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INNOVATE AND ENTREPRENEUR IN THE CLASSROOM: DEVELOPING SKILLS FOR THE 21st CENTURY ENG MEIO DE ELECTRONIC GAMES

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Abstract: This article reports the application of a school practice with the use of simulation and strategy electronic games. The objective is to present the possibility of working on the development of interpersonal and intrapersonal competences required for the professional of the 21st century. The application took place with 76 high school/technical students in a state public school. More than 65% of these students were able to satisfactorily assimilate theoretical concepts in a practical way.

Keywords: Innovate, skills, electronic games, experience report.

INTRODUCTION

Much has been discussed about the new challenges faced to become a professional in the fierce job market in the 21st century. We can say that, today, the great challenge, in terms of work, is the lack of qualified professionals in specific sectors. and, even more aggravating, in the absence of professionals who, even technically qualified, have not yet managed to achieve the necessary skills for interpersonal and intrapersonal development (ROCHA SOBRINHO and PORTO 201). In the educational context, in order to work on such skills that are absent in many professionals, new ways of using information and communication technologies (ICTs) have been highlighted, for example, with the use of electronic games to support learning (HOCHSPRUNG and CRUZ , 2017), being one of the main sources of success to motivation (BRANDÃO et al. 2018).

With this contextualization, this work aims to present the verification of a work with simulation and strategy electronic games in the development of skills required for the professional of the 21st century, through an experience report, carried out in the classroom with students of medium.

WORK SKILLS IN THE 21ST CENTURY AND THE USE OF ELECTRONIC GAMES AS LEARNING SUPPORT TOOLS

Three relevant works were identified in the literature related to the mentioned topic: the essay on 21st century competences, the article by Soffner (2014), which deals with the importance of discussing, understanding and applying new competences in the lives of students in the school environment , and that these skills must jointly develop the individual's full potential.

The article by Roldão (2009) discusses the importance of adopting competences in the national school curriculum for meaningful learning, where the school must raise the universality of dominant professional and organizational cultures, some disturbance associated with the effect of discrepancy in relation to curricular frameworks previous reference.

And finally, the article by Sá e Paixão (2013), which makes a great survey and discussion on projects/research of the European community, but which can be generalized, related to the identification and definition of the competences that all citizens must possess in the 21st century.

When we think about this relationship of the development of competences in the school environment, we observe that:

> The standardized school, which teaches and evaluates everyone equally and demands predictable results, ignores that the knowledge society is based on cognitive, personal and social skills, which are not acquired in the conventional way and which require proactivity, collaboration, personalization and entrepreneurial vision. (MORAN, 2015 p.16)

In the National Curricular Common Base, competence is conceptualized as the mobilization "of knowledge (concepts and

procedures), skills (practical, cognitive and socio-emotional), attitudes and values to solve complex demands of everyday life, the full exercise of citizenship and the world of work. work" (BRAZIL, 2018 p.8).

One of the ways to work with the incentive of these competences is the use of TDICs (Digital Information and Communication Technology) in the educational process, through the adoption of electronic games in the teaching and learning process.

The BNCC itself, in its 5th general competence of Education, addresses the need for this adoption in a critical, meaningful, reflective and ethical way for the exercise of protagonism and authorship in personal and collective life :

> Understand, use and create digital information and communication technologies in a critical, meaningful, reflective and ethical way in the various social practices (including school ones) to communicate, access and disseminate information, produce knowledge, solve problems and exercise protagonism and authorship in life personal and collective (BRASIL, 2018 p.9).

And with that:

> Formal education is at an impasse in the face of so many changes in society: how to evolve to become relevant and get everyone to learn competently to know, to build their life projects and to live with others. The processes of organizing the curriculum, methodologies, times and spaces need to be reviewed (MORAN, 2015 p.15).

Therefore, electronic games are classified into several categories, including simulators and strategy (SATO and CARDOSO, 2008). Such classifications, although distinct, can coexist in their applications, being great allies of education, and can be used to develop different types of skills (BALADEZ. 2009).

However, we have a significant growth in the use of games in the school environment, since:

A well-designed game involves interaction, keeping the student's interest while developing skills, socializing, helping to build knowledge and reasoning. Digital educational games, if used effectively, play an important role in the development of the student, promoting personal and group initiative, solidarity, mutual respect and the formation of social attitudes, being a powerful element of motivation in the environment of learning (MARTINS, 2010 p.3).

APPLICATION OF WORK

It was decided to apply a practical activity, within a didactic sequence divided into three moments: data collection, application and evaluation. 76 adolescent students participated in two classes of the 1st year of high school and technical of the Computer for Internet course, at the State Technical School José Humberto de Moura Cavalcanti, a public school in the city of Limoeiro, in the state of Pernambuco. The activity was carried out in the Integrative Project discipline, a discipline responsible for inserting diverse contents related to the practice of information technologies in the professional life of students, through research and projects.

FIRST MOMENT

At first, in the classroom, the 76 students present were instructed to search the internet about the work skills required for the 21st century. Then they discussed what they found on the subject and carried out an overview. Afterwards, the identified competences were analyzed and 15 of them were chosen, which were found in an article in the digital magazine ComputerWorld, which was identified by the two groups. The competences chosen by the classes were confronted, by the teacher, with the material presented in the three works of Section 2. The 15 competences chosen were: Complex problem solving, Critical thinking,

Creativity, People management, Coordination with others, Emotional intelligence, Judgment and Decision Making, Service Orientation, Negotiation, Cognitive Flexibility, Adaptability, Initiative and Entrepreneurship, Social Intelligence, Media Literacy and Programming, and Virtual Collaboration.

Then, the 15 selected work skills were distributed among groups by drawing lots. Each group was responsible for researching more about the competence and creating a small theatrical play, using the concept of storytelling, approaching the experience of competences by group in the possible market reality. The play was presented in 5 minutes by each group in the classroom, ending the first moment of the application of this work.

SECOND MOMENT

In the second moment, in the classroom, the computer game SimCity 4 was presented to the students of the classes. The objective was to encourage students to perceive some work competence discussed so far. Then, they chose simulation and strategy games, in their groups, using smartphones, aiming to identify how many competences, of the 15, were possible during the game and if it was possible to develop the identified competences. They had a week to discuss as a group and produce a poster containing information about the chosen game and the skills identified during the game.

Fifteen games were chosen, none of which were repeated between the teams, and all on the smartphone, Android and iOS platform, namely: Turma A (Zombie Attack, Block Strike, City Island 5, City Mania, Clash of Clans, Clash Royale and Dragon City); Class B (Gartic, League of Legends, Little Big City, Little Big City 2, SimCity Buildt, Slices, The Sims Free Play and Township).

THIRD MOMENT

In the third and last moment, the students were directed to individually answer a questionnaire on google forms, whose results are presented in Section 4. This questionnaire aimed to identify which and how many skills were identified by the students, their observations about the application in the chosen game, in addition to the assimilation of the content presented on the competencies through 5 questions with problem situations.

RESULTS AND DISCUSSIONS

The production of posters resulted in an exhibition at the school, aiming at other school students to realize that, even in moments of fun using electronic games, it is possible to identify and work on useful characteristics to be applied in the professional environment. Figure 1 presents both the moment of the theater by one of the teams and some of the posters displayed at the school.

The evaluation moment, through the questionnaire answered by the students, presented a series of results. One of them, as shown in Figure 2, presents the result, in graph, about the chosen competences most identified by the students.

We can highlight that the skills Creativity, Complex problem solving and Judgment and decision making were the most identified in the games. It is also observed that all 15 competences were identified by the students in the selected games. Another result showed that the use of strategy and simulation electronic games met the expectation of developing work skills, with the answers being "Yes", "A little" and "No". As a highlight we have the "Yes" with 80% of the answers and the absence of the "No.

As for the essay answers given by the students, a total of 76 were collected. Some answers from the students regarding the experience in identifying work skills in the

Figure 1. Theatrical presentation (left) and some posters displayed (right).

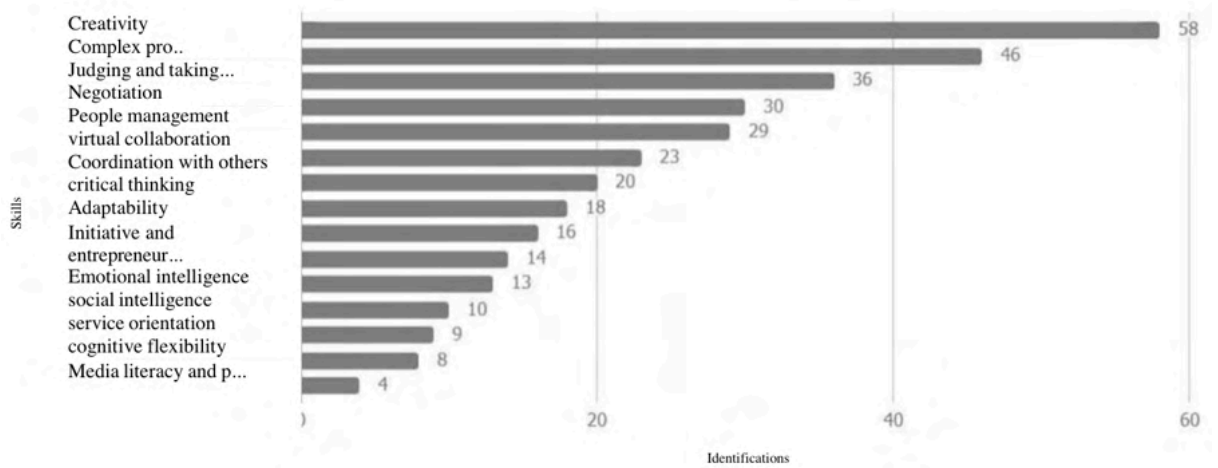Source: Authors' personal archive (2019).

Figure 2. Number of skills identified in the games by students.

Source: prepared by the authors (2019).

chosen game are summarized below.

Student 1: "I had the opportunity to identify several skills in this game. I realized how difficult it is to manage everything coherently and correctly, it was a great experience".

Student 2: "In the beginning it was a little difficult, I didn't understand it well, but then I got the hang of it and identified some skills".

Student 3: "Everything is related to the real world. Even though it was a game, we were able to identify these skills".

Regarding the answers given by the students to the questions with problem situations, there was a variation in the number of correct answers according to the question. Of the five questions, three obtained more than 50% of correct answers. Highlighting the two questions that obtained less than 50% of correct answers, the question whose correct competence would be "Service orientation", 28 students answered as the competence "Creativity". For the question whose correct competence would be "Virtual collaboration", 41 answered "Coordination with others". Thus, in an arithmetic average, 66% of the students

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were able to assimilate the content. The other answers, as well as the general result of the evaluation and the generated graphs, can be accessed on the internet available at: <http://gg.gg/comp-respostas>.

CONCLUSIONS

With the application of this work, it was observed that it is possible to identify and work on the development of the intrapersonal and interpersonal competences studied, even outside the market. With the adoption of the didactic sequence presented, the students were able to capture the essence of the subject addressed, applying the theories in situations that required them to apply several of the skills identified. Even with 66% of assimilation, it is possible to affirm that there was success with the applied technique. Soon, it was realized that it is feasible to work with this type of method, including electronic games, topics related to the practice of the labor market. However, other applications with this theme are possible, remaining as suggestions for future work:

- Apply other styles of electronic games;
- Apply new problem situations and other forms of assessment as verification of student learning;
- Develop, with students, games in the styles evaluated, adopting the skills worked.
- Work individually on each of the skills.

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