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ICT-MEDIATED EDUCATION IN YOUTH AND ADULT LITERACY PROGRAMS IN THE DOMINICAN REPUBLIC: AN APPROACH TO THE STATE OF THE ART

EDUCAÇÃO MEDIADA POR TIC EM PROGRAMAS DE JUVENTUDE E ALFABETIZAÇÃO DE ADULTOS NA REPÚBLICA DOMINICANA: UMA ABORDAGEM DO ESTADO DA ARTE

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ABSTRACT: This research focuses on the relation between Education and ICT/Internet in the Dominican Republic. Specifically, we focus on the context of basic literacy education in young people and adults, the overall aim being to learn the extent to which ICT are used in adult education in that country. To this end, we administered a questionnaire to a sample of teachers to learn what digital resources they have access to, how they are used, and a diagnosis of self-perceived digital competences. The main results point to an ever-increasing number of resources for use in the classroom, although there is still room for improvement. Moreover, the implantation of the Internet as a basic tool for strengthening the educational system is progressing but is not yet complete. We conclude that the lack of resources may be partially contributing to this shortfall in immersion in the new technologies, but that it is necessary to continue to implement programs to reinforce the digital competences of teachers, even at a basic level and taking particular account of older teachers. This would certainly improve the teaching-learning process, especially if we consider that the teachers themselves consider ICT as a key factor in the educational process.
KEYWORDS: ICT; education; Dominican Republic; youth and adult literacy programmes; basic digital resources.

RESUMO: Esta pesquisa enfoca a relação entre Educação e TIC/Internet na República Dominicana. Especificamente, nos concentramos no contexto da educação básica em alfabetização em jovens e adultos, com o objetivo geral de compreender até que ponto as TIC são usadas na educação de adultos nesse país. Para isso, aplicamos um questionário a uma amostra de professores para saber a que recursos digitais eles têm acesso, como são usados e o diagnóstico de competências digitais percebidas por eles mesmos. Os principais resultados apontam para um número cada vez maior de recursos para uso em sala de aula, embora ainda haja espaço para melhorias. Além disso, a

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implantação da Internet como ferramenta básica para o fortalecimento do sistema educacional está progredindo, mas ainda não está completa. Concluímos que a falta de recursos pode estar contribuindo parcialmente para essa deficiência na imersão nas novas tecnologias, mas que é necessário continuar a implementar programas para reforçar as competências digitais dos professores, mesmo em um nível básico e tendo particularmente em conta os professores mais velhos. Isso certamente melhoraria o processo de ensino-aprendizagem, especialmente se considerarmos que os próprios professores consideram as TIC como um fator-chave no processo educacional.
PALAVRAS-CHAVE: TIC; educação; República Dominicana; programas de alfabetização de jovens e adultos; recursos digitais básicos.

1 Introduction and theoretical framework

Education is a priority issue and the main springboard for boosting the economic development of a nation. Hence the urgency in reforming the processes and activities that are implemented in the daily life of teaching. These are influenced by different dimensions that make them a socially necessary, useful and enriching task. Having teachers become involved in this process is vital, but their practice is qualified through the three dimensions presented by González and Escudero (1987, p. 20): first, the beliefs that guide the use of strategies and teaching activities; second, the use of materials depends on the teaching approaches and third and last, the skills of the teacher. To synthesize, when talking about innovation or reform processes, different elements come into play. Walder (2016) believes it appropriate to explore the impact of innovative practices on teaching. Reform processes do not develop equally in all schools, or in all countries, nor even in all cities of the same country. In this research opportunity we explore various digital competences of teachers and focus on the problem in a particular country, the Dominican Republic, and a specific type of education: youth and adult literacy. The objective is to analyze several variables related to the implementation of technologies in the teaching-learning process.

1.1 Constant innovation and the need to reform processes

In environments of colossal information flow, citizens must be critical and arrive at coherent conclusions to be able to make contributions or discern the social essence when facing the limitations and capabilities of technology. In addition, they must examine the frontiers of social advancement in the face of a high percentage of unemployment, gender inequality and social exclusion. The best way to do this is to provide an outstanding education to every young person or adult in society.

It is necessary for students to acquire the knowledge and master the skills of the 21st century and to participate in collaborative learning processes. Thus, the questions we can ask are: How do teachers' digital competences influence this dynamic? What competences do these teachers have? Do they have sufficient resources?

The essence of education, in many cases, revolves around the development of a person through their own means. This requires greater effectiveness in the development and implementation of different strategies to take on responsibly the transformation of

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formal educational systems. The actions of the different players in the teaching-learning environment set important guidelines (OECD). What happens in workplaces is crucial for learning and future work experiences. Viewed from this angle, educational quality must be boosted by the promotion of innovative projects. Navarro (2014) points out that schools are not the only source of knowledge dissemination but their function revolves around exclusively meeting needs of this type. The activities carried out in these spaces are intended to improve processes through constant reforms on a larger or smaller scale and are expected to fulfill the true nature of teaching. Clark (2000) points out that the processes for reforming teaching have represented an area of great interest for past and present decades.

The role of the students, the vital subject in this cycle, must also be taken into account. See, Shing, Ponnusamy, Ruilin and Chiu (2016) highlight the important role that students play in this context. To innovate, students need the ability to think creatively so that they can formulate hypotheses through their imagination and then seek solutions. For example, in the 1980s, the effects of scientific-technological development began to become disseminated and were incorporated into the classroom as innovative tools. This process obliged schools to bring their strategies into line with this new dynamic.

At present, innovation must be considered a consistent factor in improving the quality of education. García-Varcárcel and Hernández Matín (2013) argue that the integration of ICT has been and continues to be slow despite the fact that the new contexts demand their incorporation accompanied by reflection. Several authors agree that the implementation of innovation must be methodical and strategic in consonance with the context, recognizing latent opportunities in each space (SANCERMI; COLLADO, 2013).

These and other authors maintain that innovation is conceived of as the set of processes and actions that translate into improvements in educational processes through the development of new ideas or problem solving as they generate changes of perspective and produce knowledge applied to the transformation of reality. Globalization, the emergence of different social networks, processes of social transformation, new learning styles and recent educational needs invite us to break with certain paradigms and incorporate new media or tools to carry out more complex activities that will lead to the new competences that society currently demands.

1.2 The new technologies in teaching-learning processes

According to González and Escudero (1987), the term ‘innovation’ refers to the modification of some specific elements of this area. According to Clark, technology is and shall be an integral part of learning, working life, and the dynamics of innovation. Gorozidis and Papaioannou (2016) maintain that innovation is an aspiration to work towards excellence in education.

Zhu, Yu and Riezebos (2016) affirm that the development of new technologies allows students to learn flexibly, as they provide access to digital resources through wireless networks, such that students can immerse themselves in personalized learning.

It is important to highlight the importance of smart schools and the role of technologies integrated in the classroom. The majority of governments aim to improve their education system in order to empower citizens with the skills demanded by the 21st

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century. For example, Austria has collaborated with IBM and designed a multi-disciplinary student-centered system. South Korea has the SMART project, emphasizing smart schools with classroom-integrated technologies. They focus on student achievement and prepare them for the 21st century style of economy. Finland opened its doors to smart education with the Systech project, focused on learning through motivation and relying on strategies such as understanding user characteristics, receiving feedback from experts, indicating learning outcomes, and analyzing the effects and the quality to develop skills and knowledge.

They have a technology-enhanced learning that can be used as the means or tools to access the contents of learning. They consider that it is compatible with planning, giving way to innovative alternatives for students and facilitators.

Almenara (2007) points out that technologies must be seen as a means and a resource with teaching potential, and as a strategic element for a changing society. Thus, ICT allow us to handle information sources in a single way, provide greater flexibility and freedom, are more effective for processing information, encourage new ways of interacting, favor the use of different communication tools and allow technical strategies for education to be established (TAN et al., 2016).

Finally, mention must also be made of Walder (2016), who points out the following lines of action (Figure 1):

Figure 1: Lines of Action.
Source: Walder (2016)/Compiled by the Authors.

In this scenario, innovation is understood as any new practice employed in order to improve the teaching-learning process. Teachers who innovate often set the goal of developing additional skills that go beyond the knowledge gained through traditional teaching. The word 'innovation' is intended to add value, adjust, change or transform practices (MARTELLI, 2017).

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1.3 Creativity and learning styles in teaching

Methodological changes driven by creativity must be emphasized. Diversity inundates these scenarios with meaning, providing spaces for personalized learning in tune with *learning styles* (learning is guided by the interests of learners and is a generative process within a framework of differentiated instruction) to which each individual adds their own personal nuances. Another aspect is the broad atmosphere of ease or access to information that globalization makes possible, thus generating the fragmentation and classification of some contents or the mastery of fundamental concepts in specific areas. Within this broad panorama, motivation plays a leading role in promoting the transformations or the emergent reforms and in bringing together the different scenarios conceived.

García-Varcárcel and Hernández Matín (2013) have delved into the importance of reform processes in the education sector. These processes confront various difficulties or impediments that emerge in practice, such as temporal variables, school schedules, regulations, subventions, resistance on the part of some of the teachers and students, institutions clinging to old models or paradigms, and slow bureaucracy. Furthermore, simply incorporating different tools to these scenarios does not add up to innovation. True reform or innovation has to take place in how teachers perceive themselves and are perceived in the procedure of the teaching dynamics and in the ties established with learners.

1.4 The importance of taking teachers' opinions into account

There is an abundance of scientific literature that in recent years has focused on teachers' opinions regarding ICT in teaching practice, both from the perspective of initial training and permanent education (CASILLAS et al., 2014; CABEZAS et al., 2014).

Other important elements in educational reform processes are the opinions of teachers and their perspectives. They are so important to this dynamic that the possibility should be considered of incorporating different teaching resources or even making adjustments to the curriculum, in order to manage transformations in the interpersonal relations of the educational team, to implement changes in the methodologies and to impel modifications in management.

It is necessary for teachers to adapt their teaching methods to meet the needs of students. This issue invites us to reflect on the following questions: What are the needs of students in relation to the demands of society? Is the school of the 21st century implementing strategies that favor the development of the competences demanded by the current labor market? Anderson (2008) states that with the new generation characterized by assisted learning, methodologies should be used that focus on developing skills such as creativity and critical thinking.

Learning activities should be based on innovative practices that take into account different learning styles, in order to respond to the 21st century demands for competences.

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1.4.1 Teachers, motivation and competences in relation to innovation processes

Scientific studies have been carried out to find out more about the digital competence of teachers, their perceptions and how to assess the training they have in regard to ICT.

We should consider the extent to which teachers are motivated by the new curricula that are being developed around ICT and the Internet. Obviously, a low motivation would entail a low predisposition to learn new techniques and, logically, teachers cannot teach what they do not know, so the question is: how can this state of affairs be improved?

1.5 Education of Young People and Adults in the Dominican Republic

The above review of the theoretical framework is to be understood from the perspective of the principal aim of this research study: the basic education of young people and adults in the Dominican Republic. First, however, we must define what this type of teaching refers to.

The basic education of young people and adults in the Dominican Republic is intended to respond to the high levels of illiteracy in the country according to the statistics provide by the ECLAC. According to the census of 2010, the Dominican Republic has a population of 9,445,281: 4,706,243 (49.83%) of which are women and 4,739,038 (50.17%) are men. Of this population, 851,396 (12.83%) are illiterate and 15 years old or older. In 2011, la Encuesta Nacional de Fuerza para el Trabajo (ENFT) (National Survey of Work Force situated the illiteracy rate at 10%, which represents a decrease of approximately 2.83%.

A significant and sustained effort is currently being made to respond to this need. Programmes such “Quisqueya aprende contigo”, “Educación básica flexible” and “Jornada Nacional de alfabetización”, among others, must be highlighted. Also outstanding is the solid building of alliances between the State and civil society through the Ministry of Education in response to the consequences of social exclusion. The aim is none other than to integrate individuals who got left behind in their basic education.

The population that goes into these programs are adolescents and adults who for different reasons dropped out of formal education. Among the main reasons leading them back to formal education are the following: to deal with particular life situations; fathers and mothers who wish to better themselves and become more skilled, motivated by the need to acquire qualifications and thus to be able to open up a wide range of employment possibilities. This population comprises a sector that is underprivileged and faces different needs.

The Basic Education for Adults program is facing several challenges. On one hand, it aspires to represent a functional area of education for social life, at the same time allowing the persons in the program to acquire the competences necessary to be individuals capable of transforming their surroundings. In this sense a problem has emerged: the difficulty students find in combining work with study habits, despite the flexibility that characterizes this program.

On the other hand, it is important to point out that there is a high percentage of teachers trained to teach children and adolescents but not so many who are trained to

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teach adults. Thus the need arises to implement strategic actions for qualifying and strengthening teachers for adult education. The Ministry of Education has designed a series of workshops, Master's degrees and Diplomas in order to assess strategies and improve the quality of the learning.

Among the principal theoretical underpinnings of basic adult education we find Vygotsky and Cole (1978) with social constructivism. They consider that people learn through dynamics that have a social and cultural origin. Another theoretical pillar on which adult education in the Dominican Republic rests comprises the contributions of Freire and Macedo (1989) with their work on literacy in youth and adults. Social and economic policies need to be included in literacy for it to be successful.

Illiteracy must be eradicated because it affects the development of child labor, youth unemployment, domestic violence, teenage pregnancies, job discrimination, and a long list of et ceteras.

Literacy must be recognized as a fundamental right as it can counteract the negative effects of illiteracy. Basic education is the foundation needed to transform societies and as such it requires an extraordinary amount of economic and civic investment.

Morales, Lavigne and Mecado (2016) maintain that the impact of ICT and the role they play in the educational system as transformers of the teaching-learning process face important challenges that we must take into account in the 21st century.

This article investigates what possibilities there are in the Dominican Republic to implement new technologies and innovations created around the Internet in order to develop a teaching process aided by new technological resources and ICT.

2 Objectives and hypotheses

The general objective of this article is to learn the level of the Dominican Republic in terms of the use of ICT in teaching young people and adults.

The specific objectives of this study are:

SO1: To learn what possibilities teachers have for accessing computers and the Internet, as well as the use they make of them.

SO2: To learn whether teachers consider that they have sufficient skills, both basic and advanced, to implement ICT-mediated activities.

SO3: To learn the importance that teachers give to ICT in the teaching-learning process.

The hypotheses, all referring to the schools and the basic learning process of young people and adults of the Dominican Republic, are the following:

1. There is a low percentage of computers (less than 50%) for teachers to use.

2. The computer is the most used resource compared to other resources available in the classroom.

3. More than 50% of teachers do not have access to the Internet for educational purposes.

4. More than 50% of teachers need to receive more training, both basic and

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specialized, to encourage the use of ICT-mediated activities.

5. Teachers consider that ICT are a key factor for educational progress.

3 Methodology

In the first place, it is worth noting that in this research a quantitative approach is applied to a situation that had yet to be approached from the scientific point of view in relation to the country under study: the Dominican Republic.

A research instrument tested and validated in previous studies and combining knowledge from various authors (TEJEDOR, 2010; BARRÓN, 2009; FERNÁNDEZ, 2003; ZABALZA, 2003; CARMONA, 2008; EC, 2010; MARQÚES, 2011; SHAIKH, 2012; HERNÁNDEZ, 2015) was adapted to collect the information best suited to the situation in which it was to be applied. In order to solve the research problem posed, and to accept or reject the starting hypotheses, we used the survey as it is considered one of the most reliable techniques for the objective pursued:

> The social survey, one of the types most used in quantitative social research, is a method for obtaining information through oral or written questions, posed to a universe or sample of people who possess the characteristics required by the research question (BRIONES, 1996, p. 51).

In this sense, the survey "is the set of processes aimed at obtaining a certain kind of information about a population" (BOSCH, 1993, p. 9) and provides very good results when carrying out opinion studies (HERRERO-GUTIÉRREZ, 2013).

Owing to the large amount of information that can be collected, the survey is a very useful instrument that can be applied from multidisciplinary points of view, among them, education (BRIONES, 1996, p. 51), the case that occupies us here.

The use of this technique is desirable because survey research or sampling surveys (SALKIND, 1998, p. 213) are useful for examining "the frequency and relationships between psychological and sociological variables and investigating constructs such as attitudes, beliefs, prejudices, preferences and opinions" (SALKIND, 1998, p.223). Gathering the opinions of teachers is precisely the essence of the present study.

Our first task was to design the questionnaire:

> The basic instrument for obtaining data in survey research. It is a list of questions, formulated based on the research objectives, which is administered equally to all subjects included in the sample (CEA, 1992, p. 264).

The variables finally included in the survey[1] were the following (Table 1):

1 Survey adapted from (TEJEDOR, 2010).

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Table 1: Grouping of variables.

Block	**Description of block**	**Items**	**Scale**
Sociodemographic variables	Sociodemographic characteristics of the teacher	- Age - Gender - Years of teaching service - Qualifications	- Interval - Dichotomous - Open
Resources present at school	Resources available to the teacher at the school	- Televisions - Sound equipment - Computers - Projectors - Tablets - Interactive digital blackboard	Dichotomous Variable (yes / no)
Resources used in the classroom	Resources present in the classroom	- Televisions - Sound equipment - Computers - Projectors - Tablets - Interactive digital blackboard	Likert scale (never, sometimes, almost always, always)
Availability of Internet	Possibility of access to the Internet and to what end: teaching or administration	- Access to the Internet for teaching - Access to the Internet for administrative purposes	Dichotomous Variable (yes / no)
Basic training in Internet use	Basic training they have in how to use the Internet	- Navigation - Use of search engines - email	Likert scale (none – basic – intermediate – advanced)

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		- Forums, chats… - Virtual platforms	
Intermediate training in new technologies and Internet use	Intermediate concerns in handling the Internet; based on their competences, the use they make of it	- Design of scenarios - Integration of digital resources - Selects and assesses digital resources - Designs and produces digital resources -ICT-mediated assessment - Use of ICT in tutoring and assessment - Interactive debates -ICT-mediated collaborative learning - Use for communicating and seeking information on-line - Virtual Communities - ICT-mediated peer to peer learning - ICT and ethical & legal aspects - ICT and self-management - General knowledge - Handling of basic questions - Tools for basic production and multimedia tools	Likert scale (never, sometimes, almost always, always)

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Importance of ICT in education	Importance they give to ICT in Education as a whole, at school and in the classroom	- Importance of ICT in Education - Importance of ICT at school - Importance of ICT in the classroom	Likert scale (none – basic – intermediate – advanced)
Opinion of the impact of ICT on the teaching-learning process	Opinion of the impact of ICT on the teaching-learning process	- They improve teaching practice - They allow students to learn better	Likert scale disagree – slightly disagree – agree – totally agree)

Compiled by the Authors.

After examining the advantages and disadvantages of the different ways of applying the survey (in person, by phone, on-line...), the phone survey was finally chosen.

Recall that the questionnaire is adapted from previously reviewed studies and the guide was supervised by professors from the University of Salamanca. Cronbach's alpha was calculated to test the reliability of the questionnaire, with a result of α = .903.

3.1 Population and sample

Once the questionnaire had been designed, the next stage consisted of selecting the sample, which had to be done meticulously owing to the “importance of inferring the results of an experiment from a sample to a population” (SALKIND, 1998, p. 96). The selection process is “the basis of the inferential method. If it is not possible to subject all the members of a population to the test, the only option is to select a sample” (SALKIND, 1998, p. 96). The more such a sample resembles the population, the more valid it will be: “When a sample is chosen for a study, the primary objective is to draw one that truly represents the population” (ADAMS, 1989, p. 47).

The initial idea was to choose a probabilistic sample, and to do so the population has to be defined taking into account that “the starting point in the design of a sample is the definition and limiting of the population or universe that is the object of study” (CEA, 1992, p. 279).

In this case, the population comprises all the teachers who are teaching in schools for young people and adults in the Dominican Republic. That amounts to an enormous amount of data and therefore it was not possible to survey the entire population. In an attempt to reach this whole population, we went to the primary sources; the first step consisted in obtaining the number of Educational Centers for Young People and Adults in the Dominican Republic, and to do so, we consulted the following:

- National Coordination of the Department of Basic Education for Young People and Adults of the Ministry of Education of the Dominical Republic.
- General Secretariat for Adult Education.

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Once these primary sources had been contacted, they provided us with information on the total number of Schools for Young People and Adults; however, at the time our study was finished, it had not been possible to access all the teachers and students. The information is shown in Table 2 below.

Table 2: Educational Centers for Young People and Adults in the Dominican Republic.

Regionals	**Educational Centres for Young People and Adults**
1	19
2	27
3	41
4	36
5	26
6	39
7	51
8	33
9	12
10	74
11	32
12	21
13	12
14	34
15	74
16	58
17	23
18	37
TOTAL	**649**

Sources: National Coordination of the Department of Basic Education for Young People and Adults of the Ministry of Education of the Dominical Republic and the General Secretariat for Adult Education.
Table compiled by the authors.

Thus, to select the schools for the study, a simple random sampling was carried out among the 18 Regionals and 3 were selected: Regionals 1, 15 and 16. Next, the sampling of teachers was done by convenience, taking into account the accessibility and predisposition on the part of the teachers themselves. We worked at a level of confidence

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of 95% and a confidence interval of 9.

Finally, a total of 100 questionnaires were administered by telephone, and the sample characteristics can be seen in Table 3 below:

Table 3: Characteristics of the sample.

Gender	Men	43%
	Women	52%
	Don't know / Don't answer	5%
Age (in yrs.)	20-30	15%
	31-40	43%
	41-50	23%
	51 or over	15%
	Don't know / Don't answer	4%
Years in teaching service	0-5	16%
	6-10	21%
	11-15	21%
	16-20	15%
	21-25	8%
	26 or more	15%
	Don't know / Don't answer	4%
Maximum educational level achieved (Degrees)	Currently an undergraduate	5%
	Licentiate or Bachelor's Degree	56%
	Teaching Qualification	2%
	Currently studying for a Master's Degree	12%
	Master's Degree	16%
	PhD	1%
	Others	3%
	Don't know / Don't answer	5%

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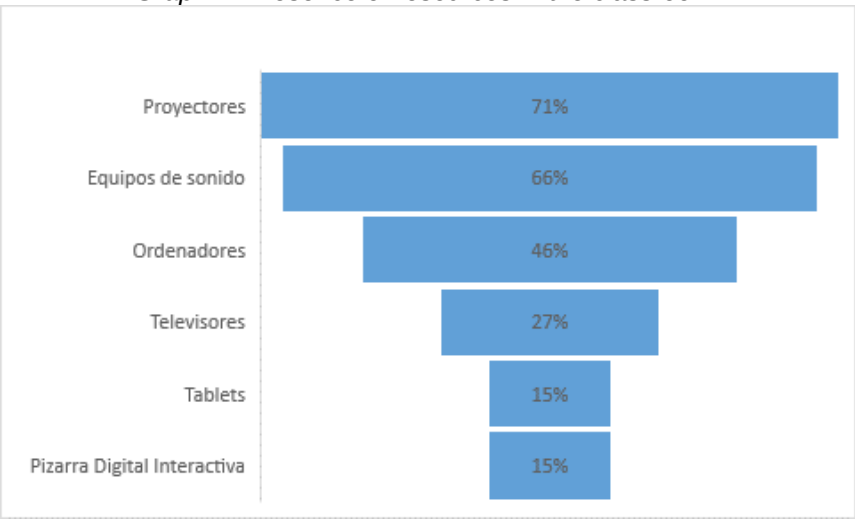
3.2 Results

The most important results of administering the questionnaire to the 100 teachers in our sample are presented in this section. First, they were asked to assess the resources available in the classroom as well as how often they were used. Then they were asked if computers were present in the school, for comparison with other resources (Graph 1) as well as how often they were used (Table 4).

Graph 1: Presence of resources in the classroom.



Compiled by the Authors.

Table 4: Resources used in the classroom related to ICT, new technologies and the Internet.

	Never	Sometimes	Almost always	Always
Televisions	59%	28%	8%	5%
Sound Equipment	34%	45%	16%	5%
Computers	52%	24%	15%	9%
Projectors	39%	33%	21%	7%
Tablets	72%	23%	4%	1%
Digital Blackboard	93%	6%	0%	1%

Compiled by the Authors.

On the surface we could interpret that the low number of computers would correspond to a low use of computers. To verify this, we recoded the variable 'resource used: computer' into a dichotomous yes/no variable (encompassing the 'always', 'almost always', and 'sometimes' answers into 'yes', and 'never' into 'no'). Nonetheless, in compiling the contingency table (Table 5) it was found that there is no dependence of one

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variable with respect to another (Table 6), and therefore we should look for other reasons.

Table 5 (contingency): Computers at the school concentrated in one classroom * Computer use.

			Computer use		Total
			Yes	No	
Computers at the school concentrated in one classroom	Yes	% of Computers at the school concentrated in one classroom	56.5%	43.5%	100.0%
		% of Computer use	54.2%	38.5%	46.0%
		% of the total	26.0%	20.0%	46.0%
	No	% of Computers at the school concentrated in one classroom	40.7%	59.3%	100.0%
		% of Computer use	45.8%	61.5%	54.0%
		% of the total	22.0%	32.0%	54.0%
Total		% of Computers at the school concentrated in one classroom	48.0%	52.0%	100.0%
		% of Computer use	100.0%	100.0%	100.0%
		% of the total	48.0%	52.0%	100.0%

Compiled by the Authors.

Table 6: Chi-squared tests.

	Value	**gl**	**Asymptotic signif. (bilateral)**	**Exact signif. (bilateral)**	**Exact signif. (unilateral)**
Pearson's Chi-squared	2.478(b)	1	.115		
Correction by continuity	1.886	1	.170		

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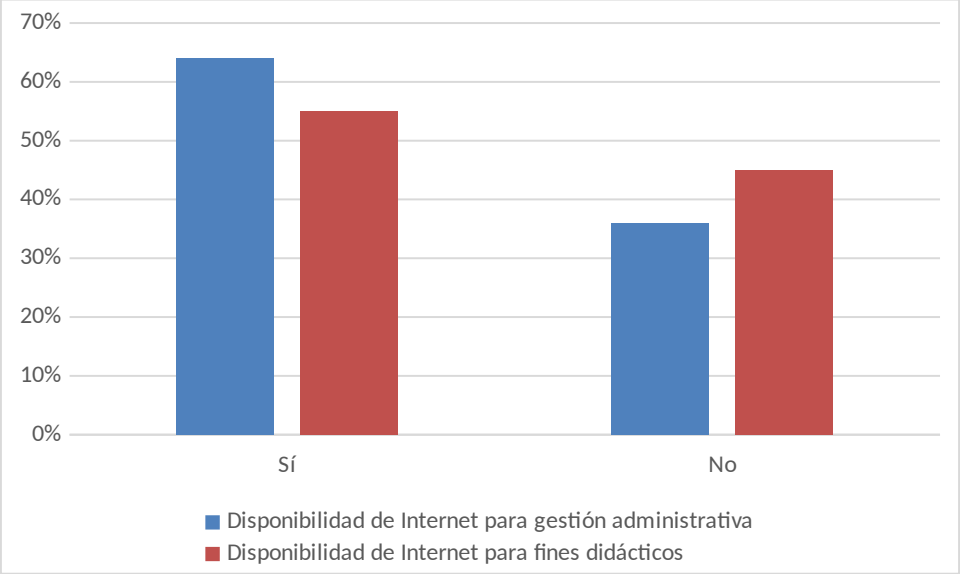
(a)					
Likelihood ratio	2.487	1	.115		
Fisher's exact test				.160	.085
Linear by linear association	2.454	1	.117		
No. of valid cases	100				

a Calculated only for a 2x2 table.
b 0 cells (.0%) have an expected frequency lower than 5. Minimum expected frequency is 22.08.

Compiled by the Authors.

Next, the teachers in the sample were asked about the possibilities for accessing the Internet in the schools. The question was divided into on-line possibilities for teaching purposes and on-line possibilities for administrative (secretarial) purposes (Graph 2):

Graph 2: Facilities available at the school.



Compiled by the Authors.

Subsequently, we asked the teachers a series of question about apparently basic competences in Internet use (Table 7), as well as its use in teaching-learning processes, (Table 8). A Likert scale was used in both cases (none-basic-intermediate-advanced, in the first case; and never-sometimes-almost always-always, in the second case).

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Table 7: Basic training of Teachers in tools of Internet use.

	Mean (1-4)
Navigation of websites	2.55
Use of search engines	2.70
email	2.76
Discussion forums, chats, messengers, wiki, blogs, webquest, etc.	2.46
Virtual platforms	2.11

Compiled by the Authors.

Table 8: Digital competences related to ICT, new technologies and the Internet.

	Mean (1-4)
Uses the new learning modalities, both as user and designer of learning scenarios with ICT	2.23
Integrates digital resources as didactic instruments, contents, or materials in strategies	2.35
Selects and assesses digital resources for their incorporation in contextualized practices: designs, implementation and use of technologies	2.26
Designs and produces educational digital resources	2.22
Develops assessment plans using ICT	2.21
Uses ICT for assessing, orientating and monitoring of students	2.22
Initiates and maintains interactive debates	2.21
Promotes collaborative, constructive, active and authentic learning	2.46
Knows the basic concepts and tools of communication and consulting information on-line	2.34
Collaborates in virtual communities with actors in the teaching-learning process	2.22
Fosters peer-to-peer learning and social links	2.31
Understands the ethical-legal aspects associated with ICT through social media: licences, privacy, intellectual property, security, etc.	2.27
Self-manages permanent learning about technological implementations for their incorporation to the teaching-learning process	2.38
General knowledge associated with ICT	2.56
Handles basic computer functions and electronic devices and their	2.40

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operating systems	
Manipulates basic production tools: text processors, spreadsheets, presentations and multimedia elements	2.37

Compiled by the Authors.

In addition, significant results were obtained in some of these variables when they were crossed with age groups, as in the case of the variable 'training: navigating websites' (Chi-square value = 18.023; asymptotic significance (bilateral) = .035.

We also found significant results (<0.05) regarding age groups with respect to the following variables:

- Integrates digital resources as didactic instruments, contents, or materials in strategies (value = 20.424; associated likelihood = .015).
- Develops assessment plans using ICT (value = 17.979; associated likelihood = .036).

Next, the teachers were asked about their perception of the influence of ICT, new technologies and the Internet in the teaching-learning process; on one hand, about the importance of these tools in education as a whole, at school and in the classroom (Table 9); and on the other, about whether these tools improve their teaching practice and help students learn better (Table 10).

Table 9: Importance of ICT

	None	**Little**	**Some**	**Substantial**
In Education	8%	1%	33%	58%
At the school	7%	1%	31%	61%
In the classroom	8%	1%	32%	59%

Compiled by the Authors.

Table 10: Opinion concerning the impact of ICT, new technologies and Internet on the teaching-learning process.

	Disagree	**Agree somewhat**	**Agree**	**Strongly agree**
Improve their teaching practice	7%	7%	24%	62%
Help students learn better	7%	6%	24%	63%

Compiled by the Authors.

4 Conclusions

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This pilot project has investigated a real situation that had scarcely been approached from a scientific point of view. The results provide revealing data on the situation of the Dominican Republic in relation to the processes of youth and adult literacy.

Whenever we talk about ICT and their relation to teaching-learning processes, we tend to think of developed countries, where new technologies are fully integrated and the main concern is to know which ones to use and which ones not to use, and for what purposes.

However, we must not ignore the countries where these resources are not fully integrated into schools, as is the case here, or the type of education being investigated, because at the same time they are countries that fervently wish to become more developed, and whose authorities are aware of the importance of implementing the most advanced resources to successfully support the education system.

The first relevant outcome is the very fact of observing what kind of resources teachers have at their disposal. As shown in the results, the computer is available to less than 50% of teachers, which confirms our starting hypothesis 1, which indicated that 'there is a low percentage of computers (less than 50%) at the service of teachers'. As can also be seen in the results, there is no relation of dependence between ‘computers present in the school’ and their use.

In regard to our analysis of the use of the computer in comparison with other resources, we can conclude that this tool is not the most used resource, and thus we must reject starting hypothesis 2, which states that ‘The computer is the most used resource compared to other resources available in the classroom’.

The mere fact that there is a greater number of resources (computers in this case) does not influence their greater use, so we must find reasons why teachers do not use computers. It could be the lack of training, which we analyse later, or perhaps also the teachers' own insecurities, a variable not considered in this study but which could be a future line of research.

Another important finding to highlight is the possibility of using the Internet for educational purposes. We reject our starting hypothesis 3, which stated that ‘more than 50% of teachers do not have access to the Internet for educational purposes’, although the percentage found was very close (45%).

Going back to the above, and the need for teachers to overcome their own insecurities, we must highlight the results that indicate that many teachers declare they lack basic skills (see results); this percentage is somewhat higher in the case of more advanced competences.

Based on the results, we cannot accept hypothesis 4 as proposed (‘More than 50% of teachers need to receive more training, both basic and specialized, to encourage the use of ICT-mediated activities’), due to a lack of specificity, and thus more lines of research should be opened in this sense.

The fifth and final hypothesis reads: ‘Teachers consider that ICT is a key factor for educational progress’. As a result of the findings obtained, we can accept this starting hypothesis. Thus, no dependency values were found either by age groups or by years of teaching. However, significant values were indeed found when calculating the chi-square test among the variables: computers at the school – importance of ICT in Education/school/classroom; computers at school – allow students to learn better and

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computers at school – improve teaching practices.

To conclude the present research study, we can affirm that it is true that the youth and adult literacy centers in the Dominican Republic need a greater number of resources to facilitate the implementation of ICT-mediated teaching.

Likewise, although the country is improving its conditions in a plausible way, we can still affirm that there is a certain deficit in the implantation of the Internet as a basic tool to strengthen the educational system. Now, however, with these findings we cannot attribute everything related to the deficit in immersion in the new technologies to the lack of resources.

The Dominican Republic is a country that is prioritizing Education, and the training of its teachers, and the authorities are well aware of its importance. Hence the Government is increasingly implementing and offering programs aimed at strengthening digital skills in teachers. In light of the data obtained, it is necessary to continue to strengthen these competences, not only at an advanced level, but also at a basic level, with the primary aim of teachers losing their fears and uncertainties regarding the use of tools that will ultimately be to their benefit. Also, based on the significant results, this should be addressed by age groups, seeking to have a greater impact on older teachers.

Finally, we cannot fail to highlight another of the most motivating factors of this study: the hypothesis that teachers consider ICT as a key factor in the educational process is corroborated. This encouraging fact serves to enable the country to continue to strengthen programs that help ICT-mediated education to continue to be a priority area and thus continue to raise the literacy level of its citizens.

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