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Educational Multimedia as ICT within Research Skills for the Development of Electrotherapy in Graduates and Students of Health Rehabilitation

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Abstract: Teaching is the process of organising and directing cognitive activity, encompassing both the teacher's (teaching) and the student's (learning) activities, which is why it is referred to as the teaching-learning process. Objective: To design an educational multimedia resource for the development of electrotherapy knowledge among graduates and students in the Health Rehabilitation career at the University of Medical Sciences of Sancti Spiritus, Cuba. Methods: An innovative development study was conducted at the University of Medical Sciences in Sancti Spiritus. A sample of 30 people from the rehabilitation speciality was used using the simple random sampling technique. Educational multimedia was designed through a computer platform that incorporated didactic elements to make the knowledge imparted on the subject of therapeutic currents more accessible. Results: Students are categorised by year of career, with 50% in the 2nd year, 30% in the 3rd year, and 20% in the 4th year of their career. Ninety-seven per cent of the participants in the study showed a high acceptance of the educational software implementation. Conclusions: The educational multimedia fulfilled the purpose for which it was created as a didactic educational tool, where the knowledge about the different therapeutic currents existing for rehabilitation was developed, it facilitated the appropriation of the technical language, increased confidence when handling the electrical equipment, each student and graduate had a didactic resource capable of making the practice of these currents and their applications understood in a more motivating way.

Keywords: multimedia, educational software, computer creativity.

Introduction

Teaching is the process of organising and directing cognitive activity, encompassing both the teacher's (teaching) and the student's (learning) activities, as described by González La Nuez and Suárez Surí (2018). This is why it is referred to as the teaching-learning process. This

interaction is neither spontaneous nor anarchic but instead based on a set of laws and principles that establish the theory of teaching or didactics.

At the beginning of the 21st century, the door was opened to immersive virtual environments for everyone. Platforms such as Second Life, which appeared in 2003, have changed the way we interact online. The idea of creating an avatar and exploring a shared metaverse has captured the imagination of many people (Hwang and Chien, 2022). Since the advent of these platforms, the use of virtual environments in education and training has increased significantly. Many educators and professionals have begun to explore how these spaces can enhance the learning experience, offering more dynamic and collaborative interactions (Fourtané, 2022).

Globalisation and scientific advances have transformed the way we interact with technology, especially in the educational field. Today, technology is not only a tool but has become an essential component of learning. This not only facilitates access to information but also cultivates critical and creative skills essential in today's society (Martínez Freire et al., 2023).

Educational innovation is crucial for teachers to provide meaningful and relevant learning experiences. By staying current with new research and pedagogical approaches, educators can refine their teaching methods to meet the standards set by the Ministry of Education. This not only helps students acquire authentic knowledge but also enables them to develop critical skills essential in today's world (Alcívar-Alcívar & Alcívar-Alcívar, 2021).

In the relationship between tools and virtual learning environments, Ordóñez Alulima (2021, p. 22) notes that the frequent mention of tools such as blended learning (B-learning) and e-learning reflects their importance in the cognitive development of students. B-learning combines face-to-face teaching with online education, allowing educators to offer a more flexible and personalised learning experience. This can be especially beneficial as students can access digital resources and engage in interactive activities while also having the opportunity to interact face-to-face with their teachers and peers.

For Villegas Cadena et al. (2023), in the 21st century, Information and Communication Technologies (ICT) are fundamental; not only do they help us recreate and solve problems in our environment, but they also facilitate our daily activities. In the educational field, their impact is even more significant. ICTs enable educators to utilise innovative and engaging teaching resources, making learning more motivating and effective for students.

Llumiquinga-Quispe et al. (2023) argue that the pandemic has accelerated the adoption of information and communication technologies (ICTs) in all aspects of our lives, and the education sector was no exception. This increase in the use of ICTs has enabled educational institutions to explore new approaches to teaching and learning, facilitating access to resources and tools that were previously less widely available. Online learning platforms, educational applications, and

collaboration tools have revolutionised the way learners interact with content and with one another. This has not only enhanced academic training but also developed essential digital skills for the future.

Alburqueque Zambrano (2024) highlights that virtual education has been a crucial tool for students to continue learning during the pandemic. Online learning platforms have enabled classes to continue, providing significant relief for many. However, as you mentioned, there are also significant challenges.

The lack of face-to-face interaction can leave some students feeling isolated and less motivated. Additionally, self-discipline is key in a virtual environment, and not all students have the same ability to stay focused without the structure of a physical classroom. That's why support from teachers and tutors is critical. They can help create a more interactive and motivating learning environment by using digital tools to encourage participation and engagement. It's also essential that routines are established and additional resources are offered to help students stay on track.

Schott and Marshall (2021) emphasise that although distance education has made significant progress, it faces serious challenges in areas that require practical experience, such as experimental sciences and medicine. Physical interaction with materials and equipment is essential for deep and practical learning in these disciplines.

Educational institutions need to be in tune with the social demands of the historical time in which they operate so that they acquire the ability to modify, in a substantial and precise way, the bases, conceptions and principles

on which they base their training processes and their work dynamics (Rojas Hernández & González Méndez, 2021). Therefore, virtual education is the didactic action of using ICT through the use of virtual classrooms to make educational innovations in the teaching-learning process (Aguilar Ponce & Carmita Zambrano, 2022).

According to Cuba Rondón & Pérez Mallea (2021), the current generation of young people is immersed in a rapidly evolving technological world, and the educational system must adapt to their needs and concerns. Teachers and institutions play a crucial role in this process, as they must innovate and utilise emerging methodologies that foster more autonomous and meaningful learning (pp. 366-380).

According to Rodríguez Degiovanni (2024), the digital gaps in access to and use of information and communication technologies (ICT) can significantly impact students' learning opportunities. Those who lack access to quality technologies face significant challenges, which can limit their participation and academic growth. It is an issue that requires attention and action to ensure all students have equal opportunities to learn and thrive.

In the results of the study by Mompié et al. (2022), it was detected that despite the existence of various technological resources, it is evident that computer media are not used in classes, opting for the traditional teaching method, for learning the selected indicators; However, the preference for combining both teaching methods in the teaching-learning process is highlighted, to make it more efficient.

Marta-Lazo et al. (2022) emphasise that ICTs have focused their analysis on technology as an instrument, underestimating the potential of communication and shaping information as a set of data. It is urgent to deploy the map not only to place each one in front of the information we receive but also to guide us through the current labyrinth of constant and aggressive stimulation, which, more frequently than it seems, blocks our capacity for analysis and criticism.

Information and communication technologies (ICTs) have been incorporated into education from various perspectives, resulting in a wide range of applications that have generated numerous expectations regarding transformations, innovations, and improvements in educational practices and the monitoring of student learning. One of these changes can be observed in the university across two areas of ICT use: the administrative area, which encompasses activities related to training, research, and extension, and the academic area, which involves the creation and dissemination of knowledge.

This integration and use of ICT is part of a global trend of the Knowledge Society and the Information Society, in which schools and all educational levels are somehow involved, some more and others less, due to cultural and social pressure that forces them to participate in the use and use of Information and Communication Technologies to improve teaching-learning educational processes (Guerra Hernández & González Farfán, 2024).

The term "multimedia" comes from the English word and refers to any device that provides information through the use of multiple media at the same time. In this way, a multimedia presentation can be found in the form of photographs, videos, audio or texts. This term is closely related to the various devices that enable multimedia presentations to be communicated through physical and digital resources available on these devices (Enciclopedia Concepto, n.d.).

Calmell-Lafita et al. (2023) note that the term "multimedia" is already familiar, and it is common to read and hear positive comments about the possibilities it offers in teaching and learning processes. Multimedia is often presented as the latest advance that, fostered by the evolution and expansion of electronic media, comes to solve some of the problems that teaching has raised.

Selecting teaching methods can be a significant challenge. It is critical to choose those that not only structure the teaching activity well but also align with the nature of the student's cognitive activity. This involves considering how they learn and process information, as each individual has

their own set of intellectual processes. By doing so, more effective and meaningful learning can be facilitated.

During the exploratory stage, several difficulties were identified among students and graduates of the Health Rehabilitation program at the University of Medical Sciences of Sancti Spiritus, Cuba. Some of the most common ones:

- Abstract concepts: Electric currents involve concepts that can be difficult to visualise, such as electron flow, resistance, and capacitance. This left students and graduates struggling to understand how these apply in practical situations.

-Lack of practical connection: Some students and graduates had difficulties relating theoretical concepts to their application in rehabilitation without clear examples of how electrical currents are used in specific treatments.

-Technical terminology: The use of technical and specialised language that students were not familiar with made them feel lost and unmotivated.

-Difficulties in handling equipment: In practice with electrical equipment, students felt insecure when handling devices that use electric currents, which affected their confidence and learning. Although graduates performed better when working with equipment, they felt insecure in some specific currents.

- Variability in learning: Every student and graduate has their own pace and learning style. Some individuals may require more time or alternative approaches to grasp concepts, which can be particularly challenging in traditional classroom settings, whether in undergraduate or graduate education.

- Fear of risks: Electricity was perceived as dangerous, which generated anxiety among respondents. This fear interfered with their willingness to experiment and learn about the topic.

-Lack of Teaching Resources: The absence of adequate teaching materials, such as specialised software or laboratories, limits the practical understanding of electrical currents and their applications in rehabilitation.

For all the above reasons, we set ourselves the goal of designing educational multimedia for the development of electrotherapy knowledge in graduates and students of the Health Rehabilitation program at the University of Medical Sciences of Sancti Spiritus, Cuba.

Materials and Methods

An innovative development study was conducted at the University of Medical Sciences of Sancti Spíritus from January 20 to April 12, 2022, and structured in three stages, wherein the first stage bibliographic searches were carried out in indexed databases (PubMed, CUMED, Google

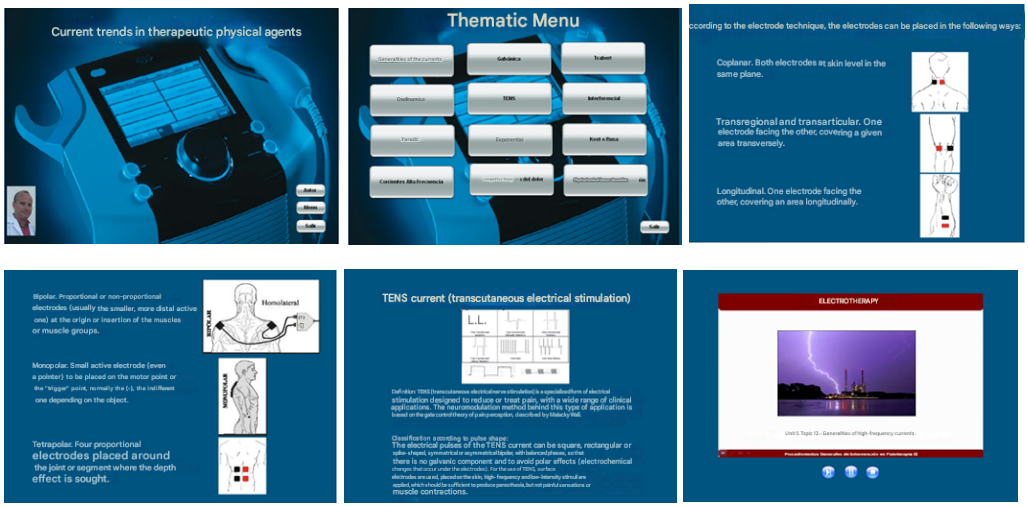
Scholar and SCIELO), to know didactic teaching and learning media capable of making knowledge available to graduates and students (Wanyama et al., 2022).

In the second stage, the teaching methods for electrotherapy in the subject of "Therapeutic Physical Agents" in the Health Rehabilitation career were determined, and a diagnosis was made to assess the current state of knowledge. In the third stage, an educational multimedia platform was designed using a computer (Figure 1) that incorporated didactic elements to make the knowledge being imparted more accessible. In the area of therapeutic currents, the proposal was validated by a group of experts, and the results obtained with its application were evaluated.

The study universe comprised 60 individuals. A sample of 30 individuals from the speciality was selected using the simple random sampling technique (Noor et al., 2022), comprising 20 students in the Health Rehabilitation career and 10 graduates of Physiotherapy and Rehabilitation from the Province. Informed consent was obtained as part of the study, which the Ethics Committee and Scientific Council of the University of Medical Sciences approved.

Figure 1

Educational Multimedia for the Development of Knowledge



Source: Creation of the research working group.

The theoretical methods used were the historical-logical method, which allowed us to identify the different stages of the continuous training process; the analytical-synthetic method, which allowed us to delve into the essence of the continuous training process to perfect the use of Virtual Learning Environments (VLE) in the teaching-educational process; and the inductive-deductive method, which facilitated the processing of empirical information to characterise the current state of the problem under study.

To implement the expert judgment method, the stages proposed by DíazFerrer (2020) were used.

The Ethics Committee and the Scientific Council of the University of Medical Sciences approved the research. The subjects of the study were informed about the research objective and signed an informed consent form. They were informed that the information collected by the authors would be used solely for research purposes, without disclosing the personal data of the subjects.

Results

Students are shown by year of study, with 50% from the 2nd year, 30% from the 3rd year and 20% from the 4th year of the degree. In the content analysis of the course's study plan before and after, the contribution to knowledge of topics related to therapeutic currents was positively evident in the content, as shown in Table 1.

Table 1

Number of Students per Year of Study and Results of the Diagnosis and Implementation of Educational Multimedia

Contents within the curriculum on the topics of therapeutic currents	Students of the Health Rehabilitation program							
	2nd year of the degree	%	3rd year of the degree	%	4th year of the degree	%	Total	%
	10	50	6	30	4	20	20	100
	Diagnosis and use of software in the development of training and teaching							
	Before	After	Before	After	Before	After	Before	After
Identifying currents using graphs	2	10	4	6	3	4	7 (35%)	20 (100%)
Knowledge of the techniques for applying analgesic currents.	1	8	5	6	3	3	9 (45%)	20 (100%)
Knowledge of the techniques for applying stimulating currents.	2	9	6	6	2	4	8 (40%)	19 (95%)
Effects of currents on the body	0	7	3	5	3	4	6 (30%)	16 (80%)
Knowledge of the indications and contraindications of the currents.	9	10	5	6	4	4	18 (90%)	20 (100%)

Source: Student survey

Graduates are shown by year of experience, with 50% having 1 to 3 years, 30% 3 to 5 years, and 20% having more than 5 years of work experience. In the content diagnosis of the topics

before and after, it was observed that the development of knowledge related to the therapeutic currents improved, as shown in Table 2.

Table 2

Number of Graduates per Year of Experience and Results of the Diagnosis and Implementation of Educational Multimedia

Contents within the development topics of therapeutic currents	Experience of Graduates in Physiotherapy and Rehabilitation							
	From 1 to 3 years	%	From 3 to 5 years	%	More than 5 years	%	Total	%
	5	50	3	30	2	20	10	100
	Diagnosis and use of software in the development of professional teaching							
	Before	After	Before	After	Before	After	Before	After
Identifying currents using graphs	2	5	1	3	1	2	4 (40%)	10 (100%)
Knowledge of the techniques for applying analgesic currents.	5	5	3	3	2	2	10 (100%)	10 (100%)
Knowledge of the techniques for applying stimulating currents.	5	5	3	3	2	2	10 (100%)	10 (100%)
Effects of currents on the body	2	4	2	3	2	2	6 (60%)	9 (90%)
Knowledge of the indications and contraindications of the currents.	5	5	3	3	2	2	10 (100%)	10 (100%)

Source: Graduate survey.

It is shown that the majority of specialists expressed themselves, in the instructional design dimension, in total agreement with the treatment given to the following indicators: presentation, objectives, logical sequence, flexibility, relevance, learning approach, methodological strategy, motivation, interaction, reinforcements, aids, writing indicators, language appropriate to the teaching level, texts, images and documentation. In no case were there criteria in disagreement or total disagreement, as shown in Table 3.

Table 3

Composition of Experts and Criteria of Specialists on the Dimension of Instructional Design of Educational Multimedia

Indicators	Composition of the expert group							
	Computer engineers	%	Methodologists of the race	%	Subject teachers	%	Total	%
	3	25	4	33,33	5	41.66	12	100
	Expert opinion on the dimension of instructional design in educational multimedia							
	C_1	C_2	C_1	C_2	C_1	C_2	C_1	C_2
Presentation	3	-	4	-	4	1	11	1
Goals	2	1	4	-	4	-	11	1
Logical sequence	3	-	4	-	5	-	12	-
Flexibility	3	-	4	-	5	-	12	-
Relevance	3		4	-	4	1	11	1
Learning approach	2	1	4	-	5	-	11	1
Methodological strategy	3	-	4	-	5	-	12	-
Motivation	3	-	4	-	5	-	12	-
Interaction	1	2	2	2	4	1	7	5
Reinforcements and aids	2	1	3	1	5	-	10	2
Drafting	3	-	3	1	4	1	10	2
Language appropriate to the teaching levels	3	-	4	-	5	-	12	-

Source: Expert survey.

C1: total agreement; C2: agreement; C3: disagreement; C4: total disagreement. In no case were criteria found in disagreement (C3) or in total disagreement (C4).

The opinions of the participants are collected according to the inclusion of topics in the program. One hundred per cent of the participants felt that the software covers the fundamental topics according to the curriculum, both at the undergraduate and graduate levels, as shown in Table 4.

Table 4

Variables Related to Educational Multimedia

Variables related to educational multimedia	Students		Graduates		Total	
	No.	%	No.	%	No.	%
Includes topics according to the	20	100	10	100	30	100

curriculum and its development.						
Motiva	18	90	9	90	27	90
Facilitates discussion of content.	18	90	6	60	24	80
Teamwork and analysis of images and videos	19	95	7	70	26	86.66
Complete and didactic	20	100	10	100	30	100

Source: survey of students and graduates.

Motivation 90% and discussion of content 80%. Teamwork and analysis of images and videos are represented by 86.66% of participants. 100% considered the multimedia to be complete and educational.

The opinions of students, graduates, and experts on the use of the software were obtained through questionnaires once the activity was completed. The software was widely accepted, as demonstrated by the satisfaction of 97.61% of the study participants. 2.38% were dissatisfied due to a lack of mastery of ICT, as shown in Table 5.

Table 5

Level of Satisfaction

Level of satisfaction	Students		Graduates		Experts		Total	
	No.	%	No.	%	No.	%	No.	%
Satisfied	20	100	9	90	12	100	41	97.61
Dissatisfied	-	-	1	10	-	-	1	2.38
Total	20	100	10	100	12	100	42	100

Source: Survey of students, graduates and experts.

Discussion

In our study, it was observed that all experts declared that the proposed multimedia was flexible, motivating, and had appropriate language, a methodological strategy in teaching the subject, and a logical sequence. Among the students and graduates, all developed their knowledge about the identification of therapeutic currents, the various techniques of their application, the indications, and their contraindications. In addition, all respondents agreed that the multimedia collects topics according to the study plan of the subject and that it complies with the didactics when interacting with it. All students declared themselves satisfied with the use of educational multimedia, and 90% of the graduates expressed similar satisfaction.

In several studies, they have identified the contribution of the use of educational multimedia in the development of knowledge, as can be seen in the study by Colque Quispe (2021) where a

group of teachers, after applying the practical proposal, the percentage who were unaware that the use of ICT allows access to multiple educational resources and learning environments decreased significantly from 90% to 0%. The percentage of teachers who were unaware that students would be more motivated by using ICT tools decreased significantly, from 90% to 10%. Teachers who were unaware that educational software is characterised by being highly interactive, based on the use of multimedia resources, exercises, and instructional games, which allow interaction through dialogue between the computer and the user, decreased significantly from 100% to 15%. The percentage of teachers who were unaware that multimedia educational resources include motivating elements to capture the attention and interest of students decreased significantly, from 75% to 15%. This data is similar to our study, as 91.66% of students reported being motivated by educational multimedia.

Additionally, in Balseca Manzano et al. (2021), the usefulness of the teachers' scoring scheme for educational software was evaluated, yielding a score of 36.7. This indicates that the application is considered good and of acceptable quality, demonstrating its visual appeal. In the pedagogical and didactic area, a score of 32.8 was obtained, corroborating that it serves as reinforcement in the learning of natural sciences in students. In the technical area, a score of 39.4 is obtained, indicating that the application is good and of acceptable quality. These results differ from our research, as 100% of the respondents rated the proposed multimedia as didactic.

García Araníbar (2024) conducted educational research on technological development, from which a list of difficulties and potentialities was obtained, allowing the construction of multimedia content with a constructivist, flexible, and open pedagogical approach. Learning needs were identified to facilitate an adequate clinical-imaging correlation. It was observed that, in their self-assessment, the students reported having mastery of all the skills explored, with a range from "little" to "a lot," and none stated that they did not possess any skills at all. In addition, this survey inquired about their experience with ICT, with responses indicating a lot (24%), some (37%), and little or none (38%). When inquiring whether educational multimedia could improve the clinical-imaging correlation skill in Surgery, the students responded that multimedia would be ideal, with similar results in our research.

Matos Laffita et al. (2021) conducted research on the technological development of educational multimedia in the field of Research Methodology and Statistics for residents of medical and dental specialities at the Medical Sciences Branch in Baracoa, Guantánamo, Cuba, between 2016 and 2018. The computer design indicators received high ratings, indicating the concordance of criteria among the experts. Functionality was the indicator with the highest average score (4.97), followed by feasibility and usability, which each had an average score of 4.90. The educational multimedia addressed the content on research methodology and statistics, which is included in the study program of the Research Methodology course and is part of the resident's training.

Armas Soto et al. (2023) conducted a study on innovation and technological development, utilising a multimedia design to examine the physical examination of the cardiovascular system at the Medical Sciences Branch in Nuevitas, Camagüey, Cuba, during the 2020–2021 academic year. It was observed that the use of combined digital and printed bibliographies predominated, representing 60% of the total number of students. To a lesser extent, the sole use of printed bibliographies was evident at 16% before the study. After implementing multimedia educational software for the physical examination of the cardiovascular system, a 33% increase was observed, attributed to the use of digital bibliographies. When making the final diagnosis after implementing the software, an increase in the student's level of knowledge was evident, as 87% obtained a good grade. Ninety-one per cent of the students reported satisfaction with the multimedia, a similar result to our study, where 100% of participants were satisfied with the proposed multimedia.

Rodríguez Santana et al. (2022) conducted a qualitative study involving 53 professionals from the Ministries of Education, Public Health, and INDER in Havana between January 2018 and March 2019. The most significant indicators of the pedagogical aspect were the adaptation to the educational context and the promotion of initiative and learning, which were valued with 5 points. In the functional aspect, the maximum evaluation was represented by the efficient indicator, achieving 4.8 points. In the technical-aesthetic aspect, indicators of attractive and dynamic presentation, quality of content, as well as style and language were taken into account, achieving a score of 4.6. These indicators were also identified in our study when evaluating the proposed multimedia.

Montes de Oca et al. (2021b) developed a multimedia program comprising thematic content modules at the University of Medical Sciences in Santiago de Cuba, Cuba, between February and May 2018. When evaluating the product theoretically using expert criteria, 100% agreed that the product was "very adequate" in all evaluated parameters. 59% of the students initially reflected a low level of knowledge before using the proposed multimedia; however, this level was improved after its application, with 75.7% reaching a high level. A predominantly low level of knowledge was evident (59%), while after its application, these figures decreased to 4.8%, which showed a high level of knowledge in 75.7% of the students. Similar results were found in the students in our study, where they reached high levels of knowledge after using the proposed multimedia.

Jiménez Muñoz & Fajardo Puig (2022) conducted research on technological innovation between October and November 2020 at the Faculty of Dentistry, University of Medical Sciences of Santiago de Cuba, Cuba. 100% of the students expressed that multimedia allows an adequate understanding of knowledge and that the level of ease of use is adequate. 100% of the specialists concluded that the quality of the content of the environment was high and that it provides total practical utility. These results are consistent with those obtained in our study.

Arias Lazarte (2023) investigated the relationship between the use of ICT and knowledge management among 138 teachers at the Faculty of Sciences of the Santiago Antúnez de Mayolo National University in Peru. Regarding the level of ICT use, 68.12% of teachers reported regular use of these technological sources. In terms of applicability, this level was represented at the regular level by 57.97% and at the sound level by 40.58%. In technological resources, the regular level (59.42%) was the most prevalent. Despite having a good (65.22%) technological infrastructure, the management of ICT was represented at the regular level by 52.90% and at the sound level by 44.93%. The researchers concluded that the correlation was considerably positive, indicating that improved ICT use leads to better knowledge management by teachers at the Faculty of Sciences.

Montes de Oca et al. (2021a) conducted research on technological innovation with 180 students at the Faculty of Medicine No. 1, University of Medical Sciences of Santiago de Cuba, from September 2018 to February 2019. During this period, a multimedia platform (ProNeuroMed) was created using the Matchware Mediator 9.0 program. One hundred per cent of the specialists in the expert group rated the quality of the content and production of the product as high. It determined that it provides total practical utility. 90% concluded that the quality of the presentation was high, and 80% rated it as highly easy to interact with. Before using ProNeuroMed, 62.7% of the students demonstrated a low level of knowledge, a relationship that was reversed after its application, with 85% reaching a high level—similar results in our study.

The software application is a valuable resource that can be applied during classes, school hours, workshops, and curricular activities, with the potential to be generalised across all Rehabilitation rooms and undergraduate training programs in the country.

Conclusions and Implications

Education in the use of ICT within investigative skills has proven to be a reliable way to develop knowledge. This has been confirmed by several authors who have provided an essential theoretical reference for all educational levels. With the application of educational multimedia in our study, the necessary practical connection was achieved by the subjects studied; it also favoured the appropriation of technical language within the therapeutic currents, facilitating work on the different electrical equipment which is used in the different rehabilitative treatments, overcoming the fear of using this equipment in medical treatments, a new way of learning was provided through educational multimedia as a practical tool in teaching scenarios for both students of the Health Rehabilitation career and the graduated graduates in the fulfilment of their functions within the rehabilitation centres as a development of their previously acquired knowledge. All of this addressed the difficulties encountered during the diagnosis stage of the study.

The educational multimedia effectively fulfilled its purpose as a practical tool for developing knowledge on therapeutic currents, adhering to principles of didactics. This knowledge

encompassed the various therapeutic currents used in rehabilitation, their forms of application, indications, and contraindications within different treatment modalities.

Suggestions for Future Research

To investigate how active learning-focused methodologies, such as problem-based learning or cooperative learning, improve the understanding and practical application of therapeutic currents in rehabilitation students. To investigate how personalised teaching resources, adapted to different learning styles, can improve the understanding and retention of knowledge about therapeutic currents. To identify how the integration of evidence-based practice in the teaching of therapeutic currents improves students' clinical competence.

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