Learning By Discovery And Its Webquest Strategy Developed On The Wix Platform: An Alternative To Strengthen The Competence Of Communication Of Digital Content In Students Of The Academic Average

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Abstract

Research objective: To strengthen the communicative competence of digital content through the WebQuest strategy, using the Wix resource, based on learning by discovery, in the research subject with eleven one graders of the Institución Educativa de Monteria. Qualitative type of research, following the model and route of Pedagogical Action Research that is developed in three phases, namely, deconstruction or self-reflection of the pedagogical action, reconstruction or design of new educational practices and validation of the new pedagogical experience created. Research participants: eleven one graders of the de Monteria school. Research categories: Communication of digital content, digital educational resources and learning by discovery. Survey and observation techniques were used, with the questionnaire instruments, checklist, norm UNE 71361, field diary and rubric, validating their relevance, coherence and sufficiency. The data collected are analyzed using graphs, Google spreadsheet, Padled digital tool and the same UNE 71361. Results of the pedagogical intervention:

Participants have habitual handling of social networks to interact spontaneously but lack competence to communicate digital content from standards needed in the knowledge society. It is concluded that discovery learning through the WebQuest strategy is a valid method that strengthens the competence to communicate digital content corresponding to the needs of a world highly mediated by technology and the Internet.

Key words: Competence, digital, communication, learning, strategy.

INTRODUCTION

From the school context of the Educational Institution, it is valued that there is some progress in the promotion of digital skills by intertwining the research subject with the incorporation of pedagogical and didactic strategies. That enhance in students skills to communicate, also in the scenario of the web, the knowledge built in the research teams.

Moreover, the Educational Institution of reference in this research contemplated the Integrative Humanist Pedagogical Model, where the permanent reflection of investigative pedagogical practices, classroom practices, evaluation methods, innovation, pedagogical use of Information and Communication Technologies [ICT] is sought. In addition, social projection attending to the new challenges and realities that arise. Establishing, this same document, that "the rethinking of the curriculum with relevance to any context will respond to international demands such as globalization, economic openness, information and communication technologies (ICT), and science, technology, society and environment relations.

However, the institutional ideal on the appropriation of ICTs, as a fundamental competence to actively engage as a citizen in the present digital age, is still incipient as there is a lack of skills to use digital devices and the internet as usual scenarios to build, store and disseminate knowledge. In this sense, grade 11 students advance the research process in the classroom, with deficiencies to communicate digitally the elaboration of knowledge. Being limited to the physical space of the room, without the ability to work together on the web, with shortcomings to critically select the theoretical material hosted

on the internet, recognize copyright, generate the appropriate licenses to the digital material created. All of the above, by interacting properly with others following the rules of etiquette.

In this way, this research project is an alternative for the promotion of digital communication competence through the WebQuest [WQ] strategy based on discovery learning and supported on the Wix platform. Being then, an option that is attractive, complementary to the process of the research subject, opportune to enhance in students the use of ICT with pedagogical intention. Also, to promote the self-regulation of knowledge through the educational use of digital tools, favoring that participants assume a proactive role in the responsible distribution of knowledge (Romero, 2012).

This problematic situation also reflects the poor internet coverage in the country. Added to the cost generated by the possession of sufficient technological devices in homes and the insufficient provision of technology in educational facilities. A fact that was evidenced and accentuated in the COVID-19 pandemic that reflected, globally, the unequal opportunities to be competent in the digital field (Díaz-Arce and Loyola-Illescas, 2021).

The research problem has been approached in theory from the international, national and local order, assuming the analysis of the categories from different levels of interest. In this way, it has reflected on the improvement of the digital competence of university students in training to be teachers. From the five dimensions of digital competence, according to the European Commission, so it evidences, regarding the communication of digital content, that these young people show better ability in this competence, due to the widespread habit of communicating through social networks (González, et al., 2018).

Also, the effect of the application of the WQ and the virtual classroom in the formation of research skills of students has been raised as a problem . It is found that when applying the WQ students develop research skills using ICT. In this way it is possible to elaborate the monographic work and present, expose and argue their ideas, among other aspects (Núñez, 2011). And to support the WQ strategy, Wix has been studied as a repository for curricular content within the educational process. Concluding that there is a trend of progress in the academic performance of

students in the experience with the Wix platform. Likewise, it is valued that technologies have to be articulated with the educational process from a leading position (Azorín, 2015).

From this same perspective, the methodology of learning by discovery has been shown to strengthen the appropriation of knowledge; which leads to improvement, effectiveness, willingness to learn and having an affinity for the physical sciences (Castillo et al., 2020). Moreover, it facilitates in students the development of processes of formulation and validation of conjectures, the discovery of properties of the objects being studied, meaningful, intuitive learning, heuristic work and allowing a greater consolidation of learning (Joya and Publio, 2020).

Therefore, the background developed in the research shows the need to implement educational projects that promote reflection on learning and dissemination of research results through ICT. As well as, the use of ICT to promote critical thinking and problem solving, active participation in educational or scientific networks and communities for the collective construction of knowledge and application of copyright standards (Mesa-Jiménez et al., 2018). The above, understanding that the current scenarios of digital communication pose new research challenges, a deep ethical reflection on their impacts, scope and consequences (Arango-Forero, 2013).

Then, from the reflection on some studies that, from different perspectives have examined the problem investigated, it is evaluated what research objective is relevant to respond to educational needs in the digital age, to train competent citizens in the communication that happens in virtual and participatory environments in a society mediated by technology. It is analyzed, in the same way, that the categories of research are coherent with each other to be applied in the problem situation recognized in the school context of the students of grade 11 one of a Public Educational Institution of Monteria, in the subject of research.

Thus, this research is justified, given that it addresses the communication of digital content, a key subdomain in favor of education for the knowledge society. In which ICT is a tool that enhances and complements the teaching-learning process (Sánchez and Veytia-Bucheli, 2019). In addition, the research is relevant because the WebQuest strategy, based on discovery

learning, is a valuable guide to incorporate them. Being an attractive information channel in which the content does not reach the student already processed, leading him, then, to build significant knowledge through the critical investigation of the digital material available on the web (Armendáriz Sandoval, 2015).

In the same way, this work is convenient because, making pedagogical use of the Wix platform, it responds to the need to provoke new educational scenarios in accordance with the digital culture in which students live. In this way, the learning process is supported and facilitated by software that has the characteristics of being free in terms of its license, easy to use and intuitive as a content manager (Muñoz-Mejía, et al., 2020).

Moreover, this research work is important because it contributes to the formation of citizens capable of properly assuming the challenges of a society quite influenced by technological advance. In other words, what raises an analysis, a didactic strategy and evaluation of this in a unique educational context, supports an aspect of the social promotion of a population portion of the city of Monteria. This results in strengthening the stage of dissemination of information, carried out in the research subject. What improves, therefore, the methodological approach of this and the progress of students of grade eleven one in digital skills within the research dynamics.

Meanwhile, specifically on the category communication of digital content, it is argued that in the knowledge society knowledge is shared on the internet, it is communicated in multiple ways through digital channels, which is a competitive advantage and a primary capital to know how to acquire, transmit and apply knowledge. Likewise, it is the society in which its citizens have the challenge of developing the ability of metacognition or self-management of the individual learning process, to be creative and innovative. Which comes to solve concrete problems of the local context, of being competent in the management of ICTs when selecting with criteria the information contained in the Internet. So it reaches the level of digital content producer, that is, it acts as a prosumer (Alfonso, 2016; Forero, 2009; Marrero, 2007).

However, digital competence includes not only instrumental knowledge, but "an attitude towards the use of

technology, because, in the end, the person is the one who decides which tools to use to achieve a specific end and not all technological tools are in accordance with personal needs" (Duque, 2016, p. 614). In other words, this competence implies ability, both to adopt the dynamics of virtual environments and to adapt all the possibilities offered by ICT to the resolution of situations, context problems. In summary, digital competence would have as a higher level the ability to critically and reflexively face academic and social challenges through digital tools (Vuorikari et al, 2022; Silva and Lázaro-Cantabrana, 2020).

Thus, the accelerated intervention of ICT in social interaction leads to the rethinking of teaching and learning processes. Leading to reconsider the pedagogical strategies that are implemented in educational centers. In a timely manner, teachers are called to take a positive attitude and lifelong learning to empower themselves in the technical use of digital resources as an instrument for the construction of collaborative knowledge with their students. Daring to modify its own mental schemes from which it carries out educational work, so it designs innovative pedagogical strategies relevant to the knowledge society (Levano-France et al., 2019).

Regarding the category learning by discovery, it is a pedagogical proposal of active learning. That is, student-centered, developed by psychologist Jerome Bruner (1915-2016). Which stated that the content to be taught is not given by the educator directly to the student, but must be discovered and built by the student in the development of learning activities. To this extent, the activities carried out are opportunities to learn where students, in addition to achieving knowledge, develop curiosity, strategies to learn to learn in different contexts, search capacity, selection and analysis of information, interpretation and reading of contexts, proactive and problem-solving skills, among others (Romero, 2011; Barron, 1993).

Along with learning by discovery, constructivism appears as a relevant educational perspective to approach, interpret and interact in the knowledge society. In which knowledge ceases to be static or universal truths, linear and one-dimensional. So it happens to a globalized knowledge that is built through knowledge networks in which innovation, creativity and the reorganization of ideas according to the social context of each

individual count. Thus finding different ways of understanding the world; In addition, constructivism also tends to the management and application of knowledge, relying on ICT to advance in the process of knowing.

Likewise, Hernández (2008) concluded that when ICTs are used, "as constructivist tools, they create a different experience in the learning process among students, are linked to the way in which they learn best, and function as important elements for the construction of their own knowledge" (p. 34). Thus, the constructivist model, in which learning is meaningful and contextualized, finds support in technology-mediated activities, which provide the extension of learning in that they allow access to information in virtual scenarios, the collaborative construction of knowledge, the communication of innovative and creative digital content. It also facilitates synchronous and asynchronous environments for the student to argue their ideas, generate debates from the different understandings of reality (Rodríguez et al., 2009; Hernandez, 2008).

Consequently, teaching strategies based on discovery learning are often used in ICT-mediated teaching proposals. One of these is the WQ which operates as:

Didactic activity that proposes a feasible and attractive task for students and a process to perform it during which students will do things with information. Analyze, synthesize, understand, transform, create, judge and value, create new information, publish, share, etc. (Adell, 2004. p. 2)

As a last category, digital educational resources are linked to educational innovation, which, according to the study by Paniagua and Istance (2018) as cited in Jiménez et al. (2021), educational innovation is conceived as "a problem-solving process based on the professionalism of teachers, a normal response to face the daily changes of classroom in permanent change" (p. 11). Along the same lines, Margalef and Arenas (2006) stated that innovation is a deliberate and planned process in which a perceived idea is implemented in a novel way. Being accepted by someone, in order to improve educational practices and processes, in addition to promoting the learning of those who actively participate in the innovation process.

Therefore, in an increasingly digital scenario, the concept of literacy reaches new notions. For this reason, it is considered

that a literate person is the one who is able to interact with digital devices by performing reading and writing processes in multimodal formats efficiently. In such a way that it interacts in a critical, reflective and orderly way within virtual scenarios and, thus, digital literacy allows people to be placed in a global context in which it requires searching, selecting, interpreting and analyzing information; in addition to being generators of knowledge (George, 2020).

METHODOLOGY

Regarding the type of qualitative research aimed at understanding human phenomena, focusing on the subjects and interpreting the relationships established between them. Thus, this research paradigm points to intersubjectivity to understand the world of the social going from the particular to the general, without testing a hypothesis. Therefore, it investigates the perspectives of the participants through non-standardized techniques to interpret the meaning of actions in a social group (Hernández et al., 2010; Marin, 2012; Taylor and Bogdan, 1987).

As a research model, the Pedagogical Action Research (IAP) model is adopted, which is a pedagogical knowledge aimed at "the adaptation of pedagogical theory to professional performance according to the particular circumstances of the teacher's personality and the environment in which he has to act" (Restrepo, 2006, p. 93). Model in which the knowledge of both the teacher and the students converge, the design of teaching and learning strategies, the reflection and systematization of these (Ávila, 2005).

This is developed through three phases in which "disciplinary knowledge is transformed into teaching objects, when they are didactically processed, systematized and recorded" (Restrepo, 2004, p.49). Deconstruction phase in which the teacher values his own pedagogical procedure. Phase of reconstruction of educational practice when designing new pedagogical actions, so it takes up the good that has been done in the classroom. The teacher returns to pedagogical theories relevant to their specific school situation, analyzing them and adapting from their pedagogical knowledge, the convenient aspects for their classroom needs (Cardozo, 2021; Perez-Van-Leenden, 2019). Phase of testing and validation of the pedagogical practice that has been generated; It is not a

culminating point, a pedagogical discourse established in an immovable way, but it is a stage subject to continuous improvement.

The participating population was made up of grade 11 students one from a Public Institution of Montería Colombia, the selection of the sample was made by relevance, taking into account the availability and accessibility to the population, because its observable characteristics allow inferences regarding the level of competence of communication of digital content, in other grades of 11 within the research subject.

In specific objective one, the technique of observation is used, a fundamental element in the research process. Since, as stated by Hernández et al. (2014), this technique "is the only means that is always used in any qualitative study" (p. 403); with a checklist instrument that allows "to record the existence or not of aspects or elements considered in the light of the parameters and evaluation criteria adopted as key in the fulfillment of the objectives" (Quintana, 2006, p. 67). Likewise, the survey technique has the advantage of being able to be applied regardless of the number of subjects belonging to the population and the ease of administration, because it can be applied using web tools (Jansen, 2013; Sanchez, 2020). With a questionnaire instrument that facilitates the collection of information from a series of questions, expressed in simple and understandable language (García, 2004).

In specific objective two, the UNE 71361 standard is applied, a model that seeks, through 15 criteria, to accurately and objectively evaluate digital educational resources (INTEF, 2020). For the third specific objective, the technique of observation is used and, as the first instrument, the didactic sequence that according to Tobón et al. (2010), which represents the articulation of a series of learning and evaluation activities. Through which it is sought that the student develops skills that allow him to function in life; Second instrument, the field diary. For the fourth specific objective, the analytical rubric instrument is used for the observation technique and, again, for the survey technique the questionnaire instrument.

The questionnaire instrument was validated according to the relevance of the questions according to the research objective, the context and the participants. Likewise, the

coherence of the questionnaire with the justification of the methodological framework and the sufficiency of the items of the questionnaire with respect to the competence of communication of digital content were taken into account. On the other hand, the research follows as a route the proposal of Restrepo (2006) for Action Participation Research in three phases. "In which the first phase has been constituted as a deconstruction of the pedagogical practice of the teacher; the second as a reconstruction or approach of alternatives and, the third, as an evaluation of the effectiveness of the reconstructed practice" (p. 96). To analyze the questionnaire begins by reducing the information through the graphics option of the Google form. Then, as with the analytical rubric, the information is systematized in an Excel table, where it is sought to identify the categories of analysis by identifying and separating elements. This creates synthesis and grouping with their corresponding levels of digital competence.

RESULTS AND DISCUSSION

In the research process, the need to enhance in the participants the skills to exercise themselves adequately as citizens with digital competence was identified. Some of these skills are related to self-management of knowledge, proactive attitude in the collaborative construction of knowledge, the ability to analyze information with criteria and appropriate it according to the needs of the context (Rodríguez et al., 2009; Hernandez, 2008). In this sense, it is understood that for the promotion of digital competences it is also inseparable from the development of basic competences. Thus, it was found that participants have access to technological resources at home and make use of digital tools in different environments. However, they reveal shortcomings in the competence of communication and digital collaboration in the appropriation of digital tools and technologies of formal and academic environments. In addition, they require a higher level of awareness regarding what it means to interact on the web, which generates a digital identity managed and administered responsibly and ethically.

From this same perspective, it was recognized that it is necessary to empower students in the exercise of digital citizenship through the use of public and private digital services that stimulate the development of daily tasks, respect for

intellectual property and recognition of sources. On the other hand, it is convenient to strengthen in these students the critical attitude to choose the appropriate technological tool in the development of collaborative activities, taking into account the objectives and specific purposes of the task to be developed.

Based on these findings, it was determined that it was necessary to design and implement a pedagogical strategy for the strengthening of the communication competence of digital content in the students of grade 11 one of an Educational Institution of Monteria. Also, it was concluded that, in order for the participating group to achieve the purpose of disseminating the academic knowledge built in the subject of Research according to the digitized society, it is necessary to build a strategy that stimulates active learning on the web as is the case of WQ, based on learning by discovery and contained in the Wix platform.

In the process of designing the didactic sequence, it was corroborated that the ADDIE instructional model represents a guide for the design, development, implementation and evaluation of a WQ. Starting from the analysis of the population, context, infrastructure, among other aspects; In addition to generating learning experiences mediated by technologies according to the needs, population requirements and learning objectives of the didactic resource. In the same way, during the design process, attention was paid to the fact that the structure of the WQ has to motivate learning, stimulate teamwork and approach knowledge from an interdisciplinary perspective. Generating a route for the design of learning tasks and the selection of proposed materials as resources for students (Cegarra, 2008).

On the other hand, the Wix platform as a tool for the creation of the website is a valuable input for teachers who want to develop digital resources in a simple way, with a wide variety of multimedia resources and for free. In this same line. Dávila et al. (2015) explained that this platform is practical for content management, facilitates and improves pedagogical practice, motivates learning, actively links the different actors of the educational process. What generates in the student new learning structures. At the same time, Wix offers the option of creating oriented websites, both for desktop and mobile, allowing to

maintain a good presentation of the interface to the user in different media (Colquichagua and Picho, 2021). This aspect of accessibility of the WQ in different technological media was a key element for its design, since mobile devices were the most used technological resources to access the WQ by the participants. The WQ is available at the following link: https://julianramiro17.wixsite.com/contenidodigital

The structuring of the WQ was carried out taking into account that the teaching objective is to enhance the competence of digital communication from the research area and attending, meanwhile, the results of the diagnostic phase:

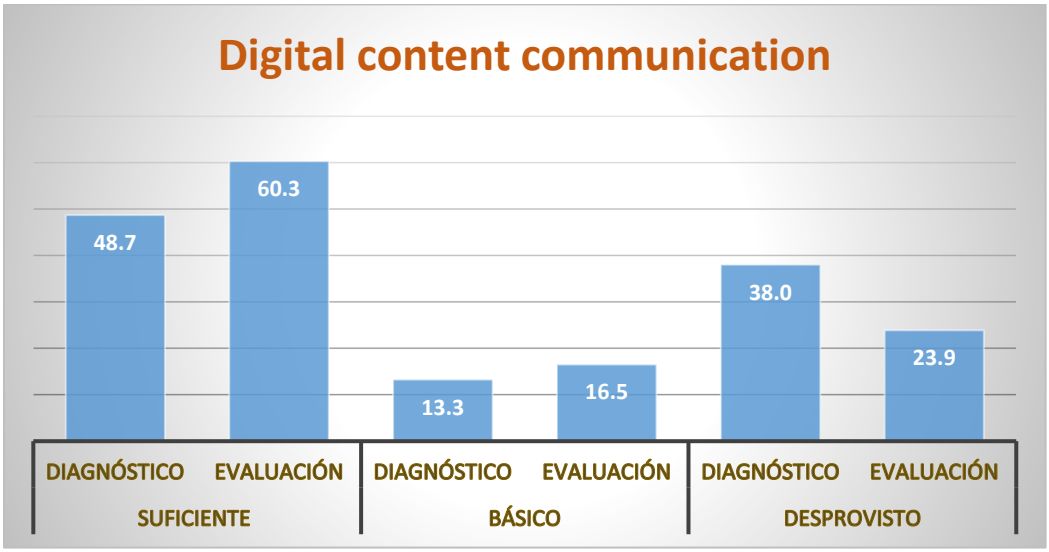
- Introduction: presents the purpose and generalities of the Webquest.
- Task: describes the creation of a research website as the main activity; in addition, elements that your website must contain are presented and a structure proposal is made.
- Processes: details four activities; each of these consists of an overview, with interactive presentation in Genially of the step by step for its development. Each activity can be developed independently of each other, so the student is autonomous in deciding the order in which he develops the didactic sequence.
- Resource: in this area the student has three interactive presentations with the necessary inputs to develop the processes.
- Evaluation: introduces students to the rubrics of evaluation, self-evaluation and heteroevaluation.
- Conclusions: it exhibits a synthesis of the formative experience.

The WQ was implemented in seven structured meetings from three moments. In the first, the orientations corresponding to conceptual and curricular elements of the subject were developed. In the second, orientations were given around digital communication, principles of author recognition, collaborative work and digital footprint and transversal elements to take into account in the construction of the website of the research proposal. These orientations were made using the inputs available in the WQ resource area.

In the third moment, accompaniment and resolution of doubts were carried out in the execution of the activities, both of

a conceptual nature and in the use of digital tools for the deployment of publications on the site. In this phase it was found convenient to implement a course in Classroom to better track student activities. This resource became indispensable, since it was evident in the students the need for accompaniment in the process of establishing limits on the dates of delivery of the activities. In order for the construction of the site to be progressive, so it also facilitates the monitoring of the proposed activities by the teacher.

Figure 1. Progress in Digital Content Communication Competency



Note: the graph compares the results of the digital communication competence, after applying the questionnaire at the diagnostic moment with the results of the application of this same instrument once the application of the pedagogical proposal is concluded.

As a result of the implementation of the didactic strategy, an increase of 14.6 points was evidenced in relation to the diagnostic phase of students who have a sufficient level of digital communication skills. Thus allowing 60.3% of these to be located at this level; and 16.5% of students are at a basic level, which means that 76.8% of these have the ability to communicate effectively in digital contexts. In addition, in the initial diagnosis, it was observed that 38% of the students were devoid of competence and, once the pedagogical intervention process was implemented, this group fell to 23.9%.

It is thus opportune to bring up the conclusion of Berruz et al. (2022), who conclude that the implementation of WQ

greatly influences the strengthening of digital, disciplinary, technological and pedagogical competences of teachers, it was also considered a valuable tool for teaching, due to the variety of resources available, the creation and implementation of motivating and innovative activities and their ability to educate from spaces other than the classroom. physics.

Then, it is taken into account that the Educational Institution of reference seeks, from its pedagogical model, the permanent reflection of educational practices of a research nature, innovation and pedagogical use of ICT, social projection attending to the new challenges and realities that arise in society. In addition, it establishes in the institutional mission "the training of people capable of performing in the exercise of teaching, with a high level of performance in communicative skills, which articulates pedagogical training, research ..." (Institutional Pedagogical Model, 2018, p. 1g). It can be affirmed that the implementation of the WQ Digital Content Communication strategy contributed positively to the achievement of the above institutional training goals.

On the other hand, the pedagogical intervention process allowed students to strengthen the ability to select digital tools, taking into account specific needs and requirements; making intentional and objective use of digital resources. Fittingly, a significant achievement of this process was to lay the groundwork around the importance of copyright. First, regarding the process of recognition of students as authors or creators of academic content and, second, recognizing the contributions and uses given to the work of others in academic construction.

In addition, advances in the dynamics of collaborative work online were revealed, which makes all team members begin to assume active roles in the construction of the research project website. So they interact through digital channels. Likewise, advances were evidenced in autonomous work dynamics managing activities and tasks, which execute specific actions such as image design, website editing and writing of the research report. Subscribed to the above, the strategy allows the learning of technological tools to be meaningful, since the student learns to make use of these resources in relation to a specific need. Which leads to understanding its application in context and real situations.

CONCLUSION

Having fulfilled the first specific objective, to identify the level of mastery of digital communication competence, it was concluded that it is right to promote in students the competence of communication of digital content, which may result in a research process strengthened with the support of technology. Because the integration of ICT in education has acquired, with special relevance in the present time, essential character to achieve learning in accordance with social expectations. So it empowers students to communicate on the web with a higher level of expertise, promoting the formation of digital citizens who use technology to build knowledge (Vera de la O, et al., 2018).

Also, it is conclusive that the digital training of the participants must be from the competence in the use of technology to communicate. This encourages the significant use of technology to efficiently process situations of daily life, using ICT as a support to take an active part through which today numerous procedures are developed in society. So it comes to appropriate the universe of the digital as a necessary aspect to be connected in time with the global world (Alfonso, 2016).

In relation to the second specific objective, to design a WebQuest supported on the Wix platform on digital communication skills. It follows that the design of the WQ in the Wix platform is coherent for the promotion of competence object of the present investigation, which is a viable strategy to be carried out in the b-learning modality that leads to learning outside the physical limits of the classroom. This places the student as an active and main subject of learning, which makes the educational process a more significant event with practical repercussions to face daily situations with greater qualification (Cegarra, 2008; Colquichagua and Picho, 2021).

However, it is concluded that the design of the WQ on the Wix platform is identified as convenient for participants to communicate digitally the advances built in the research subject. In addition, it is consistent with the approaches expressed in the lesson plan organized by the research teacher for the third school period; being a support that enriches and contributes to the training of students of grade eleven one. Therefore, it points towards a better qualification as research teachers in the digital age (Quintana and Higueras, 2009).

Regarding the third specific objective, apply the methodology learning by discovery, through the WebQuest strategy in grade 11-1 within the framework of the research subject. This is available as a valid method and adjusted to the school needs of the participants in the research subject, which enhances the competence of digitally communicating the knowledge developed as a research team. Being a methodology that captivates the attention of students and contributes to the pedagogical model of the Educational Institution that tends to the training of qualified teachers to respond to context situations, with critical, propositional, visionary and innovative attitude (Martínez et al., 2007).

It is also concluded that the methodology and strategy applied are appropriate to correspond to the requirements of an increasingly digitized society, where it is no longer enough just to be competent from the traditional literacy of conventional writing and reading. But now it is essential to achieve competence to interact from technological measurement, making use of all technological resources to perform successfully in a world interconnected by the internet of things. This achieves the ability to interpret and disseminate information on the web when managing digital identity and interacts within the framework of respect and legality of the internet (Romero, 2011; Barron, 1993; Adell, 2004).

Finally, with regard to the fourth specific objective, to evaluate the impact of WebQuest on the acquisition of digital communication skills of students in grade 11 one. It follows that one of the challenges faced by the Educational Institution is the training of students in digital skills to access an increasingly digitized labor market (Silva and Lázaro-Cantabrana, 2020). This shows the importance of generating strategies that allow the incorporation of the use of ICT in the educational process in a transversal way in the different areas of knowledge.

It is also conclusive that, in order to develop digital communication competence, it is necessary to foster in the participants the understanding of the value and contribution of digital technologies and tools in the different areas of knowledge. Applying them in connection with the characteristics of the environment, target audience and communicative intention; which evaluates the relevance according to technical, didactic

and communicative requirements. To achieve this, the incorporation and use of ICT in the classroom is required as a planned process that responds to the teaching and learning process.

REFERENCES

Adell, J. (2004). Internet view in the classroom: the WebQuest. Edutec, 17, 1-26. https://www.edutec.es/revista/index.php/edutec-e/article/view/530/264

Alfonso, I. (2016). The Information Society, Knowledge Society and Learning Society. References around their training. Libraries. Annals of Research, 12(2), 235-243. https://dialnet.unirioja.es/servlet/articulo?codigo=5766698

Arango-Forero, G. (2013). Digital communication: a proposal for analysis from complex thinking. Keyword, 16(3), 673-697. bit.ly/3yI1a8J

Armendáriz, B. M. (2015). Application of WebQuest as a methodological strategy for the development of logical rationalism skills in the preparatory program of the PUCESD, in the first semester of the academic year of 2014. Pontifical Catholic University of Ecuador: bit.ly/3j9Vdul

Avila, R. (2005). The production of knowledge in pedagogical action research (IAPE): balance of an experimentation. Revista Colombiana de Educación, 49, 503-519.https://doi.org/10.17227/01203916.7727

Azorín, C. M. (2015). Pedagogical integration of Wix in primary education. Pixel-Bit, 47, 163-177. http://www.redalyc.org/articulo.oa?id=36841180011

Barron, A. (1993). Learning by discovery: inadequate principles and applications. Science Education: Journal of Research and Didactic Experiences, 11(1), 3-11. https://raco.cat/index.php/Ensenanza/article/view/39770

Berruz, A. To., Galarza, G. A, Briones, M. N., & Gómez, A. B. (2022). Webquest to strengthen digital competences in teachers of Baccalaureate of the circuit 05_06, District 06 of Education, Guayaquil – 2021. South Florida, 3(1), 55–74. https://doi.org/10.46932/sfjdv3n1-005

Cardozo, I. (2021). IAP: Pedagogical Action Research in the course of Digital Video Production. Design Proceedings, 34, 179-183. bit.ly/3wAXRSs

Carretero, S., Vuorikari, R., & Punie, Y. (2018). Digital Competence Framework for Citizenship. AUPEX.

Castillo, N.J., Giraldo, D. S., & Zapata-Gordon, A. (2020). Discovery Learning: Alternative Method in Physics Education. Scientia et Technica, 25(4), 569-575. bit.ly/3sHEx27

Cegarra, J. (2008). Webquest: constructivist strategy of internet-based learning. Research and Postgraduate, 23(1), 73-92. https://www.redalyc.org/articulo.oa?id=65823104

Colquichagua, J. & Picho, D. J. (2021). Pedagogical use of the Wix platform. CEIG, 51, 80-88. bit.ly/37tHz3m

Díaz-Arce, E., & Loyola-Illescas, E. (2021). Digital competences in the context of COVID 19: a view from education, 3(1), 120-150. https://www.revistainnovaeducacion.com/index.php/rie/article/view/181/212

Duque, E. (2016). Acquisition of digital skills for social inclusion. Option, 32(9), 610-630. http://www.redalyc.org/articulo.oa?id=31048482033

Fandiño, M., & Barbosa, N. (2021). Digital educational resources: a new way of learning and consuming content. RECLA.bit.ly/3INEvwx

Forero, I. (2009). The knowledge society. Scientific Review, 5(7), 40-44. http://www.redalyc.org/articulo.oa?id=476248849007

Garcia, F. (2004). Methodological recommendations for the design of questionnaires. Limusa.

George, C. E. (2020). Literacy and digital literacy view. Transdigital, 1(1), 1-17. https://www.revista-transdigital.org/index.php/transdigital/article/view/15/5

González, V., Román, M., & Prendes, M. P. (2018). Training in digital skills for university students based on the DIGCOMP model. EDUTEC, 65, 1-15. dx.doi.org/10.21556/edutec.2018.65.1119

Hernandez, S. (2008). The constructivist model with new technologies. University and Knowledge Society, 5(2), 26-35. bit.ly/3Kclqoc

Hernández, R., Baptista, P., & Fernández, C. (2014). Research Methodology (6th ed.). McGraw Hill.

Hernández Sampieri, R., Fernández, C., & Baptista, P. (2010). Research Methodology (5th ed.). McGraw Hill.

National Institute of Educational Technologies and Teacher Training [INTEF]. (2020). Evaluate educational resources. bit.ly/3v5bRS2

National Institute of Educational Technologies and Teacher Training [INTEF]. (2017). Common Framework of Teaching Digital Competence. bit.ly/35H60Jz

Jansen, H. (2013). The logic of qualitative survey research and its position in the field of social research methods. Paradigms, 5(1), 39-72. https://dialnet.unirioja.es/servlet/articulo?codigo=4531575

Jiménez, M. D., Ureña Uceda, A., Peralta Sánchez, F. J., & Martínez Vicente, J. M. (Eds.). (2021). Educational innovation in the teaching practice of Secondary Education. Dual.

Joya, C. A., & Publio, S. (2020). Learning by discovery in systems of points and remarkable lines of the triangle. Praxis & Saber, 11(26), 1-22 https://doi.org/10.19053/22160159.v11.n26.2020.9880

Levano-Francia, L., Sánchez, S., Guillén, P., Tello-Cabello, S., Herrera-Paico, N., & Collantes, Z. (2019). Digital skills and education. Purposes and Representations, 7(2), 569-588. http://dx.doi.org/10.20511/pyr2019.v7n2.329

Margalef, L., & Arenas A., (2006). What do we mean by educational innovation? About Curriculum Development. Educational Perspective, 13-31. https://www.redalyc.org/articulo.oa?id=333328828002

Marin, J. D. (2012). Research in education and pedagogy. Its epistemological and methodological foundations. USTA.

Martínez, R., De Jesús, M., & Andrade, R., & Méndez, R. (2007). Brief cartography of constructivism in the knowledge society. Phronesis, 14(2), 64-85. https://www.produccioncientificaluz.org/index.php/fronesis/article/view/16491/16464

Marrero, A. (2007). The knowledge society: A theoretical review of a possible development model for Latin America. Arxius, 17, 63-73.https://dialnet.unirioja.es/servlet/articulo?codigo=2698114

Mesa-Jiménez, F. Y., Sánchez-Sáenz, C. L., & Gama-Acero, Y. (2020). The ICT competences of students and teachers of complementary training programs of normal in agreement with the UTPC. Knowledge-Science and Freedom, 15(1), 297-316. https://doi.org/10.18041/2382-3240/saber.2020v15n1.6317

Muñoz-Mejía, B. G., García-Herrera, D.G., Guevara-Vizcaíno, C.F., & Erazo-Álvarez. J. C. (2020). Teaching innovation in virtual spaces and application of WIX in the classroom. EPISTEME KOINONIA, 3(1), 4-24. http://dx.doi.org/10.35381/e.k.v3i1.989

Núñez, N. (2011). The Webquest, the virtual classroom and the development of competences for research. Iberoamericana de educación, 55(1), 1-13. https://doi.org/10.35362/rie5511628

Perez-Van-Leenden, M. (2019). Action research in teaching practice. A bibliometric analysis (2003-2017). Magis, 12(24), 177-192. https://revistas.javeriana.edu.co/index.php/MAGIS/article/view/25500

Quintana, J. & Higueras, E. (2009). WebQuests, a cooperative learning methodology, based on access, management and use of

network information. Octahedron. https://octaedro.com/wp-content/uploads/2019/02/16511.pdf

Quintana, A. (2006). Methodology of qualitative scientific research. In A. Quintana, & W. Montgomery (Eds.), Psicología: tópicos de actualidad (pp. 47-84). Universidad Nacional Mayor de San Marcos.

Restrepo, B. (2006). Pedagogical Action Research, a variant of Educational Action Research that has been validated in Colombia. Journal of La Salle University, 42, 92-101. bit.ly/3umWynj

Restrepo, B. (2004). Educational action research and the construction of pedagogical knowledge. Education and Educators, 7, 2004.https://www.redalyc.org/articulo.oa?id=83400706

Rodríguez F., Martínez, N., & Lozada, Joan M. (2009). ICT as resources for constructivist learning. UNICA, 10, (2), 118-132. https://unicaedu.com/publicaciones/REVISTA_UNICA_N2_VOL10_2009.pdf

Romero, M. A. (2011). Learning by discovery. Teaching, 16, 1-8. https://www.feandalucia.ccoo.es/docu/p5sd8629.pdf

Romero, M. D. (2012). The WebQuest: A tool to introduce information and communication technologies in the classroom. Didasc@lia: Didactics and Education, 3(1), 111-126. https://dialnet.unirioja.es/servlet/articulo?codigo=4228671

Sanchez, A. O. (2020). The research methods for the elaboration of the master's theses in education. Pontifical Catholic University of Peru: bit.ly/3LY1ciZ

Sánchez, A., & Veytia-Bucheli, M. G. (2019). Digital competences in PhD students. A study of two Mexican universities. Academy and virtuality, 12(1), 7-30. https://doi.org/10.18359/ravi.3618

Silva, J. E., & Lázaro-Cantabrana, J. L. (2020). The digital competence of citizens, a growing need in a digitalized society. EDUTEC, 73, 37-50. https://doi.org/10.21556/edutec.2020.73.1743

Taylor, S.J. & Bogdan, R. (1987). Introduction to qualitative research methods. Paidos.

Tobón, S., Pimienta Prieto, J. H., & García Fraile J. A. (2010). Didactic sequences: learning and evaluation of competences. Pearson.

Vera de la O, F., Arias Gómez, L., Jiménez Izquierdo, S., & Hernández Marín, G. (2018). Digital skills in secondary school and their installed technological capacity. Redipe, 7(11), 88-102. https://revista.redipe.org/index.php/1/article/view/630

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). Digital skills for citizens. Publications Office of the European Union: https://bit.ly/3wLodkd

United Nations Organization for Culture, Science and Education [UNESCO]. (2015). Basic Guide to Open Educational Resources (OER). bit.ly/3KmuqqD