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IMPLEMENTATION OF THE QUIZIZZ PLATFORM IN THE REGIONAL CENTER OF PARANAVAÍ (PR): A CASE STUDY

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ABSTRACT

In a post-pandemic period, there was a significant increase in the use of digital platforms in the school context. The objective of this article is to understand the process of implementation of Digital Learning Platforms in the Classroom in Public Basic Education in the State of Paraná, in schools of the Regional Nucleus of Paranavaí, in the perception of the technique responsible for this process. The methodology used is qualitative, in the case study modality. As data, we considered the answers of an interview with the NRE technician, responsible for the Paraná Challenge Program. To discuss the results, Discursive Textual Analysis was used. The results obtained indicate that the process of implementation of Digital Platforms for Learning in the Classroom in Public Basic Education in the State of Paraná, in schools of the NRE of Paranavaí, has implied an increase in access, especially due to the fact that students have the opportunity to carry out the activities in the school itself. It showed, however, that there is no engagement with the program by a significant part of the teachers. Regarding the training for the use of the Platforms, different referrals stand out, which occur both synchronously and asynchronously. Regarding the potential of Quizizz, specific tools and functions were highlighted for students who have some difficulty and the possibility for teachers to create their own activities. Regarding the challenges experienced in this process of implementing the Platform, structural aspects were pointed out, such as problems with internet access, lack of computers or availability of computer labs.

Keywords: Chemistry Teaching. Paraná Challenge Program. Quizizz platform. Teaching of Chemistry and TDIC.

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INTRODUCTION

The technological and informational advent, linked to the advancement of Digital Information and Communication Technologies (DICT), as well as the diffusion and popularization of the Internet, characterize the current moment experienced by society, configuring the so-called Network Society (Castro; Spinardi, 2023; Sossai, 2020). Technologies then began to occupy an important space, exerting influences in different spheres (Sauer; Pinto, 2024). As a consequence, in recent decades there has been a deepening of the debate about the potentialities and limitations of DICT in educational and training environments (Darido; Bizelli, 2015).

It is noteworthy that, in 2020, the world was devastated by a pandemic of severe acute respiratory virus, called COVID-19 (Fiori; Goi, 2020). This situation led to the suspension of face-to-face classes in Brazil and in much of the world, and, as a way of trying to minimize the impacts of this context, public and private education networks began to continue the school calendar remotely (*online).* In this way, the use of educational platforms has greatly expanded (Mendes; Oliveira, 2023) and such a context has led to a series of challenges, for students and teachers.

In Paraná, as of 2022, several digital platforms were proposed by the state government with the aim of assisting teachers in the teaching and learning processes, such as: *Leia Paraná*, *Redação Paraná*, *Edutech*, *Matific*, *Khan Academy*, *Inglês Aluno* and *Inglês Professor*, *Khanmigo* and *Desafio Paraná*element. *Quizizz* is the basis of the *Desafio Paraná* program (our focus of interest and which will be detailed in the continuation of this manuscript) and uses the gamification methodology. This tool allows teachers to create activities in multiple formats, adapt the content to the needs of the students, and offer immediate feedback on the students' performance (Paraná, 2024).

However, the mandatory use of these digital platforms for the education of students in public schools in Paraná has generated disagreement between teachers and the state government. According to Budel (2023), this use was accompanied by the collection of goals that, for teachers, limit teaching, through a number-generating format, not necessarily learning. This fact is discussed by Oliveira and Mendes (2023, p.18), who criticize the lack of teacher autonomy in the face of the "imposition of the use of digital technologies and standardized lesson plans by schools and the educational system".

Thus, it is essential to reflect on how the process of implementation and use of the Quizizz Educational Platform in the *Paraná Challenge Program* has been by teachers who work in the public school system in the state. Thus, the general objective of this investigation is to understand/describe the process of implementation of Digital Learning Platforms in the Classroom in Public Basic Education in the State of Paraná, in schools of the Regional Nucleus of Paranavaí, in the perception of the technique responsible for this process.

THEORETICAL FOUNDATION

Since the virtual environment offers a diversity of content for the general public, especially for young people, the use of game elements presents itself as an alternative to bring education and the digital world closer together, contributing to the teaching and learning processes. In this sense, Neto and Moradillo (2017) argue that the number of gamified activities has been growing a lot, with the aim of making classes more fun and dynamic. For them, "the playful atmosphere allows the student to concentrate more on the content, directing his focus to the discussion of the concepts involved in the activity" (Neto; Moradillo, 2017, p. 528). However, it is not every gamified activity that can favor the development and mobilization of attention to concepts, which implies thinking and developing something that brings challenging scientific content to the student, requiring focus and logical reasoning.

In this context, the insertion of Digital Educational Technologies (TED) in the school has enabled new forms of social interaction and, as a consequence, learning occurs not only through traditional methods considered "formal". It is in this scenario that George Siemens (2004), president and founder of *Complexive Systems Inc*., a research laboratory that helps organizations develop integrated learning structures, proposes connectivism for networked learning. This theory of learning emerges as a proposal for a current approach to understanding learning in a connected educational context.

The concept of connectivism was presented by Siemens (2004), in which the author presents "significant trends in learning", stating:

- Many apprentices will work in a variety of different, and possibly unrelated, areas throughout their lives.

- Informal learning is a significant aspect of our learning experience. Formal education is no longer the bulk of our learning. Learning now takes place in a variety of ways – through communities of practice, personal networks, and through the accomplishment of work tasks.
- Learning is a continuous process that lasts a lifetime. Learning activities and work activities are no longer separate. In many cases, they are the same.
- Technology is altering (rewired) our brains. The tools we use define and shape our thinking.
- The organization and the individual are learning organisms. The increased interest in knowledge management shows the need for a theory that attempts to explain the link between individual and organizational learning.
- Many of the processes previously addressed by learning theories (especially those that refer to the cognitive processing of information) can now be realized or supported by technology.
- Knowing how and knowing what is being complemented with knowing where (the understanding of where to find the necessary knowledge) (Siemens, 2004, sp).

For connectivism, learning involves building and maintaining network connections so that the subject can find and apply knowledge when and where it is needed. Thus, connectivism emerges as an alternative to explain the learning that takes place in a network, since knowledge is distributed through an information network and, from different digital formats, can be stored (Coelho, 2019).

In this theory, learning is understood as a network of relationships, not just an individualistic internal activity, and its central axis is the concept of network, being supported by eight principles idealized by Siemens (2004, sp):

- Learning and knowledge depend on diversity of opinions.
- Learning is a process of connecting nodes (or nodes) or specialized sources of information.
- Learning can reside on non-human devices.
- The ability to know more is more critical than what one knows at a given moment.
- Feeding and maintaining connections is necessary to facilitate continuous learning.

- The ability to see connections between areas, ideas, and concepts is a key skill.
- Updating (accurate and current knowledge) is the intention of all connectivist learning activities.
- Decision-making is, in itself, a learning process. The act of choosing what to learn and the meaning of the information received is seen through the lens of a changing reality. A correct decision today may be wrong tomorrow due to changes in the information environment that affect the decision.

Witt and Rostirola (2014) discuss some pedagogical conceptions about connectivism. For the authors, the term "student" is inappropriate because, contrary to its etymological meaning of "without light", the individual should be considered the starting point of connections that generate knowledge. Thus, the "learner must nurture an interest in knowing so that learning can happen, and this is continuous, dynamic and is not only reflected in the formal means of teaching, but in the heart of the society with which the individual interacts" (Witt; Rostirola, 2014, p.1018).

In a complementary way, Matar (2013) argues that learning is not something "ready and finished", or a process that is entirely under the control of the individual, an internal, individualistic activity. It is something distributed from a network of external connections (with other people, organizations or databases), which "are more important than our current state of knowledge" (Mattar, 2013, p.30).

Moreira, Henriques and Barros (2020, p.358-359) bring some quality criteria that should be considered in an environment thinking about an integrative and connective perspective of the teaching and learning processes, as follows:

- Promote in the student an active role.
- To help the student to develop their own knowledge from the interaction with other people (students and teacher) and (digital) resources.
- Promote the formulation of questions that may be subject to investigation.
- Invite to express, organize and contrast the knowledge and initial hypothesis of the students about the objects of study to be investigated.
- Stimulate autonomous learning.
- Promote the development of research projects to respond to problems.
- Promote the exploitation of new content through digital resources and other sources of information.
- Structure the information obtained, including tasks such as summarizing

- Stimulate communication, discussion, or collaboration with other participants in the virtual learning space.
- Promote the application or transfer of cognitive processes in new scenarios and contexts.
- Reflect in a metacognitive way on the development and results of the research carried out.

Thus, the teacher is no longer taken as "the only one responsible for defining, generating or organizing the content" (Mattar, 2013, p.24), since the learning process must count on the collaboration of the students. Finally, for these authors, evaluation assumes a "constructive and interactive character in which the concern with education is superimposed on the measurement of the learner's abilities" (Witt; Rostirola, 2014, p.1019).

METHODOLOGICAL PROCEDURES

The research is qualitative in nature (Bogdan; Biklen, 1994) and considers the school context as a direct source of the data, which were collected and produced by the researcher in the context in which he works. Moraes (2003) highlights that qualitative research seeks to deepen the understanding of the phenomena it investigates, without testing hypotheses to prove or refute them at the end of the research; The intention is understanding.

Considering the objective of investigating how the implementation and use of the Quizizz Educational Platform in the Paraná Challenge Program in the NRE of Paranavaí takes place, we understand that the case study is configured as the method of this research (André, 2013).

Regarding the implementation of the Quizizz platform, in the state of Paraná, Circular Letter No. 006/2023 – DEDUC/SEED (Paraná, 2023) deals with the continuity and expansion of the use of educational digital learning platforms (considering that this process began during the Covid-19 pandemic), with the objective of favoring curricular effectiveness and the achievement of learning rights related to digital education. Some tools are fundamental for the development of the competencies provided for in the BNCC, in the Paraná Curriculum Framework, and in the network's curriculum" (Paraná, 2023, p.1). Such tools are: 1. Paraná Newsroom; 2. Read Paraná; 3. English Paraná; 4.

Mathematics Paraná; 5. Paraná Challenge (*Quizizzz Platform); 6. Paraná Programming - Alura Platform*.

According to the document, the Paraná Challenge Program (our focus of interest),

> "will allow students more time in contact with the learning objectives planned for each stage, providing the opportunity to review what was worked on in the classroom in a dynamic and interactive way, through homework assignments on a gamified platform, called Quizizz" (Paraná, 2023, p. 06).

The objectives are to help teachers and students in deepening knowledge, overcoming gaps and recomposing learning, and can be used as an instrument of evaluation and recovery. It is possible, through a platform, "to monitor the learning performance in a procedural and continuous way, with the attribution of 30% of the percentage of the quarterly grade, as well as for the recovery of this percentage" (Paraná, 2023, p. 06).

Thus, the state of Paraná uses a digital educational resource that constitutes a repository of activities, contemplating the objects of knowledge foreseen for each evaluation period, which "enrich the forms of interaction of students with the objects of knowledge and serve as a teaching strategy for the teacher" (Paraná, 2024, p. 02).

The context chosen for the study was the NRE of Paranavaí, the hometown of the researcher (first author), where he carried out all his studies from Basic Education to Higher Education. He worked as a teacher in the state network, under the PSS (Simplified Selection Process) contract regime from 2013 to 2023, with disciplines in Science (his first training at the undergraduate level), Chemistry (his 2nd training) and as a Pedagogue (his 3rd training), in different schools both in the municipality of Paranavaí and in adjacent municipalities. This experience and professional experience of "immersion" in the described context shows promise for data collection, since it has contact and good relationships with a significant number of teachers who work with the discipline of Chemistry in NRE schools, as well as with professionals who work in the center itself.

The Regional Education Center of Paranavaí[3] serves 21 municipalities. Its scope is 44 state institutions, 15 of which are integral, 7 rural schools, 2 multi-year, 2

[3] Information accessed in https://www.nre.seed.pr.gov.br/modules/conteudo/conteudo.php?conteudo=60 and http://www.consultaescolas.pr.gov.br/

CEEBJAS, 5 civic military schools and other institutions that offer regular education, regular education and EJA and professional education. There are also in the jurisdiction of the regional: 21 municipal secretariats, 12 partner institutions (Apaes) and 15 private institutions.

As a participant in the research, we chose the technician of this NRE, responsible for the implementation of Digital Platforms for Learning in the Classroom in Public Basic Education in the State of Paraná, in schools of the NRE of Paranavaí (which here will be called just "TEC"). An interview with this technique was planned to survey elements to respond to the objective of the research, to be sure, to describe how this implementation process took place.

To this end, a research instrument was defined, a semi-structured interview script for the collection of information along with this technique. The first part was about the professional profile, as follows: age; training at the undergraduate and graduate levels; years of teaching; time working at NRE Paranavaí, and functions assumed. The second part dealt with the Quizizz platform, through five questions: (1) How have you experienced the process of implementing this platform with the NRE schools? (2) What kind of training/orientation has taken place for this implementation? (3) What potential do you recognize about the use of this platform within the scope of the Chemistry discipline? (4) And what challenges do you point out, based on your own experience following the process of use in the classroom? (5) What elements would you point out as possibilities for improvement in the process of using this platform in the practice of the teachers you follow?

For Gil (1999), the interview is a form of social interaction, an asymmetrical dialogue, in which one of the parties seeks to collect data and the other presents itself as a source of information. In this research, we opted for semi-structured interviews, since the researcher had an intentionality and a clear idea about what he considered or did not consider relevant as data for his research. Thus, during the interview, he made sure that certain points (related to his objectives) will be discussed in the answers. The project was approved by both SEED/PR and the Research Ethics Committee of the Higher Education Institution in which it was developed.

For data analysis, initially "reading and rereading all the material to identify the relevant points" (André, 2013, p.101). The description of the answers was then carried out, seeking to recognize elements that would allow the achievement of the research

objective, and later the detailing and discussion of the data, articulated with the theoretical framework. It was necessary for the researcher to go "beyond, going beyond mere description, really seeking to add something to what is already known about the subject" (André, 2013, p. 101). To this end, the theoretical foundations of connectivism were used, establishing connections and relationships that allowed the "study findings" to be evidenced.

PRESENTATION AND ANALYSIS OF DATA

The TEC teacher, technically responsible for the implementation, belongs to the Teaching Staff of the State of Paraná (QPM), with 32 years of practice, 21 of them with services provided to the NRE of Paranavaí. She is currently an ambassador for the Paraná Challenge Program. Regarding the process of implementing this platform with schools, she reports that the Paraná Challenge was a project and, as of 2024, it will become a program.

The first question presented sought information about how she has experienced the process of implementing the platform with the NRE schools. According to her, in the case of full-time schools, the classes "have guided study classes, where students, they have classes during the week within this curricular unit. There are three classes in most classes, and students use these classes to carry out these activities" (TEC). For the teacher, this Program was implemented quite smoothly in these schools. In part-time schools,

> "The teacher can also take the students to the computer lab to carry out the activities. He can schedule once there every 15 days or a month to carry out the activities. However, in most schools, students still carry out activities at home" (TEC).

The informant points out, however, that many students do not have a cell phone or computer at home or even quality internet. Thus, "*we still face a little difficulty with some students who are unable to regularly access the Quizizz Resource to carry out the activities*" (TEC). This fact is in line with the study by Mendes and Oliveira (2023), in which the lack of equipment and connectivity was one of the negative factors, linked to the implementation of the resource, pointed out by the teachers interviewed.

Despite these limitations, TEC observed an increase in access, especially due to the fact that students have the opportunity to carry out activities at the school itself. In

addition, according to her, "*this year too, we had there [at Quizizz] the evaluations, both the online evaluation of Book 1 of the Paraná Test in classes of 8th and 9th grades [of Elementary School]*" (TEC), as well as the SAEB diagnostic evaluation, for students of the 8th grade [of Elementary School] and 2nd grade [of High School].

The excerpt from the teacher's speech shows a use that has been made of Quizizz as an instrument for evaluation. On the one hand, such referral can allow the student opportunities to develop knowledge in the interaction with the resource, as discussed by Moreira, Henriques and Barros (2020). Also, to make the evaluation more interactive (Witt; Rostirola, 2014), in alignment with the assumptions of connectivism (Simens, 2004). On the other hand, it can become a risk to the teacher's autonomy (Mendes; Oliveira, 2023), to the extent that it can transform the assessment into the application of a set of standardized and pre-formatted questions, prepared by subjects external to that classroom.

The professor also adds that:

> "It is a program that has grown. He has offered a lot of resources there, with the use of AI, also in the preparation of activities. So, teachers today have the autonomy to use both the activities sent by SEED, as well as to develop their own activities within the Quizizz resource. So, it is a program that has been evolving, that has been taking shape. Most of the people who are using it are expressing approval for the program" (TEC).

The participant explains that the activities proposed in Quizizz "are prepared by technicians, teachers, specialists who work at the State Department of Education" and "contemplate the descriptors of each component that is being assigned to the activity, and it is also related there to the quarterly planning, so it is related to the LRCO [4]classes of the teacher" (TEC). Also, the teacher can make changes to the proposed activities, and analyze in real time the development of the students, through reports generated by the platform itself, which "enable a resumption of this content [...] and recomposition of learning" (TEC).

The excerpts of speech show that there is an intention to make Quizizz a more flexible resource, which can be configured by the teacher himself, in a personalized way to the reality of his class. Thus, it can consider the individual as a starting point in this

[4] The Online Class Registration Book (LRCO), established by Resolution No. 3550/2022 GS/SEED, as an electronic document for the online registration of student attendance, content/planning and assessments. Available at https://professor.escoladigital.pr.gov.br/rco_mais_aulas. Accessed on 10 Sep.2024.

organization (Witt; Rostirola, 2014), expanding possibilities of inserting gamified activities in the classroom (Neto; Moradillo, 2017).

Still on the process of implementing the Program, TEC points out that there is no engagement by a significant part of the teachers with the Program:

> "We still have teachers who are not engaged in the Program, in the assignment of activities. This is normal in the implementation of a Program. We are in the second year of the program, but we are there mobilizing and also presenting both the resources available on the platform, as well as the program to try to reach both 100% of teachers and also 100% of students" (TEC).

Regarding the second issue, the type of training and/or guidance to teachers regarding the use of this platform that has occurred in the implementation, she highlights that it occurs with

> "continuous training through Google Meet on different days and times, to meet teachers during the activity hour. Also, face-to-face service at schools by appointment, meeting with the management team to present progress and points of attention, as well as joint development of strategies. It also has the production of video tutorials and slides, the availability of support materials in Classroom by teaching modality and in a Whatsapp communication group, individual assistance from teachers by Meet, Whatsapp and telephone" (TEC).

Different strategies stand out here, including synchronous attendance, both face-to-face (at the teacher's activity time) and online (using the Google Meet platform) and asynchronous (through the production of tutorials and other materials). It is worth emphasizing the importance of this type of training, considering the need to offer teachers continuous technical training so that they are able to deal with new technologies (Mendes; Oliveira, 2023). For these authors, it is essential that the teacher understands the functionalities and possibilities that the resource offers, as well as reflects on ways to use it appropriately in their pedagogical practices.

In response to the third question, which deals with the potential it recognizes about the use of this platform within the scope of the Chemistry discipline, the technician points out the existence of "accommodations, which are options for configuring classes, offering specific tools and functions for students who have some learning difficulty (use of calculator, reading aloud, rescue question, among others)" (TEC).

It also highlights that

> "Desafio Paraná activities are already ready and the links available in LRCO, but teachers can create their own activities using AI, and it is possible to create them from links, files in DOC, PPT, PDF format, using texts, or from scratch, in addition to the possibility of searching for ready-made activities" (TEC).

Such functionalities enable teachers to "create interactive activities, containing images, videos, support texts, in addition to being self-corrected, facilitating the teacher's work" (TEC).

Thus, the teacher has the opportunity to develop learning activities that are more aligned with a connectivist perspective, including opportunities for students to explore, connect, create and evaluate (Siemens, 2004). Also, to develop a playful work atmosphere as a means for discussing concepts (Neto; Moradillo, 2017).

The fourth question addresses the challenges experienced in this process of implementing the Quizizz Platform in the Paraná Challenge Program. Based on her own experience following the process of use in the classroom, the technician points out that, despite the extensive dissemination process, the excerpt from the informant's speech demonstrates that teachers still do not know the Quizizz Resource, for several reasons, which include: "lack of mastery of digital resources, fear of not mastering digital resources, resistance to using digital resources, resistance to changing the methodology used" (TEC). For her, the implementation "will occur gradually, by convincing" (TEC).

It is essential to highlight here the importance of training the teacher to use the resource (or any other digital technology) in an autonomous and critical way, so that it is not reduced to a "simple adoption" (Mendes; Oliveira, 2023, p.19). It is essential that this teacher deepens an understanding of the assumptions for learning in virtual environments (Mattar, 2013), understanding principles of connectivism (Siemens, 2004; Sossai, 2020).

Finally, the last question, which deals with possibilities for improvement in the process of using this platform in the practice of the teachers it accompanies, the technique suggests that teachers could use the reports on the students' successes and mistakes in each question, using, for example, Educatron[5], to resume the content and recompose learning.

[5] The Educatron kit consists of a 43" smart TV, computer, webcam, microphones, keyboard with mouse pad and adjustable pedestal and can be used, for example, for presenting multimedia content in the classroom and for video calls with other teachers or lecturers. It was made available to state schools in Paraná in 2022.

According to her, this report generated by the Quizizz platform "presents the question, how many students got it right and how many got it wrong, which answer options they marked, which allows the teacher to discuss with the students about what led them to choose a certain option, being able to correct the activity on the blackboard and answer the students' questions" (TEC). This option allows the teacher to develop activities in a more individualized way, thus considering the individual as the starting point of the learning process, stimulating their autonomy and protagonism (Witt; Rostirola, 2014), as well as an element to promote motivation and persistence in academic tasks (Richardson et al., 2012).

FINAL CONSIDERATIONS

This article was structured around the research theme on the process of implementation and use of the Quizizz Educational Platform in the *Paraná Challenge Program* in the NRE of Paranavaí, with cases in the report and perception of the technique of this Center that is at the forefront of this process.

For TEC, the program has been implemented quite smoothly in these schools, teachers being able to either take students to a computer lab or proposing that they carry out the activities proposed on the Platform at home. He emphasizes, however, that there is no engagement with the program by a significant part of the teachers. TEC also informs that there is a growth in access, especially because students have the opportunity to carry out activities at the school itself. She also recognizes limitations, such as the unavailability of cell phones or computers, or even quality internet in the students' homes, to carry out activities outside the classroom.

In TEC's view, the teacher has autonomy in using his own activities prepared by SEED technicians and made available in Quizizz. He points out that he can also make changes to the proposed activities, or even create his own. Regarding the training for the use of the Platforms, TEC highlighted the use of the GoogleMeet tool, the service to the teacher both by the NRE team and the pedagogical team of the school itself during the activity hour, or even the production of video tutorials and slides, with the availability of support materials in Classroom by teaching modality, as well as Whatsapp communication group.

Regarding the potentialities, TEC highlights specific tools and functions for students who have some difficulty in doing so, as well as the possibility for teachers to

create their own activities, containing images, videos, support texts, in addition to most being self-corrected, elements that facilitate the teacher's work. Regarding the challenges experienced in this process of implementing the Platform, TEC discussed several structural issues that make the teacher still not know the Quizizz Resource, such as internet access problems, lack of computers or availability of a computer lab during class time.

Finally, regarding the possibilities of improvement in the process of using this platform, TEC suggests that teachers can start using it as a resource for recomposing learning, based on the analysis of reports on the students' successes and mistakes in each question.

As a development and future perspectives, we highlight the importance of investigating this process of implementation and use of educational platforms, in general, from the perspective of both teachers and students. Also, to understand the effectiveness of using the platform from both qualitative and quantitative data of its use. Finally, we highlight as a contribution of this study, in addition to a theoretical understanding of the theme in question, the production of data that offer subsidies for SEED and the Regional Education Centers can further qualify the development of their work of implementing educational platforms and training processes for their use.

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