinement made the work complex, but they all sought the best solutions to address the problem with accurate, timely and guiding information. There was a need to adjust the treatment of the Covid-19 issue through short content that was part of health prevention campaigns, and which was integrated as a priority into the programming of university radio stations.

The specialists, from the academic, foresaw the effects that teaching would have, with the use of platforms between students and professors, who at that time were adapting to a virtual format that they were not used to and that there was a need to support since it was the only possible mechanism to avoid delays and that the university educational cohorts would be maintained as established in the academic calendars.

Like the programming of UCSG Radio and the I-100 program, the object of study, the RRUE and RIU spaces expanded their dissemination to the public; in addition to the radio signal, they went to social networks, with audio and video. These programs were also broadcast on deferred university television channels.



The experience of facing a very serious public health problem faced by the world showed that the university radio, despite all the technological and modern advances, had important information and orientation tasks (on air and social networks) for a community that was struggling with uncertainty, misinformation and chaos caused by fake news, while the pandemic was at its peak.

Conclusions

The study confirms the importance of incorporating communication as part of the research process in educational institutions, if the aim is to strengthen the democratization of knowledge, since one of the indispensable conditions for this, although not the only one, is the socialization of knowledge resulting from an adequate communication of the scientific, technological and innovation results of universities.

Scientific, technological and innovation communication is also a strategic element in the relations between university and society, as it is articulated in contemporary times to mode 2 of knowledge production; making possible the knowledge of university contributions to the solution of social problems. To this should be added that being conceived as a process of construction of meanings and senses about science, technology and innovation, contributes to the strengthening of scientific culture in its broadest sense.

In the case under study, the university radio program I 100, aimed at disseminating scientific research results of the Catholic University of Guayaquil, the conditions of the "new normality" imposed by COVID-19, demanded the incorporation of new productive routines and channels, and the introduction of innovative and technological processes that revolutionized the ways of doing things up to that time, but also represented positive changes and, to that extent, came to stay.

Despite the initial difficulties, the program studied managed to reflect in a balanced way the scientific research results of the Catholic University of Santiago de Guayaquil, which,

although they did not keep the usual rhythms, did achieve progress, especially during the year 2021, which was selected for the study.

The program I 100 (Investigaciones Científicas) maintained its audience level as part of UCSG's university radio programming, and ranked 7th in the educational/cultural profile of the region, with an average of 11,277 listeners and a household audience of 690. 277 and an audience in homes of 690, in addition to the amplification of its reach by being delayed broadcast by UCSG TV, and by the national network of Radios Universitarias del Ecuador (RRUE), which is part of the Radio Internacional Universitaria (RIU) and integrates Radios Universitarias del Ecuador (RRUE), which is part of the Radio Internacional Universitaria (RIU).

This case study demonstrates the importance of scientific, technological and innovative communication for university institutions, and also the priority it should receive, even in the most difficult circumstances, as undoubtedly have been those that have characterized our life in these years of the pandemic.

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