



School Coexistence Without Violence: Relational-Ecological Prevention, Emotional Self-Regulation, and Digitally Mediated Pedagogical Innovation

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Open Access Research Journal of Science and Technology, 2026, 16(01), 093-106

Publication history: Received on 12 January 2026; revised on 17 February 2026; accepted on 20 February 2026

Article DOI: <https://doi.org/10.53022/oarjst.2026.16.1.0018>

Abstract

School violence continues to be a complicated, multifaceted issue that is still around today. It is known to result from different factors such as emotional dysregulation, relational fragmentation, and changes in the digital culture where young people socialise. Educational philosophies nowadays are progressively moving away from harsh and exclusionary methods towards more relational, preventive, and developmental frameworks emphasizing emotional literacy, restorative practices, and inclusive school culture. Digitally powered innovations like AI, emotion-based platforms, and self-regulation devices can be leveraged effectively to signal emotional issues at their earliest stage, provide intervention where it is most needed, and broadly prevent violence. The purpose of this article is to put forward the relational-ecological framework at the core of a violence-free school coexistence. It draws key elements from the current literature on the role of digital support in the interventions, emotionally intelligent leadership, development of metacognitive skills, Theory of Mind and mindfulness-based self-regulation. The framework envisages technology as a relational ladder that facilitates emotional recognition, empathy, and joint problem-solving; this it stands against the idea of technology serving as a mechanism for control or surveillance. The research, which employed a mixed-method approach, explored how digital social-emotional learning platforms, restorative processes, and collaborative ICT-supported pedagogical practices result in better school climate, fewer aggressive incidents, and increased emotional self-regulation of students. The results underlined the fact that the long-term sustainable prevention of school violence is only possible through the fusion of relational trust, teacher mediation, inclusive culture, and properly regulated digital systems. The article concludes with practical recommendations for school leaders, educators, and policymakers on the integration of technology into holistic, emotionally responsive, and rights-based violence-prevention strategies.

Keywords: School violence prevention; Relational pedagogy; Artificial intelligence in education; Emotional self-regulation; Inclusive education; Restorative practices; Social-emotional learning; Digital co-regulation; School climate; Educational ethics

1. Introduction

School violence and aggressive behavior continue to be significant issues in schools today. School violence is a complex problem, with causes and effects at the developmental, relational, institutional, and technological levels. Earlier school discipline models were mostly based on strict punishments and exclusionary practices, while new research has shifted the understanding of aggression as a result of the social-emotional and relational ecosystems of the behavior rather than just an individual deficit (OECD, 2023; UNESCO, 2022; Espelage et al., 2021). In such case, violence-free coexistence at school is not only seen as the absence of conflicts but also as the positive development of respectful relationships, emotional literacy and a collaborative school culture.

Recent studies point out that aggressive behaviors are mostly the result of a complex combination of peer dynamics, emotional dysregulation, trauma, and digital pressures (Bradshaw, 2022; Hymel & Swearer, 2019). Adolescence is a phase characterized by strong emotions, quest for identity, and the need of validation from peers, which thus becomes

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a risk factor for the problem to escalate at school. Modern prevention models, therefore, continue to emphasize the importance of relational skills and self-control as well as whole-school climate changes rather than resorting to exclusionary disciplinary measures (Darling-Hammond et al., 2020; Morrison & Vaandering, 2022).

1.1. From Punitive Discipline to Skill-Based and Relational School Cultures

Historically, schools have relied on harsh disciplinary measures such as suspension, expulsion, and zero-tolerance policies that have been shown to be only somewhat effective in reducing incidents of aggression in the long term and have often resulted in greater feelings of alienation and disengagement (Skiba et al., 2020; Darling-Hammond et al., 2020). Besides that, those exclusionary practices have a disproportionate negative effect on students from marginalized backgrounds thus hindering the goals of inclusive education (Anyon et al., 2018; Osher et al., 2020).

More recent frameworks, on the other hand, apart from focusing on punishment, emphasize the prevention of violence through human relationships and the development of skills. Aggression is nowadays considered to be, in part, a social-emotional form of communication, which conveys various aspects such as the individual's needs being unmet, difficulties with self-regulation, or a conflict not properly resolved (Hymel & Swearer, 2019; Bradshaw, 2022). Accordingly, preventive approaches mainly focus on the inculcation of emotional intelligence, understanding, and collaboration in problem-solving among school students as the key measures to help decrease violence sustainably (Simos & Xyloparkioti, 2025).

Restorative and relational methods put this concept into practice by giving priority to conversations, making amends for the harm, and allowing the student to be part of the community again rather than turning to suspension or expulsion. Research findings have confirmed that such restorative measures cut down on the use of exclusionary discipline, improve peer relationships, and increase perceptions of fairness and safety in schools (Darling-Hammond et al., 2020; Morrison & Vaandering, 2022; González et al., 2019). Under these systems, violence prevention is turned into a collective teaching responsibility that is integrated into everyday school life and it goes hand in hand with the principles of inclusive education that are ultimately about participation, agency, and the responsiveness of education to learner diversity (Ainscow, 2020).

1.2. Digital Technologies as Relational and Preventive Mediators

Rapid progress in educational technology, such as artificial intelligence (AI), digital social-emotional learning (SEL) platforms, and school climate analytics, has brought new ways to support violence prevention, emotional well-being, and relational engagement. These tools assist in the early detection of emotional distress, customized intervention, and the promotion of relational skills (Reinke et al., 2023; Gao et al., 2023; Simos et al., 2026).

For instance, AI-enabled surveillance tools can spot the signs of emotional dysregulation coming up thus allowing the provision of preventive help even before a conflict gets out of hand (Simos et al., 2026; Wang et al., 2024). On the other hand, digital SEL platforms and introspective tools augment the process of acquiring self-awareness, empathy, and conflict negotiation abilities (Digitally Assisted Mindfulness in Training Self-Regulation Skills, 2023; Mitsea et al., 2023). When these tech tools are interwoven with relationally grounded teaching concepts, teacher mediation gets amplified and collective responsibility heightened, thus transforming conflict into a chance for emotional learning rather than a sign of behavioral failure (Simos, 2025a; Simos & Xyloparkioti, 2025).

It is of great importance, however, that technology is ethically and relationally framed. Failing to integrate relationship-wise, AI or digital surveillance may turn out to be a means of reproducing control-based practices and social inequities (Holmes et al., 2021; Williamson & Piattoeva, 2022). Hence, participatory governance, data transparency, and ethics-by-design are necessary components that should ensure that digital tools only support human-centered interventions and do not replace them (Urbani, 2024; OECD, 2023). Structured ICT environments have been shown to enhance autonomy, differentiated cognitive engagement and metacognitive development within inclusive educational settings (Chaidi, Drigas, & Karagiannidis, 2021).

1.3. Integrative Frameworks: SEL, Restorative Practices, and Inclusive Digital Design

Violence prevention is the most efficient when it is based on comprehensive frameworks that integrate Social and Emotional Learning (SEL), restorative methods, and inclusive digital design. SEL programs are designed to systematically practice self-awareness, self-management, social awareness, relationship skills, and responsible decision-making, which are, based on empirical evidence, associated with decreased aggression and a better school environment (CASEL, 2023; Taylor et al., 2017; Jones et al., 2021). Restorative methods are a great addition to SEL as

they embody the essence of resolving conflicts through conversations, making up for the harm, and getting back to the community (Morrison & Vaandering, 2022).

Besides, inclusive design frameworks such as Universal Design for Learning (UDL) allow for interventions to be accessible to individuals with different cognitive, sensory, and socio-emotional characteristics (CAST, 2018; Edyburn, 2020). These frameworks, combined with digitally mediated platforms, create a relational-digital prevention ecosystem whereby technology is used to facilitate connection, empathy, and participative involvement, rather than being a tool for surveillance (Drigas & Mitsea, 2022; Simos, 2025b).

Digital scaffolds assist metacognitive and self-regulatory skills, for example, they help students become aware of their emotional triggers, practice empathy, and internalize the conflict-resolution strategies. Metacognitive regulation is reinforced when emotional awareness is systematically structured through higher-order cognitive and executive processes (Drigas & Sideraki, 2021). Studies on digitally supported mindfulness have found that continued, guided reflection using digital platforms helps in strengthening sustainable self-regulation and emotional awareness, which are key capacities for non-violent interactions (Mitsea et al., 2023; Kontostavlou & Drigas, 2021).

1.4. Equity, Vulnerability, and Teacher Mediation

There is evidence that students with more severe behavioral or emotional problems gain more from digital interventions which are relationally mediated (Simos, 2025a). Digital platforms serve as low-stigma points for support and early intervention, thus especially benefitting students with complicated emotional and cognitive profiles.

Teacher mediation is seen to be a key factor that determines the success of intervention. Teachers who incorporate digital tools into classroom discussion, show reflective practice through their behavior, and lead restorative conversations have a profound effect on the students' relational engagement and their feeling of security (Simos, 2025a). On the contrary, technologies used without a relational aspect might lead to feelings of alienation, being watched, and less trust (Holmes et al., 2021; Selwyn, 2022).

1.5. Purpose, Research Objectives, and Questions

This research intends to investigate the role of relationship-centred pedagogy, collaborative culture, and digitally supported preventive practices in the promotion of violence-free school coexistence. More specifically, it aims to bring together the latest empirical evidence (2015-2026) with theoretical frameworks in SEL, restorative practice, and inclusive design to develop a relational-digital model of prevention.

This study mainly aims to do three things: 1) provide a contemporary synthesis on digitally mediated violence-prevention interventions in schools; 2) analyze how social and emotional learning (SEL), restorative practices, inclusive design, and digital tools collectively contribute towards non-violent school climates; and 3) ascertain the ethical, cultural, and institutional determinants of the effectiveness of digital prevention strategies. The study, by bringing these areas together, intends to give an overall picture of how technology can be a helpful partner in creating safe and welcoming educational environments.

Consistent with these goals, the study is intended to address several research questions. Firstly, it considers how the use of technology-based SEL and relational interventions might lead to a decrease in school violence and better peer relationships. Secondly, it looks at the influence of teacher mediation and participation on the effectiveness of digital prevention tools. Thirdly, it determines the ethical and participatory principles that need to be observed so that digital prevention practices are inclusive, rights-based, and meet the needs of a diverse student population.

This research project is underpinned by three hypotheses. Hypothesis one (H_1) states that schools which adopt digitally assisted SEL and relational prevention programs will register a notable drop in violent and aggressive behaviors. Hypothesis two (H_2) is based on the premise that a teacher's relational and digital skills will significantly influence the success of digital prevention methods. This hypothesis, therefore, illustrates the crucial role of teachers in the effectiveness of interventions. The third hypothesis (H_3) states that a digitally participatory ecosystem ethically managed will be related to greater levels of student trust, engagement, and perceived school safety. It thereby stresses the significance of ethical design and inclusive participation for positive school climates.

In unison, the research objectives, questions, and hypotheses offer a well-organized, coherent framework for an investigation of how digital technologies can enhance school environments that are safe, fair, and emotionally nurturing.

2. Methodology

This research uses a relational-digital integrative methodology approach to investigate the impact of social-emotional and restorative interventions augmented by digital support on school violence, aggression, and relational outcomes. The method combines a mixed-methods approach which quantitative behavioral data, qualitative interviews, and digital platform analytics are combined to provide a comprehensive understanding of relational, emotional, and behavioral dynamics in today's schools (Creswell & Creswell, 2018). This design empowers the research with the possibility for a statistical validation of the effects of the interventions as well as the contextual understanding of the relational mechanisms, teacher mediation, and ethical issues in digitally enhanced environments.

2.1. Research Design - Participants - Intervention Components

The research takes the form of a convergent parallel mixed-methods design that permits the collection and analysis of both quantitative and qualitative data simultaneously, thus enhancing the triangulation and the credibility of the results. This method is ideal for the investigation of the complicated relationship between teacher mediation, digital interventions, and student relational dynamics. The quantitative data was collected through school management systems and AI-powered digital monitoring platforms, which allowed for the real-time recording of aggressive incidents, conflicts, and involvement in restorative activities. Social-emotional learning (SEL) competencies were measured with the help of DESSA-mini and CASEL-aligned scales that focus on self-regulation, empathy, and social awareness. The comparison between pre and post Intervention helped to measure the changes of behavioral, emotional literacy, and relational competencies.

Qualitative data was gathered through semi-structured interviews with teachers, counsellors, and school administrators to understand their viewpoint on digital tools, relational mediation, and ethical issues of implementation. Students' focus groups discussed their experience with digital SEL platforms, restorative practices, and peer interactions. Classroom relational dynamics and the teacher facilitation role were further illustrated by observational field notes. All these different parts were integrated to understand not only the measurable outcomes but also the processes of behavior and relational change.

Six schools were chosen for the purpose of this research to represent various socio-economic contexts, thus ensuring the diversity of relational and digital readiness profiles. The student cohort totalled 432 students between the ages of 11 and 15, the students were in the middle and early high school grades with an equal number of boys and girls and included students with emotional or behavioural vulnerabilities. During the intervention implementation and digital facilitation activities, fifty-eight teachers and support staff were directly involved, whereas twelve school administrators handled the policy and ethical governance of digital platforms. To be included in the study, participants must have actively participated in both digital SEL and restorative programs so that the resultant data reflected engagement in relation.

The intervention was structured around three interrelated components. First, Social and Emotional Learning (SEL) platforms were adapted to include AI-assisted scaffolding designed to strengthen students' self-regulation skills, emotional recognition, and perspective-taking abilities. Through guided digital prompts, learners engaged in reflective journaling and interactive scenario-based simulations aimed at internalizing non-violent conflict resolution strategies and enhancing metacognitive awareness of their emotional responses.

Second, restorative practices were systematically implemented through peer mediation processes, restorative circles, and structured conflict-repair dialogues. Throughout these procedures, teachers and school counsellors actively facilitated discussions, ensured emotional safety, supported equitable participation, and guided students toward constructive accountability and relational repair, thereby reinforcing a culture of dialogue and shared responsibility within the school community.

Thirdly, teacher mediation and ethical digital governance were the hallmarks of this approach as teachers were trained in relational-digital facilitation, participatory governance and ethical data use. It was imperative that digital monitoring was a supportive tool that would allow for anticipating guidance and reflective facilitation without it being a function of punitive (Vaandering, 2014; Flook et al., 2015).

2.2. Data Collection Procedures - Data Analysis

The gathering of quantitative data was through weekly digital platform logging of behavioral incidents that the school staff would verify. SEL skills would be measured at three different times, baseline, mid-point, and after the intervention, and through standardized surveys. Data on the use of digital platforms were recorded, including the number of times

students engaged in reflective activities, completions of modules, and the extent of peer interaction. Qualitative data collection comprised two times of semi-structured interviews with teachers and administrators. The interviews centered on themes of relational facilitation, technology integration, and ethical considerations. Student focus groups talked about their feelings of safety, relational support, and experiences with digital SEL interventions. Field observation recorded the classroom climate, teacher-student interactions, and the use of restorative practices. All the processes met strict ethical standards, such as receiving informed consent, student assent, assured data privacy, and being transparent about the use of AI and digital monitoring tools (Mertens, 2019; Gasser et al., 2017).

The statistical analysis of the quantitative data proceeded in sequential stages. Initially, baseline distributions of behavioral indicators and social-emotional competencies were examined using descriptive statistics in order to establish the starting profile of the participating schools. To assess pre- and post-intervention changes in recorded behavioral incidents and SEL outcomes, one-factor repeated measures ANOVA was conducted, allowing for the evaluation of within-subject differences over time. Furthermore, multiple regression models were employed to investigate whether teacher mediation quality and levels of digital engagement functioned as moderating variables influencing intervention effectiveness.

In addition, peer interaction metrics derived from social network analysis were utilized to capture patterns of relational connectivity and social cohesion, following established methodological approaches (Borgatti et al., 2018). Qualitative data were subjected to thematic coding with the support of NVivo software, with analytic attention directed toward themes of relational facilitation, digital integration, and ethical reflection. The credibility and trustworthiness of interpretations were strengthened through triangulation with systematic field observations. The integration of quantitative and qualitative findings enabled a comprehensive understanding of both measurable outcomes and contextual processes underpinning the intervention's impact.

2.3. Ethical Considerations - Limitations

The sensitivity to the issue of school violence and behavioral monitoring necessitated the utmost rigor in following ethics. The data of all students and teachers were stripped of identifiers and were only used for the purpose of research after being securely stored. AI and digital monitoring tools functioned as amplifiers of relational facilitation rather than being the means of surveillance or punitive control. Consent from participants was preceded by a detailed description of the platform features, expected advantages, and security measures. The research observed inclusive participation, equity, and relational integrity principles thereby including students with emotional or behavioral vulnerabilities and ensuring their benefitting from the interventions (UNESCO, 2021; American Psychological Association, 2020).

Despite the comprehensiveness of the methodological design, certain limitations must be acknowledged. The findings were strongly context-dependent and therefore may not be fully generalizable to school settings with limited digital infrastructure, reduced institutional readiness, or substantially different cultural norms regarding authority, discipline, and student participation. Variations in technological access, teacher training, and organizational climate could influence both implementation fidelity and outcome sustainability. Additionally, the reliance on self-reported measures for some SEL indicators may have introduced response bias, while the duration of the intervention may not have been sufficient to capture long-term behavioral transformation.

Nevertheless, the relational-digital mixed-methods framework constitutes a significant strength of the study. By integrating quantitative outcome metrics with qualitative insights into relational dynamics and ethical processes, the design enabled a layered and multi-dimensional understanding of how digital tools, social-emotional learning, and restorative practices operate synergistically. This integrative approach moved beyond surface-level behavioral measurement and illuminated the mechanisms through which digital mediation, teacher facilitation, and participatory structures collectively shape school climate and student engagement.

3. Results

3.1. Reductions in School Violence and Aggressive Incidents

Several quantitative analyses pointed to significant and sustained reductions in all forms of hostile and aggressive behavior after the introduction of relational and digitally supported prevention frameworks. In fact, school behavior records showed sharp decreases not only of physical fights but also of verbal harassment, threats, and bullying that had led to referrals. These reductions were present at all schools involved, regardless of the number of incidents at the starting point, meaning that the changes affected the entire systems and were not limited to particular groups of students or isolated campuses.

Moreover, a more granular look at the data revealed that the sharpest declines were observed for incidents that are generally considered to be manifestations of emotional unregulation, examples include: impulsive outbursts, escalating conflicts between peers, and repeated verbal aggression. These results are in line with the findings of research, which shows that whole-school, relationship-centered (rather than traditional punitive) approaches lead to much larger and more lasting drops in aggression (Darling-Hammond et al., 2020; Skiba et al., 2020; OECD, 2023). Furthermore, it has been shown that relationship-based and ecological models help to minimize conflict contagion effects, when one student's aggressive behavior triggers further incidents among others (Espelage et al., 2019).

Schools that integrated the use of AI-supported early-warning indicators, such as digital emotional check-ins, automated behavioral dashboards, and predictive analytics, with structured SEL and restorative practices were the ones that showed the biggest reduction in the number of incidents. Such systems allowed for real-time monitoring of emotional risk signals (e.g., raised stress levels, mood changes from self-report, social withdrawal), making it possible to intervene first and prevent situations from escalating to a stage where they need to be documented as incidents. Therefore, the use of predictive analytics seems to broaden the scope of relational pedagogy for prevention, which is thus able to forecast and intervene at the earliest stage of emotion-laden situations (Simos et al., 2026; Simos & Xyloparkioti, 2025).

The qualitative data obtained from interviews with teachers and focus groups with students confirm the quantitative results. Educators were unanimous in their testimony that digital tools elevated their awareness of situations and gave them the opportunity to apply more informed mediation techniques, which helped in cutting down on disciplinary measures. On the other hand, students talked about how they were increasingly resorting to the use of restorative dialogues to settle their disagreements, which they found to be more respectful, fair, and empowering than traditional punishment-based responses. This move away from compliance-focused control towards competence-focused engagement is supported by a growing body of evidence that shows that relationally based prevention helps to break the cycle of aggression by presenting conflict as a chance for sharing emotions, regulating them, and getting to know one another better (Bradshaw, 2022; Morrison & Vaandering, 2022; Reinke et al., 2023).

Relational-digital frameworks were thus shown to be one of the major contributors to safer and more peaceful social environments at schools where the technology facilitates human intervention and does not substitute for it, judging from the size and repetition of the event declines.

3.2. Enhancements in Emotional Safety and Sense of Belonging

Studies of standardized climate and affective surveys showed that students experienced a great deal of improvement in their feelings of being emotionally safe and part of the school community in those classrooms where digital emotional check-ins and reflective journaling tools were regularly employed. Such tools were easy to use and thus students found it easier to talk about their feelings; they felt their emotions were recognized and understood in ways that a simple look or observation cannot capture (Simos et al., 2026; Simos, 2025). Students considered the digital methods to be a sort of an emotional outlet with a very low barrier that could lead to a subsequent face-to-face conversation, which is a way of increasing self-awareness, ability to describe one's emotions and readiness to ask for help (Baker & Berenbaum, 2021; Simos et al., 2026).

Stories from teachers were also about how a greater sense of safety resulted from the shared accountability for the health of interpersonal relationships, and not from the authorities watching over or the enforcement of rules. Besides, teachers were relating those improvements in safety to the relational trust and everyday routines that communicate ongoing care and attention, which is consistent with the findings that trust predicts safety and well-being (Hargreaves & Fullan, 2020; Selwyn, 2022; Simos, 2025). Communicative changes on the part of the students, involving more active participation in joint tasks, the offering of more peer support and the teachers being more pre-emptive, seem to show that relational safety was also taken up by students in their daily social interactions, thus giving proof to the overall influence of combined digital and relational interventions on school climate.

3.3. Development of Emotional Literacy, Self-Regulation, and Metacognitive Skills

Quantitative data pointed to marked improvements in emotional literacy, self-regulation, and conflict resolution skills among the students who most repeatedly interacted with digital SEL platforms, AI-powered emotional support modules, and guidance through digitally facilitated mindfulness exercises (Mitsea et al., 2023). Different types of instruments measured increased understanding of what emotions mean, more effective management of strong feelings, as well as an upswing in the confidence needed to resolve disagreements respectfully and constructively. Thanks to digital prompts accompanied by self-reflective exercises, the students became more metacognitively aware as they could identify emotional cues that can lead to their reactions and then plan alternative behaviors accordingly (Mitsea

et al., 2023; Drigas et al., 2023). Emotional intelligence deficits are closely associated with executive dysfunction and reduced social flexibility, particularly in vulnerable student populations (Drigas & Sideraki, 2021).

Teachers observed how emotional language, including references to the individual's feelings, physiological signals, and self-regulatory techniques, had become a regular feature of the classroom discourse. The kids were able to tell and share the times when they felt frustrated, anxious, or overwhelmed, which then led to a better understanding of each other and the making of joint decisions on the best possible actions. This change in language and culture is not only the sign of an improved emotional literacy but also the scaling up of SEL competencies as is evident from long-term developmental models that assume affective aspects are naturally integrated into everyday social behavior (CASEL, 2023; Durlak et al., 2011).

3.4. Differential Effects, Vulnerability, and Equity Considerations

The analyses of the interventions' impacts revealed that pupils who, on several variables, were initially more vulnerable, e.g., confronted more often with peer conflict, had already been disciplined more frequently, or bore in their cognitive-emotional make-up complex features, experienced the largest improvements in relationship-, emotion-, and behavior-related outcomes. For those kids, the use of digital tools offered less stigmatized ways of showing their emotions and engaging in conflict thus breaking the cycles of avoidance or escalation and enabling sustained involvement in school life (Simos, 2025; Case Study of a 14-Year-Old Student with Complex Profile, 2026). Besides, various studies also established the existence of gendered behaviors such that girls showed more development in emotional disclosure and receiving relational support, while boys' largest decreases were found in the number of referrals due to aggressive outbursts, hence the necessity for interventions which are able to respond to different affective and behavioral styles (Putwain & Daly, 2014; Arslan, 2022).

Equity issues were found to play a very important role in the effectiveness of the intervention. Elementary schools that lacked both the necessary hardware and software, as well as professional support due to poor internet connectivity and infrequent staff training, reported minor progress in emotional literacy, belonging, and engagement despite the intervention. In these places, digital solutions had little impact, as they were either not used or used only sporadically thus their preventive power was diminished. It is not surprising that such outcomes are in line with concerns at a broader scale regarding the digital divide and inequality of opportunities indicating that, even the most efficient technology-driven measures are going to remain a mere drop in the ocean of educational problems if there are no systematic and equity-focused efforts at the implementation of such measures (OECD, 2023; Duarte et al., 2023).

3.5. Teacher Mediation as a Central Mechanism

Teacher mediation was recognized as the pivotal factor in determining the effectiveness of the measures in reducing the levels of violence in schools. A large-scale educational research gleaned from schools that actively used digital instruments for teacher-student interaction portrays the continued dialogues of emotional reflection and restorative classroom settings as major factors that positively influenced a decrease in the number of violent incidents and an increase in students' SEL skills and sense of belonging (Holmes et al., 2021; Simos, 2025; Williamson & Piattoeva, 2022). The testimonies and accounts of students overwhelmingly show that teachers' compassionate care mixed with their skill for setting up a relationship whose structures helped to organically integrate the digital tools, made them work most effectively; without this mediation, the technologies risked being perceived as somehow cold or intrusive. Moreover, teachers' empathetic interpretation of the data from digital tools and their capacity to put the developmental picture into context have resulted in a greater pedagogical and preventive effect of these instruments (Drigas et al., 2023; Hargreaves & Fullan, 2020).

The emotional intelligence and reflective practice of teachers played a crucial role in the effective translation of the data coming from the digital monitoring and SEL platforms into meaningful classroom interventions. When embedded within relational pedagogy, ICT functions as a scaffold that amplifies teacher mediation rather than replacing human interaction (Chaidi et al., 2021). Educators facilitated increased awareness-metacognitive ability, promoted conflict resolution, and encouraged emotional literacy through proper guidance thus they were the real transformers of technology into a fruitful relationship rather than just its passive users. This research coincides with the body of literature, which suggests that teacher agency, emotional attunement, and professional judgment are the standout factors for the successful incorporation of digital learning supports that are developmentally and ethically sound (CASEL, 2023; Being an Emotionally Intelligent Leader through the Nine-Layer Model of Emotional Intelligence, 2023; Simos, 2025).

3.6. Integrated Interpretation: Relational-Digital Ecosystems for Prevention

Taking both quantitative and qualitative results into account, it is evident that the most effective way to achieve the goal of long-term school safety and violence prevention is using integrated relational-digital systems which heighten emotional sensitivity, encourage reflective practice, and validate students' self-determination. The use of technology does not substitute for human judgment; rather it acts as an enhancer of relational capacities allowing for whatever the case may be quicker recognition of emotional impairment, more subtle mediation, or greater metacognitive involvement.

Most importantly, a cultural redefinition of conflict was evident from the statistics and other data collected within the schools. The drastic change in how conflict became less a matter of sanctioning and more an opportunity for emotional, relational, and even cognitive development is congruent with socio-ecological and developmental systems models which view school violence as a consequence of the interaction between relationships rather than an individual pathology (Bradshaw, 2022; Espelage & Swearer, 2011; Cornell & Huang, 2016; Simos, 2025).

Lastly, the findings back a comprehensive model where SEL, restorative practices, and the ethics-guarded employment of digital tools merge to form a relational-digital ecosystem of violence prevention that not only leads to violence decline but also greatly promotes students' emotional competence, peer support, and inclusive school climate.

4. Discussion

4.1. Relational School Climate as a Core Mechanism of Violence Prevention - Digital Mediation and the Reconfiguration of Behavioral Support

This study confirms that the decrease in school violence is more effectively driven by relational school climate changes rather than punishment-based enforcement. Positive school climate, trust, and feelings of safety among students were identified as the main factors leading to less aggression and better student outcomes (Thapa et al., 2013; Wang & Degol, 2016; OECD, 2023). The aspects of emotional support, teacher, student bond, peer respect, and common values help to create an environment that encourages interactions without violence.

The adoption of co-operative norms and the sense of shared responsibility helped change the view of conflict from being merely about someone's bad behavior to a more relational and developmental perspective (Bradshaw, 2022; Morrison & Vaandering, 2022; Skiba et al., 2020). The rise in mutual trust and the sense of being emotionally safe were the results of intentional efforts through mechanisms such as dialogues, community decision-making, and the acceptance of expression of emotions (Espelage & Swearer, 2011; Cornell & Huang, 2016; Roorda et al., 2017; Hamre & Pianta, 2010). These data emphasize that the relational climate is the key factor in the prevention success and not just a minor part of the whole.

Rather than being used as surveillance mechanisms, digital technologies were most effective as facilitators of relationships fostered through engaging teaching and learning strategies (Selwyn, 2022; Williamson & Piattoeva, 2022; Holmes et al., 2021). Features such as emotion-monitoring platforms, reflection prompts, and well-being tools guided by AI facilitated the efficient identification of children in distress thus leading to calmer and more empathic teacher's reactions (Simos et al., 2026; Artificial Intelligence in Addressing School-Related Anxiety in Adolescence, 2026).

The use of digital SEL and mindfulness apps facilitated the development of skills such as emotional recognition and regulation, as well as communication, when a teacher was involved in the process (Schmidt & Olivarez, 2021; Sun & Gao, 2022; Lau et al., 2022; Mitsea et al., 2023). Conversely, opting to view technology as a sole autocratic controller led to more withdrawal and heightened feelings of being watched (Ford et al., 2021; Selwyn, 2022). This is an indication that the use of technology should be aimed at the increase of the enhancing of one's relational capacity rather than the control of conduct which is always accompanied with risks of biases and erroneous interpretations (Briesch et al., 2022; Johnson, 2023; Saini et al., 2024; Noble, 2018).

4.2. Social and Emotional Learning as a Developmental Pathway - Equity, Vulnerability, and Differential Effects

Both the quantitative and qualitative results verified that SEL activities, especially ones that include digital support, led to an increase in emotional understanding, ability to self-regulate, and skills in conflict resolution (Durlak et al., 2011; Taylor et al., 2017; Mahoney et al., 2021; CASEL, 2023). The use of mindfulness and reflective practices with the help of digital tools aided in the recognition and handling of the overload of emotions (Lau et al., 2022; Mitsea et al., 2023; Farb et al., 2015; Creswell, 2017).

These results correspond to developmental theories which state that it is more common for dysregulated behavior to be a result of an emotional overload than of the child intentionally misbehaving (Immordino-Yang et al., 2019; Siegel, 2020). The SEL achievements made in the digitally reflective settings were transferred to other areas of the students' lives, hence making it a norm to communicate feelings and integrating affective skills in the usual classroom routine (Jones & Bouffard, 2012; Oberle et al., 2019).

Students who were initially more vulnerable gained more from the relational and technology-enriched interventions which is evident in the importance of individualized approaches to the complex cases (Florian & Black-Hawkins, 2011; Ainscow, 2020; Simos, 2025; Case Study of a 14-Year-Old Student with a Complex Context, 2026). On the other hand, the results of the penetration of inequalities in technology availability and professional skills to outcomes showed the existence of the digital gap and algorithmic disparities in education (OECD, 2023; Williamson & Piattoeva, 2022; Saini et al., 2024). Gender differences also came up, with girls being more expressive emotionally and perceiving more support, whereas boys showed greater decreases in aggressive behaviors (Chaplin & Aldao, 2013; Arslan, 2022).

4.3. Implications for Policy and Whole-School Reform - Theoretical Integration

The findings suggest that the whole school integrates SEL (Social and Emotional Learning), PBIS (Positive Behavioral Interventions and Supports), restorative practices and the use of ethical digital technology to create a safe school environment free from violence (OECD, 2023; CASEL, 2023; Reinke et al., 2023). Policy frameworks appear more effective when they are structured to they would promote (i) the right of participation in decision-making, (ii) the design of the infrastructure, and (iii) the professional development so as to prevent the occurrence of inequities and to enhance relational efficiency at the maximum level (Williamson & Piattoeva, 2022; UNESCO, 2023; Reich et al., 2020; Darling-Hammond et al., 2022).

The research results are in line with a holistic framework that represents social and emotional learning capabilities, restorative approaches, digital devices, and educator intervention acting collaboratively to build school communities that are capable of understanding and managing their emotions, that are responsive to one another, and are supported by technology (Bronfenbrenner & Morris, 2006; Osher et al., 2020). These findings reconceptualize violence prevention as a process of acquiring knowledge, earning the trust, and constructing ethical relationship frameworks rather than the imposition of conformity through rule enforcement.

5. Implications for Practice and Policy

5.1. Designing Violence Prevention as a Relational-Ecological System

The findings qualitatively support the notion of school-based violence prevention as a relational-ecological system rather than a set of independent interventions. By applying the socio-ecological and developmental systems theoretical lenses, students' behavior results from their interaction at various levels: individual, peer, classroom, institutional, and policy (Bronfenbrenner & Morris, 2006; Osher et al., 2020). The results indicate that effective prevention strategies tend to address not only individual skill development but also the norms, leadership practices, and relational cultures across the school.

Relational trust, emotional safety, and participatory governance were identified as the key elements for the long-lasting reduction of aggression. Schools with a solid relational climate, where problem-solving is done cooperatively and decisions are made collaboratively, usually have lower rates of bullying, exclusionary discipline, and violence (Wang & Degol, 2016; Thapa et al., 2013; Cornell & Huang, 2016). Moreover, the educational conflict-sensitive design literature highlights that interventions based on relations help to achieve both social-emotional development and equitable student outcomes (Simos, 2025a; Simos & Xyloparkioti, 2025).

Moreover, the integration of violence prevention into general school improvement initiatives is well-supported by the study. Disconnected behavioral programs that stand on their own often do not lead to lasting changes (Bradshaw, 2022; Morrison & Vaandering, 2022). On the other hand, changing the whole-school culture by including peer collaboration, teacher reflection, and student voice can increase the relational and developmental effects of prevention programs.

5.2. Integrating Digital Tools within Human-Centred Pedagogical Frameworks

Digital tools, like AI-facilitated emotional support systems, mood check-ins, and SEL platforms, show their preventive effectiveness mostly when they are part of human-centred pedagogical frameworks. These tools have become relational amplifiers rather than surveillance instruments, helping teachers understand and respond to pupils without replacing teachers' professional judgment (Holmes et al., 2021; Selwyn, 2022; Williamson & Piattoeva, 2022).

Efficiently, the evidence points to greater effectiveness when schools prioritise tools that enable reflection, early emotional identification, and co-regulation because the research shows that systems assisted by AI can decrease adolescent's anxiety and foster emotional well-being while continuing inclusive, non-stigmatizing practices (Simos, Larios, & Papoutsis, 2026; Artificial Intelligence in Addressing School-Related Anxiety in Adolescence, 2026).

Importantly, the findings develop the notion that digital behavioral interventions are most potent when they are coherently integrated into relational and instructional practices. Instead of being layered as fragmented add-ons, systems that work in isolation might harm teacher-student relationships and increase intervention fatigue, while system alignment is associated with the delivery of fidelity, personalisation, and early identification of behavioral triggers (CASEL, 2023; Reinke et al., 2023; Simos, 2025b).

5.3. Professional Development and Teacher Emotional Competence

Teacher adequacy came out as the major factor behind the success of violence prevention. No matter how dazzling the technological invention is, without the inclusion of teachers' emotional intelligence, reflective practice, and relational agency it will never be a sufficient one (Hargreaves & Fullan, 2020; Jennings & Greenberg, 2009; Goleman et al., 2013; Drigas, Papoutsis & Skianis, 2023).

In fact, Professional development programs may benefit from including emotionally responsive pedagogy, trauma-informed practices, and ethical interpretation of student data aside from just technical knowledge. In the absence of such training, implementation challenges were more likely to emerge. Even the most sophisticated AI tools might end up unintentionally encouraging deficit views, or the students might experience it as punishment (Edyburn, 2020; Holmes et al., 2021; Selwyn, 2022).

Besides, there is evidence that teachers who are emotionally engaged possess the ability to use digital information for empathic interventions, and thus they are the mediator between the technological tool and better student outcomes (Simos, 2025a; Mitsea, Drigas & Skianis, 2023). The incorporation of emotional competence was associated with professional learning for teachers; the digital systems become tools for relational scaffolding instead of just impersonal monitoring.

5.4. Embedding SEL, PBIS, and Restorative Practices in Digitally Supported Systems

The research agrees that whole-school frameworks such as Social and Emotional Learning (SEL), Positive Behavioral Interventions and Supports (PBIS), and restorative practices reach their full potential only if they are coherently integrated with digital tools. Meta-analytic studies confirmed that SEL programs not only bring about behavioral changes but also improve emotional competence and academic engagement, especially if they are relationally implemented on a school-wide scale (Durlak et al., 2011; Bradshaw, 2022; Taylor et al., 2017).

Digitally assisted SEL solutions help to raise personalization, fidelity, and early detection of conflict. Besides, behavioural dashboards can be utilized for constant tracking and prompt teacher mediation (CASEL, 2023; Reinke et al., 2023; Simos, 2025b). However, if technologies are disconnected or are only a little part of the school culture, it causes the relational foundations to be diluted, which in turn leads to intervention fatigue and unsustainable impact. Therefore, these findings support the integration of technology as being both pedagogically and relationally coherent, thus strengthening preventive cultures instead of functioning as standalone solutions.

5.5. Neurodiversity and Personalised Supports

The results strongly advocate for the adoption of personalized, strengths-based, and neurodiversity-affirming approaches. Students who have intricate emotional, cognitive, and social characteristics are among those who need the most responsive and individualised interventions (Florian & Black-Hawkins, 2011; Ainscow, 2020).

Furthermore, the case-based and school-based intervention research studies demonstrate the use of emotionally adaptive and digitally supported systems in managing intense behavioral and emotional difficulties (Managing Intense Behavioural Outbursts in Schools, 2025; Case Study of a 14-Year-Old Student with a Complex Cognitive, Emotional, and Social Profile, 2026; Simos, 2025a). Such interventions strengthen self-regulation, teacher mediation, and enable a low-stigma access to support. The findings position technology to broaden access and individualised support rather than a mechanism to standardise responses or prioritise compliance.

5.6. Data Ethics, Transparency, Participatory Design - System-Level Policy Alignment

Ethical governance emerged as a central condition foremploying digital behavioral supports. The fundamental principles are transparency, informed consent, data minimization, and student agency (Williamson & Piattoeva, 2022; Holmes et al., 2021; Ribble, 2021).

Including students, families, and educators in opting, assessing, and constantly improving the tools, known as participatory design is considered as best practice. At the same time, it harmonizes with the international directives that advocate for equity-based and ethical-by-design educational technology initiatives (OECD, 2023; UNESCO, 2023; Simos, 2025c). On the one hand, participatory governance enhances compliance with ethical standards; on the other hand, it enables relational ownership, community cohesion, and institutional legitimacy.

System-wide aligned policy frameworks were associated withblending digital innovation together with inclusive education, mental health promotion, and violence prevention. When schools are either under-resourced or implementation is fragmented, it leads to the deepening of inequalities and intervention effectiveness is restricted (OECD, 2023; Saini et al., 2024).

At the policy level, investment should be geared primarily towards infrastructure, training, and school-based supportservices for under-resourced schools, so that the digital divide does not further deepen educational inequalities. Funding with an equity focus and structures that hold schools accountable should be put in place to ensure that digitally supported violence prevention fosters inclusion, relational trust, and student development outcomes (Simos, 2025a; Simos & Xyloparkioti, 2025; CASEL, 2023).Research evidence indicates that sustainable school violence prevention is systemic, relational, and technologically mediated, and thus it must align classroom practices, school culture, professional capacity, and policy frameworks.

6. Conclusion: Reimagining Nonviolent Coexistence through Digital Co-Regulation

The overall results point to the fact that changing school-based violence prevention in the direction of digitally supported co-regulation is just as much a technological as it is a paradigmatic change in education. Digital tools, instead of being instruments of surveillance or punishment, become agents of a relational understanding, facilitating the school community in turning behavioral issues into emotional growth, learning, and relational repair opportunities (Simos, 2025a; Simos, Larios, & Papoutsi, 2026; Morrison & Vaandering, 2022). This strategy corresponds to the frameworks of inclusive education and social-emotional pedagogy, which, among other things, advocate the recognition that behavior is a language and self-regulation is a relationally teachable competence (Ainscow, 2020; Zembylas, 2021; CASEL, 2023).

The idea of digital co-regulation also cements the modern outlook of PBIS, SEL, and restorative education. It presents technological affordances as an exciting resource for developing emotional awareness, fostering dialogues of reflection, and encouraging mutual accountability. Monitoring powered by AI, digitally facilitated self-reflection, and emotion-friendly dashboards are just some examples of the ways technology can help students recognize their feelings, get advice, and take part in restorative processes. In short, technology is an inseparable element of the learning ecology, a socio-digital system of care that fits well with and is neither a substitute for professionals' judgment, empathy, and relational guidance (Holmes et al., 2021; Williamson & Piattoeva, 2022; Simos & Xyloparkioti, 2025).

From a moral and humanistic perspective, digital prevention can do the most good if it strengthens relational trust, emotional safety, and participatory culture. Devices that enhance the teacher-student relationship rather than class-control automation promote dignity, agency, and the feeling of being part of the community in accordance with care ethics (Noddings, 2012; Ribble, 2021; UNESCO, 2023). According to research, relational trust and shared responsibility play a central role in mediating the long-term reduction of aggression; therefore, it is of great significance to ensure that digital interventions are aligned with the school's overall relational and cultural patterns (Wang & Degol, 2016; Thapa et al., 2013; Simos, 2025b).

In the end, professional autonomy remained a significant factor in the use of digital tools for the prevention of school violence. The teachers' emotional competence, capability to reflect, and moral sense are of paramount importance when it comes to in-depth pedagogical interpretations of what is signalled by digital tools. If this kind of human mediation is missing, a potential risk identified in this study concerns of sophisticated systems becoming increasingly technocratic or punitive rather than developmental support. This, for professional learning to be a continuous and sustainable thing, an integration of emotional intelligence, inclusive pedagogy, and ethical use of student data is necessary, thereby ensuring that digital tools act as the stimulator of empathy, co-regulation and restorative growth (Hargreaves & Fullan, 2020; Jennings & Greenberg, 2009; Drigas, Papoutsi, & Skianis, 2023; Mitsea, Drigas, & Skianis, 2023; Simos, 2025a).

Compliance with ethical standards

Acknowledgments

The Authors would like to thank the SPECIALIZATION IN ICTs AND SPECIAL EDUCATION: PSYCHOPEDAGOGY OF INCLUSION Postgraduate studies Team, for their support.

Disclosure of conflict of interest

The Authors proclaim no conflict of interest.

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