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Article

Educational leadership and teacher digital competencies

El liderazgo educativo y las competencias digitales docente

La formación universitaria y su impacto en la arjumentación jurídica en casos de femicidio

Mercedes Monserrate Muñoz Muñoz *
Ruben Dario Vera Vera*

Abstract

The present research focused on the topic of leadership and digital teaching competencies, as the current educational environment demands changes and innovation. Traditional education still persists in some schools in the country, with teachers having minimal knowledge of technology management in pedagogy. Therefore, the purpose of this work was to identify educational leadership, pedagogical, and technological models to develop digital competencies in teachers. The methodology had three moments: the first was to examine the transformational model of educational leadership through literature review. The second moment analyzed the TPACK pedagogical model, identifying how the combination of pedagogy, technology, and content can enhance teachers' educational practices. Finally, a proposal was made based on the design of a guide oriented to the TPACK model, explaining pedagogical and technological resources, tools, and programs for participants to develop the digital competencies demanded by

* Unidad Educativa Técnico Pedernales, economista, mercedesm.munoz@educacion.gob.ec, https://orcid.org/0000-0002-6462-5646.

* Unidad Educativa Técnico Pedernales, Ingeniero, ruben.verav@educacion.gob.ec, https://orcid.org/0000-0002-6462-5646

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current society and education. The results provide detailed explanations of the training and evaluation phases that teachers will undergo at the end of the school year. These phases cover pedagogical, curricular, and digital competencies such as digital literacy, communication, content creation, security, problem-solving, as well as knowledge of technological tools such as Genially, Canva, Google Scholar, Microsoft Office, among others, making educational settings active environments for learning.
Keywords. Leadership, competencies, teaching, TPACK model.

Resumen

La presente investigación abordó el tema del liderazgo y competencias digitales docentes, debido a que el entorno educativo actual exige cambios e innovación. La educación tradicionalista aún se mantiene en algunas escuelas del país, docentes con mínimos conocimientos sobre gestión de tecnologías en pedagogía. Por tanto, este trabajo tuvo como finalidad identificar modelos de liderazgo, pedagógicos y tecnológicos educativos para generar competencias digitales en sus docentes. La metodología tuvo tres momentos el primero examinó el modelo transformacional de liderazgo educativo, mediante la búsqueda de literatura. El segundo momento analizó el modelo pedagógico TPACK, donde se identificó como la combinación de la pedagogía, la tecnología y los contenidos pueden mejorar las prácticas educativas de los docentes. Por último, se realizó una propuesta en base al diseño de una guía orientada al modelo TPACK, que explica los recursos pedagógicos, tecnológicos, herramientas y programas para que los participantes desarrollen competencias digitales que demanda la sociedad y educación actual. Los resultados son las respuestas al diseño de la propuesta donde se explicó de manera detallada las fases de la capacitación y evaluación que los docentes tendrán al finalizar el año escolar. Estas fases explican las competencias pedagógicas, curriculares y digitales como: alfabetización digital, comunicación,

creación de contenidos, seguridad y resolución de problemas, a esto se suma el conocimiento de las herramientas tecnológicas como por ejemplo genially, canva, Google académico, Microsoft office entre otros, estos elementos hacen del entorno educativo escenarios activos de educación.

Palabras clave: Liderazgo, competencias, docentes, modelo TPACK

Introduction

Educational leadership and digital competences of teachers to make teaching-learning effective in the technological and pedagogical field, are events that have been reformed in recent times due to global changes. These changes where innovation is persistent and people are forced to change their way of life by discovering new trends in personal and professional life. These contexts involve all areas and education does not escape from these demands, the educator needs to be updated to compete with the student who is a digital native, and somehow leaves the teacher who is a technological immigrant at a disadvantage (Argudo & Tenecela, 2020).

ICT-trained teachers need to combine pedagogy with the technical to generate meaningful learning (Amaya et al., 2020), thus creating conducive environments and generating opportunities in the physical or digital classroom (Cejas León et al., (2016). The didactic combination of technology and methodology creates situations of internalisation and construction of independent knowledge in the learner.

With regard to work in the classroom, there is evidence of cases of teachers with minimal experience in handling computers or computer programmes. Therefore, the traditionalist methodology continues to be applied, which affects the educational component Ruiz, (2010) and ignores the advantages of integrating computer competences with pedagogical ones.

On the other hand, difficulties are observed in public educational institutions, where the authorities do not manage resources and depend on the educational or zonal districts to request them. This leads to tedious bureaucratic procedures for the acquisition of technological tools, but teachers who are committed to education invest part of their income in technological equipment and systems to improve the educational environment, and those who lack commitment do what is necessary. Overall, there is still a long way to go to take advantage of the benefits provided by ICT.

This research is based on educational theories and models, starting with the constructivist one. This theory explains that the subject constructs knowledge of reality through cognitive mechanisms that are available and that allow transformations of that same reality (Araya et al., 2007).

The theory of transformational leadership defines a 'leader as one who motivates people to do more than they themselves expect and as a consequence changes are produced in groups, organisations and society' (Torres & Riaga, n. d.). This theory focuses on the individuality of the person as a human being capable of developing their skills to such a degree that they are able to fulfil their goals in an intimate way. It leads to inspiration and elevates the capabilities of the individual because the leader cares about his or her staff. He possesses verbal skills, and acts in the right way to instil a role model. Therefore, this model will be feasible to promote digital competences in teachers.

Following the different researches, the use of the TPACK model, which stands for combined pedagogical, technological and curriculum, has been found. It is a model that works to integrate the teaching process with ICT, to be able to use it, teacher training is essential, where mediation allows to cover all the expectations of the learner in the educational scenario (Amaya et al., 2020).

The teacher with a high level of digital competences is provided with leadership in the classroom. They are capable of being a successful mediator as they know how to induce students to learn effectively, because of this they manage the methods, tools, computer systems, among others, to influence the group of students they are in charge

of, fostering a productive teaching-learning environment; however, it has been shown that not all teachers are prepared to teach the Z and Alpha generations. Under this premise, this research aims to identify leadership, pedagogical and educational technology models to generate digital competencies in their teachers and thus provide effective teaching to the new generations.

Materials and methods

Objective 1.

The first objective is to examine the transformational model of educational leadership through a literature search in order to investigate the socio-psychological effects on organisational change and the improvement of results in the school context.

Objective 2.

For the development of the second objective, it has the same characteristics as the first one, except that the TPACK pedagogical model will be analysed, where the aim is to identify how the combination of pedagogy, technology and contents can improve the educational practices of teachers.

Objective 3.

In order to fulfil objective 3, a proposal will be made based on the design of a guide oriented towards the TPACK model, which will explain the pedagogical and technological resources, tools and programmes for teachers to develop the digital competences demanded by today's society and education.

Results

People who manage educational institutions must follow models of leadership. Therefore, following Leithwood's theory of transformational leadership highlights the leader as an inspirer or role model because of the actions he or she takes. He engages his collaborators in training, or professional stimulation by honing their skills, raises their awareness and inspires human purpose (Leithwood, 2009).

Another theory that stands out in the educational field and for the purposes of this research is the theory of connectivism of Siemens George, is a learning model that includes the foundations of constructivism recognising technology as a source of importance in teaching and learning in the new digital era and its immersion in today's society (Siemens, 2004).

In terms of pedagogical models, TPACK, Technological, pedagogical, content knowdege (technical, pedagogical, content knowdege) stands out. Originally defined by Keehler & Mishra (2009) explains its three elements, first is content knowledge (CK), in this element the teacher must have considerable instructions regarding the subject he/she is going to teach, improvisation is not accepted, he/she must know the theories and deep facts of the science he/she teaches.

In the same way, there is pedagogical content knowledge (PCK) in this scenario the teacher must have knowledge of pedagogy, effective functionality of teaching and learning. Then there is technological knowledge (TK), at this point it is essential to have knowledge of and the ability to adapt to the changes that occur in a digital age.

In addition, technological pedagogical knowledge explains how teaching and learning can change with the intervention of technology. That is, the teacher must have an open and innovative mind to involve pedagogy with technological tools that are in the world, however, many have commercial or entertainment purposes. It is then when the teacher through creativity uses them for the educational environment (Koehler & Mishra, 2009).

To elaborate an explanatory guide of the components of the TPACK model to guide teachers in the use of pedagogical and technological tools, so that they can develop digital competences.

To train teachers in the use of technological and pedagogical tools based on the TPACK model.

Evaluate teachers at the end of the school year on digital competences based on the TPACK model. The following proposal will begin with the socialisation of the explanatory guide of the components of the TPACK model, followed by a training that will aim to teach teachers the pedagogical procedures and technological tools for the improvement of activities within the classroom. T

To evaluate the proposal, it will be necessary to do so in two ways: the first is to assess the results of the training and the second is to evaluate the management of pedagogy, curriculum and ICT, focused on the TPACK model, at the end of the course.

In the first instance, training will be evaluated based on the contributions of e (Hidalgo-Parra et al., 2020), where he explains that evaluation is carried out at four levels:

- Reaction: the reaction of those receiving the training is measured, i.e. the quality of the programme and the performance of the facilitator, where information is obtained through interviews or surveys.

- Learning: this is obtained through the measurement of knowledge, which can be verified through participation in classes or written evaluations.

- Behaviour: application of the knowledge acquired in their work and can be verified through observation, interviews, performance evaluation and specific indicators.

- Outcomes: this refers to the achievement of results at indicator level.

Finally, the results obtained from the proposal will be done by measuring the evaluations applied to teachers through demonstration classes with the topics established in the explanatory guide, in addition to making analyses and observations of the results of the students' quarterly evaluations at the end of the school year.

Discussion

Which teachers foster a culture of innovation and training, to meet educational and personal objectives, making classroom activities

creative, encouraging the development of student thinking. So that teachers must move into the technological era to promote meaningful learning.

The work does not end in the classroom; their functions extend to the educational community. Therefore, the teacher must fulfil the essential characteristics of a leader, to face challenges and make the best decisions when managing the educational process.

To affirm their knowledge of pedagogical currents in order to face the challenges demanded by today's society.

Follow the teaching-learning process based on the TPACK model that meets the essential axes of pedagogy, knowledge of the curriculum and technology.

Develop digital competences in terms of literacy, communication, content creation, security, problem solving and knowledge of technological tools.

The systematisation of education requires commitments in a changing world where innovation is one of the transversal axes to meet educational objectives. Physical or virtual classrooms are scenarios to create dynamic and creative activities, in order to develop the individual's critical, logical and abstract thinking. Therefore, the proposal fulfils the purpose of training teachers in pedagogical and technological environments by developing digital competences.

Teacher leadership is involved at all times as the manager of the teaching-learning process and of activities with the community. It must positively influence its learners as a motivational guide to develop students capable of learning in an intrinsic way, for this it requires knowledge, applying theories, models and tools that facilitate the process.

Constructivism and connectivism are the theoretical bases on which this research is based, as they both conclude in the premise that the student is the centre of learning. The teacher, on the other hand, is the guide and conductor of the teaching process and does not leave

the student alone; he/she plans, guides and uses methods and tools to generate a favourable learning scenario.

The TPACK model is a tool that mixes the essential components to make learning functional since it concentrates pedagogy, curriculum and technology to make educational management efficient.

Digital teaching competences have five fundamental pillars such as: digital literacy, communication, content creation, security and problem solving, to which must be added knowledge of technological tools such as genialy, canva, Google academic, Microsoft office, among others, which make the educational environment active educational scenarios.

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