CYBERNETIC CITIZENSHIP: CONTRIBUTIONS OF AN EXTENSIONIST ACTION TO SOCIETY

CIDADANIA CIBERNÉTICA: CONTRIBUIÇÕES DE UMA AÇÃO EXTENSIONISTA À SOCIEDADE

CIUDADANÍA CIBERNÉTICA: APORTES DE UNA ACCIÓN EXTENSIONISTA A LA SOCIEDAD

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ABSTRACT: New social norms and significant civic challenges were both brought about by the information age. In this situation, the role of States in promoting public policy is critical, with education serving as a key tenet of the fundamental structure. To improve the practice of cybernetic citizenship in young pupils, we applied the playful pedagogical technique in an original extension project from a series of theoretical/practical lessons. The extensionist action creates a new social reality by bringing the knowledge learned at the university to the community. It is confident that the interdependence of research, teaching, and extension drives the production of knowledge as it forges a trusting relationship between academics and civil society in an effort to change citizens' realities.

KEYWORDS: Citizenship. Cybernetics. University extension.

RESUMO: A Era da Informação trouxe consigo novos mecanismos de sociabilidade, bem como grandes desafios à cidadania. Nesse cenário, é fulcral a ação dos Estados enquanto propositores de políticas públicas, sendo a educação um importante componente do alicerce central. Em vista disso, a partir de um conjunto de aulas teórico/práticas, empregamos o método lúdico pedagógico em um projeto de extensão inovador que tem por objetivo fortalecer o exercício da cidadania cibernética em jovens estudantes. Na medida em que contribui para a identificação dos participantes de sua condição enquanto cidadãos digitais, a ação extensionista projeta uma nova realidade social, expandindo os conhecimentos adquiridos na universidade à comunidade. Estamos certos de que a indissociabilidade entre pesquisa, ensino e extensão impulsiona a produção de conhecimentos, na medida em que estabelece um vínculo de confiança entre acadêmicos e sociedade civil, em um esforço conjunto para transformar a realidade dos cidadãos.

PALAVRAS-CHAVE: Cidadania. Cibernética. Extensão universitária.

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RESUMEN: *La Era de la Información ha traído consigo nuevos mecanismos de sociabilidad, así como grandes desafíos para la ciudadanía. En este escenario, la acción de los Estados como propuestas de políticas públicas es central, y la educación es un componente importante de la base central. En vista de esto, a partir de un conjunto de clases teórico-prácticas, utilizamos el método lúdico pedagógico en un proyecto de extensión innovador que tiene como objetivo fortalecer el ejercicio de la ciudadanía cibernética en jóvenes estudiantes. Al contribuir a la identificación de los participantes de su condición de ciudadanos digitales, la acción extensionista proyecta una nueva realidad social, ampliando los conocimientos adquiridos en la universidad a la comunidad. Estamos seguros de que la inseparabilidad entre investigación, docencia y extensión impulsa la producción de conocimiento, ya que establece un vínculo de confianza entre los académicos y la sociedad civil, en un esfuerzo conjunto por transformar la realidad de los ciudadanos.*

PALABRAS CLAVE: *Ciudadanía. Cibernética. Extensión universitaria.*

Introduction

In the Information Age, identified since the mid-1990s, humanity has experienced a profound social change caused by the rapid expansion of network infrastructure and the urgency of learning and using the most varied information and communication technologies (ICT).

According to Article 1 of the 1988 Federal Constitution (FC) (BRAZIL, 1988), citizenship is a foundation of the Democratic State of Law. Being a citizen suggests that the individual has civil rights (life, freedom, property, equality), participates actively in society, through his political rights and, concomitantly, has guaranteed his social rights (education, work, health) (PINSKY, 2003).

In 2011, the United Nations Organization (UNO), in view of the unique and transforming nature of the Internet, stated that it is everyone's right to seek, receive and transmit information and ideas over the Internet. In light of this, being a citizen has received a new attribute that concerns one's ability to access the Internet and participate in an engaged manner in networks (PATROCÍNIO, 2003).

In Brazil, the Law that presents the basic guidelines for education, LDB (Law of Directives and Bases) No. 9.394/96 (BRAZIL, 1996), states that the family and the school, especially the basic education, must ensure the individual's education to enable him to exercise his citizenship. Considering that having ICT domain is a requirement for the full fruition of citizenship, it becomes part of the school competencies, also, the cybernetic education.

Data from the Information and Communication Technology agency (TIC, 2019) reveal that more than 70% of the Brazilian population has access to the Internet, which corresponds to approximately 130 million individuals (TIC, 2019). In 2020, the agency Hootsuite identified

that we surpassed 140 million social media users, a growth of 11 million (+8.2%) between April 2019 and January 2020.

According to the Youth Internet Safety Study (YISS 1, 2 and 3) report, a study that detailed young people's experiences with unwanted situations on the Internet, there was, between 2000 and 2010, an increase in the use of the Internet and new technologies by young people and, in parallel, of cases of online harassment, especially of girls. For analysts, the issue requires specific projects that can spread relevant messages to parents and young people, who need to be informed about how to act in particular situations (JONES; MITCHELL; FINKELHOR, 2012).

Faced with the emergence of a highly connected society, a range of risks and threats to users' security have multiplied, increasing the public authorities' concern with cybersecurity, and requiring measures to be taken to protect data and network infrastructures. In this context, the State, as the main agent for the formulation of public policies for the development of digital education, has in the Brazilian public universities an important vector for its implementation.

For this reason, the article proposes a discussion about the role of extension actions as contributions to the development of digital education and, more specifically, of what is understood as cyber citizenship; in sequence, it presents an innovative extension project developed by students and graduates of the Federal University of Pernambuco (UFPE), entitled 'Cyber-Cid: from the classroom to the computer', applied to young students from public schools.

The extension activity came from a lack of information about the cyber environment in Brazilian public schools, combined with a strong desire of the group to transpose the studies conducted in academia to civil society. Thus, the authors believe that giving greater visibility to the extensionist practice, in particular, and to the theme, in general, are stimuli for new actions or the replication of this model in other locations, with the ultimate goal of contributing to the promotion of cyber citizenship.

The academic tripod

The academic tripod - teaching, research and extension - is the foundation of the production and diffusion of higher-level knowledge in Brazil. The Federal Constitution, in Article 207, states that "universities have didactic-scientific and administrative autonomy, as well as financial and patrimonial management, and will obey the principle of inseparability between teaching, research, and extension" (BRAZIL, 1988). Thus, once equated by law, these

three activities deserve to receive equal treatment by higher education institutions (HEI) (MOITA; ANDRADE, 2009).

The FC (BRAZIL, 1988) was not, however, the first document to mention the term 'extension' on national soil. It is possible to find, still in 1931, in the Statute of Brazilian Universities, a set of objectives attributed to university extension, among them, the dissemination of knowledge useful to private and collective life and the solution of social problems. In 1968, Law no. 5.540/1968 (BRAZIL, 1968), also contemplated the subject, but in this second approach to the theme a reorientation of activities is manifested, in order to curtail the space of dialogue constituted, until that moment, between the HEIs and the community (CARBONARI; PEREIRA, 2007).

Years later, in the 1980s, in a context of resurgence of social movements, the Forum of Pro-Rectors of Extension of Brazilian Public Universities emerges as an important factor in defining the directions of university extension in the country. In their discussions, they pleaded, at first, for a greater precision of the extension concept and its organization as its own organ, with budget and evaluation method (NOGUEIRA, 2003; CARBONARI; PEREIRA, 2007).

The Forum was responsible for drafting the Program for Promotion of University Extension (PROEXTE) and the National Extension Plan. Proposed in 1993, PROEXTE resulted from a joint effort between the Ministry of Education (MEC) and the Forum, to which the former committed itself to allocate resources to public HEIs to carry out extension activities. However, the initiative did not prosper and was deactivated. In its place, the National Plan (1991/2001) was proposed to guide the actions in universities, but this did not get similar collaboration from the MEC (NOGUEIRA, 2003).

In that same decade, in 1996, Law No. 9.394/1996 was approved (BRAZIL, 1996), Law of Directives and Bases of National Education, through which the extension resumes its proximity to the community: "Higher education has as its purpose: VII- promote the extension, open to the participation of the population, aiming at the diffusion of achievements and benefits resulting from cultural creation and scientific and technological research generated in the institution" (BRAZIL, 1996, art. 43, item VII). Years later, an additional clause is added to the Law, reinvigorating the inseparability between teaching, research and extension.

In 2003, PROEXTE re-emerged entitled as the University Extension Support Program. Its formulators were convinced that universities represented an important contribution to the implementation of public education policies. In 2008, it undergoes a new change in its name, with Decree No. 6.495/2008 (BRASIL, 2008), changing its name to University Extension

Program (ProExt) and, from then on, it becomes the main initiative to foster Brazilian university extension (KOGLIN; KOGLIN, 2019; NOGUEIRA, 2003).

It is noteworthy that the ProExt budget allowed, in 2016, the possibility for university institutions to submit proposal to compete for approximately R$ 16 million each. For Koglin and Koglin (2019), the continued and increasing investment, between the years 2014 and 2016, regained the importance of the issue, as well as represented a positive evaluation of its results by the government. However, from 2017 on, the scenario changes. No new calls for proposals are opened, starting a period of lack of resources and difficulty in developing projects.

Nevertheless, extension actions have not lost importance. In 2018, the National Education Plan – PNE in the Portuguese acronym – (2014-2024) required higher education institutions to ensure at least 10% of curricular credits in extension programs and projects by 2021 (PNE, goal 12.7). This measure demanded from universities actions to recover the prestige of extension in the academic tripod.

Although the first experiences of extension, in Brazil, date back to the beginning of the twentieth century, historically, it is observed in universities the prioritization of resources and efforts for the areas of teaching and research; that is, at undergraduate level, the emphasis is given to teaching, and at postgraduate level, the focus is on research (CARBONARI; PEREIRA, 2007; MOITA; ANDRADE, 2009;).

For Santos (1995), the university commitment will only be fulfilled, in its entirety, when extension activities are deepened in such a way as to integrate research and teaching activities. However, in the Brazilian case, the extension has been relegated much because of the little attention given by development and management agencies to this important link of interaction: university-society (NUNES; SILVA, 2011).

Extension aims, precisely, to intensify the relations between these two spaces. The university, through extension, would influence and be influenced by the community, in a mutual exchange relationship. The academy finds in society the opportunity for practice and empirics, while the extension allows the university to bring knowledge to the community, in a process of socialization of information (SILVA, 1997; NUNES; SILVA, 2011).

The relationship of mutual exchange between the university and the community is strengthened through extension, either by opening a space for dialogue or by the possibility of developing social actions (SILVA, 2011). For Carbonari and Pereira (2007), the great challenge of the extension is to readjust the relationship of teaching and research with social needs; the university would then be an instrument capable of assisting in the deepening of citizenship and social transformation (CALIPO, 2009).

Therefore, it is with the help of extension activities that the academic environment has the opportunity to establish a dialogic relationship, in which the community participates actively and constructively in the proposed dynamics and universities are committed to the attention to the community and the sharing of knowledge. With this, the extension ceases to have a compulsory character and gains aspects of a social commitment (JENIZE, 2004; MORA-OSEJO; BORDA, 2004; MOITA; ANDRADE, 2009).

In this sense, the unity between teaching, research and extension both enhances the quality of academic production and promotes it ethically, given that the articulation only between teaching and extension lacks research for the production of scientific knowledge. The articulation between teaching and research, on the other hand, fails in social understanding. And the articulation between extension and research excludes teaching, losing the formative dimension of the university (MOITA; ANDRADE, 2009).

Regarding ethics, by not omitting the material and informational needs inherent to the population, the extension activity contributes to the construction of better conditions of citizenship. It is, therefore, a tool for knowledge construction, not limited to peers, but encompassing a diversity of interlocutors (ARROYO; ROCHA, 2010).

Thus, the key is to think about how extension can contribute more incisively to the solution of social problems, with emphasis on the role that technology holds in education, in view of the growing importance of thinking knowledge, also, under the technological approach (ALMEIDA; FERNANDES; GOI, 2019).

In Brazil, the initiatives to apply ICT in basic education began in the mid-1980s, with the Special Secretariat for Informatics (SEI), responsible for regulating and supervising the sector and researching theoretical aspects of the applicability of computers in education. In 1983, the SEI created the Special Commission on Informatics in Education, whose main objective was to elaborate the first project on Informatics in Education. In 1989 the National Program of Educational Informatics was created, in order to ensure a political, technical and scientific convergence of investments in the sector.

Other important initiatives in the area were: the establishment of a section in the National Curricular Parameters about the need to use ICT in education; the creation of the Open University of Brazil; the approval of Law nº. 6.964/06 (BRAZIL, 2006), which requires public elementary and high schools to maintain computer labs on their premises; and Law nº. 13.415/17 (BRAZIL, 2017), which added the term "and its technologies" to the guidelines and bases of national education.

At the global level, the United Nations' (UN) 2030 Agenda for Sustainable Development listed in Goal 4 technology as an important source of access to knowledge and pedagogical tool. Given this scenario, the extension activity 'Cyber-Cid: from the classroom to the computer' understood as fundamental to stimulate cyber-citizenship among young people (concept developed in continuity) in a simple and didactic way, encouraging a responsible and critical use of communication technologies.

Cyber Citizenship

The first uses of the term cyber citizenship referred exclusively to network access; more recently, the term has been used for safe use and responsible behavior in the online space (JONES; MITCHELL, 2016). Cyber citizenship can also be understood as the ability to participate in society electronically, while the digital citizen would be the one who uses the Internet on a regular basis, either in the search for political information, to fulfill their civic function, or at work, with purely economic purposes (MOSSBERGER; TOLBERT; MCNEAL, 2008).

The Internet provides immense content in different areas, as well as space for discussion and mobilization. The possession of information is an important resource for individual emancipation, together with the frequent reading of news, which stimulates debate and interest in a theme, such as politics. Together, knowledge, discussion, and interest create the conditions for social engagement; however, the same difficulties that disadvantaged groups experience in accessing education, jobs, and the political process occur in the cyber environment (MOSSBERGER; TOLBERT; MCNEAL, 2008).

In Brazil, although a large part of the population has regular access to the Internet, and can be considered users, there is a percentage of young people who rarely or never accessed the World Wide Web. These are individuals located mostly in rural areas and in the North and Northeast regions of the country, who, among other reasons, face difficulties such as the unavailability of Internet in their locality, lack of knowledge to handle the tool, and the lack of computers, which makes the use of the network unfeasible, either in their homes, jobs or schools. On the other hand, the data indicate that the South region is the one where young people access the net the most, more than once a day (CGI.BR, 2018).

Digital exclusion increasingly marginalizes individuals from public life, which consequently leads to lower capabilities to compete for jobs, to get good educations, among others. For Amartya Sen (1993), poverty and inequality should not be thought of in terms of

material possessions, but in light of the capabilities that members of society have; that is, not only those who are offline have disadvantages, but also those who do not have a connection in their homes and depend on poor quality services offered by the State (MOSSBERGER; TOLBERT; MCNEAL, 2008).

For Van Dijk (2005), at the same time that there is a growth in the use of the Internet (as can be seen in Graph 1), the skills that individuals must possess to effectively be online are also increasing. By this logic, to be a cyber citizen, it is necessary both a quality connection and specific skills in reading, writing and understanding electronically available information.

Graph 1 – Teenagers with their own profile on a social network (BRAZIL, 2013-2016)
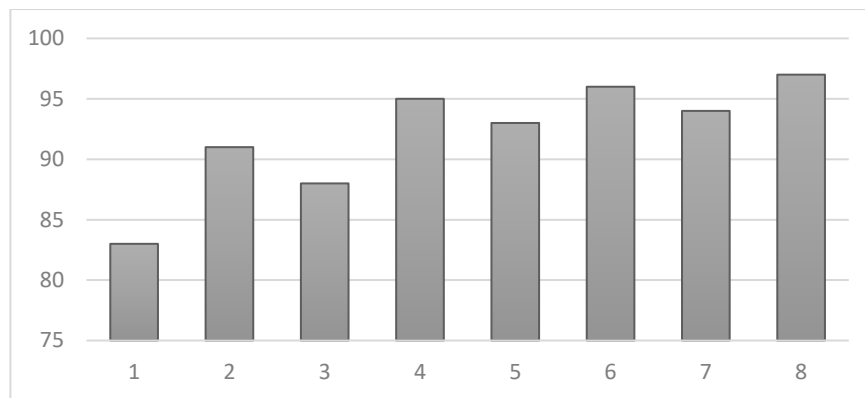
Source: Prepared by the authors, based on CGI.br (2018)

In light of this, the role of digital education in promoting inclusion becomes prominent. For example, studies show that the level of education is directly related to the amount of hours people spend connected (online), searching for content related to education, work, health, finance, science, and also news, government, and politics (DIMAGGIO; CELESTE, 2004).

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2016): "The way the educational system incorporates ICT directly affects the reduction of the digital divide. In Brazil, the ICT Education 2017 survey found that 97% of schools had Internet access, but the amount of connected equipment was very limited; in most of them, there was a ratio of forty students for every computer available".

The study identified that learning how to use the tool generally occurs in a self-taught way. As pointed out by the data, 80% of students in public and private schools in the country learned to use the Internet on their own, and only half of them received instructions from their teachers about the importance of checking the information obtained on the Internet from more than one source (CGI.BR, 2017).

Given this scenario, encouraging the analysis of the texts and content of the information available on the web, as well as encouraging greater consideration in sharing information, is one of the fundamental pillars of digital education, as it stimulates the development of critical thinking and reduces citizens' vulnerability to misinformation. (CANTO, 2019).

Digital education also encompasses the necessary skills to use computers and the Internet, such as, for example, requesting information from the government that are available in transparency portals; strategies to use search engines; the creation of strong passwords; the use of software to avoid unwanted messages (spam) and/or malicious attacks (KOLTAY, 2011; MENDEL, 2009; SONCK *et al*., 2011).

Moreover, part of this education are recommendations against inappropriate behaviors, such as practices of moral aggression, organized by groups, against a particular person and fed via the Internet (cyberbullying); the electronic sending of texts or photographs of a sexual nature (sexting) (HINDUJA; PATCHIN, 2010); and, not least, the encouragement to practice respectful behaviors and activities that boost civic engagement (JONES; MITCHELL, 2016).

For this reason, Ribble (2010) listed nine elements that, in his opinion, make up digital or cyber citizenship, arranged in Table 1:

Table 1 – Elements of cyber citizenship

1. **Etiquette**	Electronic standards of conduct and responsible use of digital space;
2. Communication	Dynamic and fast electronic exchange of information;
3. Literacy	The process of teaching and learning about technology and its use;
4. Access	Unrestricted electronic participation;
5. Commerce	Electronic purchase and sale of goods;
6. Law	Electronic responsibility over actions, ethics of technology;
7. Rights and Responsibility	Freedom in the digital space (privacy, freedom of speech);
8. Health and Well-Being	Vision safety, good ergonomic practices, etc;
9. Sefety	Electronic precautions to ensure data security.

Source: Ribble (2010)

The nine elements constitute a guide for addressing the issue in schools, which requires a very specific profile of educator and knowledge in the area of education. Briefly, the first element deals with the right to network access and considers that the focus of states should be on ensuring unrestricted access. Regarding digital communication, it highlights the necessary preparation for using the tools. On literacy, he considers that society needs to learn to respect electronic standards of conduct and procedures, in order to take advantage of the content available online in an objective way. Regarding digital commerce, he stresses the redoubled

attention that must be paid to illegality and/or fraud. As for physical and mental health, he stresses the importance of cultivating good habits. Finally, it alerts for the adoption of preventive measures, such as the installation of antivirus, data storage (backups), building secure passwords, among others (RIBBLE, 2010; SIMÃO; CARNEIRO, 2015). In Table 2, the nine elements are organized into three categories:

Table 2 – Categories of Cyber-Citizenship

Student learning and digital academic performance	Student behavior in the digital environment	Digital life of students outside the Academic Environment
Access Communication	Safety and Security Literacy Etiquette Digital Rights and Obligations	Legislation Commerce Health and well-being

Source: Adapted from Ribble (2007)

Table 2 shows that those nine elements are not isolated, there is an interconnection between them based on their proximity to the school environment. Therefore, three categories were created based on their effects in the digital space: a) on learning and academic performance; b) on the school environment and on student behavior; and, c) on the student's life outside the school environment. Faced with such categories, and considering the challenges faced by each educational institution, educators may choose to place greater emphasis on one of them or choose which set they will address first, while maintaining the overall goal of empowering students to exercise their cyber citizenship (RIBBLE, 2007).

According to Jones and Mitchell (2016), the best format for this knowledge to reach young audiences are discussions that make them think about how each of these practices are required in the everyday use of cyberspace. Such action can be promoted through the construction of educational games that clarify the situations and how to act in front of them. Another option is to encourage students, in discussion groups, to find faults and disagreements in their own social networks or anonymous networks, enabling them in a practical way to use the cyber language.

The Cyber-Cid Project

In view of the above, the extension project "Cyber-Cid: from the classroom to the computer" was structured from four main modules: access to information; network infrastructure; cybercrime and use of social networks, which employ the ludic pedagogical method to stimulate the exercise of cyber citizenship by young students.

The modules have practical activities developed with the following objectives: i) to provide tools for searching and acquiring information about the government, encouraging governance measures such as transparency in public spending; ii) to teach how to protect the devices connected to the network, avoiding contamination by harmful threats that circulate in digital space; iii) to warn about problems related to cybercrime, in order to reduce the likelihood of perpetration of harmful practices such as harassment and verbal violence in this environment; iv) to encourage respectful and supportive use of social networks and digital space.

The following subsections present the arrangement and the experience of application of the intervention.

Practical Arrangement

Under the aegis of the central argument of this article, the project was elaborated with the intention of offering conditions to increase the exercise of citizenship by young people in cyberspace. In this sense, the increase in electronic engagement (largely motivated by cyber education projects) enables civil society to act in a respectful and solidary manner online.

The methodology used sought to promote the construction of knowledge about the importance of exercising cyber citizenship through expository lessons, which elucidated the mechanisms of social participation and proposed practical activities to fix the content.

As far as its structure is concerned, the strategy used to carry out the activity went through three main stages:

1. Selection and planning: establishing contacts with educational institutions, taking into consideration pragmatic elements (accessibility, audience, technical resources available, and demonstration of interest in participating on a voluntary basis). This stage also contemplated the collaborative planning of the teaching activities, as well as the application of a pilot composed of four test classes, to prepare the students responsible for the project.

2. Action: implementation of the extensionist activity based on lectures, audiovisual products and the proposition of practical activities (access to the transparency portals, thematic

games, dialogue rounds, debate forums and group dynamics) to fix the content and, finally, the production of an informative booklet.

3. Observation and reflection: periodic meetings to improve the activities and collect information that allowed us to aggregate the results of this experience, especially from the teachers' point of view.

As far as its application is concerned, the project's content was delivered by students (undergraduates and postgraduates) and graduates of the Federal University of Pernambuco (UFPE) who are part of the Center for American Studies (NEA), under the direction of Professor Dr. Marcos Aurélio Guedes de Oliveira (UFPE). The team of eight individuals taught a series of classes, prioritizing active learning techniques. Each of the four modules was shared by a team of two facilitators.

In general, the first module focused on the use of electronic participation mechanisms, discussing the historical evolution of the rights of access to information; the second illustrated the functioning of the World Wide Web's infrastructure and its vulnerabilities; the third discussed the incidence of cybercrime, instructing the target audience to seek help, especially in sensitive cases; finally, the fourth module concluded by indicating paths for the responsible use of social networks, especially with regard to identifying fake news.

In short, the course offered a total workload of sixteen hours/class for approximately forty students from the public network. The four modules were presented in sequence, during two months in the year 2019, in two hours/class taught weekly with the help of partnerships signed with the Dom Bosco School and the Community Peace Center Library - Compaz - Writer Ariano Suassuna, both located in Recife, Pernambuco.

Practice

UNESCO (2003) indicates a steep increase in the number of countries adopting laws of access to public information in their constitutions, rising from thirteen in 1990 to over seventy in 2010. Also, intergovernmental organizations such as multilateral development banks and international financial institutions have joined the process of disclosure of information, so that the right to information has moved into the sphere of fundamental human rights and expanded the citizen's ability to control the actions of public officials (MENDEL, 2009).

In this sense, the first module instructed young people on how to use the tools of access to information and participation available online. To this end, it highlighted the importance of implementing the Access to Information Law (LAI in the Portuguese acronym) in the

transformation of Brazilian institutional culture, given its role in promoting transparency, social participation in the decision-making process and cooperation between public agencies and citizens.

To this end, the international and national legal apparatus was exposed, with specific focus on the importance of the production of reliable and accessible information and data by public agencies. In order to demonstrate to young people the power that transparency offers society in demanding greater efficiency in public actions, concepts such as active and passive transparency were discussed.

In one of the proposed activities, students were encouraged to search for information of their interest electronically, through the use of the electronic portal Citizen Information Service (E-SIC), of the federal government. To do this, they made use of multimedia resources (tablets) provided by the educational institution and a request template prepared by the team. Considering that this activity requires a period (twenty working days) for the information to be made available, a follow-up group was created on a communication platform for guidance. The group was also useful to discuss the importance of producing reliable and accessible data.

Although the practical activity was considered essential to the success of the module, it is worth noting that there was low student participation, a result largely attributed to the difficult access to the Internet and the high work and/or school load of young people. Despite this, those who performed the activity were able to share the experience of exercising cyber citizenship. Through this activity, the participants were able to recognize the legal framework and become aware of their responsibilities and guarantees, and were also able to identify the communication channels between civil society and public authorities.

In the second module, basic notions of network infrastructure were offered, bearing in mind that cyberspace is increasingly frequented by new generations, who are encouraged to experience the virtual world from an early age. Therefore, understanding the risks and threats of surfing the net is of great importance. To this end, definitions such as computer network and Internet were transmitted, starting with stimuli for active learning and student participation in playful activities.

One of the games developed was entitled "Virus vs. User"; in it, the class was divided into two groups, where half played the role of a virus with the mission of infecting the users' servers (the other half of the group). The role-play relied on inflated air bladders distributed to the users, which had to be popped by the virus in the shortest time possible. As expected, the bladders were quickly popped, demonstrating in a simple way the facility that a virus has to infect an operating system, when vulnerable.

During the discussion about the importance of data security, a simulation of a hacker attack was proposed. In this opportunity, the students received infected pen-drives and were able to correct them. There was also a comparison of operating systems in terms of security, cost, functions and applicability, and students were encouraged to prevent themselves from malicious attacks by means of protective software and strong passwords.

In the third module the central theme was cybercrime and the rights and obligations of users on networks. The prevention of cybercrime is a central issue for the Brazilian citizen, since the country ranks second in cybercrime, affecting about 62 million people every year, causing an annual loss of around 100 billion reals (SYMANTEC CORPORATION, 2017).

Faced with this scenario, the safe use of digital media was promoted, based on the description of the mechanisms provided by the State to protect citizens against this misdemeanor. The concept of cybercrime, its criminal types and related legislation (Internet Civil Framework) were discussed in order to help participants identify and use social action mechanisms for denunciation and control.

In this context, it was shown to the participants that individual data is basic information of the right to privacy and must be respected, both by the private sector and by the government.

Cyber espionage was also a topic of discussion, presenting its definition, practical cases, and how to combat it. At this stage, the Cybercrime Law, Law no. 12,737/2012 (Carolina Dieckmann Law) (BRAZIL, 2012) and the Brazilian Criminal Law (BRAZIL, 1984) were exposed, in the perspective of the configuration of crimes by networks as a result of their misuse, in cases of: racial insult, threat, child pornography, hate crimes, among others.

Finally, the concepts of cyberbullying, sextortion, revenge pornography were dealt with, questioning, for example, how the individual (victim) should protect him/herself in these situations and what care should be taken when using social networks to avoid possible misconduct.

In order to fix the content taught, a practical activity was proposed in which students were exposed to hypothetical situations of cybercrime and, from these, stimulated to identify which categories the offenses corresponded to; once identified, the participants should indicate which actions should be taken to deal with the situation. This activity contributed to establish a clear and objective dialogue about the importance of denouncing cyber actions harmful to civil society: students reacted with enthusiasm to the possibility of action in the face of misdemeanors, until then little understood.

The fourth and final module identified the main issues young people face when using social interaction platforms and presented ways to address them. Since, on the one hand, social

networks promote bringing people together, sharing news, and learning, on the other hand, they are associated with the theft of personal data, the sharing of fake news, and the manipulation of public opinion.

To this end, the history, operation, and rules of use of the main social networks were presented. We also discussed with the young people the purpose of each one of them, their benefits, rights, and duties that organize the coexistence among users. They were informed about the capture of personal data by technology companies and how the bots responsible for increasing interactions on certain pages and/or subjects work.

Moreover, the module was dedicated to the use of tools to identify and combat fake news, encouraging students to verify sensitive points in a news item, such as: alarmist tone, unknown site, grammatical errors, sensationalist content, unrecognized experts, absence of authorship, request for immediate sharing. At this point, students were encouraged to indicate news headlines and links as true or false. The activity aroused great engagement and curiosity, becoming the most quoted activity after the end of the project.

Finally, the extension activity ended emphasizing the importance of digital education for the exercise of cyber citizenship, in a world where all its processes and structures are increasingly dependent on this domain.

Final remarks

The increase in the use of new technologies has brought with it the need for new knowledge that allows the citizen to be able to get the best out of them in the most diverse areas, from the search for credible information, work, teaching, personal relationships, to as a tool to charge the government for greater transparency in data and presentation of results.

According to the above, the government and the school are the main agents responsible for the process of empowering civil society, young people in particular, to exercise digital citizenship. By providing quality Internet access for all, it is essential to promote the training of this audience so that they become aware of their rights and duties, and the provision of knowledge so that they can protect their personal information and privacy in cyberspace.

In view of this, this article presented the practical experience of students and graduates of the Federal University of Pernambuco (UFPE), who, through an extension activity, sought to contribute to the projection of this new social reality, expanding the knowledge acquired at the university to the community, certain that the inseparability between research, teaching and

extension drives the production of knowledge, as it establishes a bond of trust between academics and civil society, in a joint effort to transform the reality of citizens.

The project's success came from its extreme actuality, by proposing innovative content, besides filling the gap of total lack that schools have in offering similar projects. By this logic, extension fulfills its role of being an effective tool to intervene and modify reality.

The initiative allowed students and teachers to become familiar with new concepts, both theoretically and practically; it also stimulated the exchange of experiences and the awareness of factual situations and, fundamentally, provided the participants with their identification as digital citizens, part of a wider community, in which they can and should act politically.

Finally, as a challenge, we identify the need to expand the digital citizen experience, so that it is not reduced to sporadic formative processes. The construction of a democratic and civic culture requires a substantial rethinking of the different components of young people's lives, beyond the school walls. In this context, we encourage digital education through the replication of this project in different regions and for a variety of audiences, certain that the mobilization for the exercise of cyber-citizenship in a safe and efficient way is indispensable to act on the demands of the Digital Age.

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How to reference this article

Processing and publication by the Editora Ibero-Americana de Educação.
Correction, formatting, standardization and translation.