

Extension process in rural communities mediated by Information and Communication Technologies

Bárbaro Emilio González Carcassés^{1*} <https://orcid.org/0000-0002-5876-8325>

María Elena Pardo Gómez¹ <https://orcid.org/0000-0002-2811-8444>

José Manuel Izquierdo Lao¹ <https://orcid.org/0000-0002-8184-4795>

¹Universidad de Oriente. Santiago de Cuba. Cuba.

* Author for correspondence: barbaroe@uo.edu.cu

ABSTRACTS

The insufficient use of the possibilities offered by Information and Communication Technologies in the management of information and communication in the process of university extension in rural communities is assessed, which is detrimental to the necessary dialogue that should be established between university and local actors. The main purpose of the article is to present a set of methodological guidelines, aimed at improving the referred process from the use of these technologies with a meaning and sense of transformation and in whose elaboration the functional structural systemic method was used.

Keywords: Communication; Communities; Extension; Information; Technologies.

Recibido: 15/03/2022

Aceptado: 10/07/2022

Introduction

The "digital" or "network" society is currently marked by the so-called Information and Communication Technologies (ICT), whose paradigm is the computer networks and digital technologies, which have imposed significant challenges in university work in relation to its use in the development of the training processes that identify it: teaching, research and extension.

For Pérez-Martínez, (2013) university extension constitutes an integrating formative cultural process, which presupposes the commitment of the university community in the social and intentional appropriation of culture, which is carried out through the formative social relationships that develop between different subjects, which implies the sustainable transformation of reality.

Thus, the level of satisfaction of the social mission of the universities is directly related to the maturity and transcendence that they reach as cultural institutions in their interrelation with society, in which the university extension process is a key factor, since it guarantees a broader and more dynamic link that favors the identification, communication and joint activity of the university students and the population in general and strengthens the essential unity among them.

Thus, the social responsibility of the university in its direct relationship with the demands of society is expressed through the link with the communities, for which it is important and essential to develop internal and external communication systems in that institution that promote dialogue and favor the participation of the university community (intra/extra) in the solution of the problems of the communities, which, undoubtedly, could be enhanced through the use of ICTs.

Notwithstanding the need for a permanent link between the university and rural communities, through the possibilities offered by ICTs, it is perceived that university institutions do not exploit all the potentialities offered by these technologies, which would favor more effectively the diagnosis, interpretation and satisfaction of community socio-cultural needs and allow influencing the progressive development of the latter, based on the establishment of a systematic and expeditious dialogue between university actors and local actors.

Based on the above, an in-depth study of the subject made it possible to specify:

- Insufficient projection of the university, from its social mission, to strengthen the link with rural communities, based on the use of ICTs.

- Inadequacies in the university extension process to establish a permanent cultural dialogue between intra-university actors and local actors in rural communities, through the use of ICTs.
- Limitations in the university extension process to design, implement and evaluate socio-cultural actions in rural communities, with the use of ICTs, aimed at promoting transformations of the community reality.

Based on the importance, timeliness and relevance of achieving the link between universities and rural communities through the use of ICTs, with a meaning and sense of transformation, the need for a doctoral research that assumed as a scientific problem, the shortcomings of local actors in rural communities in relation to knowledge and use of the possibilities that ICTs can offer for the preservation and dissemination of the culture accumulated in these communities, which limits their sociocultural development, was envisioned.

A closer look at the causes of this problem allowed us to perceive:

- The existence of theoretical gaps that contribute to the uniqueness of university extension through the use of ICTs in rural communities, responding to the indissoluble link between technology, the university and community contexts.
- Theoretical-methodological limitations in the link between university extension with rural communities, through the use of ICTs, which would favor a bidirectional communication between intra-university actors and local actors of these communities.

On this basis, the objective of the research was the elaboration of a pedagogical strategy for the process of university extension through the use of ICT in rural communities, which has as a prelude a set of methodological guidelines to guide the development of the same.

Hence, the main purpose of this article is to present the methodological guidelines for the use of ICT in the process of university extension in rural communities, taking as a reference the rural community of "San Benito", belonging to the municipality of Segundo Frente, in the province of Santiago de Cuba.

Development

According to the objective stated in this article, prior to the elaboration of the methodological guidelines and as part of the aforementioned research, the study of the university extension process and all its associated categories was studied in depth.

Thus, for González Fernández-Larrea & González-González, (2013), university sociocultural work is identified as the management of university extension, which operates from the functions of management (planning, organization, execution and control) and from the dynamics of sociocultural promotion (extension methodology), which, being interrelated, allow solving social needs with the active and conscious participation of the actors of the (intra/extra) university community. In this regard, (Martínez-Rodríguez, 2019) emphasizes the mission of higher education in community sociocultural work.

Linked to the above, sociocultural promotion pursues the transformation of social reality, seeking specific results and pre-established goals, based on the two principles that identify it: identity and participation, identity being recognized as the set of objective and subjective elements specific to a given culture, which gives it a distinctive and differentiating stamp from others. Participation, on the other hand, is the active intervention of the different social actors in the dynamic processes of construction and transformation of society.

In agreement with the cited authors, it is recognized that a social actor is that individual, institution or organization that achieves the awareness of the members of the community in terms of its transformation, to contribute to the satisfaction of their needs on the basis of integrating them in the work for the sociocultural development of society, hence they act as facilitators to generate processes of participation in certain scenarios.

University extension should take full advantage of the broad possibilities offered by ICTs to multiply its scope and fulfill its role as a backbone for the transformation of the (intra/extra) university community. Hence the recognition of terms such as "virtual extensionism", to identify a process through which university subjects or actors can systematically "connect" not only with people outside the institution, but also cross the borders of the geographical area to which each university belongs and get closer to different social contexts, even if they are distant.

Thus, (Roura-Redondo, 2017) addresses how to achieve dialogic learning in virtual scenarios, emphasizing how the actors of the university community perceive the online dialogue between them. For their part, (López Siu et al., 2018), point out the use of an interactive platform in the university extension process with a view to greater interaction between the actors involved in this process, which favors expeditious activity and communication between them.

For their part (Carenzo et al., 2019) allude to extension practices with the possibilities offered by ICTs to promote collaborative work. In line with the above, (Guerrero Muguercia et al., 2019) point out the role of Virtual Environments for the university extension process.

Authors such as (Camilo Parrón, 2020) and (Camilo Parrón et al., 2022), among others, affirm that the practices regarding the use of these technologies in this process have not yet allowed achieving at the desired levels the intentional, generalized and systematic implementation of feedback or communication mechanisms, as well as a rapid exchange of information among university actors (intra/extra) that would allow them to offer more pertinent responses to the problems detected in the communities.

The aforementioned authors agree on the fact that in the process of university extension with the use of ICTs, there is a predominance of asystematic, empirical and unstructured communication among university actors (intra/extra), which hinders their optimal, accurate and immediate response to the needs that emerge from the social contexts.

In line with the above, particularly with regard to rural communities, from the wide range of possibilities offered by these technologies as important means of information and communication, the imperative need for their use for the rescue and preservation of the historical memory and identity of these communities, which also implies the safeguarding of the experiences and knowledge accumulated by the members of these communities, all of which makes the aforementioned research topical and pertinent.

This research is covered by the project associated with the program (PAP) called *Informatization_University_Development*, belonging to the Software and Technology Development Department of the Informatization Department of the University of Oriente, whose main objective is to contribute to the human and local development of the community through the use of ICT. This project had its antecedents in the *Armonía* project, which obtained relevant results in the effort to strengthen the link with the community through these technologies.

Among the research techniques and methods used in the work, the following stand out: documentary analysis, for the study of various documents related to the university extension process and ICTs, as well as for the in-depth study of all the categories associated with rural communities and for the characterization of the selected rural community.

Surveys were applied to professors and managers of the University of Oriente related to the extension process, particularly to the Vice-Dean of University Extension of the Faculty of Telecommunications, Informatics and Biomedical Engineering (FITIB) as well as to the person in charge of the Cultural Observatory Cénit of that institution, for being the virtual space through which sociocultural promotion is developed, as part of the university extension process. Local actors from the community of San Benito were also interviewed.

The research process involved scientific observation and the functional structural systemic method, which was used in the elaboration of the methodological guidelines presented here.

Taking into account the insufficiencies detected in relation to the ICT-university extension-rural communities link, as part of the aforementioned research, a set of methodological guidelines were designed, focusing on the rural community of reference. The use of ICT in the process of university extension in rural communities gives it a flexible and contextualized character by varying according to the particularities of each specific community and to the diversity of the subjects that may intervene in it.

Methodological guidelines

Guideline No.1. Determination of the elements that can favor or hinder the use of ICTs in rural communities, based on the university extension process.

It refers to the need to gain clarity about the possibilities that ICTs can bring to the communication and information of the culture accumulated in the community of San Benito, as an expression of the identity and cultural heritage that characterizes it. In this regard, the following indicators are taken into account:

- Knowledge of local actors regarding the possibilities that ICTs can offer in the communication and information of the distinctive elements of the community.
- Activity and communication (dialogue) between the university actors and those of the community institutions.

- Level of identification of the local potentials of the community.
- Degree of commitment of the local actors to the problems of their community.
- Organizational forms, methods and means used in the university extension process, with the use of ICTs that promote direct and permanent links between university and local actors.
- Technological infrastructure of community institutions.
- Degree of incorporation of ICTs in community socio-cultural projects.

The diagnosis of the elements that can favor or hinder the use of ICTs in the rural community of San Benito, based on the university extension process, was based on scientific observation by the researcher, as well as the use of techniques, among others, such as the following:

- Establishment of the problem tree: To identify the elements that hinder the establishment of the necessary university-community link, mediated by the use of the facilities offered by ICTs in terms of information and communication management. In the tree, the roots are the causes that hinder this link; the trunk is the prevailing difficulties that hinder the dissemination of the accumulated culture in the community context, by the actors of the cultural and educational institutions located in the community of San Benito and therefore, the socio-cultural promotion as part of the extensionist process.

On the other hand, the branches are the effects that negatively impact the development of the referred process and therefore adversely affect the fulfillment of the university's commitment in favor of the community's socio-cultural development.

- **Obtaining the SWOT matrix:** To determine the weaknesses (w), threats (t), strengths (s) and opportunities (O) that may be present in the use of ICTs in the communication and information of the community's local culture.
- **Use of life stories:** To determine, through the experiences of key actors in the community, the elements that accompany the cultural traditions and practices transmitted from one generation to the next and that make up the community's identity.
- **Conducting semi-structured interviews:** To collect information from local community stakeholders about the possibilities that ICTs can provide to promote the socio-cultural development of the community. It also contributes to obtain

elements for the design of actions aimed at promoting the use of these technologies in the process of sociocultural promotion.

Guideline No. 2: Proposal of a set of actions to strengthen the ICT-mediated university extension process in rural communities.

The actions, in their content, should reflect the purposes to be achieved in the short, medium and long term, the ways to be used for control and the criteria assumed to measure the impact of university extension work in the community, based on the use of ICTs.

The changes, modifications and transformations that are achieved in the community will be in correspondence with the scope of each of the conceived actions, the clarity of the proposed objective and the level of commitment in its execution.

- The following aspects should be considered in the design of the actions:
- Cultural characterization of the community.
- Interpretation of the local culture of the community.
- Cultural innovation in the community.

Proposed actions:

- Explore the local culture of the community (identity and cultural heritage, traditions, etc.).
- Select and train community change agents, taking into account the activation and stimulation of cultural work in the community.
- To train community change agents, in relation to all the possibilities that ICTs can offer as information and communication media and as digital technologies, for the preservation and dissemination of the accumulated culture in the community.
- Creation of new cultural spaces, mediated by ICTs, within the community's cultural and educational institutions.
- Encourage the participation of community change agents in permanent dialogue with university actors, to promote the promotion of community culture, through the use of ICTs.
- To systematically evaluate the technological potentialities existing in the cultural and educational entities of the community, with a view to promoting the development of joint activities between university actors and local actors of the

community, based on the use of both synchronous and asynchronous communication, through the computer network and/or mobile devices.

Guideline No.3: Evaluation and control of the effectiveness of actions

- It is aimed at assessing and recognizing the effectiveness of the actions carried out by local community actors and university actors linked to the community through extension activities, by means of the use of the facilities offered by ICTs and, in particular, through the systematic use of these technologies. For this purpose, it is proposed to consider the following **indicators**:
 - Degree of socio-community motivation.
 - Degree of socio-community responsibility.
 - Degree of socio-community protagonism.

The above is an expression of the level reached by the community actors in incorporating ICTs, with a meaning and sense of transformation, for the socio-cultural development of the rural community. These levels express the qualities achieved in the course of the process. Thus, the transit through the three levels shows the rural community techno-socio-cultural empowerment, as a totalizing quality achieved in the university extension process, mediated by ICTs, in rural communities.

In accordance with the referred to, the degree of socio-community motivation is evaluated in terms of the use of ICTs by the community actors, taking into consideration the use of the cultural potentialities offered by the community, from the identification of its cultural needs as well as the socio-cultural apprehension of the community reality, all of which accounts for a first level: the cultural characterization of the community, indispensable for the development of the extension process, mediated by these technologies, in favor of the preservation, development and dissemination of the culture accumulated in the community.

Likewise, the degree of socio-community responsibility is evaluated in terms of the use of ICTs by community actors, based on the consideration of socio-cultural stimulation in the community in question, from the inquiry of its cultural interests and community socio-cultural understanding, which accounts for a second level: the cultural interpretation of the community, which is a fundamental element for the extension process, mediated by these technologies, to be carried out satisfactorily and the expected community socio-cultural development to be achieved.

On the other hand, the degree of socio-community protagonism is evaluated, in terms of the use of ICTs by the community actors, through the assessment of the integral satisfaction of the cultural needs of the community, based on the formative projection and the rural community socio-cultural professional intervention, bringing consequently a third level: that of cultural innovation in the community, important for the extensionist process, mediated by these technologies, to be carried out satisfactorily.

It should be noted that the evaluation and control system is present throughout the process, with a view to assessing the successes and failures in the implementation of the proposed actions, as well as the moment when the community's cultural and educational institutions begin to become involved in the use of ICTs, based on the recognition of the broad possibilities they can offer.

Guideline 4: Reformulation of actions in the face of undesired results

It is important to evaluate the undesired results, in order to readjust those actions that have had an impact on them. The existence or not of the necessary technological infrastructure should be analyzed in order to strengthen the information and communication of the culture accumulated in the community.

In this way, it is essential to evaluate the causes that may have caused the setback or stagnation of the expected results, in order to determine:

- The elements that favor or hinder the use of ICTs by community actors in connection with university actors linked to the extension process, which hinders the necessary dialogue between them.
- To analyze the evaluation deadlines of the fulfillment of the programmed actions and the level of acceptance by the community.

In view of the above, it should be noted that the methodological guidelines described above were socialized in the context of the rural community of San Benito, with the participation of managers of the community's cultural and educational institutions, who recognized the relevance of these guidelines to enhance the socio-cultural transformation of the community.

In the community context, the need for a systematic training of local community actors in ICTs and the wide range of possibilities offered by these technologies was emphasized in order to promote not only the acquisition of knowledge about them but also the development of skills and abilities, as well as values and valuations in relation

to these technologies that favor their appropriate use with a view to promoting the rescue, preservation and dissemination of the entire community culture.

In general, the exchange with local actors revealed a high level of motivation and satisfaction with the actions proposed for the socio-cultural development of their community, although the existence of the necessary technological infrastructure for the practical implementation of these actions was also recognized, although the majority insisted on the importance of updating and renewing the technological equipment currently in use in the community.

Conclusions

The methodological guidelines designed serve as a prelude and at the same time as a support for a pedagogical strategy for university extension, through the use of ICTs in rural communities, which presupposes a new dynamic for this process based on permanent dialogue, mediated by these technologies, between the university actors linked to the extension process and the local actors.

The methodological guidelines designed corroborate the need for a more flexible and diversified ICT-mediated extension process dynamics, based on the multiple possibilities that these technologies can offer in relation to efficient and expeditious information and communication related to the rural community in question and take advantage of it in terms of its transformation and socio-cultural development.

The proposed methodological guidelines contribute to the attainment of successive levels of achievement in the participants in the extensionist process in rural communities, mediated by ICTs.

The favorable criteria issued by local actors of the rural community of San Benito, in the municipality of Segundo Frente, in Santiago de Cuba, evidenced the relevance and feasibility of this result, making it a viable alternative to improve the university extension process, with the use of ICTs, which can be generalized to other communities, taking into account the particularities of each one.