PEDAGOGICAL DIMENSIONS FOR THE USE OF THE INTERNET IN TELE-SECONDARY EDUCATION

DIMENSÕES PEDAGÓGICAS PARA O USO DA INTERNET NA EDUCAÇÃO TELESECUNDÁRIA

DIMENSIONES PEDAGÓGICAS PARA EL USO DE INTERNET EN LA EDUCACIÓN TELESECUNDARIA

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ABSTRACT: The progress of a doctoral research is presented, which aims to characterize the competencies of teachers for the pedagogical use of the Internet in the tele-secondaries of the municipality of Veracruz, in Mexico. It is approached from a qualitative approach, through a multiple case study, descriptive in scope, with elements of an ethnographic and hermeneutic nature. In-depth interviews were conducted with 5 teachers, selected with the intentional non-probability technique. The findings detected with the method of discourse analysis, the evidence evidenced by teachers incorporate the internet into their teaching strategies, considering as the most common practice, the projection of videos on YouTube for the contents of the program; However, it considers that their pedagogical use demands the development of teaching skills associated with the provision, planning of activities, permanent updating on digital tools and knowing the legal framework for their inclusion in the classroom.

KEYWORDS: Internet. Teacher competencies. Basic Education. Tele-secondary.

RESUMO: *Neste artigo se apresenta o andamento de uma pesquisa de doutorado, que visa caracterizar as habilidades de professores para o uso pedagógico da Internet nas telesecundárias, no município de Veracruz, no México. Para tanto, é abordado a partir de uma abordagem qualitativa, através de um estudo de caso múltiplo, de escopo descritivo, com elementos de natureza etnográfica e hermenêutica. Foram realizadas entrevistas em profundidade com 5 professores, selecionados com a técnica intencional de não probabilidade. Os resultados obtidos com o método de análise do discurso mostram evidências de que os professores incorporam a Internet em suas estratégias de ensino, considerando a projeção de vídeos no YouTube como a prática mais comum para reforçar o conteúdo do programa. No entanto, considera-se que seu uso pedagógico exige o*

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desenvolvimento de habilidades de ensino associadas ao fornecimento, planejamento de atividades, atualização permanente de ferramentas digitais e conhecimento do arcabouço legal para sua incorporação na sala de aula.

***PALAVRAS-CHAVE**: Internet. Habilidades de ensino. Educação Básica. Telesecundária.*

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***RESUMEN**: Se presentan los avances de una investigación doctoral, la cual tiene como objetivo caracterizar las competencias de los docentes para el uso pedagógico de internet en las telesecundarias del municipio de Veracruz, en México. Se aborda desde un enfoque cualitativo, a través de un estudio de caso múltiple, de alcance descriptivo, con elementos de corte etnográfico y hermenéutico. Se realizaron entrevistas a profundidad con 5 docentes, seleccionados con la técnica no probabilística intencional. Los hallazgos obtenidos con el método de análisis del discurso, muestran evidencia de que los docentes incorporan internet en sus estrategias didácticas, contemplando como la práctica más común, la proyección de videos en YouTube para reforzar los contenidos del programa; sin embargo, consideran que su empleo pedagógico les demanda el desarrollo de destrezas docentes asociadas con la disposición, planeación de actividades, actualización permanente sobre herramientas digitales y conocer el marco jurídico para su incorporación en el aula.*

***PALABRAS CLAVE**: Internet. Competencias del docente. Educación Básica. Telesecundaria.*

Introduction

Basic education in Mexico includes three mandatory levels of education: preschool, elementary and secondary school; currently, secondary education offers three types of services: General, Technical and Tele-secondary. Tele-secondary is a modality that aims to meet the educational demand where it was not possible to build General and Technical schools. This school serves adolescents from the age of 11 to 15 years old who live in indigenous areas with hight rates of poverty and marginalization. Tele-secondary consists of three school grades in a period of three years (one per grade) and its main characteristics are:

- Use television as the main educational resource for the broadcast of the class.
- A teacher is responsible for each school grade, who directs the activities of all the current curriculum subjects.

It emerged in 1968 as an innovative Project, since at that time, television was considered an advanced mean of providing education to marginalized communities. Today, however, this method seems obsolete; achieving the goals of secondary education demands an education system that implements a pedagogical model aimed at modernizing teaching

methods and learning resources that contribute to the development of skills and the management of high quality information, so it could respond to the needs of the twenty-first century. Teachers are required to be creative and innovative in their practice by linking the technological field with the pedagogical in order to successfully carry out this new educational context.

As mentioned above, this document is art of the research work entitled *Competencias docentes para el uso pedagógico de internet en la modalidad de educación Tele-secondary en México, which is carried out in the PhD in Systems and Educational Environments of Universidad Veracruzana, México.* This document describes the findings of interviews with five teachers from different educational modalities (federal or state) and geographical areas (urbano or suburban) from Veracruz, Mexico during the school year 2019-2020.

Digital teaching skills

Addressing the challenges of an increasingly complex world requires skills applicable at school, at work and in life. 21st century society demands critical people, with moral commitment and skills to adapt to change and the demands of new contexts. But what is meant by educational competences? These can be defined as the manifestation of a thoughtful knowledge, know-how to do things involving knowledge, skills and values within a structured context; always changing and with its own standards; it develops in know-how to do and transfers to different situations in order to solve problems critically.

In this regard. Tobón (2013) points out that they are comprehensive actions to identify, interpret, argue and solve problems of the context, developing and applying in an articulate way different knowledges (knowing how to be, knowing how to live together, knowing how to do and knowing to know) with continuous and ethical improvement.

Perrenoud (2007, p. 11) defines it "as the ability to mobilize several cognitive resources to deal with a type of situation". according to this author, resource mobilization is relevant in a situation although each situation is unique, and it can be treated by analogy with other already known ones.

Based on the globalizing processes of recent times, many countries have adopted the educational competences to make development reforms through management evaluation, certification, accreditation and quality mechanisms based on standards (CLÍMENT, 2017). Focusing on global trends in the education sector and the new environments in which people interact in basic education in Mexico, there was an urgent need to raise an educational model

under this approach linked to everyday life and contributing to the integral formation of individuals. Undoubtedly, incorporating this approach into education transformed the teacher's profession, demanding the development of new skills that promote diversification of their practice and, therefore, the improvement of the quality of learning in order to successfully participate in the knowledge society and to compete in this new world order.

The training of teacher staff aims to meet the demands of the National Education System and the demands of society, in this sense, Martinez (2016) refers that teaching skills are aimed at developing in students capacities to solve diverse situations based on the mobilization of cognitive, conceptual, dispositional and technical resources without losing the idea of society that has been raised as ideal.

It is clear that teaching training became a challenge not only for the institutions or educational systems of many countries, but for the teachers themselves who are demanded to perform their best as a companion in the learning process and to create appropriate environments for teaching; that is the reason why the requirement to improve not only the cognitive aspect, but a set of skills, techniques and methods that could make it more effective to make students also competent in the performance of their future professions (DURÁN, 2016).

Due to technological advancement and the introduction of digital information, communication, knowledge and learning technologies (TICCAD) in education, the teaching role was changed, from being a transmitter of knowledge, to a designer of learning environments, which contributes to the development of pedagogical alternatives that have replaced traditional practices with innovative practices, printed materials with digital materials, physical resources with networked resources, however, using them requires specific skills, that is why teaching practices aim at developing skills to select, manipulate, design, evaluate, and communicate information critically and securely through several technological tools. Ferrari (2012) associates these skills with the term "digital competence" which is defined as the set of knowledge, skills, attitudes, strategies and awareness required when TICCAD are used next to the digital means to perform tasks. Solve problems, communicate, manage information and build knowledge effectively for work, leisure, participation, learning and socialization.

Nowadays, digital competence must be acquired from basic education to expand the ability to learn throughout life and perform favorably in adult life; therefore, it must also be part of the initial and ongoing training of teachers. As digital technologies are becoming a central part of human daily work, in the education sector, teachers are forced to rethink and

transforming educational practices through technology, this new challenge has created considerable demands for schools regarding the development of strategies to provide high-quality teaching and learning (PETTERSON, 2018).

In the field of education, digital teaching competences is understood as the set of knowledge, skills and attitudes that enable the effective use of digital tools and the combination of their disciplinary, pedagogical and technological knowledge to design virtual and innovative learning environments; it responds to the demands of each country's education system, however, it must be fully knew that technology is a means, but not an end, it can take advantage by balancing the technical, pedagogical and professional aspects, despite the fact that technical skills remain as an important factor; however, not as important as pedagogical skills according to McGarr and McDonagh (2019), having the ability to critically consume digital content and understand the disruptive effects of technology is, perhaps, more important given the convergence of digital media.

Pedagogical use of internet

Currently, one of the most impressive technological resources in the field of education is the Internet. It has become a required teaching resource, because 21st century students have different ways of learning and interacting with the environment around them. In the context of Tele-secondary, an Internet-based education can provide a means to interact more effectively with reliable information, which helps students to improve their environment. Strom and Strom (2014) refer that using the Internet in secondary education has drastically changed teaching processes, involving a set of strategies that promote access to new tools that give teens the opportunity to learn by doing and discovering.

Undoubtedly, its use in education facilitates teaching work, however, it involves the development of competences in the field of technology, informational, multimedia, communicative and pedagogical, to design a work environment that promote access to globalized content and the construction of meaningful learning. The Internet is a powerful tool and if it is used with an appropriate methodology, with clear and real objectives, can help and improve the quality and diversity of learning experiences in the classroom more relevant, meaningful and contextualized (Sánchez, 2007).

According to Sánchez, Alarcón, Ponce and Zuñiga (2002), using the Internet in a pedagogical way involves adequate planning, management and curriculum implementation for teachers to change the way they teach, transforming rigid practices focused on the

transmission of knowledge to more active practices. Therefore, the pedagogical use of Internet is defined as a didactic strategy that involves the incorporation of TICCAD and digital resources for educational purposes.

Method

This research aims to characterize the competences of teachers for the pedagogical use of the Internet in Tele-secondary schools of the municipality of Veracruz, Mexico. It is addressed from the qualitative approach, through a multiple case study (YIN, 2014), in an ethnographic and hermeneutic manner of descriptive, observational and transversal scope.

The population under study were the teachers from a Tele-secondary of the municipality of Veracruz of the school year 2019-2020. Participants were 10 teachers and 3 experts in the technology-mediated learning area, who were selected using the intentional non-probabilistic sampling technique. The following inclusion criteria were considered to select the teachers:

- Be part of the Tele-secondary subsystem of the municipality of Veracruz.
- Being a teacher on a job base of any grade.
- Using the Internet as a educational resource to teach.

The following inclusion criteria were considered to select the 3 experts:

- Have experience in curriculum planning, teacher training or teacher evaluation through digital means.
- Develop research in the field of Internet knowledge as an educational resource.

The data collection techniques were: in-depth interview and semi-structured interview, for which two integrated question guides were designed with seven items and divided into five dimensions: computer skills, informational, digital communications, knowledge building and teaching strategy that aim at the implementation of study variables.

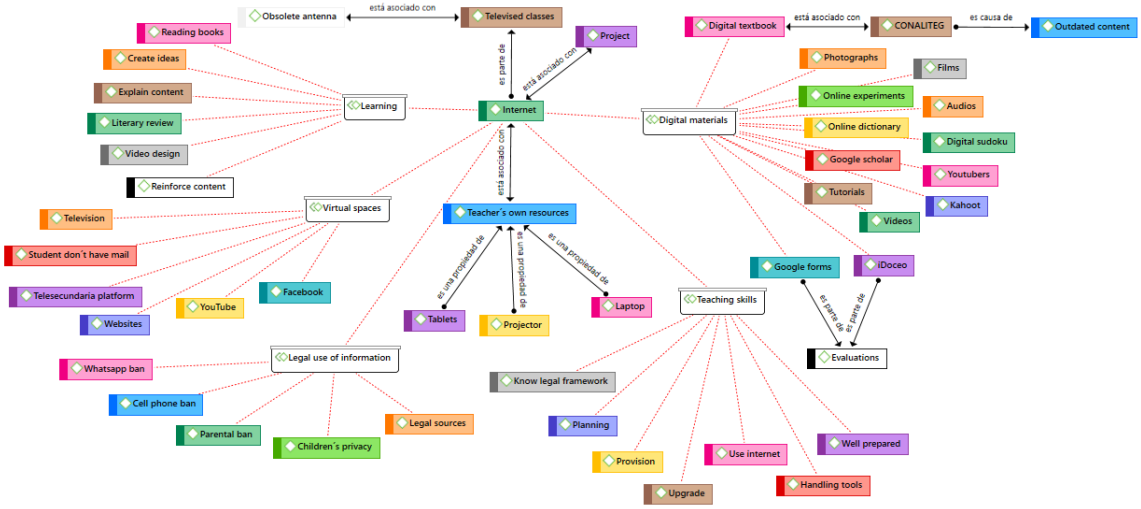
The in-depth interview technique was used with 10 teachers from different Tele-secondaries in the municipality of Veracruz. The semi-structured interview technique was used with a curriculum planning expert, a teacher training expert and a teacher evaluation expert.

Results

As an ongoing investigation, preliminary findings from interviews with 5 Tele-secondary teachers from the municipality of Veracruz of the school year 2019-2020, which were addressed through the method of analysis of the discourse with support of the software *ATLAS.ti.*

The findings were classified into 6 sections: a) digital tools, digital materials, b) virtual spaces, c) legal use of information, d) learning y e) teaching skills, which address the dimensions of the question guide as well as the data collected in interviews. Below are the codes and their relationship to each dimension:

Figure 1 – Network of codes and dimensions, product of in-depth interviews with teachers from Tele-secondary in the municipality of Veracruz, during the 2019-2020 school year



Source: Authors' collection

The initial section identified that the digital tools used by teachers in class are Internet, television, laptop, projector, tablets and online televised classes through the Tele-secondary platform, it should be noted that these teaching resources were acquired with their own resources, with the exception of television, since the institutions do not have technology and even the Internet service is financed by principals, teachers, students, parents, as expressed in the teacher's statement:

> *[...]We don't have TVs, we don't have Internet, the school principal pays for it and well, I also carry my own laptop, my projector, even an antenna, I bought it exclusively to work in the classroom (teacher 4).*

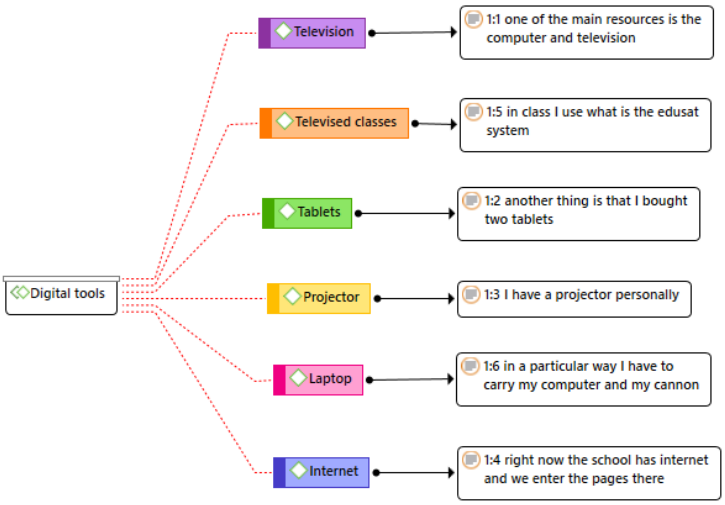
On the other hand, they noted that the satellite dish for the transmission of televised classes does not work and the contents are outdated; they work with the 2011 curriculum and with materials of 2006, for that reason, the televised classes do not correspond to the contents,

however, they have a Tele-secondary platform and through it they Project the class, which they see as an advantage as they can look for the theme they require to be projected, unlike the satellite dish they had to see at the time indicated, otherwise the session was lost. In the following quote you can perceive the above:

Through the Internet, the Tele-secondary network puts you a section of teachers, where it divides you into 5 periods and you have to look for the class that indicates the planning, it is no longer as before that you had to see it at a certain time because otherwise you missed it, now is when it is required. (Teacher 5)

Figure 2 shows the relationship between codes and quotations that were obtained when performing data analysis.

Figure 2 – Codes and quotes in relation to the digital tools used by teachers



Source: Authors' collection

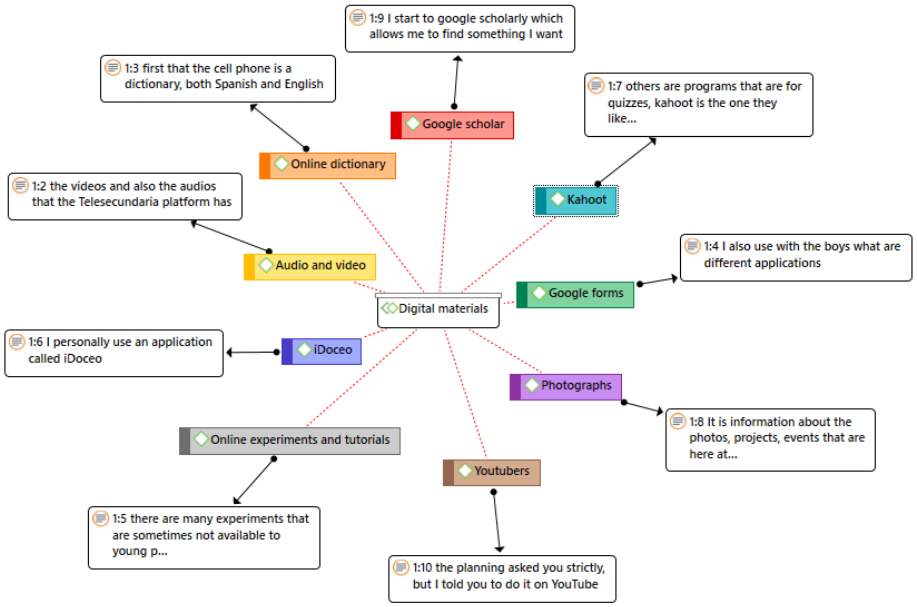
According to teacher information, the digital materials they use to teach are *YouTube* videos, audios, photos, tutorials, online dictionaries, digital experiments and Youtubers' pages. The videos on *YouTube* are the most used by teachers to reinforce the contents of textbooks, noted that they project the suggested videos in the planning of the Tele-secondary platform and additionally look for other videos, audios, photos and tutorials in relation to the topics they are addressing, students also use online dictionaries in class to search for meanings of words in the Spanish and English class, *iDoceo* and *Google forms* are used to evaluate students; *Google Academics* is used to search for information; Kahoot is used to contest students and make classes fun; Youtubers pages are used to explain math class content with adolescent language; for science class they Project experiments online, as they do not

have materials or laboratory room to perform the internships. In the following quotations you can see what has been discussed:

> *[...]and other programs that are for quiz, kahhot is the one they like the most, it's a little more attractive [...] (teacher 5).*

Figure 3 shows the codes and quotations that emerged in this area related to the teaching materials used by teachers in the class.

Figure 3 – Digital materials used by teachers to address classroom content



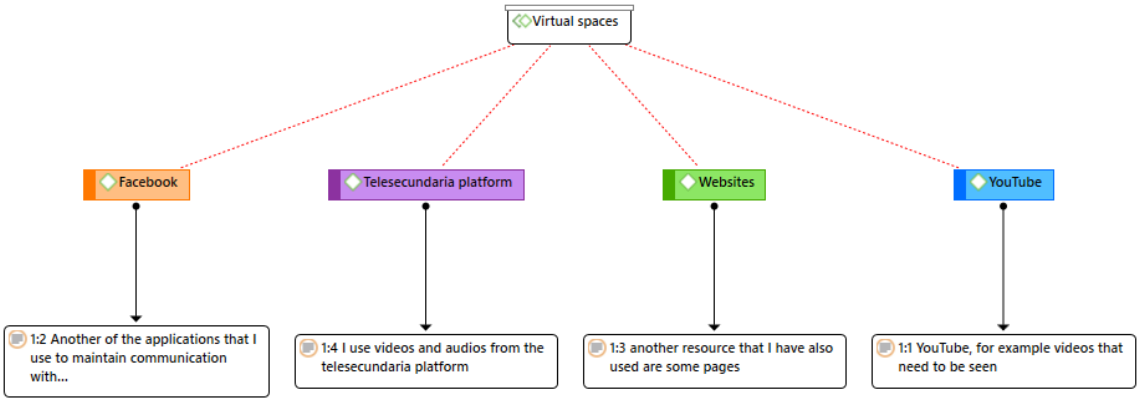
Source: Authors' collection

As mentioned, the virtual spaces they use are the official platform of Tele-secondary, *Facebook*, *YouTube* and various websites. They argued that there is a suggested planning by the Tele-secondary system which they can consult on the platform; digital materials such as videos, audios, images, films and books; if they consider other materials relevant, they consult them on various websites to enrich the contents of textbooks. If they absent, teachers use the Facebook social network for academic purposes only and to share session materials, as they are not allowed to maintain communication with students via email, mobile, or apps such as *WhatsApp*. In the following quotations you can see what has been discussed:

> *[...] No, I share them from phone to phone or by email because with the situation we are living with human rights and all this problems, we don't want to confuse them [...] (teacher 3)*

Figure 4 shows the codes and quotations related to virtual spaces that are used to complement and share the contents of their classes.

Figure 4 – Virtual spaces used by teachers to share and enrich their class content



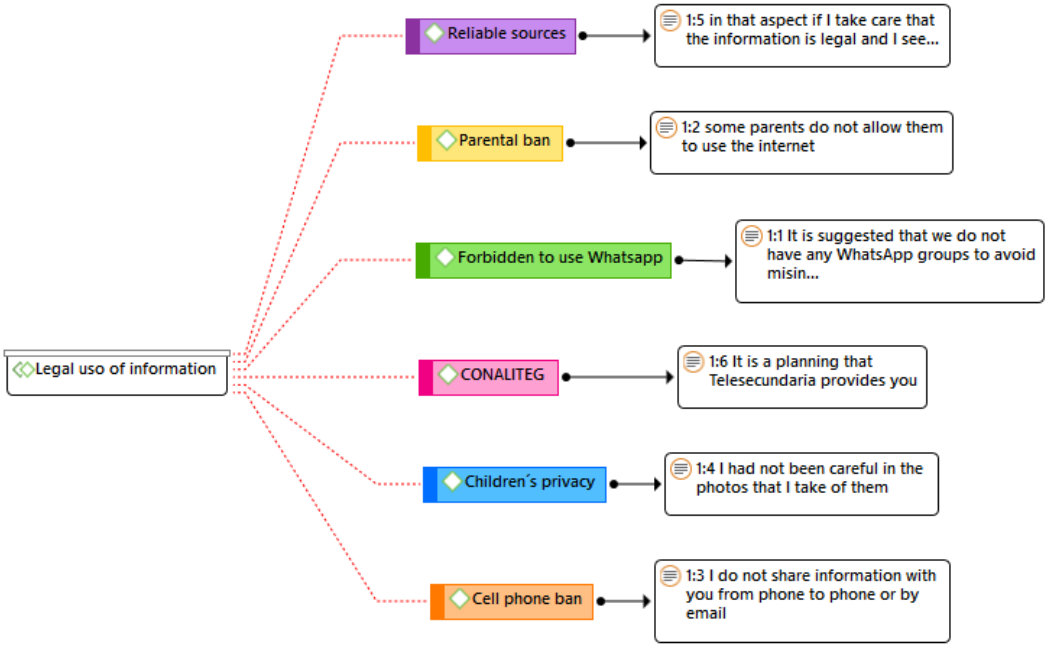
Source: Authors' collection

Regarding the legal use of information, teachers noted that they use sources recommended by the Tele-secondary platform, including the Copalite page, on which they use textbooks to explain topics that do not come in the materials they are currently working with, however, they consider that a weakness in this area is the fact that photographs of academic, cultural, sporting and social events within the school are published on social networks, without considering the privacy law of minors; on the other hand, they perceive as an obstacle the prohibition of maintaining communication by *WhatsApp* with students, since they are difficult to share information from reliable sources. The following quotes state the above:

> *[...] I'm very careful what I'm going to Project them, because sometimes the language is inappropriate, the images cab be violent, then I have to be careful and check the links of the contents that are going to be reviewed [...] (teacher 3).*

Figure 5 shows the codes and quotations associated with the legal use of information.

Figure 5 – Codes and citations associated with the legal use of information among Tele-secondary teachers and students



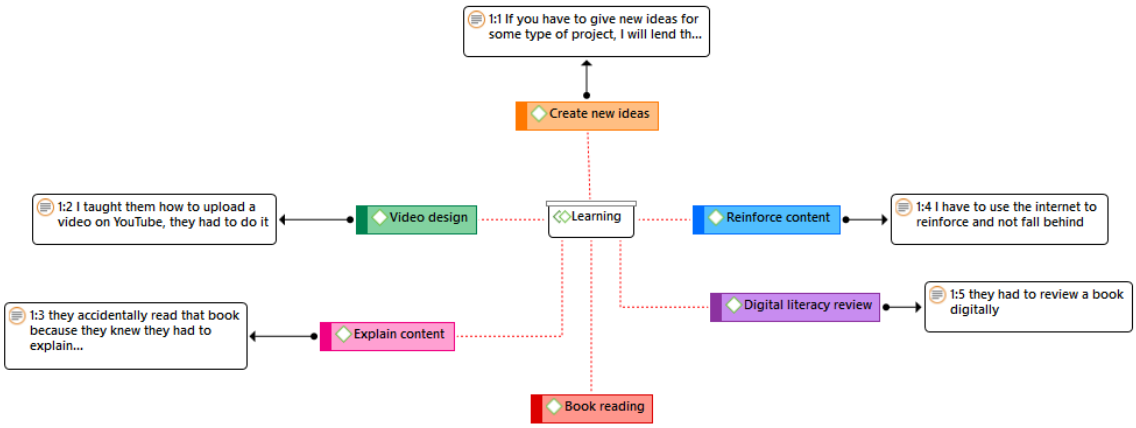
Source: Authors' collection

Regarding apprenticeships, teachers argued that using the Internet as an educational resource helps them build knowledge by getting their students to read books, produce literacy reviews, design a video explaining the content of those books and upload them to *YouTube*; it also helps them to generate new ideas to carry out projects of the subjects. The following quotes exemplify the above:

> *[...] They had to review a book, the planning asked for it in a written way, but now, some of them want to be Youtubers, they want me to see the video and get attracted for it and it worked, unintentionally they read the book because they knew they had to explain it and the, they uploaded to social media [...] (teacher 1).*

Figure 6 shows the codes and quotations related to knowledge building

Figure 6 – Knowledge construction when using the Internet as an educational resource



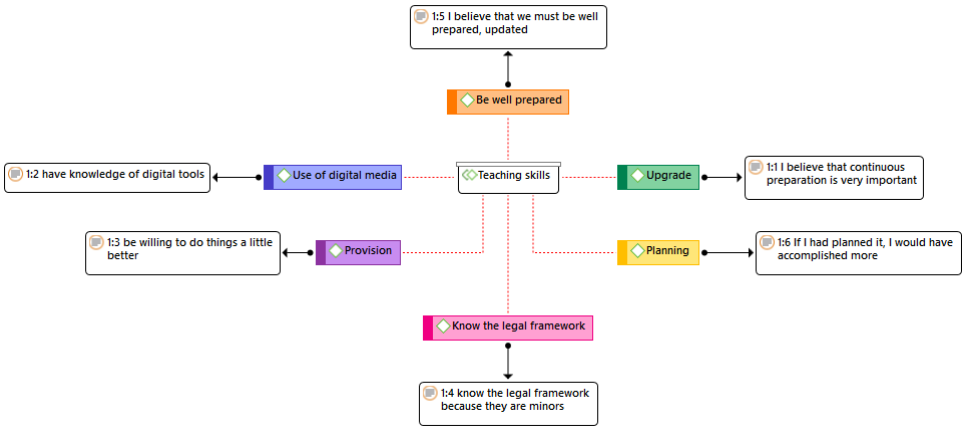
Source: Authors' collection

When asked what skills Tele-secondary teachers consider to have to use the Internet in a pedagogical way, they responded that the willingness to do things better, the permanent update to learn how to use various digital media, know the legal framework of these media, plan activities with technology and be well prepared to deal with situations that might be presented. The following quotes state the above:

> *[...] we need to manipulate different tools, expand our knowledge in technological resources to be able to use them and from there, start our planning [...] (teacher 5)*

Figure 7 shows the codes and quotations related to the skills Tele-secondary teachers must have.

Figure 7 – Network of codes and dimensions, product of in-depth interviews with teachers from Tele-secondary in the municipality of Veracruz, during the 2019-2020 school year



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Discussion and conclusions

According to the educational model for obligatory education (SEP, 2017), the graduate of secondary education must show digital skills which he will develop in school, in the subjects of 3 fields of academic training (language and communication, mathematical thinking and exploration and understanding of the natural and social world), for this reason, teachers must take advantage of digital means available in order to enhance collaborative work, link it with the local, national and international reality of their students and promote their participation in the knowledge society; however, the study shows that the conditions of the Tele-secondary of the municipality of Veracruz, in terms of infrastructure, connectivity and technological resources are regrettable, since they only have basic services such as electricity, water, classrooms built with poor material and desks; however, teacher's commitment to provide a formation that meets the demand of a globalized society, influences the incorporation of the Internet into its strategies and the attempt to develop digital skills in its students, face other obstacles associated with the socioeconomic level of students, since most do not have an Internet-connected device at home, as also renting equipment to carry out digital activities represents a strong investment for parents, therefore, teachers choose to carry out online activities within the institution with the resources they own and share with their students and teach them how to use some tools

The Tele-secondary has a media classroom, which is a space equipped with computers that contain educational software, are networked and connected to the Internet, in this space the EDUSAT signal is received on a central computer, which it shares with the rest of the equipment, in this way, a lot of video material is accessed (SEP, 2001); however, the findings of space make it clear that satellite dishes do not work, there are no spaces with computer equipment with connectivity, the classes televised through Edusat are obsolete resources;

therefore, in order to bring Tele-secondary closer to virtuality, a large numbers of lessons are available to teachers on the Internet, which makes the program even more accessible to those who have access to the network, but more limited to those who are technologically marginalized (CRAIG; ETCHEVERRY; FERRIS, 2016). Currently, you can consult on the Tele-secondary platform the session that corresponds to the topic to be given, in this way you have the possibility to Project the televised class without a satellite dish.

It should be noted that, one of the reasons for using the Internet as an educational resource is to search for digital materials that enrich the contents of books and generate more meaningful and contextualized learnings, in this sense, teachers have noticed that using diversified technological resources and designing virtual learning environments has achieved in their students learnings that they had not achieved with the traditional system, according to data from the Secretary of Education of Veracruz, one of the aspects that affected the low levels of Tele-secondary students was related to the materials and resources they had (SEP, 2010).

Despite the lack of updating provided by the Tele-secondary system, teachers independently learn the management of digital tools, however, they recognize that using the Internet in a pedagogical way involves the development of knowledge, skills and attitudes such as the willingness to learn, plan activities with the use of TICCAD, permanent updating and knowledge of the legal framework to incorporate them legally in the classroom, Rodriguez and Henriquez (2015), argued that the teaching work aims at the management of technology and research on how to use them in teaching, in order to produce new knowledge related to this educational innovation. There is a need for a teaching professionalization that accredits them as well-trained trainers, as competent teachers to train students with valuable skills (ZABALZA, 2007).

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