THE ALTERNATIVE COLLABORATIVE RESEARCH METHOD FOR RESEARCH TRAINING IN UNIVERSITY STUDENTS

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A R T I C L E I N F O	A B S T R A C T
	The objective of this study was to reveal the collaborative research method aimed at the use of Information and Communication Technologies (ICT) for the development of scientific research in university students. It was exemplified in a group of 1st year in the academic year 2013-2014 of the race of Physical Culture. The instruments applied indicated the need to strengthen research training through the search for transformative solutions based on the use of ICT. The specialists' estimates were in agreement with a statistical significance level of 5%, representing a 95% confidence in the proposal. It concludes when the relevance of the collaborative research method is corroborated from the meaning and meaning that ICTs acquire in the research work through the criterion of specialists.

INTRODUCTION

The new model of the CubanUniversity pays special attention to the use of Information and Communication Technologies (ICT) and recognizes "the enormous impact that technological development has on the information and knowledge society and its influence on learning "(Machado Ramírez, E. & Montes de Oca N. 2008, p.2). In this sense, given the new training needs of professionals of the 21st century, universities cannot hoard all scientific content and much less teachers are reservoirs of all information. These contents are not finished truths, but are in constant transformation, so it becomes necessary to be constantly updated. It also imposes interaction at work where time and geographical barriers do not constitute obstacles to timely exchange and collaboration. Working with sources of information and communication with other colleagues is of undeniable value during all stages of the scientific research process. It is necessary to encourage students' interest in the appropriation of contents, both technological and scientific, and influence their

intellectual development, from the very development of the Educational Teaching Process (EDP), so that the preparation of these in the Prevailing "investigative innovation" (Lee, F, 2004) cited by Sánchez R (2009) becomes an important aspect at present. It requires a new scientific and technological content, to know when and why information is needed, where to find it, how to evaluate it, use it and communicate it in an ethical way, which implies the need to acquire a scientific and technological training. Authors such as: HernádezSampieri, R. (1999); Díaz, J. (1998); Penton (2003); Álvarez de Zayas, C. (2003); Guillarón, J., (2005); Salazar, D. (2001); Fuentes, H. et. (2009) cited by Sánchez RL (2009) indicate that the process of scientific research responds to a series of stages through which scientific knowledge is reached through the application of methods, laws and theories, can be directed to the development of Theories or applied to the solution of specific problems, which shows the difference with empirical research. However, it is necessary to use methods, strategies, norms of coexistence and values that

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respond to this particular socio - historical milieu where the diversity of scientific knowledge and technological resources is increasing. Therefore, scientific research in higher education can not be developed only in the context of the researcher, but beyond the boundaries of the institution itself. The current training process for scientific research of university students, as part of the PDE, is characterized by the use of methods that do not fully meet the expectations of this context where the constant development of ICT prevails. It is therefore necessary to use methods that stimulate students' cognitive independence, constant updating, continuous exchange of information and assessments, which means more collaborative methods that promote the construction of a truly enriched and updated scientific knowledge. Technological resources enable accessibility and availability to truly relevant scientific knowledge that can be obtained without limits of time and space, in constant exchange and with the collaboration between institutions with similar objectives, for which methods are required that foster a systematic interactivity And timely information and assessments of scientific knowledge through communication. This author synthesizes the scientific investigation to a process that develops from the elaboration of a flexible design to modifications, that agrees with the internal logic of its objectivity in which the investigator has to establish with exactitude the limits of its object of study, To guarantee the systematic character of the development of the design, as well as the integration of those data or dispersed results that are obtained as a result of the application of research methods and techniques. Consequently, the scientific research process requires an "operational methodology" (Díaz, J., 1998) cited by Sánchez, 2009.

Therefore, it is necessary to define the training process for scientific research, based on ICT, in this regard Sánchez (2009) conceptualizes as "the process of obtaining scientific content, such as collaborative construction of meanings, and meanings between subjects (Sánchez, 2009, p.37). In this paper, we present the results of the study of the social sciences in Spain. There are elements to emphasize about the process of scientific investigation. These elements could be summarized as: social process, search and appropriation of contents (research and technology), problem solving, linking of cultures, individual and social construction, creative, origin of new problems, application of scientific method, increase of knowledge. It is necessary to perfect these elements taking into account that the training of university students today must respond to the era of ICT. Hence the need for the existence of a training work in the area of research that is not only scientific but also technological (a term that is associated with ICT by the author of this research), because the scientific research process is Complex, where more and more difficult-to-manage specialized information is produced for a particular student or individual.

The high volume of information and communication is associated not only with the relevant results of the research, with the increasingly qualified personnel involved in generating information, but also with the increase of the means, methods and strategies of arriving each In a shorter time, the information and communication generated, the possibilities of linking the most remote scientific centers on the planet and transmit millions of bytes of information. From the above, it is considered the need to permanently stimulate the research attitude of students and professors around centers of interest, publications and scientific events that open the possibility to dialogue with broader academic communities that are dedicated to the discovery, Doubt, and constant questions, to the rigorous work of following scientific contents that allow a strengthening and clarification of the concepts, theories, experiences and experiences through which it is prepared for its professional realization, cognitive independence, access to networks, everything Which presupposes a highly participatory university environment. To prepare students in their constant confrontation with current demands, one must guarantee the conscious appropriation of the contents (research and technological) to acquire and apply them where cognitive independence responds to a real need of the modern world.It is therefore necessary to systematize and deepen how to develop research activities in this era, based on the diversity of didactic - technological resources that enable a variety of information and speed in communication to foster the cooperation and collaboration needed in research, Issues that distinguish this process.

In this work, cooperation is understood as the mutual exchange of scientific content between virtual or face-to-face counterparts, that is, as a contribution or contribution to the enrichment of research in related topics. Collaboration understood as aid, assistance, support: research with others on the same subject and collaborates offering criteria, points of view, interpretations, those who intervene do not necessarily belong to the institution where the research activity is developed. Therefore, it is not a matter of using technologies as something more in training for scientific research, but of solving the relationship between constant contributions to technological content and the construction of scientific content.

Interactivity through the network, as a distinctive feature of such technologies, facilitates the development of collaborative work among all the subjects involved in the process, allowing the sharing of criteria, efforts and results, avoiding duplication of work, so Which makes it possible for the scientific research process to extend beyond the boundaries of each particular institution. On the other hand, the formation process for this type of scientific research, must have a way that from the formative is the configuration that expresses the way to achieve the end of that process by the subjects that participate in it and making use of the Content can achieve the goal. In this way, the collaborative work (between subjects from any part of the world, without barriers of space and time) allows the construction of the scientific content constituting itself in the method to develop this process.

Authorssuch as: HernádezSampieri, R. (1999); Díaz, J. (1998); Penton (2003); Álvarez de Zayas, C. (2003); Guillarón, J., (2005); Salazar, D. (2001); Fuentes, H. *et al*. (2008) point out that the process of scientific investigation responds to a series of stages through which scientific

knowledge is reached through the application of methods, laws and theories, can be directed to the development of theories or Applied to the solution of specific problems, which shows the difference with empirical research.From the analysis of the approaches of these authors, this researcher considers that the scientific investigation demands the conscious reflection on the process and its results; The elaboration and execution of procedures that make possible the use of the scientific method, the organicity and progress of the existing knowledge, based on a constant regulation and adjustment of the research process itself, and it is the self-reflection that allows the selection and Control of skills and processes for efficient performance and evaluation of what has been achieved. Therefore, the objective is to reveal the collaborative research method aimed at the use of ICT for the development of scientific research in university students.

MATERIAL AND METHODS

From the factual diagnosis, a critical evaluation was made to different documents, such as: Plan of Study D of higher education careers; Reports from the Directorate of Vocational Training of the Ministry of Higher Education of Cuba, as well as the results obtained in the surveys applied to teachers and students, which allowed to verify the inadequacies that university students present in the development of scientific research in the Was of the ICT, which constitutes the problem that is investigated. In addition, in order to delve into their possible causes, as part of this research, a causal diagnosis was made in the Bachelor's degree in Physical Culture (which consisted of reviewing curricula, syllabuses, reports on scientific work Students, among others), in order to identify and identify the aspects that affect the insufficiencies of the training process for scientific research with the use of ICTs and in this way to make an assessment of how the problem in question is manifested.

In order to obtain information, a set of indicators was taken into account, including

- Intention of students in the use of didactic - technological resources during investigative activities.
- Orientations to students for the development of their independent study using ICT.
- Methods used in the training process for scientific research using ICT.
- Didactic - technological resources that are used.
- Organizational forms, assessment and self-assessment of students.

These indicators made possible a closer approach to what was defined in the research problem. Surveys were used for 3rd year students of the regular daytime course, 2013-2014. We worked with 22 teachers and 122 third year students of the physical culture career. About teachers surveyed: 100% of them are graduates of higher level; 9.0% are auxiliary; 50% are assistants; 40.9% are instructors; 18.1% have a master's degree; 4.5 doctor. Intentional sampling was used, according to the year and level of the students who received the subject Scientific Research Methodology, which allowed to offer pertinent reflections about the object of the investigation. The

sample used is significant, since it includes the personnel strata related to the research. Observations were made to classes, a resource that allows to know in a certain depth the purpose of the diagnosis and at the same time obtain the appreciation and evaluation that the respondents have in relation to the formation for the scientific research with the use of the TIC. For the validation of the instruments, a pilot test was applied to 20 participants including a questionnaire to evaluate the congruence, clarity and relevance of the questions. For information processing, four levels of relevance (high, medium, low and very low) were determined based on the maximum and minimum values of the results obtained on the scale used from one to ten and the range of the interval Of 9.Very low level $1 \leq x \leq 2$ (MB) Average level $6 \leq x \leq 8$ (M) Low level $3 \leq x \leq 5$ (B) High level $9 \leq x \leq 10$ (A)After the instruments were applied, the data were systematized and the results were expressed as percentages. Performing a descriptive analysis. A documentary review was also carried out, with the objective of evaluating how the research problem (revision of curricula, subject programs, author's experience as a diploma work tribunal and scientific - student events) was manifested. Socialization workshops were carried out through a methodology, which began with the presentation, about the logic of the research (they were previously given a report with the main results obtained for their critical evaluation by the experts convened).Non-standardized interviews and descriptions of positive and negative aspects were also used to better organize the specialists' questions, their qualitative assessments and their recommendations.

The methodological procedures of the workshop were as follows

1. Oral presentation of 30 minutes by the author of this research in front of the group of specialists, which summarized the logic of the research and the main results contributed which facilitated the process of critical group assessment.
2. Exchange, through the presentation of evaluation criteria, questions and answers, about the main strengths and weaknesses of the proposal, as well as suggestions and recommendations for its improvement.
3. Preparation of a report of the socialization process through reflective construction, ideas and assessments of specialists and specialists, which was approved by all participants

According to the timing, the research performed is described as a cross-sectional study, carried out in a short period of time.

RESULTS

The application of the instruments sought to determine the opinion of specialists and users about the proposal of ICT in research training through a collaborative research method. The results of the survey confirm that all the students refer to the need to acquire knowledge about the possibilities of ICT for the development of research activities that allows them a higher level of updating. The above is argued from the third year students have received content related to scientific research, and need to develop

at all stages of research, research, analysis, updating of information, but not infrequently are limited To develop them and achieve a certain level of novelty.

It was determined that the training process for scientific research with the use of ICT is characterized by

- Limited search for up-to-date and innovative information on research topics, little access to specialized sites and virtual libraries, manifested in the poor quality of the research projects they carry out (tasks, course projects, diploma work) from initial conception to the results.
- Limited use of the facilities offered by the Intranet and the Internet as a resource for communication with other students, professors and colleagues in the profession, allowing them to exchange experiences, resources, scientific content of interest and solve research problems.
- The activities of search students are isolated through the network to quickly access a greater volume and diversity of scientific contents as well as to didactic and technological resources, which shows the lack of systematicity of these activities in order to perfect the research results.
- The work of diplomas and in general the student scientific work develop it with an end and not as a means that prepares them for their future professional performance which evidences the non-understanding of the process of scientific investigation as a dynamic and essential process throughout the lifetime.
- Limited use of didactic - technological resources (e - mail, discussion forums, interactive multimedia, among others) in order to disseminate and socialize the results of research carried out by students in scientific student events.

The observation to classes revealed: poor motivation to provoke the intentionality of students in the use of didactic - technological resources for investigative purposes, they are limited to use them to copy and paste information and then reproduce it. This reflects very low use of the potential offered by these resources in terms of the diversity of bibliographic materials, links with electronic addresses or articles of great scientific novelty, or all those research entities that relate to the career. Other aspects determined in the visits to classes were: use of traditional didactic means, not taking advantage of the possibilities offered by didactic - technological resources, in terms of: interactive multimedia, web pages with links to interesting sites, libraries and Virtual laboratories, simulations, among others; Use of rigid organizational forms in terms of time and place, not taking advantage of the possibilities of networking for the development of diversified scientific research activities, among which are: tutorials and electronic lectures, discussion forum, virtual visits to related work entities With the career, coordination of conferences in network, with some prestigious personality of the profession, among others, with the purpose of perfecting and enriching investigative results.

Although the causal diagnosis was made in the Bachelor's Degree in Physical Culture, this problem is not unique to this career, which has been endorsed by the documents of the Ministry of Higher Education. One of the causes that currently lead to the inadequacies that university students manifest in their training for scientific research is the limited use of the contributions that these technologies can offer. The analysis made it possible to verify that the possibilities that the didactic - technological resources can provide in the development of the training process for scientific research with the use of ICTs in that career are not exploited (in terms of an intention of character Scientific and technological) including: links to websites of interest, virtual libraries, e-books, catalogs, etc.); In the accomplishment of consultations, tutorials, debates of common subjects that allow them to successfully develop the scientific investigations. In summary, taking into account the information of the diagnostic stage of the research, a way is needed that guides how to carry out the pedagogical practice towards the formation of scientific and technological character during the PDE, in a way that contributes to improve the work of University students in research activities during their training, as well as for life and who acquire these technologies with a meaning and a sense of transformation for the scientific research process, in a way that contributes to resolve the contradiction between the constant updating of the Content related to ICT and the construction of scientific content. A commitment in this direction is the didactic proposal (collaborative investigative method), which is presented.

Proposal: The collaborative research method, understood as the new way of conducting the training process for scientific research, based on ICT, for the construction of scientific content Now, the method didactically express the internal order and organization of all formative processes. It shows the logic of the process that has its essence in the communication between the participating subjects and that generates the activity through which the roles played by these manifest themselves (Fuentes, H., 2009).

The method also dynamically expresses the operational nature of the research process without this means its reduction to procedures and techniques. The procedures, understood as subsystems of the method, highlight the conditions in which it is developed, a particular method being able to be developed by different procedures in correspondence with the characteristics in which it occurs.

This method is based on the following steps

- Determine your intent, interests, motives, needs
- Disclose shortcomings in its sphere of action
- Determine the problem
- Develop an observation guide based on the proposed indicators
- Access and have updated articles by searching in databases, specialized search engines, archives with scientific publications of topicality. (Make bibliographic and content sheets).
- Identify concepts and key words.
- Select, organize, store information (contained in interactive multimedia).
- Analyze and critically evaluate existing theories, based on their comparison.
- Exchange and share criteria and judgments with others, in person or through the network. (Discussion forums, electronic chats, e-mail).

- Integrate content and perform the interpretation that is expressed through a summary and send it by email. It establishes relation with previous scientific contents.
- Perform and answer questions between virtual counterparts or face-to-face.
- Perform interpretations and compare results with other students, mediated through experience through electronic chats, e-mail, discussion forums or face-to-face.
- Share through the network concerns and proposals for possible solutions with specialists or specialists.
- Relate previous scientific content and new ones acquire meaning and meaning.
- Prepare a report about the research and expose by means of a Power Point presentation or through the discussion forum, finally publish the work on the network.

Logic to be followed for the construction of the scientific content through the collaborative investigative method

At first, the actions of the teacher and the students are aimed at promoting the technological and investigative intentionality (ICT associated with the research) as well as the appropriation, deepening and systematization of the techno-research content. From the didactic, these actions are oriented to recognize the need of the use of the TIC as a guarantee of authenticity, topicality and optimization of the investigative activity.

Actions to be developed by the teacher and the students

- **Professor:** motivate the development of scientific research activities and the need for the use of didactic - technological resources that promote the search, independently; Define the intentionality or objective of the research activity; To guide the use of resources most suitable for the search of scientific content.
- **Students:** determine their interests, motives, needs, to develop research.
- **Teacher:** to activate the didactic - technological resources to promote the positive disposition of the students towards the development of the investigations using ICT.
- **Students:** to have resources for the search of information and to identify other materials on the subject that they investigate.
- **Teacher:** to transmit their experiences on the research activity, motivating them, orienting them and supporting them in their research process, based on the use of didactic - technological resources.
- **Students:** participate in the process by contributing their ideas, their criteria, socializing their interests and motivations.
- **Teacher:** to stimulate students' previous knowledge through group discussion and reflection about the theme they will develop.
- Students: reflect on their previous knowledge, relating them to the topic they will investigate.
- **Teacher:** to guarantee the necessary conditions (space - time, didactic, methodological, psychological) placing in the Intranet, according to the different levels of previous knowledge.

- **Students:** access to didactic-technological resources for the search and obtaining, information and communication with students, as well as teachers related to the subject being investigated.
- **Teacher:** to inquire through questions and questions, the previous knowledge and skills that students have, related to the subject they are investigating and establish the relevant links between those experiences and the same.
- **Students:** compare and assess their interests, motives and needs to develop research.
- **Teacher:** socialize proposed topics for the development of research, as well as the addresses where digitized materials are located in the network, in addition to the use of other didactic - technological resources.
- **Students:** select the topics that correspond to their intention.
- **Teacher:** to mobilize in students the use of didactic - technological resources that allow them to find different aspects of interest about the subject that they investigate.
- **Students:** select and organize the diversity of information about the subject they are investigating.
- **Teacher:** provide didactic - technological resources, for the search of information and communication.
- **Students:** accessing these resources for the search of information and communication with students and professors related to the subject in which they investigate as well as look for other technological resources to achieve greater speed and timeliness in the information.
- In general, students analyze and use different didactic - technological resources, developing a series of successive actions for the assimilation of new resources that are proposed to be used for the development of research activities.
- In a second moment, the actions of the teacher and the students are aimed at achieving accessibility and availability of scientific content.

Actions to be developed by the teacher and students

- **Teacher:** to stimulate the confrontation of ideas, opinions and points of view as a way of socializing the cognitive conflict originated in students by the problem to investigate that is presented to them.
- **Students:** to reflect with other students and specialists on the information obtained through different formats.
- **Teacher:** indicate key words for searching through the computer network.
- **Students:** searching from keywords all they need for their research, as well as receiving help from both their teacher and other students, in a timely manner from a collaborative work.
- **Teacher:** develop with students different alternatives to solve the problem that is investigated through access to didactic - technological resources.
- **Students:** to check all the information about the subject they investigate in the network, confronting

ideas and clarifying doubts with their teacher, with group members related to the topic they will investigate, or with other people who can enrich the research, through the net.

- *Teacher:* listen to students' arguments explaining to them their personal experience, procedures, sites reviewed by him, professional programs used, bibliography consulted and any other aspect that he considers interesting.
- *Students:* to independently deepen the scientific contents based on the review of the materials used, in addition to being enriched and nourished with the knowledge and experiences provided by other subjects.
- Teacher: guide the application of knowledge and skills acquired to new situations and should be designed in such a way that in their solution develop search, reflection, assessment and interpretation.
- Students: investigate, find new information, confront their ideas with other colleagues in the group and with other subjects.
- Teacher: promote the independence necessary for students to find other alternatives and select those that they consider more convenient, according to their interests and personalities.
- Students: analyze the available resources and look for different alternatives for solving problems.
- Teacher: encourage collaboration through the network among students, and of these with other subjects (teachers and specialists), with the intensification of the discussion to confront solutions or alternative solutions to problems.
- Students: share their knowledge and experiences with the teacher, with other subjects who have worked on the subject and with the other students in the group.

In a third moment the actions of the teacher and the students are directed to promote the construction of new scientific contents from the collaborative work. In this way, continuous collaboration via network is encouraged in an intentional manner with colleagues who are related to the profession that investigates common themes; It promotes the collaborative work tending to socialize the investigations, the partial results and the reach of these with researchers of the Cyberspace; The evaluation or critical reflection of the interpersonal investigative results is stimulated; It promotes participation in virtual communities of academic and scientific exchange to promote the results of research, as well as to disseminate publications and events; Create investigative working groups via network.

Student and teacher actions

Teacher: to promote the emergence of cognitive needs in students and to realize the personal possibilities of each member of the group, mobilizing reflection.

- *Students:* to reflect with other colleagues and specialists about the information obtained through different formats applying them to new contexts.
- *Teacher:* promote the theory - practice integration, through the presentation of information using different resources such as simulators, visits and virtual practices.
- Students: to practice virtual practices in professional contexts with the use of didactic-technological resources.
- *Teacher:* stimulate the active participation of each student in his research activity, based on the continuous interaction with the other subjects involved in the process (other students, his teacher, specialists in the subject).
- *Students:* explore suggested and teacher-oriented sites, deepen the search for others with up-to-date and contextualized information about the subject.
- *Teacher:* stimulate the confrontation of ideas, opinions and points of view.
- *Students:* exchange opinions about the information obtained, contribute their ideas, their criteria, socializing their interests and motivations.
- *Teacher:* promote collaborative work among students participating in the process, through accessibility and availability to scientific content through the computer network.
- *Students:* getting everything they need for their research, as well as getting help from both their teacher and other students, in a timely manner.
- *Teacher:* develop with students, in a collaborative environment for inquiry, different alternatives to solve the problem.
- Students: to check all the information concerning the research topic in the network, confronting ideas or clarifying doubts with their teacher, group members or others they know through the network.
- *Teacher:* listen to students' arguments explaining to them their personal experience, procedures, sites reviewed by him, professional programs used, bibliography consulted and any other aspect that they consider interesting.
- *Students:* to independently deepen the scientific contents based on the review of the materials used, in addition to being enriched and nourished with the knowledge and experiences provided by other subjects.
- *Teacher:* promote discussion with students to confront ideas and ways of solving the problems they face during their independent work.
- *Students:* participate in seminars or workshops through networking, develop communication through e-mail, an electronic chat or a discussion list as well as in person.

Related to the specialists from the application of the questionnaire on the proposal, 96% strongly agree with the practical implications of the collaborative research method, which contributes to the exploitation of the possibilities of ICT in scientific activities. 95% consider that it allows the preparation for the collaborative work of research projects among students, teachers, specialists and institutions (both nationally and internationally) without the time and space being barriers to achieve it. 96% agree on the previous scale that the proposal allows the development of cognitive independence and collaborative work among students, which will be part of the way in which as future professionals relate to the world.100% strongly agree that the development and use of didactic -

technological resources, such as interactive multimedia (just to mention one example) contributes to attenuating the lack of bibliographic materials, as well as ensuring a satisfactory level of current content For the development of research.Regarding the usefulness of the method, 97% strongly agree that the foundations of the method allow updating the epistemological conceptions about how to develop the training process for research with the use of ICT by university students ; 95% agree that the proposed methods and investigative techniques allow any teacher to adequately direct the training for research with the use of ICT during the PDE. 98.3% strongly agree that the method starts from considering the vocational training model, so that it is directed according to the context of professional performance where it will be applied in the interaction with the subjects and the purpose of the profession. 91.9% suggest that activities should be offered to use didactic - technological resources during the Educational Teaching Process, taking into account the specific conditions of each university course where the method in question will be applied.

DISCUSSION

The significance of the proposal is expressed in the development of a new logic during the training for scientific research of university students, which makes use of these technologies, which means a research innovation. Students' mastery of actions, reflections and criticisms are summarized in: access, plan, execute, evaluate, communicate, exchange, collaborate, cooperate and generalize results that promote the solution of scientific problems. Consequently, the constant updating of the technological content or content related to ICTs and the construction of the scientific content become a dialectical unit because the latter implies in the current context the use of ICTs to attain the level of topicality and authenticity and the first Arises from the application of scientific knowledge. As a result, the functions that the method acquires are: to promote motivation by conferring meaning and functionality to the scientific content; Understanding when it guarantees its integration and operability; As well as systematization and generalization by encouraging the exercise and transfer of that content, all of which synthesizes the dynamics of this process. Another significant aspect that surpasses previous research related to research training is that the collaborative construction of scientific content is highlighted as the configuration of the training process for scientific research, based on ICT, which is also the method that characterizes The dynamics of this process. It seeks new ways (in relation to the management of information and communication) for students, teachers or other subjects involved in the training process, to achieve a more universal content in any branch of knowledge on a specific subject of interest, without Import the space and time, sharing information, knowledge experiences. The subjects that investigate with these technologies (from the meaning and the sense that they acquire for them) are transformed into universal constructors of scientific contents and this is the new quality of the same in their performance as future researchers.

CONCLUSIONS

Collaborative research is proposed as a way of facilitating the search for coherent and non-repetitive results, and at the same time, a method is proposed that will allow the orientation of how to achieve this, based on the use of ICTs, This allows students to orient themselves at each moment in the sequence of steps that leads to the search of information in different technological resources, which favours the construction of the theoretical framework of research. The method proposed is related to other productive methods, therefore, it is not absolute and can be applied according to the content, means and organizational forms used. Finally, it is pertinent to continue to carry out works such as the one presented here, that allow to determine the possibilities that have ICT in relation to the research training in professionals. The Socialization Workshop with specialists, professors and students realized that the collaborative research method provided accurately expresses the logical functionality for the training process for scientific research, based on ICT, since it facilitates the construction of scientific content from of an intentionality of technological and investigative character intimately related to an appropriate appropriation, deepening and systematization of the scientific content.

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