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ARTÍCULOS

Secondary School Students' Perceptions of Cybersecurity Training through Educational Programmes: A Qualitative Study

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Abstract: Introduction. The use of the Internet and social media has become pervasive, particularly among young people, often leading to problematic behaviours in peer relationships or the consumption of inappropriate content. In response to this context, Spanish educational institutions have developed training programmes (Ciberayudante Programme, Ciberexpert@ Programme, and Cibermentor Programme) aimed at adolescent students to promote responsible use of the Internet and social media and to minimise associated risks. Methodology. This qualitative study analyses and compares the perceptions of students in secondary school (n = 62), with a mean age of 14.87 years (SD = 1.29), regarding the organisation, pedagogical functionality, impact on school climate, educational community involvement, and sustainability of these programmes in their schools. The sample was selected through purposive sampling in urban Spanish secondary schools implementing cybersecurity education programmes. Data analysis was conducted through thematic content coding and categorisation using the NVivo software. Results. Participants highlighted the pedagogical functionality of the programmes and their positive impact on school climate as key strengths. However, there is a need to enhance the transferability and dissemination of the outputs generated within broader socio-educational contexts. Discussion. These programmes need to be flexible, open, and continuously updated to address new contexts of social interaction among adolescents in which digital risks may arise. It is concluded that these programmes should be systematically integrated and updated within school climate plans and tutorial action, involving both teaching staff and families to ensure their continuity and effectiveness in preventing digital risks.
Keywords: educational programmes; social networks; cybersecurity; adolescence; school climate

ES Percepción del Alumnado de Educación Secundaria Obligatoria sobre la Formación en Ciberseguridad a través de Programas Educativos: Un Estudio Cualitativo

Resumen: Introducción. El uso de Internet y de redes sociales es una constante, especialmente entre los más jóvenes, provocando conductas problemáticas en las relaciones entre iguales o en el consumo de contenido no apropiado. Teniendo en cuenta este contexto, los centros educativos españoles han desarrollado programas de formación (Programa Ciberayudante, Programa Ciberexpert@ y Programa Cibermentor) para estudiantes adolescentes sobre el uso responsable de Internet y de las redes sociales, con el fin de minimizar los riesgos de su uso. Metodología. El presente estudio cualitativo analiza y compara las percepciones del alumnado de Educación Secundaria Obligatoria (n=62), con una edad media de 14.87 años (DT = 1.29) sobre la organización, la funcionalidad pedagógica, el impacto en la convivencia, la comunidad educativa y la sostenibilidad de sus centros educativos. La muestra se seleccionó mediante muestreo intencional en centros urbanos españoles de Educación Secundaria Obligatoria que implementan programas educativos de ciberseguridad. En el análisis se desarrollan la codificación y la categorización del contenido temático a través del software NVivo. Resultados. Los participantes enfatizan como puntos fuertes de estos programas su funcionalidad pedagógica y el impacto en la convivencia, siendo necesario aumentar la transferencia y la difusión de los productos creados en contextos socioeducativos. Discusión.

Este tipo de programas debe ser flexible y abierto a los nuevos contextos digitales de interacción social entre adolescentes, en los que pueden surgir distintos riesgos. Se concluye que estos programas deben integrarse y actualizarse de forma sistemática en los planes de convivencia y la acción tutorial, implicando al claustro y a las familias para garantizar su continuidad y eficacia preventiva.
Palabras clave: programas educativos; redes sociales; ciberseguridad; adolescencia; convivencia escolar.

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1. Introduction

In today's information society, the use of the Internet in general and social networks in particular is commonplace across all generations, especially among younger people (Chen et al., 2020). However, this group is particularly vulnerable to its misuse, as they run the risk of falling into addictions and mental health problems, violation of their privacy and security, physical health issues, as well as other risks associated with the Internet (Soriano-Molina et al., 2025).

Currently, problematic social media use has been increasing, as these platforms have become ubiquitous in the aftermath of the COVID-19 pandemic, a period during which the use of electronic devices and Internet access surged dramatically. Although digital technologies helped ensure the continuity of work, education and social interaction, playing an essential role in students' development (Sanahuja et al., 2022), adolescents tended to connect to the Internet more frequently on their own, primarily engaging with platforms such as Instagram, TikTok, and YouTube (Bozzola et al., 2022).

Adolescence is a crucial stage for the development of self-regulation, efficiency in information processing, and the establishment and strengthening of social relationships (Crone & Fuligni, 2020). During this stage, adolescents tend to show greater exposure and an inclination to take risks, as well as a growing search for rewards and novelties (Valante, 2024).

Specifically, studies have found that minors who engage in problematic social media use, especially on Instagram, are at greater risk of experiencing depression and other psychopathological symptoms (Yurdagül et al., 2021). Therefore, this group is more susceptible to more risks online than those who do not use them, and it is especially important to use them properly and under supervision (Lai et al., 2022). Among the risks associated with the use of the Internet among minors, cyberbullying, grooming -cyberbullying carried out by adults towards minors-, exposure to sexual or violent content, and social pressure related to body image and social acceptance stand out (Bozzola et al., 2022). Although the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) does not consider the problematic use of social media as a specific mental disorder, it does recognise Internet Gambling Disorder (IJD), sometimes referred to as "Internet addiction" (Kakul & Javed, 2023).

To address this situation, and following the European Framework for Digital Competence of Citizens, also known as DigComp (Ferrari and Punie, 2013), every citizen should develop the following five dimensions in a digital world: information and digital literacy, communication and collaboration, digital content creation, security and problem-solving. The area of security deserves special attention (Contreras et al., 2025), as it includes device protection, protection of personal data and privacy, protection of health and well-being, and environmental protection.

However, these areas must also incorporate critical media literacy models. In this sense, Buckingham (2019) proposes a media education approach based on active and reflective participation, which distances itself from merely protectionist perspectives and articulates contributions from cultural studies and critical pedagogy. From this perspective, media literacy is conceived as a multidisciplinary process that addresses the social, economic and political dimensions of communication.

Similarly, another leading author such as Jenkins (2012) advocates a participatory culture in digital media. This approach promotes, through the concept of civic literacy -understood as the ability to create and disseminate content to imagine socio-political alternatives and question dominant ideologies- and the use of social networks, active participation, collective action and media prosumption.

That is why the education system plays a fundamental role in fostering this critical digital competence and preventing digital risks as a form of social protection, since it is the environment where minors acquire the knowledge, skills, and values needed to navigate the digital world safely. This approach is aligned with the foundations of social or constructivist learning theories, which conceive of learning as an essentially social process, mediated by interaction, language and the use of cultural tools. In the current context, social networks and digital technologies constitute these tools, which favour the development of connectivism as an extension of constructivism adapted to the digital age (Mufungizi, 2024).

In this sense, digital security education and media literacy are essential to reduce the exposure and vulnerability of young people to socio-digital risks that can affect their development, such as cyberbullying, misinformation and loss of privacy. (Suárez-Álvarez et al., 2023).

To this end, school climate in secondary education is essential to face digital risks, as it promotes a safe, ethical and collaborative environment that helps prevent conflicts and harmful online behaviours. School climate refers to how all the people who are part of the educational community interact in various situations, such as teaching-learning processes, agreements, problem solving, evaluation processes, inclusion, dealing with families and relationships between students and teachers (Calderón and Vera, 2022). Positive school climate and appropriate educational strategies are decisive in reducing digital risks, such as cyberbullying, misinformation and problematic behaviours (Ojeda-Pérez et al., 2021).

Considering this context, Spanish schools, in collaboration with other external organisations, have developed training programmes for adolescent students on the responsible use of the Internet and social networks, in order to minimise the risks of their use (Orte et al., 2025). Among them, the Ciberexpert@ Programme (by Haro Olmo, 2021), Cyberhelper (Mula-Falcón & González, 2023) and Cybermentors (Miranzo de Mateo, 2018) have as their vehicle the promotion of good practices that make the Internet a healthy environment, as well as developing preventive actions based on safe and responsible use of the Internet, mobile devices and social networks. In schools, these types of programmes are aimed not only at identifying, but also at educating about Internet risks such as cyberbullying, grooming, sexting, excessive use of screens or identity theft among minors and young people (Aznar-Martínez et al., 2024). In addition to educating, it is also intended to prevent situations of digital risk both at school and at home, since the Internet and social networks are the main means of communication and relationships through which adolescents are exposed to online dangers (Bolognesi & Bukhalovskaya, 2022).

Although national and international organisations are launching proposals to address the problem of digital risks, these initiatives have not yet reached the scientific community in their entirety (Aznar-Martínez et al., 2024). Therefore, the novelty of the study lies in analysing the perception that students involved in educational programmes have about the prevention of risks on the Internet and social networks within the school environment of three different autonomous communities.

2. Objective

This study aims to investigate and compare the perception of adolescents aged 12 to 16 who participate in three educational programmes on the promotion of the responsible use of the Internet and social networks (Ciberexpert@, Ciberayudante and Cibermentor) in terms of organisation, pedagogical functionality, sustainability and impact on school climate.

3. Methodology

The present research uses a qualitative methodology through an interpretative and phenomenological-hermeneutical paradigm, using focus group techniques for data collection for subsequent coding and categorisation. According to Virós-Martín et al. (2025), this design responds to the need to understand and interpret socio-educational phenomena from the different perspectives of the subjects involved. In addition, this design responds to the need to achieve a deep approach to the subjective vision of students, given their active role in the use of the Internet and social networks.

3.1. Context and participants

Given the variables of interest, a combined strategy of sampling by criteria and maximum variation was used. The criterion sampling included only students who had participated in cybersecurity programmes, guaranteeing the relevance and appropriateness of the cases. In turn, the maximum variation sampling allowed the selection of participants with heterogeneous profiles in gender, course, autonomous community and programme, capturing the diversity of experiences within the population studied. According to Arenas (2021), this combination reinforces the internal validity of the study by allowing the identification of significant patterns, trends, and contrasts through different analytical approaches (discourse or co-occurrence analysis).

The sampling variables of interest were educational programme (Ciberexpert@, Ciberayudante, Cibermentor); gender (female/male); type of educational institution to which it belongs (public/private); and the educational year of compulsory education (1st/2nd/3rd/4th year of Compulsory Secondary Education) (see Table 1). The final sample consisted of 62 participants (mean age 14.87 ± 1.29 years): 30 girls (48%) and 32 boys (52%) belonging to educational institutions in Aragón, Valencia and Madrid (Spain), all located in urban environments with a medium-high socioeconomic level. The participants did not have a history of special educational needs diagnosed by the educational services of the centre or by specialised professionals. In terms of the type of educational centre, 29 (46%) belonged to state schools, while 33 to independent schools (54%). Regarding the educational year to which they belong, 14 (22.58%) are in 1st ESO, 16 (25.80%) are in 2nd ESO, 17 (27.41%) are in 3rd ESO, 15 (24.19%) are in 4th ESO. Finally, regarding the type of programme, 20 (32.25%) participated in the Ciberexpert@ Programme, 21 (33.87%) in the Ciberayudante Programme and 21 (33.87%) in the Cybermentors Programme. Participating schools have at least two years of experience in implementing the programmes. No statistically significant differences were observed in the distribution of the criteria of the sampling variables of interest ($p > 0.05$).

Table 1. Distribution of the sample according to programme, course, type of institute and gender

Educational Programme	Course	Public Institutes		Private Institutes	
		M	F	M	F
Ciberexpert@ Programme (Valencian Community)	1st ESO	1	1	2	1
	2nd ESO	2	1	2	0
	3rd ESO	0	2	2	1
	4th ESO	2	1	1	1
Ciberayudante Programme (Aragón)	1st ESO	1	0	2	2
	2nd ESO	0	1	2	3
	3rd ESO	2	1	0	2
	4th ESO	2	1	1	1
Cibermentor Programme (Community of Madrid)	1st ESO	0	2	1	1
	2nd ESO	1	1	1	2
	3rd ESO	1	2	1	3
	4th ESO	2	2	1	0

Note: M=Male gender; F = Female gender

3.2. Ethics

This study was favourably evaluated by the Data Protection Unit of the University of Zaragoza (Spain) with Ref. No.: RAT 2024-143, in accordance with Regulation (EU) 2016/679, General Data Protection (GDPR). Participation in the study was voluntary and based on informed consent.

3.3. Data collection procedure

The qualitative data presented were collected in April 2025 using the focus group technique. The data collection process was carried out in the same way and by the same two trained interviewers (researcher 1 and researcher 2). First, an email was sent to the institutes developing the programme with an invitation to participate in the study. Then, a link to Google Forms was sent, which displayed the families' informed consent and the request for the sample's identification data. A total of 11 focus groups were conducted (7 groups of 6 participants; 4 groups of 5 participants).

To this end, a system of categories and a semi-structured script of 12 questions were used, designed *ad hoc* based on the common elements collected in the documentation of the three educational programmes organised in four blocks: (1) Programme structure; (2) Pedagogical functionality; (3) Impact on school climate; (4) Educational community; (5) Sustainability: https://doi.org/10.6084/m9.figshare.31150825. The focus groups were held in person and lasted 1 hour, using teaching hours sessions that were intended for these programmes in spaces set up within the educational centres themselves. The intervention was carried out in each centre on a specific day with the teacher responsible for the programme. In each focus group, one researcher moderated the discussion and asked the questions, while the other supervised the recording, ensuring the correct capture of the audio. Following López (2022), the moderators energised the group and fostered a climate of trust that favoured equitable participation, stimulating reflection without inducing or evaluating the responses.

All sessions were audio-recorded, with prior authorisation from both the educational centres and the families of the participants, using technological devices belonging to the researchers' reference university. The audio files were securely stored, encoded and accessible only to the research team.

3.4. Data analysis

A thematic analysis was carried out, both deductive and inductive, as it allowed new questions to arise (Quintas-Hijós et al., 2020). To perform the analysis, Nvivo software (version 12 Plus, https://www.qsrinternational.com/nvivo/home) was used. Two focus groups (n=12, 20%) were randomly selected to perform an interobserver agreement analysis, which yielded an index k = 0.86. No emerging categories appeared in this phase. When a single researcher completed the thematic analysis with the entire sample, the value of the new intrapersonal agreement analysis was k = 0.91. The coding was carried out in two iterative phases: first, through open coding, the initial codes were identified from the data; subsequently, with axial coding, these codes were organised into thematic categories and subcategories.

The saturation criterion was considered achieved when new transcripts did not provide relevant information to the existing categories. In this study, after analysing the first ten groups (91% of the sample), no new codes emerged, evidencing thematic saturation. This result coincides with Hennink and Kaiser (2022), who

indicate that, in qualitative studies with homogeneous populations and delimited objectives, saturation is usually achieved with a small number of units (4–8 focus groups).

4. Results

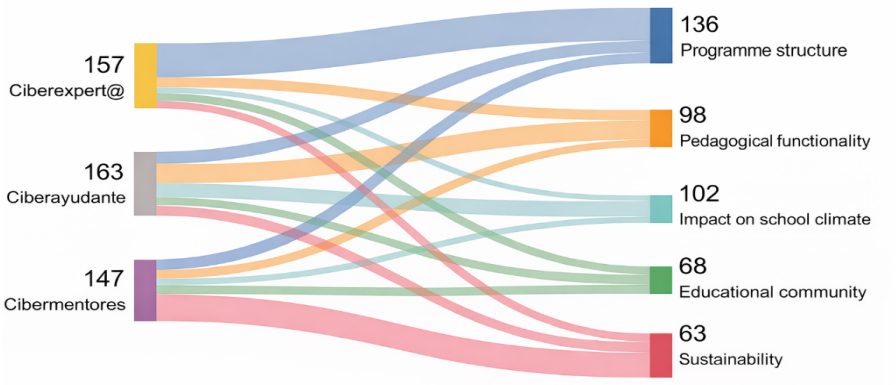
First, quantitative descriptive analyses of the data obtained were performed, calculating the frequency and percentage of the encodings for each dimension and category, considering the total sample (see Table 4). Considering other previous studies (Bustamante et al., 2022), this procedure was used for exploratory purposes and to support qualitative analysis, allowing the identification of patterns of discursive recurrence and providing greater transparency to the analytical process.

Table 4. Descriptive analysis of the data

Category system	Cod No.	%
1. Programme structure	**136**	29.13
1.1 Organisation and planning	10	2.14
1.2 Resources and Tools	29	6.21
1.3 Contents	76	16.27
1.4 Methodology	21	4.50
2. Pedagogical functionality	**98**	20.98
2.1 Meaningful learning	39	8.35
2.2 Key competences	30	6.42
2.3 Creating resources	29	6.21
3. Impact on school climate	**102**	21.84
3.1 Conflict prevention and resolution	102	21.84
4. Educational community	**68**	14.56
4.1 Students	42	8.99
4.2 Families	10	2.14
4.3 Teaching staff	16	3.42
5. Sustainability	**63**	13.49
5.1 Evaluation and monitoring	54	11.56
5.2 Exhibition and transfer	9	1.93
Total	**467**	**100**

In addition, the co-occurrence of categories within the analysed dataset of the different dimensions (see Figure 1) was calculated according to the educational programme to which the participants belonged. In this sense, Palacios et al. (2025) argue that the inclusion of co-occurrence results is a complementary resource that supports the articulation and interpretation of the categories, without implying the adoption of an inferential quantitative approach.

Figure 1. Sankey diagram. Co-occurrences according to programme



The Sankey diagram shows discursive differences between programmes: Ciberexpert@ students focus their discourse on the structure of the programme; the Ciberayudante, on pedagogical functionality and the

educational community; and the Cibermentor students, on climate. The results of the thematic analysis are presented below, supported by fragments of interviews anonymised by means of a number (01–62) and a programme descriptor (EXP, AYD, MEN).

4.1. Programme structure

Regarding *1.1 Organisation and planning* of the programmes, the participants of the three programmes consider, in general, that the distribution of the sessions is adequate and that it allows the curricular subjects to continue to be attended: "*We have a session every three weeks in different parts of the school, which makes it easy to follow up without being* overwhelmed" (AYD10). For their part, the participants of the Cibermentor Programme also point out positively that the programme is developed in different spaces depending on the objective of the session: "*If we have to make netiquette, then we go to the computer room, but if we have to make a speech, we go to the Assembly Hall*" (MEN01). However, those participants who take the Ciberexpert@ Programme consider that the number of sessions should be higher: "*The classes are fine, we have a session every fifteen or twenty days, but I would like there to be more because I think it is an interesting topic*" (EXP02). Along these lines, they state that if there were a greater number of sessions, activities could be carried out in collaboration with other agents or organisations: "*We could go to visit companies or have experts come to tell us about their experiences*" (EXP01).

Regarding the *1.2 Resources and tools,* there seems to be a common point in the use of different types of materials: "*Sometimes we use sheets of paper and cards, and on other occasions we use the computer, every day it changes*" (MEN02). This coincides with the perceptions of the participants of the Ciberayudante Programme: "*Sometimes we use cardboard, other times tablets or even computers, we don't always use the same material*" (AYD06). For their part, one of the strengths pointed out by the participants of the Ciberexpert@ Programme is that the teachers also create activities and dynamics in which they do not make use of material: "*We have an activity in which we have to invent a monologue, and in it we cannot use either the notes or the computer to help us*" (EXP05).

As for the *1.3 Contents*, the participants of the three programmes agree that the ones that are worked on to a greater extent are related to the threat to privacy and inappropriate content due to the rise in the use of social networks among students: "*Since we have social networks, they help us know how we can make it private, avoid accepting requests from strangers or not entering fake pages*" (MEN12). In addition to these contents, there is the *Cyberbullying*, being the most worked content throughout the sessions due to the false sense of impunity or limited supervision: "*They teach us that, when we are in an online group, if there are insults and we do nothing, we can be accomplices*" (EXP06). Moreover, the students themselves report that, on occasion, they have experienced situations in which cyberbullying was combined with privacy issues: "*Once a fake email was created posing as someone else to insult a colleague*" (AYD12).

On the other hand, they rarely allude to content related to techno-addiction, addictive technological behaviours or digital health during their sessions: "*Sometimes we look at the time of use of tablets or we know that this option exists, but nothing more*" (MEN13). In addition, they also warn of other relevant content such as addiction to online gambling: "*We talk, above all, about social networks, but we are also very hooked on online video games. We spent hours talking and playing with the video console*" (EXP07).

Finally, with regard to the *1.4 Methodology*, all participants state that the type of activities they carry out have a practical application, based on the *role-playing* or gamification as the main methodological resource: "*On many occasions we do little theaters in which we have to solve a situation that can happen in real life*" (AYD02). In addition, it also discusses principles of learning and service (SL), since one of the purposes of the programmes is that the knowledge learned on online coexistence and prevention of online harassment serve to provide a support service to their colleagues:

> I like that what we learn we have to expose to our classmates later, so that they also know what they have to do when something happens. Sometimes, they listen more to us than to the teachers. (EXP09).

From an analytical perspective, the participants' perception of the organisation, resources, content and methodology of the programmes reveals an overall positive assessment but also points to specific areas for improvement. While issues such as privacy and cyberbullying receive considerable attention, other critical aspects, such as techno-addictions and digital health, are noticeably less developed. This disparity suggests the need to rebalance the curriculum of programmes and adapt them to the demands of the digital reality.

4.2. Pedagogical functionality

The *2.1 Meaningful learning* seems to be a constant in the three programmes, overcoming the theoretical or rote approaches of the rest of the areas of knowledge: "*I like these sessions because what they teach you needs to be used to solve the tasks later, but without books or notes*" (MEN16). Thus, participants perceive that this type of approach improves their learning because it is based on personal and everyday experiences, which could promote a proactive attitude towards learning: "*As we learn things that can happen to us in real life when using the cell phone, I feel we are more attentive and perform better*" (AYD12).

As for the *2.2 Key competences* developed, a perceived variability appears depending on the programme. On the one hand, the participants of the Ciberayudante Programme consider that digital competence is the one they have developed the most during their sessions: "*We now know the options and settings that social media has to make it a safer environment*" (AYD15). On the other hand, the participants of the Cibermentor Programme mostly allude to citizenship competence as the main skill developed: "*I think that what we learn*

can also be taught to our parents, who have social networks" (MEN08). However, those participants of the Ciberexpert@ Programme consider that one of the main skills lies in entrepreneurial competence, in order to generate positive changes in the environment: "*When we finish the course we are already mentors forever, so we have that responsibility to help at any time*" (EXP04).

In relation to the *2.3 Creation of resources,* in the Ciberexpert@ and Ciberayudante Programmes, adolescents point out that the main products they make are based on the creation of netiquette, short videos and podcasts on security and digital operation: "*We create simple rules of use to protect social networks, avoid fake news or know how to turn on a computer"* (AYD18). The use of different formats is justified through the principle of accessibility: "*If we make a digital netiquette, we also make it in physical format so that other students from other courses can see it. We put them in the corridors of Primary and Secondary*" (EXP19). On the other hand, in the Cibermentor Programme, priority is given to the realisation of digital products that are displayed on the website and social networks of the educational centre in terms of durability and transfer. This decision lies in the nature of the programme and the purpose of creating an annual digital bank of resources at the service of the centre's teachers: "*Even if we make a mural on cardboard, then we always transfer it to digital format to leave it in the school's Drive. Some teachers use it afterwards*" (MEN03).

From an interpretive perspective, the results indicate that the effectiveness of the programmes depends more on the design of training experiences than on the transmission of digital content. This explains the diversity of approaches, some prioritising an immediate impact on students, while others are committed to a lasting institutional footprint and a long-term educational legacy.

4.3. Impact on school climate

The students participating in the programmes, as active agents in the *3.1 Prevention and resolution of conflicts,* consider that by transmitting the risks of social networks to their classmates, the type of relationship and communication that exists in social networks and web environments is more careful:

> Since we gave the talk about what can happen to them if a colleague is insulted on Instagram, it doesn't happen so much, I don't know if it's out of fear or because they don't want problems. We also talked about the fact that if there is a conflict it is better to resolve it in class and not in Instagram groups (AYD11).

Another of the functions they have as mediators is to raise awareness and inform all the courses of the educational centre, with the aim of avoiding potential conflicts: *"In our case the Primary students are also in the school, we also warn them and give them advice"* (AYD04).

They also value that this type of programme has trained them when it comes to identifying cyberbullying situations and resolving them immediately: "*As we are in WhatsApp or Instagram groups, when we see that there are insults towards other people, we tell the teacher the next day*" (MEN17). The fact of being aware of the importance of these situations has helped not to prolong the seriousness of the situation and to resolve it with the disciplinary procedure of the educational centre: "*We have a protocol when we see something like this, we do not tell the teacher in front of the whole class"* (EXP11).

On a socio-emotional level, conflict mediation favours emotional management, empathy and assertive communication of students, helping to prevent conflicts in digital environments. In addition, these programmes reinforce the hidden curriculum by promoting a culture of co-responsibility, digital care, and active citizenship at the centre.

4.4. Educational community

The participants of the three programmes agree that the *4.1 Students* are the main agents of action to mediate conflicts between peers together with the *4.3 Teachers.* Along these lines, the students consider that teachers are the social reference who has the most skills and knowledge regarding the risks that appear with the use of the Internet and social networks: "*My teacher knows a lot, there are tricks to use social networks that I did not know*" (EXP20). On the other hand, they show the need for collaboration with teachers when some type of conflict arises in digital environments: "*It is true that sometimes they do not pay attention to us and we have to talk to the teacher*" (MEN01).

At the same time, they state that the *4.2 Families* are agents who are not involved in the development of the programme and that knowledge of it is residual: "*My parents know that I do the course because I tell them about it and they signed an authorisation for me*" (AYD13). Along these lines, the participants perceive that, in general, families lack digital competence or knowledge about the use of social networks and the Internet: "*I almost always have to explain to them how social networks work because they don't know*" (MEN15). They also indicate that it seems to be the agent of the educational community to whom information about a conflict in digital environments ultimately arrives: "*When it is serious*, it is the teacher who ends up calling our parents at the end" (EXP11).

In short, this suggests a hierarchy in the perception of schoolchildren, where they rely mainly on their peers for the immediate detection of conflicts, while teachers are seen as referents of guidance. This dynamic is partly explained by the fact that colleagues share context, language and experiences, which makes their intervention more spontaneous and natural.

4.5. Sustainability

5.1 Evaluation and monitoring is established as the main tool that helps sustainability and continuity in the three programmes addressed through self-evaluation and heteroevaluation processes. Firstly, they argue that they

carry out a continuous self-assessment, which ensures that they have information on how the sessions are developing: *"We have to fill out a Google Forms at the beginning, middle and end of the programme"* (EXP12). This type of qualitative self-assessment is common to all three programmes: *"We have to explain what we think of the sessions and what we would like to learn"* (MEN03). One of the peculiarities of the Ciberayudante Programme is that at the end of each session the students themselves make a personal participation record.

On the other hand, a teacher-student evaluation process is also carried out. In the Ciberayudante and Cibermentor Programmes, students complete a quantitative questionnaire using a Likert scale on the degree of satisfaction with the teaching work: "*We fill out a Google Forms in which we rate from 1 to 5 how well the teachers do"* (AYD01). Teachers carry out the same process with students, adding comments and observations about their performance as mediators: "*In the end we have a grade as cyber assistants, but it does not count as in Language or Biology*". However, this heteroevaluation in the Ciberexpert@ Programme is carried out qualitatively through periodic follow-up meetings with the students and teachers involved: *"There are debate sessions in which we do not give new content, but we review how the course is going"* (EXP16).

Likewise, the students who receive the content learned by the students who are part of the programmes also value the training received. The common technique indicated by the participants of the three programmes is the use of participatory murals, visual spaces where students can write (on paper or digitally) what they felt or thought after the activity: *"There is a mural on the blackboard and they put phrases according to the site: what I learned; what I liked; what would I change"* (MEN05).

On the other hand, with regard to *5.2 Exhibition and transfer* of the products or evidence carried out during the programmes, these have not been shown in the educational mesosystem (educational conferences, congresses or educational awards), being exposed at the school level: *"What is done we teach in the centre, but we have not gone anywhere to teach it"* (MEN19).

The realisation of a shared evaluation, involving both students and teachers in mutual evaluation, generates a feedback loop that strengthens shared responsibility in conflict mediation and a feeling of belonging to the programme. However, the limited exposure of products outside the school suggests a breakdown in communication channels between higher education institutions and compulsory basic education centres.

5. Discussion and conclusions

This study analyses three online coexistence programmes (Ciberexpert@, Ciberayudante and Cibermentor) from the perspective of the participating students. In general terms, these are positively valued for their pedagogical functionality and their contribution to the school climate, although thematic shortcomings and pending challenges are identified, such as the participation of the educational community.

One of the most striking aspects is the scarce presence of content related to techno-addiction, addictive digital behaviours or screen time. The testimony of the students themselves shows a latent awareness that is not being sufficiently channeled or worked on from the educational environment. This omission is alarming considering that previous studies (Kakul & Javed, 2023) have pointed to the growing incidence of disorders linked to excessive use of the Internet and video games, especially among adolescents.

In this same sense, the direct allusion to the prolonged use of online video games as part of their daily routines reinforces the need to incorporate this type of digital practices in training content. Online gambling not only carries risks associated with addiction, but can also negatively affect socialisation, academic performance, and emotional regulation (Lérida-Ayala et al., 2022). Despite this, the programmes analysed continue to focus on more traditional risks, such as cyberbullying, grooming or sexting, without including a systematic approach to video games. Broadening the focus of these programmes would make it possible to respond more realistically and preventively to the technological habits that are most widespread among today's young people.

Another of the weaknesses detected is the **intergenerational digital divide** between students and families. Although teachers are perceived as benchmarks in terms of knowledge of social networks and digital security (in part, thanks to their continuous training in digital teaching competence), families appear as peripheral agents, poorly informed and with a low capacity for accompaniment. This disconnection limits not only the understanding of real dangers, but also their ability to react to conflict situations. This imbalance is worrying if we consider that the prevention of digital risks should be a shared responsibility between the school and the family, as suggested by Oshodi et al. (2024). To this end, it would be desirable for the programmes to incorporate training modules aimed at families or, at least, spaces for meeting and intergenerational dialogue that allow for more coherent and aligned accompaniment.

In terms of the sustainability of the programmes, there is an interesting focus on self-evaluation and the creation of transferable digital resources within the centre. However, there is still a low external visibility of the projects, as the outputs generated rarely transcend the centre. This limits the creation of networks between schools, the exchange of good practices and the projection of student work in public spaces (conferences, awards, institutional networks). The sustainability of educational innovations cannot depend solely on the specific motivation of teachers and students but requires a structural and political commitment to ensure their continuity and projection (Prenger et al., 2022).

In relation to the impact on school climate, digital safety and prevention programmes seem to have a clear and direct impact, as suggested by Mula-Falcón and Cruz-González (2023). Many students report how, after participating in awareness-raising activities, the online behaviour of their peers changes, resulting in a reduction in the number of insults on social media, an increase in group awareness and a promotion of conflict resolution in the school environment rather than moving them to the digital realm. The students see

themselves as mediating agents, capable of intervening, informing and stopping conflictive dynamics before they escalate, which reinforces the role of the students as active subjects.

When comparing the three programmes, while they all share a strong focus on traditional risk prevention, there are notable differences in thematic emphases. The students of the Ciberexpert@ Programme focus their discourse mainly on the structure of the programme, while those of the Ciberayudante Programme place greater emphasis on pedagogical functionality and the involvement of the educational community. Finally, those in the Cibermentor Programme highlight school climate, perceiving themselves as active mediators. These differences suggest that the combination of the strengths of each programme (structural clarity, pedagogical-community approach and promotion of coexistence) could optimise its effectiveness and improve its sustainability.

In terms of practical implications, these findings indicate that schools should systematise this type of programme within the school documents, reinforcing the active participation of the educational community. Likewise, these results underscore the need to establish a national education law that regulates and implements cybersecurity programmes in a homogeneous way in all educational centres, ensuring that all students have access to structured, updated and sustainable training in the responsible use of technology.

Despite the transformative potential detected in these programmes, it is important to consider some limitations of the present study. Firstly, it is a qualitative approach with an intentional sample limited to three autonomous communities, so the results are not generalisable to all Spanish students. In addition, the perceptions collected are mediated by the context of implementation of each programme, which can influence the evaluations expressed. For future research, it would be pertinent to incorporate a triangulation with the vision of teachers and families. In addition, the sample has been limited to centres in an urban context, so the findings may not reflect the reality of rural centres.

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