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A digital proficiency level analysis of high school teachers from state public schools in Palmas - TO

Uma análise do nível de proficiência digital de professores do ensino médio de escolas públicas estaduais de Palmas – TO

Un análisis del nivel de competencia digital de los profesores de secundaria en las escuelas públicas estatales de Palmas – TO

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ABSTRACT:
This work aimed to analyze the digital proficiency level of teachers who teach in state public high schools in the city of Palmas-TO. This investigation was based on a survey application through the google forms platform, having as a data collection instrument a self-assessment based on the DigCompEdu - Digital Competence Framework for Educators questionnaire, developed by the EU Science Hub (Service of Science and Knowledge of the European Commission), with adjustments and validation for the Brazilian reality. After the analysis, it was found that most of the 182 teachers are at the B1-Integrator level, a level considered as moderate.

KEYWORDS: Education. Learning. Digital skills. Technology.

Introduction

Digital competence is undoubtedly one of the most important competencies for teachers and students in the 21st century, becoming essential for the teaching and learning process, for the world of work and active and effective participation in the social environment.

However, how long have digital technologies been inserted in the educational environment? The answer to this question is presented in a summary table (the United States, Portugal, and Brazil) based on the studies by Almeida (2008, p. 103-122).

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Table 1 Historical context of educational policies using digital technologies, in the United States, Portugal and Brazil.

	United States	Portugal	Brazil
50'S	The first activity focused on the use of technologies in education.		
70'S	Programs development and use.		The first steps were taken towards the insertion of digital technology in the Brazilian education system.
80s	They are marked by constructionism and devaluation of *media literacy*.	Launch of the Minerva Meios Informáticos na Educação Project; Introduction of the Educational Technology discipline in the initial training curriculum and teachers' service.	The MEC implemented the Educom project in five Brazilian public universities, intending to promote the creation of pilot centers for research development on the use of technologies in education; developed the FORMAR Project, for multiplying teachers; Created Educational Informatics Centers in the states; instituted the first National Program for Educational Informatics - Proninfe.
90'S	Educational reform that gives greater autonomy and flexibility to the teacher.	Computer introduction in teaching; research centers creation and professional training in the area; and the Nónio 21st century Program, an information and communication technologies program in education.	The MEC Secretariat for Distance Education (SEED) was created; the TV Escola Program, the National Program for Informatics in Education, Radio Escola, and DVD Escola launched, aimed at the incorporation of technologies and the preparation of educators.
2000'S	Public policies encourage the integration of information and communication technology (ICT) into the curriculum.	The country's technological plan was drawn up based on three axes: science, technology, and innovation; The Ministry of Education established the CRIE mission group (computers, networks, and internet at school); and the schools, teachers and portable computers initiative, to support teachers in the individual and professional use of ICT.	SEED / MEC created the program Media in Education, for continuing education of teachers, in the form of distance education supported by the digital platform of the Internet e-Proinfo; the launch of the One Computer per Student Project (UCA). The proposal is to provide a computer for each student, teacher, and manager of a primary school, to provide Internet access infrastructure in all schools and to prepare educators for the use of these new technologies.

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The United States was the precursor to policy implementations aimed at the insertion of technologies in education, even in the 1950s, followed by Portugal in the 1980s. In Brazil, only in the 70s, important dialogues with researchers and educators concerning the use of educational technologies commenced.

In Tocantins, the State Secretariat for Education and Culture, providing for the basic organization of the Executive Branch, chapter II, section III, article 32, brought among its axes and values, teacher training, and creativity as well as technological innovation, respectively.

In the same sense, the Tocantins State Education Plan establishes the use of educational technology in its strategies. Thus, strategies 23.1 and 23.11, respectively, establish the guarantee of the use of educational technologies for all primary education and universal access to the world wide web.

The city of Palmas is part of the Regional Directorate of Education of Palmas - DRE, offering regular high school in 21 educational units in the state public network of Palmas Municipality, where they teach 559 teachers with initial training at a higher level. The present study will include 7 of these educational units and 247 teachers.

The Law of Directives and Bases of Education (LDB, 1996, Art. 35), establishes the purposes of high school; and the 2011 National High School Curriculum Guidelines state:

With the perspective of an immense contingent of teenagers, young people, and adults who differ by conditions of existence and uneven prospects for the future, it is that high school should work. At stake is the school re-creation, which, although it cannot solve social inequalities on its own, it can expand the social inclusion conditions by enabling access to science, technology, culture, and work.

Thus, high school teachers have an even greater challenge in 2019, not only due to the transformations in social dynamics resulting from technological development, which already directly impact the way of teaching and learning, but also due to the new educational model established by the approval of BNCC- Common Base National Curriculum in 2018, which establishes general competencies to be met.

In this work, the general skills of numbers 4 and 5 will be emphasized particularly, which bring issues related to innovation and technology. The first one refers to the use of different languages, including digital. The second competency concerns the use and creation of digital information and communication technologies in school practices. BNCC (2018)

According to Coll:

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> Among all the technologies created by human beings, [...] information and communication technologies are of special importance because they affect the daily lives of students and teachers. We live in an age when ICTs go beyond the common basis of content. (COLL, 2011, p. 17).

Bruzzi (2016, p. 480) also states that "technology is not enough, adequate training of educational actors is necessary [...] so that this new generation can use all their technical knowledge in order to expand their ability to read, interpret or even explore educational content.

The research problem arose from the following analysis: the European Digital Competence Framework for Educators (DigCompEdu) establishes eight essential competences for lifelong learning, to adapt flexibly to a rapidly changing and highly interconnected world. Digital competencies include skills such as mother tongue, foreign language, mathematics, science and technology, learning to learn, social and civic activities, initiative and entrepreneurial spirit, sensitivity, and cultural expressions.

As a digital competence, the European Parliament, in 2006, defined it this way: "it is the critical and confident use of information society technologies for work, leisure, and communication." For Ferrari (2013), it is to use ICTs confidently, critically, and creatively to achieve goals related to work, employment, learning, leisure, and inclusion and participation in society.

On this subject, Redecker expresses himself as follows:

> The European Framework for Digital Competence for Educators (DigCompEdu) responds to the growing awareness among many European countries that educators need digital skillsets specific to their profession in order to harness the digital technology potentials to improve and innovate the Education. (REDECKER, 2017, p. 8).

That said, the question arises: What is the digital proficiency level of high school teachers from state public schools in Palmas-TO?

The research had the general objective: To analyze the digital proficiency level of high school teachers from state public schools in Palmas-TO, based on the DigCompEdu - Digital Competence Framework for Educators questionnaire. Moreover, as specific objectives: Measure teachers' professional skills; Diagnose the level of teachers' pedagogical skills; Understand the aspects related to the promotion of students' digital competence.

Its justification is due to the fact that it is not possible to continue teaching in the same way, in a society where the advancement and use of technologies are fully inserted

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in the lives of teachers and students. Therefore, the use of digital resources cannot be disregarded within the educational process.

Therefore, it is of fundamental importance to know the teachers who teach at high schools, analyzing their digital proficiency level and the use they make of these technologies.

For this reason, this study will serve as a reference for future academic work, contributing to important information about educators' digital skills and the effective presence of technologies in the classroom.

Theoretical Framework

Much has been said about a new organization of teaching since the skills related to human capital have changed in recent times. There is the current group that defends emancipatory and critical education and another group that defends teaching for the job market. It is indisputable that in the current world scenario, technologies are highlighted when it comes to teaching and learning processes. Levy (1999) argues that new technologies should be used to enrich the educational environment. For this, teachers are asked for new knowledge and skills to deal with ICTs in their daily lives.

With the increasing information and communication technologies present in the classroom, the agents of this process need to develop skills related to this new knowledge that is being built. Perrenoud (1999) refers that there are many meanings of competence and highlights that the competencies manifested in certain actions are not knowledge in itself but the mobilization and integration of such knowledge.

These skills aim to overcome traditional teaching, where learning consisted of memorization. This learning practice has become unnecessary when we live in a society where the individual must be proactive, autonomous, and aware.

Knowledge is necessary in this knowledge-driven and information technology society. It is one of the pillars of competencies, but not the only one, Zabala and Arnau highlight that:

> We know that in order to be competent in all activities of life, it is necessary to have knowledge (facts, concepts, and conceptual systems). Though they are useless if we do not understand them, or if we are not able to use them, for this, we must master a large number of procedures. The improvement of competence implies the ability to reflect on its application, and to achieve it, the support of theoretical knowledge is necessary. (ZABALA & ARNAU, 2010, p. 49)

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Another pillar of competence is the know-how; it is the skill related to knowledge application when doing something. Perrenoud understands skill as being:

> Capitalized intelligence, a sequence of operating modes, analogies, intuitions, inductions, deductions, dominated transpositions, routinized heuristic functions that have become high-level mental schemes or time-saving plots that insert the decision. (PERRENOUD, 1999, p. 30)

The third pillar of skills is attitude; it refers to wanting to do. The pillars of competence can be defined as follows: the subject has the knowledge, he must have the skill and, finally, he must want to perform. They are interconnected, the attitude is closer to the motivation, which can make the subject more favorable or not to a certain attitude.

It is important to understand what competencies refer to in order to enter this field in relation to teaching. They would be the domains and dimensions that are implicit around this work.

When it comes to knowledge related to ICTs, there is still a lot of resistance, many of which are cognitive, so it is necessary to break some obstacles in education.

The obstacles often arise due to the physical conditions of school spaces, and teachers' formative conditions, those who are not or were not favorable to the ICTs incorporation in the classroom. Until recently, teacher education did not discuss technologies; they developed faster than professional training. The integration of ICT into education is so essential in today's society that, in 2009, UNESCO - United Nations Educational, Scientific and Cultural Organization - launched a program that sets standards of ICT skills for teachers.

This program contains specific planning guidelines of "teachers' educational programs and training to perform their role in the training of students with skills and technology" (UNESCO, 2009, p. 1).

Among the objectives of the UNESCO project on ICT Competency Standards for Teachers are:

> - constitute a common set of guidelines, which professional development providers can use to identify, build or evaluate teaching materials or teacher training programs in the use of ICT for teaching and learning;
> - offer a basic set of qualifications, which allows teachers to integrate ICT into teaching and learning, for student learning development and to improve other professional obligations;
> - expand teachers' professional development to improve their skills in pedagogy, collaboration and leadership in the development of innovative schools, using ICT;

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> - harmonize different points of view and nomenclatures concerning the use of ICT in teacher training. (UNESCO, 2009, p. 5).

To meet these demands in teaching, the teacher, as a mediator of this process needs to be prepared to act in this scenario, being established by national and international bodies that technologies must be inserted in teaching. In the LDB, among the aspects contemplated, those referring to teacher training for the use of technologies are evident in its Art. 62:

> § 1 The Union, the Federal District, the States, and the Municipalities, in a collaborative regime, shall promote the initial, continuing education and training of teaching professionals.
> § 2 The continuing education and training of teaching professionals may use distance education resources and technologies. (LDB, 1996).

As seen, continuing education refers to technology using technological resources for work development in the classroom, as a support for improving the work of teachers. However, before anything, it is necessary to consider a permanent teacher training, that is, one that is initial and continuous. They must contain formative elements that enable the teacher, which helps him to overcome the epistemological and didactic obstacles, for example, this is a long-term process since the teacher's experiences and personal diversity and the dynamics of the technology development require constant training. Although the LDB guides initial and continuing training, it does not guarantee its effectiveness.

Corroborating this thought, in Viana's understanding:

> New information technologies and teacher training are fundamental aspects responsible for the success or failure of any enterprise in this area. Working with new technologies does not mean just preparing for a new teaching job, but for a new culture that integrates communication, interaction, interdependence processes and that increases the ability of people to connect with others and, at the same time, if they are constituted and act as part of a highly qualified and interdependent whole. (VIANA, 2004, p. 37).

Therefore, according to Silva (2018), the teacher training process is constant and is not completed in its initial training. For Silva (2018), teacher training for digital technology use is an activity that has no end, and that needs constant renewal and reflection in order to meet the transformations of today's society.

These changes meant that the teaching focus was learning, and this implies a change in traditional and individualistic paradigms, moving this focus, the teacher

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becomes the mediator of a more dynamic and innovative process, to the detriment of the traditional one.

One cannot be afraid of the insertion of technology. For Silva (2018), this insertion in the school context must have pedagogical purposes and is justified to do new things that cannot be accomplished without the intermediary of technologies.

According to Kenski (2007), the school is a training space not only for new generations but for the whole of modern society. The author states that "in a time characterized by rapid changes, people look for school education to guarantee training that enables them to master the knowledge and improve their quality of life" (Kenski, 2007, p. 19).

This training space has changed society itself, but it cannot only be left to the school and teachers to guarantee the success or failure of the teaching and learning process, what has been seen is a system that leaves education at the mercy many times, but it is also required that it solve all problems. Technologies cannot be ignored in teaching, but we must have an efficient role for the state in terms of teacher training policies, as well as other resources necessary for efficient teaching practice.

Methodology adopted in conducting the research

In this work, the investigation was based on bibliographic and descriptive research, based on quantitative procedures, with a survey application.

For Gil (2002, p. 11) bibliographic research, "because it is of a theoretical nature, it is a mandatory part, just as in other types of research, given that through it we learn about the existing scientific production."

It also reinforces that "the main objective of descriptive research is to describe characteristics of a given population and the variables in it, using standardized data collection techniques, such as the questionnaire" (GIL, 2002, p. 42).

This same author emphasizes that the direct questioning of a significant group of people, about a determined problem studied, will allow the quantitative analysis and the obtaining of important conclusions that will base the search for the resolution of a presented problem.

For this, the survey method was used, which differs from the census, since it examines only a sample of the population, seeking to understand situations related to a larger population from which the sample was initially selected.

Due to the quantity of the sample to be researched, the Google Forms platform was used. This platform is widely used in conducting surveys using forms, since it presented

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facilities in relation to survey distribution to the interviewees and, later, to the organization and analysis of the collected data.

The Google Forms platform is a tool that directly supports the creation of personalized forms in a simple way, and, also, to form development assistance, the Google tool provides data presentation in tables and graphs.

The research application of the data collection instrument was a self-assessment instrument based on the DigCompEdu - Digital Competence Framework for Educators questionnaire in Portuguese. Digital Skills of Educators was developed by the EU Science Hub (Science and Knowledge Service of the European Commission) to conduct an assessment of the digital skills of teachers in order to improve and innovate education. The study population consists of 182 (one hundred and eighty-two) Secondary Education teachers, in 7 public schools in the state school system in Palmas municipality / TO, namely: Colégio da Polícia Militar do Estado do Tocantins - Unidade II; Escola Estadual Frederico José Pedreira Neto; Escola Estadual Professora Elizângela Glória Cardoso; Centro de Ensino Médio Castro Alves; Colégio Estadual Criança Esperança; Escola Estadual Novo Horizonte; Centro de Ensino Médio de Taquaralto.

The teaching units surveyed are located in the urban area of Palmas municipality in Tocantins, within three administrative regions - North, Center, and South - aiming to contemplate different realities of high school students' attendance.

Based on this reality, the researched sample is presented, having as reference Barbetta (2012, p. 58), which determines that after defining sample error as "the difference between a statistic and the parameter that is to be estimated," he explains that "To determine the sample size, the researcher needs to specify the tolerable sample error, that is, how much he admits to making a mistake in evaluating the parameters (s) of interest."

The formula for the minimum sample size was used to calculate the sample size for this research, according to Barbetta (2012, p. 58); which is represented as:

N size (number of elements) of the population;
n size (number of elements) of the sample;
n_0 a first approximation for the sample size and
E_0 tolerable sample error.

Therefore, we have:

$$n_0 = \frac{1}{{E_0}^2} = \frac{1}{0{,}05^2} = \frac{1}{0{,}0025} = 400$$

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$$n = \frac{N.n_0}{N + n_0} = \frac{(247).(400)}{(247) + (400)} = \frac{98.800}{647} = 152,70$$

As a result, the research sample size consists of 152 teachers who work directly with high school students, in the classroom, with a 95% confidence level and a margin of error of up to 5%.

In this work, the stratified sampling technique was used, which, according to Barbetta (2012), consists of dividing the population into subgroups called strata, thus allowing the search for more homogeneous strata, since they belong to the same school and experience the same realities. The proportional stratified sample, according to Barbetta (2012, p. 49), "guarantees that each element of the population has the same probability of belonging to the sample."

For this, the following formula was used: $\frac{46}{247}$ x 152,70 = 28,43

Where: 46 represents the number of teachers at school x;
247 is the population size studied;
152 is the research sample size;
28 represents the sample size of school x.

Applying this formula resulted in the sample size stratified by the teaching unit, presenting the following results:

Table 2 Stratified sample size

TEACHING UNIT	QUANTITATIVE OF TEACHERS	MINIMUM STRATIFIED SAMPLE SIZE
Colégio da Polícia Militar do Estado do Tocantins	**46**	**28**
Escola Estadual Frederico José Pedreira Neto	**43**	**27**
Escola Estadual Professora Elizângela Glória Cardoso	**42**	**26**
Centro de Ensino Médio Castro Alves	**25**	**15**
Colégio Estadual Criança Esperança	**19**	**12**
Escola Estadual Novo Horizonte	**25**	**15**
Centro de Ensino Médio de Taquaralto	**47**	**29**
TOTAL	**247**	**152**

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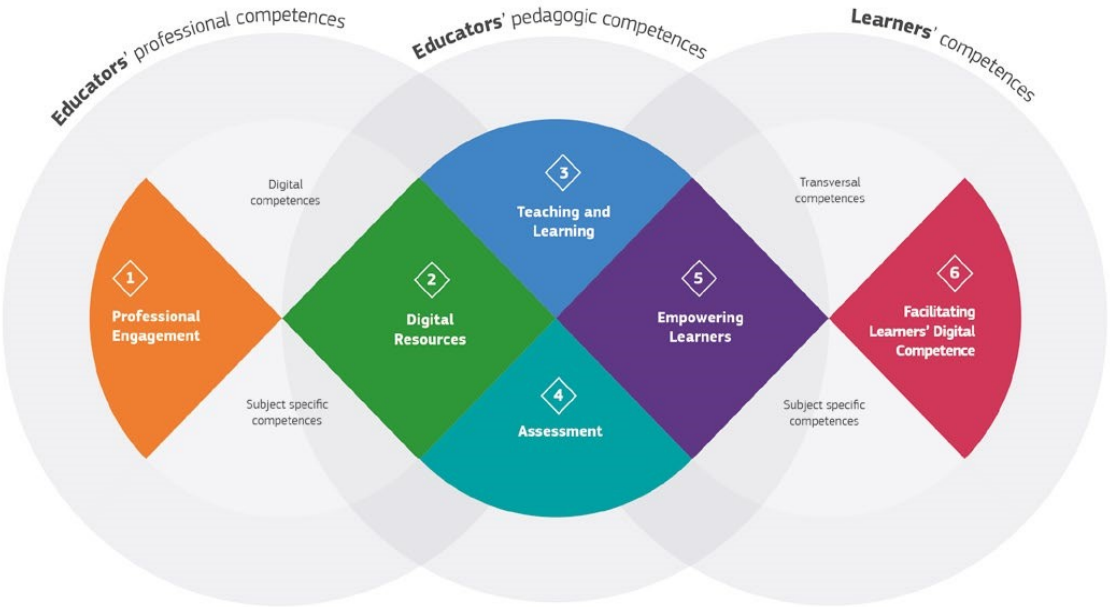
Therefore, this research is composed of 7 strata, with a minimum stratified sample per teaching unit, totaling 152 teachers.

The research included a Sociodemographic and Occupational Questionnaire, which sought information regarding gender, age group, among others. Also including a Self-Assessment Questionnaire of Digital Skills, with 21 questions, in which the participant only selected the best-identified statement in each one, using a Likert-type scale, allowing the respondent to view himself and the digital technology uses he makes, verifying his agreement level with a proposition that expresses something favorable or unfavorable in relation to a given situation.

The questionnaire addresses issues that allow important reflections on the use of digital technologies, referring more broadly to the three dimensions established by Redecker (2017) that are represented by the professional skills of educators, the pedagogical skills of educators, and the skills of learners.

In this research, from studies carried out by Dias-Trindade, Moreira, and Nunes (2019), aiming at the construction and validation for the application of the DigComEdu questionnaire in Brazil, some terms were adapted to Brazilian Portuguese, maintaining the three dimensions and the six areas already existing in the original document (Figure 1):

Figure 1 Dimensions and areas of digital competence.



Source: "Escala de autoavaliação de competências digitais de professores. Procedimentos de construção e validação", de S. D. Trindade, J. A. Moreira e C. Nunes, 2019, 4.

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As mentioned, the questionnaire presented to teachers in Brazilian research, after validation and translation into Brazilian Portuguese, by Sales and Santos, started to present six structuring areas, also called subdimensions. This matrix of digital skills relates what is necessary for the teacher to know regarding technology use in the development of his school teaching activities and also for his professional development were subdivided into 21 items.

Area 1 - Professional involvement: Seeks to identify the teacher's skills with regard to the use of digital technologies to communicate, collaborate, and evolve professionally.
1. I use different communication channels for different purposes.
2. I continually develop my skills in using digital tools.
3. I participate, whenever possible, in online training.
4. I look for different websites and strategies to search and select digital educational resources.

Area 2: Digital Technologies and Resources: It concerns the use of digital technologies and resources, specifically, the ability to use, share, and protect them.
5. I use digital technologies and resources to work with colleagues inside and outside my institution.
6. I use different software and security mechanisms to protect personal content.

Area 3: Teaching and Learning: Refers to the ability of teachers to identify their abilities to manage and organize the use of digital technologies in the teaching and learning process.
7. I consider how, when, and why to use digital technologies in the classroom to ensure that they are used at their fullest potential.
8. I monitor student activities in the online collaborative environments we use.
9. When students work in groups, they use digital technologies to generate and document the data they present.
10. I use digital technologies to develop active methodologies.
11. I develop learning activities that involve the creation of digital content—for example, videos, audio, photos, digital presentations, blogs, wikis, etc.

Area 4: Assessment: Refers to the skills in assessment, specifically in the way digital technologies are used to improve the students' assessment process.
12. I use digital technologies to allow students to plan, document, and track their learning independently.
13. I use digital assessment tools, or tests and games, to verify student development and provide more efficient feedback.
14. I use digital technologies to provide effective feedback.

Area 5: Student Training: It refers to the ability to use digital technologies to increase inclusion, personalization, and students' active involvement in teaching. Being present in the items:
15. I review the information available regularly to identify students who need additional support.

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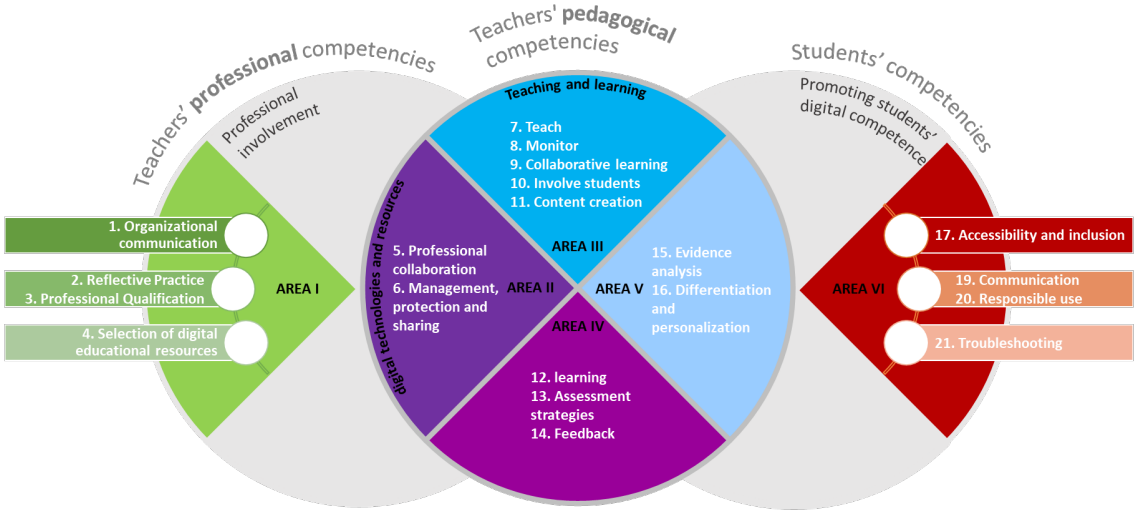
16. When designing digital assignments for students, I consider and try to help them with any problems they may have with digital resources.

Area 6: Promotion of students' Digital Competence: It concerns the teaching skills to help students use digital technologies creatively and responsibly, comprising the following questions:
17. I use digital technologies to provide students with activities tailored to individual learning levels and needs.
18. I advise students on how to verify that information is reliable and to identify wrong or contradictory information through false news.
19. I develop activities that enable students to use digital media for communication and collaboration, with each other or with the external public.
20. I recommend students to behave safely and responsibly online.
21. I encourage students to use digital technologies creatively to solve concrete problems. (DIAS-TRINDADE, MOREIRA & NUNES, 2019, p. 4-6).

Figure 2 Representation of the 21 digital skills, divided by areas.



Source: Adapted from "Escala de autoavaliação de competências digitais de professores. Procedimentos de construção e validação", de S. D. Trindade, J. A. Moreira e C. Nunes, 2019, 4.

The DigCompEdu - Digital Competence Framework for Educators questionnaire, in addition to classifying the global teacher digital competence, also allows determining a classification within the six structuring areas. The structuring areas follow a general rule, which establishes a specific score for each competency when adding the questions, it is possible to identify the level at which it is and, thus, develop actions and activities aiming at the change to a higher proficiency level.

At the end of the research, the feedback was sent to the participant, who expressed a desire, providing the proficiency level identification in Digital Technologies of Information and Communication - TDIC - with an overall and area score. Suggestions revealed activities and actions to improve the level of proficiency, addressing aspects

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related to technology use, citing possibilities of what can be done by the teacher to innovate in the classroom, adapting his methodology to the new educational processes, which are, for the most part, linked to the use of digital media.

Thus, once the three dimensions, the six structuring areas, and the 21 digital competences are known, data analysis is carried out.

Data analysis

After finalizing the scoring tab for all areas, the teacher was classified in one of the digital proficiency levels, starting from the beginner level to the innovative level, with the first two levels, A1- Newcomer and A2- Explorer, the beginner, with basic digital practices; the intermediate levels, B1- Integrator and B2-Specialist; and the most advanced levels, C1- Leader and C2- Pioneer. Table 3 below shows the most specific profile of teachers by proficiency level.

Table 3 Proficiency levels and professional profiles.

LEVEL	DESIGNATION	PROFESSIONAL PROFILE
A1	Newcomer	You have the opportunity to start improving the use of digital technologies in the teaching process.
A2	Explorer	He is aware of the potential of digital technologies and is interested in using it to improve his teaching practice.
B1	Integrator	Experiment with digital technologies in different contexts and integrate them into your classes.
B2	Specialist	Confidently and creatively uses a series of digital technologies, selecting them according to what will be taught.
C1	Leader	It has a consistent and comprehensive approach in relation to digital technologies uses to improve its pedagogical practice, having a wide repertoire. Share your knowledge.
C2	Pioneer	It questions the adequacy of contemporary digital and pedagogical practices. It seeks to innovate constantly and experiment with innovative technologies.

Thus, the levels of proficiency and their specificities are briefly presented, also pointing out essential characteristics to be improved in order to reach the next level (Figure 3).

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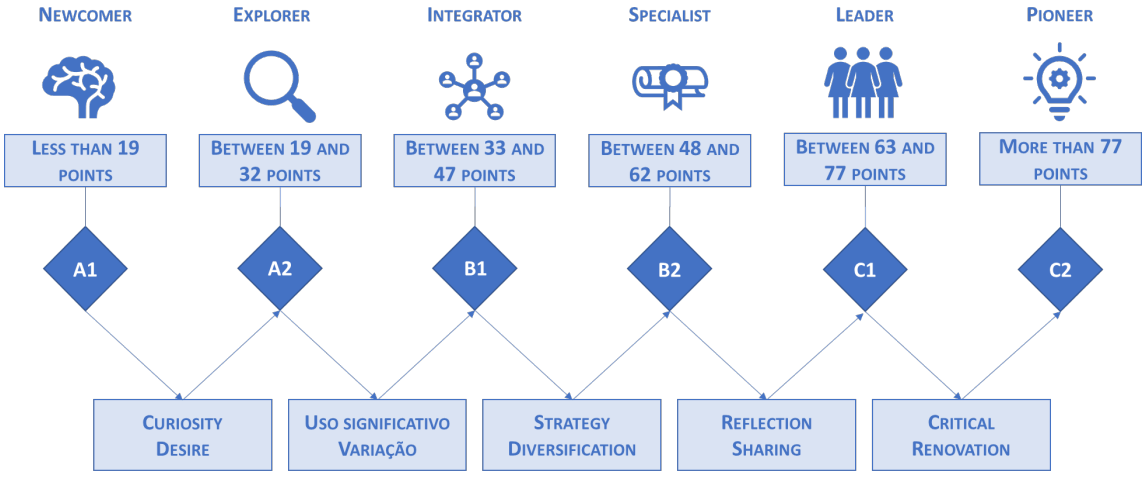
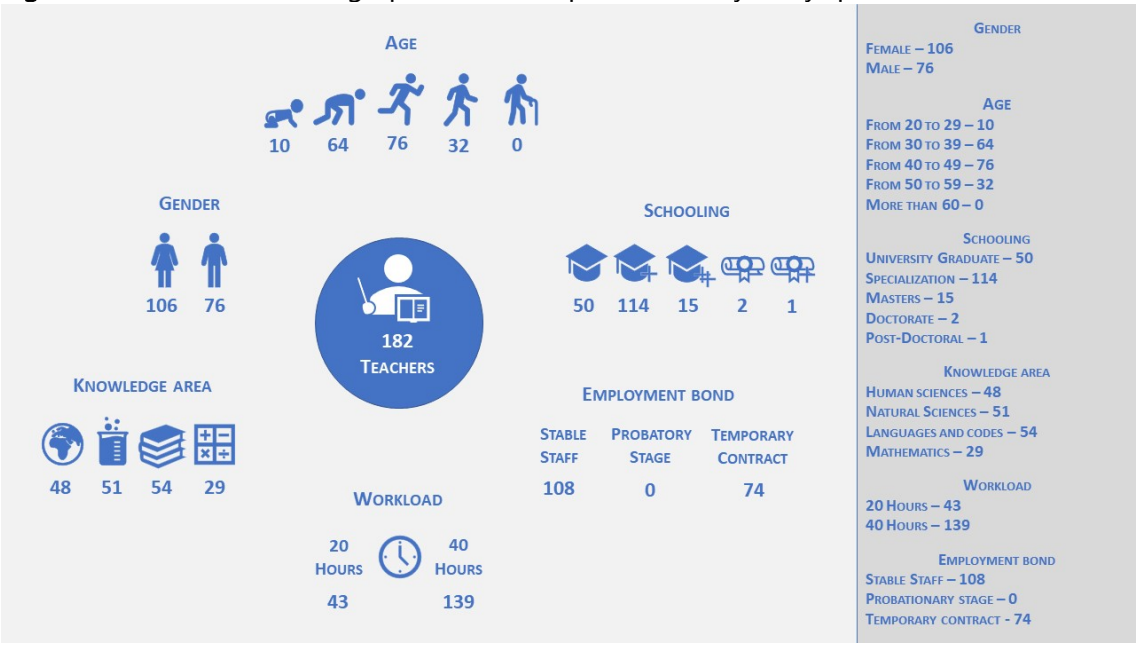
Figure 3 Proficiency levels Characteristics.



The proposed questionnaire was accessed by 184 (one hundred and eighty-four) teachers, and, after reading the Free and Informed Consent Term, two of them decided not to answer the questionnaire, thus establishing themselves as a criterion for their exclusion of that research. Therefore, 182 (one hundred and eighty-two) were the effective participants, who answered the questionnaire, thus representing 73.6% of the total number of teachers and 96.19% of confidence level.

Figure 4 below shows the findings related to the respondents' sociodemographic and occupational aspects.

Figure 4 Global sociodemographic and occupational analysis by quantitative.



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From analyzing the data, it is found that among the 182 participants in this research, 58.2% are female, and 41.8 are male. With regard to age, only 5.5% are between 20 and 29 years old; most teachers were between 30 and 39 years old (35.2%) and 40 and 49 years old (41.8%); teachers between 50 and 59 years old, represent 17.6% of the participants, there is no single teacher over 60 years old.

As for education, 27.5% have only graduated; 62.6% are specialists; 8.2% are Masters; 1.1% doctors and teach at the Polícia Militar school and Frederico Pedreira; and 0.5% postdoctoral fellow, who is assigned to the Polícia Militar school. These indices demonstrate an important characteristic concerning the improvement of knowledge, since, we total 72.4% of the number of professors as postgraduates, an index much higher than that presented in the studies of Carvalho (2018), on the profile of the Brazilian professor, who, using data extracted from the Census of Basic Education in Brazil in the years 2009, 2013 and 2017, demonstrated "that of the graduates, 36% are holders of postgraduate degrees lato or stricto sensu".

With regard to knowledge area in which they teach, there were very close indices in the first three areas showing a relative balance of the respondents, 26.4% are professors of Human Sciences and their Technologies (History, Geography, Philosophy, and sociology); 28% teach subjects in the area of Natural Sciences and its Technologies (Chemistry, Physics, and Biology); 29.7% are in the area of Languages, Codes and their Technologies (Portuguese, Literature, Foreign Language (English and Spanish), Arts, Physical Education and Information and Communication Technologies); with less representation of teachers in the area of Mathematics and its Technologies (Mathematics), with 15.9%.

Regarding the teachers' work regime, 139 of them work 40 hours in the same teaching unit, which represents 76.4% of the research participants, against 23.6% who work only 20 hours in these schools. Here it is important to note that the Colégio da Polícia Militar and Escola Elizângela Glória offer full-time education, which has, respectively, 100% and 94.5% of their teachers working 40 hours.

When analyzing the employment relationship, it was found that 59.3% are permanent employees, and 40.7% are working on temporary contracts, the latter being an index indicating the need to hold a public tender. Corroborates with this statement the fact that there are no teachers in a probationary internship amongst the seven teaching units surveyed.

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Results and discussions

When computers emerge, schools intended to educate on the use of technologies. Today, however, technology is used to educate through different technological resources, which enable learning that dialogs with the student universe as mediated by technologies. This use aims to overcome historical, educational challenges such as expanding knowledge access, including the issue of teaching quality through the use of interactive and dynamic resources that lead the student to understand and use what they learn, and also assist the teacher in the construction of more effective pedagogical strategies.

For that, it is necessary that the teacher is prepared, that he/she has the necessary skills to use in favor of learning, that he/she can be trained to refine his pedagogical practices aiming at the achievement of educational improvements.

It is important to note here that many teachers are digitally literate, but not necessarily fluent since they know how to use digital tools, but do not productively understand their applicability in their daily lives and their pedagogical practices. Briggs and Makice (2011, p. 68), reinforce this statement when defining digital fluency as "the ability to reliably achieve the desired results through digital technology," nevertheless, issues that are still to be found moderately among the teachers surveyed is the fact of knowing when and why using these tools effectively in order to achieve the objectives.

According to the thinking of Mauri and Onrubia (2010), it is understood that the construction of instruments that evaluate teachers profile regarding the use of technological resources is essential, thus allowing teachers and managers to have data that support and allow more assertive planning in the courses and training offered to these professionals.

Thus, seeking to identify the digital skills of teachers, the EU Science Hub, department of the European Union, has carried out specific studies such as the DigCompEdu report, which served as the basis for this research. The questionnaire was adapted and validated for the Brazilian reality, which was applied in seven teaching units in the Municipality of Palmas. After analyzing the issues present in the six structuring areas, the following global results by proficiency level were presented.

Figure 5 allows better visualization and understanding regarding teachers' respondents' classification by digital proficiency level in each of the three and six subdimensions, also called structuring areas. Thus, allowing the development of specific actions by area, aiming to correct distortions in search of improving digital competence and the consequent level progression.

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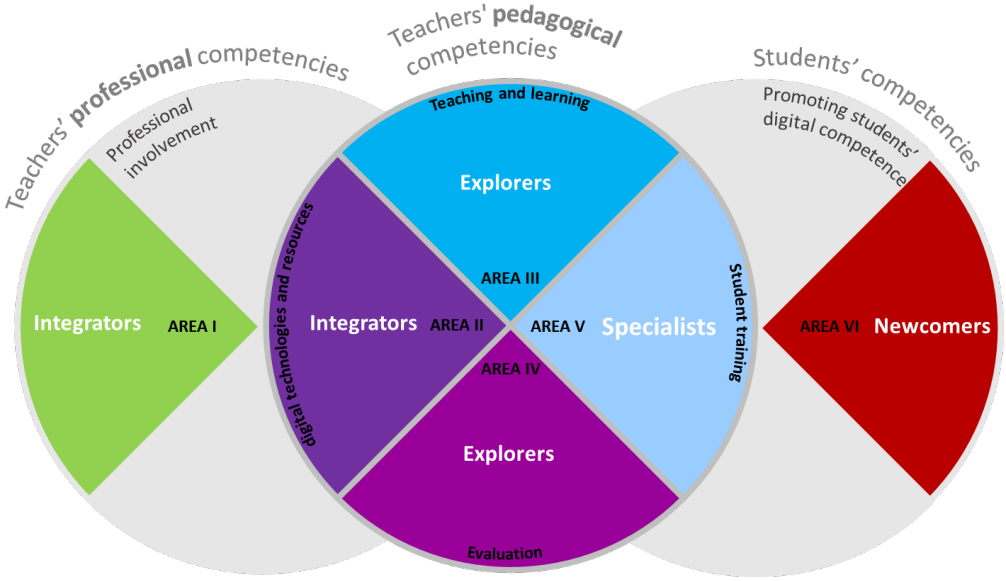
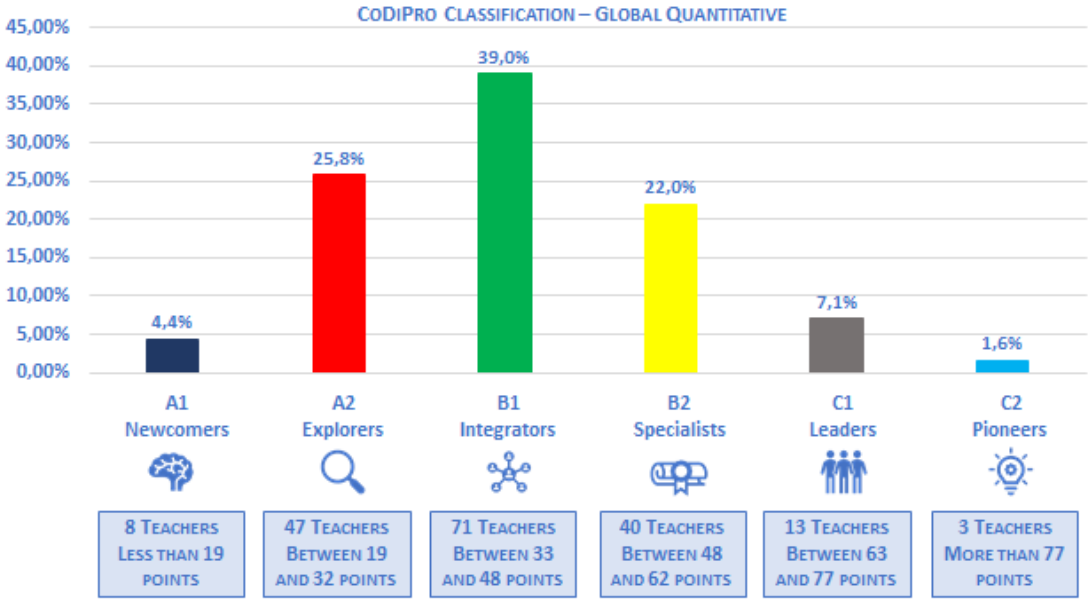
Figure 5 Distribution of proficiency level by dimension and sub-dimension.



Source: Adapted from: "Escala de autoavaliação de competências digitais de professores. Procedimentosde construção e validação", de S. D. Trindade, J. A. Moreira e C. Nunes, 2019, 4.

Thus, regarding the level of proficiency by dimension and sub-dimension, the present study pointed out that the highest level of proficiency, B2- Specialist, refers to the training of students, a component of the second pedagogical dimension; and that the lowest level, A1- Newcomer, concerns the promotion of students' digital competence, which is part of the third dimension.

Figure 6 Classification of teachers by level of proficiency.



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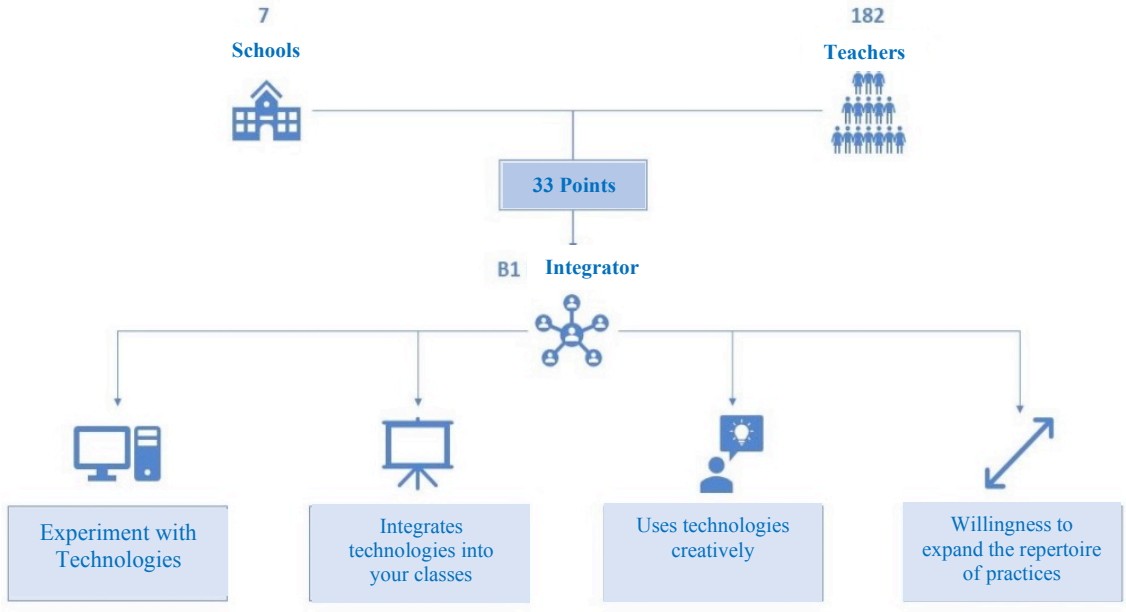
Thus, it appears that the predominant level of digital competence among respondents is B1- Integrators, indicating that teachers experience digital technologies in different contexts and use them in their classes.

The teachers belonging to this level, according to the feedback prepared by Dias-Trindade, Moreira, and Nunes, based on the DigCompEdu report, and later adapted for educators in Brazil, are characterized as follows:

> If your overall score is between 33 and 47, you are an Integrator (B1), this means that you experience digital technologies in a variety of contexts and for a variety of purposes, integrating them into many of your practices. He uses them creatively to improve various aspects of his professional involvement and is willing to expand his repertoire of practices. It will have more benefits if it improves the understanding of which tools work best for each type of situation, in order to adapt the use of digital technologies to pedagogical methods and strategies. Try to give yourself some more time to experiment and reflect, complementing it with collaborative encouragement and knowledge exchange to reach the next level, Specialist (B2). (DIAS-TRINDADE, MOREIRA & NUNES, 2019, p. 2).

Figure 7 Search result.



Thus, identifying the majority of the 182 participating teachers who teach for high school situated at level B1-Integrator, the level considered moderate, totaled 33 points, a maximum of 84 points selected.

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Digital skills development in teachers has proven to be necessary so that they can prepare students for the digital world. According to Moran (2000, p. 127) ". . . Upon leaving school, students must know how to use digital technology, communication tools, social networks, as well as manage, integrate, evaluate and create information that allows them to live in a highly computerized and connected society".

Thus, having a level of digital proficiency knowledge to which he belongs and also, which skills need to be improved and aligned to his expectations and real needs, the teacher can suggest and seek training for his permanent improvement, mediated by Digital Information and Communication Technologies (TDICs), with a view to raising their digital fluency level in search of the best paths towards the transformation of teaching practice.

Recommending the growing need to expand investments aimed at training teachers, which will directly reflect on their didactic activities. Also emphasizing the importance to continually monitor teachers' performance and the results of the teaching and learning processes when teachers start to use technologies in their classes.

Carvalho (2018, p. 61) asserts that "getting to know who the teacher of basic education is in Brazil is an essential step to understanding the scenario of public educational policies, especially policies directly related to teachers."

That said, it is understood that the expansion of this study is significant, aiming to contemplate the state public high school in the municipality of Palmas in its entirety, in order to have a global view regarding the use of technologies by teachers, and, as well mentioned by Carvalho (2018, p. 6) ". . . that contribute to the decision-making process of public policies, in order to overcome the problems related to teaching ", aiming at a quality education that meets the different demands of the globalized society.

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RESUMO:
Este trabalho teve por objetivo analisar o nível de proficiência digital dos professores que lecionam para o ensino médio em escolas públicas estaduais do município de Palmas-TO. A investigação se pautou na aplicação de survey através da plataforma google forms, tendo como instrumento de coleta de dados uma autoavaliação baseada no questionário DigCompEdu - Digital Competence Framework for Educators, desenvolvido pelo EU Science Hub (Serviço de Ciência e Conhecimento da Comissão Europeia), com adequações e validação para a realidade brasileira. Concluídas as análises verificou-se que a maioria dos 182 professores se situa no nível B1-Integrador, nível considerado moderado.

PALAVRAS-CHAVE: Educação. Aprendizagem. Competências digitais. Tecnologia.

RESUMEN:
Este trabajo tenía como objetivo analizar el nivel de competencia digital de los profesores que enseñan para la escuela secundaria en las escuelas públicas estatales de la ciudad de Palmas-TO. La investigación se basó en la aplicación de la encuesta a través de la plataforma de formularios de Google, teniendo como herramienta de recopilación de datos una autoevaluación basada en el cuestionario DigCompEdu - Marco de Competencia Digital para Educadores, desarrollado por el Centro Científico de la UE (Servicio de Ciencia y Conocimiento de la Comisión Europea), con ajustes y validación a la realidad brasileña. Una vez concluidos los análisis, se constató que la mayoría de los 182 profesores se encuentran en el nivel B1-Integrador, nivel considerado como moderado.

PALABRAS-CLAVES: Educação. Aprendizagem. Competências digitais. Tecnologia.

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