

## Artículo de Revisión

### *A university teachers' perceptions of the use of information and communication technology in teaching: a qualitative study*

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## Abstract

Information and conversation technology (ICT) represent an essential device for the development of gaining knowledge of environments guided with the aid of using digitality, and that, without a doubt, require good enough applicability and use primarily based totally on significant coaching techniques for the student. Given its importance, the existing evaluation targets to research the perceptions of college instructors approximately using ICT in coaching from a qualitative exploratory observe: to meet this objective, first, a documentary seek of twenty-two articles executed on University of Ecuador concerning the use and belief of ICT in college coaching; second, the theoretical basis and applicable findings on the subject are decided on to shape an evaluation concerning opportunities and possibilities for improvement; Third, a dialogue is executed that permits the knowledge of social illustration phenomena concerning ICTs in Ecuadorian universities. As a methodology, an exploratory qualitative observe is carried out via a literary evaluation that bills for the phenomenon of instructors' perceptions withinside the use of technology as an essential device for gaining knowledge of; Thus, the documentary seek is executed in research from Ecuador which have been finished for a most of five years. As a result, the evaluation seeks to shape an evaluation that explains instructors' perceptions and construct techniques that assist enhance their utility for coaching.

**Keywords:** Perceptions, information and communication technologies (ICT), university education, teaching.

## Resumen

Las Tecnologías de la Información y la Comunicación (TIC) representan un dispositivo esencial para el desarrollo de entornos de aprendizaje guiados por el uso de la digitalidad, y que, sin duda, requieren de una aplicabilidad y uso suficientemente buenos y basados en técnicas de formación totalmente significativas para el alumno. Dada su importancia, la presente evaluación tiene como objetivo investigar las percepciones de los docentes universitarios acerca del uso de las TIC en el entrenamiento desde una observación exploratoria cualitativa: para cumplir con este objetivo, en primer lugar, se realiza una búsqueda documental de veintidós artículos sobre el uso y creencia de las TIC en el entrenamiento universitario en la Universidad del Ecuador; en segundo lugar, se deciden las bases teóricas y los hallazgos aplicables sobre el tema para conformar una evaluación sobre las oportunidades y posibilidades de mejora; en tercer lugar, se realiza un diálogo que permita conocer los fenómenos de ilustración social sobre las TIC en las universidades ecuatorianas. Como metodología, se realiza una observación cualitativa exploratoria a través de una evaluación literaria que da cuenta del fenómeno de las percepciones de los docentes dentro del uso de la tecnología como dispositivo esencial para el conocimiento; Así, la búsqueda documental se realiza en investigaciones de Ecuador que han sido realizadas durante un máximo de cinco años. Como resultado, la evaluación busca dar forma a una evaluación que explique las percepciones de los instructores y construir técnicas que ayuden a mejorar su utilidad para el entrenamiento.

**Palabras clave:** Percepciones; Tecnologías de la Información y la Comunicación (TIC); Enseñanza Universitaria; Docencia.

## 1. INTRODUCTION

Information and Communication Technologies (ICTs) set up a essential component for coaching in a manner that helps the transmission, access, and transformation of know-how from the techniques proposed via way of means of the trainer withinside the faculty environment. Thus, coaching strategies require the implementation of powerful know-how techniques that assist college students apprehend the phenomena of truth and thus, shape powerful problem-fixing practices the use of the obtained know-how. In accordance with the above, the sector of ICT incorporation is a place that features a wide evaluation because it constitutes an essential device for know-how withinside the twenty first century. Therefore, for the existing objective, a dialogue is proposed at the perceptions that instructors have concerning virtual technology to contain sorts of records and communication. Based in this evaluation, the purpose is to apprehend the social representations that instructors have approximately this device and the way they use it to gain know-how and know-how transformation. In this sense, this newsletter objectives to investigate the perceptions of college instructors concerning the usage of ICT in coaching via a qualitative exploratory examine of literary review. To do this, first, a documentary seek of research carried out in Ecuador on perceptions of era use in universities is achieved to apprehend its implementation and realistic possibilities for scholar know-how. Secondly, an evaluation is made round the principle classes and the definition of notion consistent with the gaining knowledge of targets that expert topics ought to collect from college. Thirdly, a dialogue is constructed across the theoretical basis and the outcomes observed withinside the research blanketed withinside the evaluation, in order that a complete attitude on how instructors in Ecuador use era and the development possibilities it builds may be understood. Regarding the methodology, an exploratory qualitative evaluation is applied from the documentary seek and the evaluation of outcomes and facts obtained, to be able to discover the phenomenon withinside the context of Ecuadorian universities.

## 2. DEVELOPMENT

The use of Information and Communication Technologies (ICTs) constitutes an essential challenge for attaining huge affects on studying inside instructional degrees and systems, specially in strengthening existence capabilities in individuals. Thus, the implementation of technology withinside the studying manner of college students is vital to instill motivations and alertness areas for thematic content material amongst learners. Therefore, the instructor performs a vital function in guiding and organizing techniques to construct and remodel expertise via scholar participation. Consequently, the notion and use of technology through instructors assemble a direction of coaching via this device, whether or not advantageous or bad relying on its manifestation. Hence, it may be affirmed that bad perceptions of instructors in the direction of technology avert the development of virtual coaching environments.

In line with the above, Paredes-Prada states that the usage of ICT in college schooling is a subject analyzed in current studies because it constitutes an essential step for the coaching and studying manner, main to modifications withinside the methods content material is transmitted and applied. From this angle, the usage of virtual structures and technology impacts studying, a scenario that need to be recommended through instructors to set up virtual literacy paradigms. Additionally, Martinez et al. point out that the usage of ICT poses a assignment for instructors in each offline and on line environments, because it calls for the challenge of allowing college students to collect and observe studying via interactivity. Therefore, ICT's gift a assignment for instructors as they require precise capabilities to enhance studying environments and facilitate coaching approaches.

### Perception of ICT Use in University Teachers

Perception is a cognitive manner of attention that entails the recognition, interpretation, and importance of gear or phenomena for forming judgments approximately sensations acquired from the bodily and social environment. Thus, the notion of ICT use explains the methods wherein instructors apprehend virtual technology, primarily based totally on their studies or lack of information concerning the device. A take a

look at on instructors' notion of the hyperlink among technology and schooling mentions that instructors agree that technology enhance coaching agency and decorate lively listening and scholar participation. Therefore, instructors' perceptions of ICT use combine utilization studies and remark approaches that permit them to apprehend the device and shape vital reviews concerning its employability and effectiveness for studying.

Consequently, the sort of utilization that instructors provide to media of their practices constitutes differences among concept and curriculum. If instructors make suitable use and shape advantageous perceptions of technology, then analytical practices of statistics are formed, main to representations, problem-solving, and studying via new coaching systems: interpretation and dating of expertise with the context. From the angle of instructors, college students understand technology as purposeful gear for expertise and its transformation, or conversely, they restrict their studying to the use of them in leisure settings disconnected from the instructional context.

## Technological Use Competencies for Teachers

Moreover, Sumba-Nacipucha asserts that withinside the new instructional context marked through the coronavirus, coaching practices ought to reformulate through incorporating ICT in a applicable way in content material and theories coaching in order that they're relevant to real-existence contexts and might generate simulation areas via virtual means. Therefore, a conceptual evaluation of the TPACK version proposed through Koehler and Mishra is suggested. They are seeking to outline 3 number one kinds of expertise and their intersections, which instructors ought to master: content material expertise (CK), pedagogical expertise (PK), and technological expertise (TK). Additionally, they outline pedagogical content material expertise (PCK), technological content material expertise (TCK), technological pedagogical expertise (TPK), and finally, technological pedagogical content material expertise (TPACK).

To give an explanation for further, CK defines what's taught and refers to instructors' expertise and understanding withinside the location they teach, producing reflections and learnings approximately theories, concepts, models, proof expertise, and tests. Secondly, PK shows how coaching need to be performed and addresses the expertise that instructors deal with to design, develop, and put into effect techniques, consequently having the challenge of coaching and concurrently transmitting precious studying for person wishes and interests. Thirdly, TK pertains to the virtual capabilities that instructors ought to have clean knowledge of to deal with numerous gears and to be had technology. Fourthly, PCK permits the instructor to pick out competencies to enhance techniques and consequently set up pedagogical strategies for the useful acquisition of expertise. Fifthly, TCK defines the correct gear to be used in conversation and content material coaching, so instructors ought to be acquainted with virtual gear and structures to gain studying outcomes. Sixthly, TPK strengthens the pedagogical notion via ICT implementation, primarily based totally on formerly installed objectives. Finally, TPACK addresses the intersection of preceding expertise and the definition of latest studying that constitutes the performance of coaching and studying via technology.

## 3. METHODOLOGY

Considering the goal of studying the perceptions of ICT use via way of means of college instructors in Ecuador, a qualitative exploratory evaluation is performed thru a literature evaluation. With this in mind, the goal is to deepen the evaluation of the significance for instructors to construct advantageous perceptions concerning ICT and to recognize their use with a view to set up practices of technological innovation. In doing so, those practices permit expertise and help college students in making use of it responsibly in each exercise and reality. For this text, a literature evaluation is performed on research performed in Ecuador concerning trainer perceptions withinside the college context, specializing in primary classes consisting of ICT utilization and instructors' perceptions of era. This is executed to satisfy the overall goal and make a contribution to the dialogue on an appropriate implementation of ICT.

## Exploratory Study

According to Hernández-Sampieri and Mendoza-Torres, an exploratory have a look at entails the exam of a brand new or little-studied phenomenon or studies hassle, approximately which there are doubts. Thus, a literature evaluation is carried out to show pointers at the have a look at hassle and bear in mind new views. Therefore, the evaluation makes a speciality of delving into the significance of instructors' perceptions of era use, as private motivations or conventional methodologies withinside the school room are frequently overlooked, hindering using era to convert learning. Hence, thru an exploratory have a look at, contributions are made to the dialogue on perceptions of era use that beautify get admission to to records and foster powerful verbal exchange scenarios, which include trainer-scholar interactions.

In line with Sampieri-Hernández et al., a literature evaluation entails the detection and session of applicable bibliography and substances for the have a look at's purpose. This calls for amassing pertinent records to border the studies hassle, necessitating a selective seek that cling to a radical evaluation posted in journals of hobby for expertise and studies. Thus, this text performed a literature evaluation to deepen information of instructors' perceptions of era use in college institutions, aiming to increase the evaluation of the phenomenon and make a contribution to the dialogue at the significance of making techniques that outline expertise thru era.

## Population

For the bibliographic seek, a complete of twenty-two articles had been considered, acquired from educational databases consisting of Scielo, Redalyc, Dialnet, and Google Scholar.

## Inclusion Criteria

The protected articles should be posted in the beyond 5 years, make a contribution relevantly and accurately to the have a look at, and facilitate a profound evaluation that clarifies instructors' perceptions of ICT use. Additionally, they need to offer techniques that beautify views and, consequently, expertise practices. Lastly, most effective research performed in Ecuador had been considered.

## Exclusion Criteria

Articles that don't meet the required inclusion standards had been excluded from this have a look at. Considering the said goal, a qualitative method became carried out with an exploratory intent, drawing from preceding research concerning the perceptions of college instructors in Ecuador. To perform the exploratory have a look at, a look for 22 articles became performed in educational databases, making sure they supplied in-intensity analyses, highlighted expertise gaps, and facilitated the development of advantageous perceptions concerning using virtual technologies.

## 4. RESULTS

The literature seeks diagnosed that research performed on teachers' perceptions of ICT use in coaching are minimal. The majority of studies or research attention on reading using ICT as an essential device for studying however do now no longer specially delve into the effect of teachers' perceptions at the technology of techniques and the ideal use of generation for the development of realistic expertise in universities. This justifies the want for an exploratory look at to offer a particular contribution at the significance of constructing high quality perceptions and expertise of technology amongst college teachers, in order that the practices carried out via way of means of experts may be better thru digitality and interactivity. Therefore, a class of 3 predominant classes guiding the prevailing evaluation is established: firstly, using ICTs in better schooling in Ecuador; secondly, teachers' notion of technology, digital schooling, and on line studying; and lastly, teachers' virtual skills for coaching. The aforementioned is supplied withinside the following table:

**Table 1:**

Studies Found via way of means of Analysis Categories

Category	Number of Studies Found
Use of ICTs	11
Teachers' Perception of Technologies, Virtual Education, and Online Learning	9
Digital Competencies	2
Total	22

**Source:** Own elaboration

According to Table 1, a complete of eleven research recognition at the evaluation of ICT use, even as nine research examine teachers' perceptions of technologies, digital education, and on-line learning. Additionally, 2 research recognition on teachers' virtual talents for the right implementation of ICT. The research have been carried out the usage of databases together with Redalyc, Scielo, Dialnet, and Google Scholar, labeled as follows:

**Table 2:**

Studies Found in Academic Databases

Database	Found	Selected
Scielo	13	5
Dialnet	9	4
Redalyc	7	6
Google Scholar	43	7
Total	72	22

**Source:** Own elaboration

According to Table 2, a complete of seventy-two research have been located with the quest performed in Ecuador from 2019 to 2024, specializing in the primary categories: ICT use and teachers' perceptions concerning ICT in teaching. Specifically, in Scielo, five research met the inclusion standards and contributed to the have a look at topic. In Dialnet, nine research have been recognized in Ecuador and different Latin American countries, of which four have been decided on to useful resource in producing a stable evaluation primarily based totally on latest research. In Redalyc, 7 research have been located, of which 6 have been decided on as they offer a crucial and various attitude on technological structures from the standpoint of college teachers. Finally, Google Scholar yielded a huge range of investigations, of which 7 have been decided on due to the fact they represent applicable research for the goal of the prevailing article.

## 5. DISCUSSION

The examine with the aid of using Espinoza-Cedeño et al. (Espinoza-Cedeño, 2022) asserts that fundamental schooling in Ecuador encompasses ranges of examine aimed toward growing students' talents to communicate, interpret phenomena, and clear up issues in reality, thereby expertise herbal and social life. It consists of a focal point withinside the Ecuadorian schooling suggestion at the students' cappotential to use ICT to clear up sensible issues and have interaction in significant educational sports carried out with the aid of using instructors. Additionally, Paredes-Parada's examine (Paredes-Prada, 2019) shows that given

that 2008, governmental modifications had been carried out in Ecuador to enhance the excellent of better schooling establishments thru ICT, aiming for instructors to apply supportive gear of their classes. However, the restrained utilization of interactive gear with the aid of using instructors is clear because of vulnerable technological infrastructure and restrained technological get admission to withinside the institutional environment.

In line with this, Sarmiento-Torres (Sarmiento-Torres, 2021) states that right instructor education and availability of education possibilities allow the introduction of handy era environments for coaching. Moreover, Scolari (Scolari, 2018) emphasizes the significance of tutorial groups offering instructors with education to create virtual environments and use ICT with expectancies of innovation and creativity withinside the classroom. Therefore, instructors' expectancies concerning ICT utilization rely in large part at the education and virtual literacy packages supplied via way of means of establishments, and consequently, the received abilities allow them to enhance studying environments and facilitate coaching approaches. Practically, the research discovered propose that instructors' perceptions of ICT utilization want to be greater via way of means of establishments via education strategies. Specifically, Calle et al.'s study (Calle, 2021) highlights that instructors' perceptions of ICT utilization stay constant whether or not in face-to-face or digital environments, indicating a loss of sizable use of technology in understanding formation. Hence, they finish on the need of growing education tactics to educate the right implementation of technology.

Moreover, Díaz-Vera et al. (Díaz-Vera, 2020) nation that requirements for ICT abilities in instructors have been proposed in Ecuador because 2008 to consolidate nice perceptions in their implementation. However, there's little proof of a great alternate withinside the adoption and alertness of ICT as an essential requirement amongst instructors. Despite the instructional requirements for ICT abilities in instructors, the take a look at concludes that neither instructors' nor students' perceptions and motivations to be used have stepped forward because of the absence of accountable coaching techniques thru technologies. Another take a look at determines that instructors' pleasure stages concerning era for coaching are mild because of current technological gaps hindering powerful education and suitable use for theoretical and realistic content material treatment (Obaco.Soto, 2023).

All the aforementioned proof shows that instructors' perceptions of ICT utilization substantially rely on the possibilities they have got for having access to interactive systems and the formal education areas supplied for the purchase of virtual abilities guiding coaching skills. López et al. (López, 2022) verify that instructors understand digital schooling stages requiring extra help to set up new coaching modalities, with instructors being the certified entities to assemble interplay and new gaining knowledge of from era. As Arroyo-Vera et al. (Arroyo-Vera, 2018) mention, "digital instructors can be answerable for enriching that gaining knowledge of area with key contents for the student. The use of realistic icons and sports geared toward stimulating self-sufficient gaining knowledge of generate abilities." In line with this, authors agree that formalizing era gaining knowledge of is a need withinside the instructional community, supported via way of means of instructors' views on ICT utilization in coaching.

Furthermore, Tejedor et al.'s studies (Tejedor, 2020) findings imply that surveyed instructors in Ecuador trust that institutional education must pass past the instrumental person of ICT, inclusive of complementary dimensions primarily based totally at the curriculum, pragmatics, academic psychology, photograph design, evaluation, time management, amongst others, together with studies and conversation skills. Thus, instructors' perceptions of ICT are essential in spotting the want for enhancements in instructor competency acquisition to permit them to put in force coaching centers properly.

## Strategies for ICT Applicability in Higher Education

Analyzing Martínez-Sanz and Arribas-Urrutia's study (Martínez-Sanz, 2021), virtual literacy dimensions include: obtaining capabilities in the use of gear connected to records technology; learning bureaucracy and techniques of getting access to net assets; the capacity to use using technological gear in studies and expert information application; the ability to disseminate records; imaginative and prescient and information of the set of technological innovations; and the capacity to significantly examine benefits. All those represent gear for strengthening college instructors' perceptions of era utilization, as they embody now no longer best

ability acquisition however additionally mirrored image and crucial attention in their use withinside the academic setting.

Chávez et al.'s study (Chávez, 2020) confirms that digital schooling calls for instructors' flexibility as there are nevertheless demanding situations hindering college students' studying acquisition. This is due to the fact instructors do now no longer use virtual structures withinside the college context, and furthermore, virtual gaps in a few college students' locations of house avoid the right implementation of technology and virtual environments in coaching. Therefore, it's miles proposed to formalize techniques to lessen those gaps and permit better schooling to offer options to facilitate the coaching and studying process, making sure each instructors and college students toughen their virtual competencies.

Another notion is the incorporation of assets for independent studying and using laptop assets that decide assisted coaching, dynamic records, and conversation amongst college students. This is due to the fact using laptop assets as a way of conversation and records includes using seek engines, social networks, emails, in addition to PowerPoint presentations, videos, didactic guides, amongst others (González-Prado, 2017).

Thus, instructors' perceptions of ICT utilization spark off crucial reflections on institutional demanding situations and additionally advise answers including the provision of infrastructure or gadgets for studying. In addition, Esparza-Cruz's study (Esparza Cruz, 2017) carried out with UTB instructors confirms that instructors' perceptions of ICT utilization have an excessive level, as 87% of them declare to learn to guide.

## 6. CONCLUSIONS

In conclusion, instructors' perceptions of ICT utilization entail the want to construct environments for virtual competence education, which assist instructors to manual college students and, above all, to create useful coaching environments. Thus, the literature assessment decided the life of classes of ICT utilization in coaching, perceptions in their utilization, and virtual talents, which shed mild on instructors' practices and the supply of systems for getting to know, making sure continuity and accurate implementation in digital settings. Ultimately, technology offer getting to know possibilities via virtual systems, social networks, email, presentations, audiovisual formats, amongst others, allowing college students to apprehend real-international phenomena and observe their information practically.

Therefore, patience in ICT utilization shapes tremendous and strong perceptions in their utilization in coaching amongst instructors. This is due to the fact the research determined suggest that each the infrastructural readiness of the distance and the frequency of its implementation and utilization facilitate the incorporation of digitality in getting to know. It is clear, then, that instructors understand technology as a essential device in coaching, and thus, virtual talents need to be reinforced via education strategies that permit instructors to create sports the use of virtual systems. Likewise, it lets in college students to ponder their capabilities and interact in self-sustaining getting to know strategies professionally.

Consequently, instructors' perceptions of ICT utilization monitor an acknowledgment of technological availability shortcomings in Ecuadorian college institutions, which give an explanation for the gaps in utility withinside the college surroundings. Thus, instructors are aware about the education sports they need to go through for era to end up a device for enhancing getting to know. In mild of all of the findings, it's far crucial to delve deeper and reiterate the evaluation of perceptions of ICT utilization to certainly apprehend the shortcomings and lack of information and alertness of ICT withinside the college surroundings via way of means of instructors as information courses in Ecuador and Latin American countries.

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