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Conflicts in the classroom: contributions from a study on emotional self-regulation

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To support teacher-guided techniques that support emotional self-regulation, this study characterizes how conflicts that arise in the classroom are identified and resolved. From a mixed methods perspective, nine classes were systematically observed for five sessions each. After coding the data according to an *ad hoc* instrument and assessing the concordance of the records, a lag sequential analysis (GSEQ5) was performed to detect the existing regularities and sequences, and a polar coordinate analysis (HOISAN) to observe the relationships among the categories. Finally, multiple cases were detected using both analysis techniques. The findings provide information on who recognizes conflicts, how they address them, and whether or not they offer solutions. The discussion emphasizes the importance of making clear how emotions are expressed, managed, and communicated and the part teachers have in educating students about them.

KEYWORDS

conflict resolution, emotional education, school coexistence, educational interaction
process, student teacher relationship, peer relationship, mixed methods

1 Introduction

Conflict, being inherent to human nature, is the result of the difference between two or more simultaneous interests that sometimes lead to a state of emotional tension (Carpena, 2003). For Rodríguez et al. (2018), addressing conflicts can generate learning and the proposal of possible assertive solutions that favor the development of groups; therefore, the school, being in charge of the education of students in crucial years for their development as people, is considered an ideal setting for co-constructing learning regarding emotional regulation (Castellaro and Peralta, 2020), in situations of interpersonal conflict in the classroom (Viñas and López, 2014). Considering the relevance of teachers having the ability to identify, understand and regulate both their own emotions and those of their students when training in emotions (Fuentes-Vilugrón et al., 2024) and feeling committed to the comprehensive training of future generations (Sandoval-Obando et al., 2023).

This ability to control and regulate one's emotions has been considered one of the most important dimensions for establishing positive social relationships and promoting learning and knowledge of others' emotions (Antonopoulou, 2024). Empathy is the best antidote to violent behavior and the main support for prosocial behaviors (Mudiyanse et al., 2025). Children who are more self-aware of their anxiety (Coleman and Chan, 2023) are better at controlling their activation level in stressful situations, allowing them to express more positive and fewer negative emotions, positively affecting their mental health (Yu and Liu, 2025). Such children are rated as more socially competent.

During puberty, the ability to differentiate other people's emotions is a key element for good social interaction, which increases as adolescence approaches, as the peer group, its rules, and conventions become increasingly important (Napolitano et al., 2021). In these years, children learn to experience different emotions simultaneously, becoming skilled in understanding affective ambivalence and emotional regulation (Thümmeler et al., 2022).

Therefore, it is crucial to stress the importance of socio-emotional support both before and during adolescence because, while the conflicts that occur during this stage of life may have an impact on the emotional skills that adolescents develop, which may indicate a high level of emotional instability, it is also true that these skills can serve as a protective factor. It has been observed that adolescents with better skills to perceive emotions exhibit higher levels of self-confidence, better relationships with friends and family, better personal and social adaptation, and a higher level of psychological and social wellbeing (Garaigordóbil, 2016; Coronel Viscarra and Vera Jara, 2024).

According to Garaigordóbil (2014), there is a need to intervene early and consistently in positive emotions like empathy, self-control, and emotional regulation. In this regard, the school setting is an excellent context for socialization and a highly appropriate setting for individuals to assimilate the social values inherent to and expected of the environment in which they develop through the interactions they establish with peers and adults. In this regard, Riquelme-Mella and Montero (2016) highlight that the communication established in the classroom produces social interactions that may involve both the transmission of values and rules that regulate the common good, and the presence of inequalities that may be associated with violent situations. Docherty et al. (2023) note that exposure to aggressive behavior puts young people at greater risk of engaging in violent behavior, and Yang et al. (2023) highlights the influence of teachers on the emergence of aggressive behavior in adolescents.

Thus, acknowledging the importance of context entails visualizing not only how children self-regulate but also the relationships they form with adults, the modeling that adults exhibit in their interactions with one another, including communication styles and shared definitions of conflict, and the emotional mediation that must be developed when facing challenges (Sayed and Sinha, 2024). van Manen (1998) has asserted the need for education to adopt a pedagogical approach that prepares children to collaborate, show solidarity, and constructively engage with others, as we should not create a world for our children that we would not want for them. Osiesi et al. (2023) found that parenting styles, peer influence, and self-control significantly influence the emergence of aggressive behavior. It is therefore relevant to recall that Aramudin and Susanti (2024) has highlighted the need for teachers to develop culturally sensitive pedagogy, empathically engaging with students to develop healthy habits through practice and modeling.

In this regard, Marchesi (2017) points out the need to observe how the school is organized, and whether it attaches importance to the coexistence and wellbeing of all members of the education community. Wang (2023) emphasize the advantages of cultivating effective emotional regulation in the school culture, noting that classroom dynamics and teacher interactions significantly impact the development of emotional control by modeling this skill. Montoya et al. (2018) note that, inasmuch as responses are standardized within the education community, considerate of students' requirements, the context, and the interpersonal dynamics within the group, it will be possible to address the varied

needs of students more successfully. Gorski and Dalton (2020) highlight the need for reflective and self-critical teachers who promote equity and social justice. School, then, will address the challenges of fostering coexistence through daily practices of school life, transforming interactions, including conflicts, into learning opportunities (Camacho Bonilla et al., 2017). Therefore, this study seeks to clarify how conflicts that arise in daily classroom life are identified and addressed.

2 Method

In order to answer the question: how are conflicts that emerge in the classroom addressed? and with the aim of clarifying how conflicts that arise in the interactions that occur daily in the classroom are identified and addressed, the use of observational methodology has been chosen (Anguera, 2003; Alarcón-Espinoza et al., 2022). The observational methodology is considered a mixed method in itself (Anguera and Hernández-Mendo, 2016; Anguera et al., 2021), integrating qualitative and quantitative elements according to the quantification proposal of Anguera et al. (2020).

From the perspective of mixed methods (Creswell and Plano Clark, 2011), qualitative and quantitative elements have been integrated, so that the observational records, initially qualitative, have been coded using a previously tailor-made observation instrument, and then systematized in databases that are analyzed quantitatively. These analyses, after ensuring the quality of the data obtained, have allowed obtaining results that are interpreted qualitatively, following the quantizing proposal by Anguera et al. (2020), which conforms to the connecting path of integrating qualitative and quantitative elements proposed by Creswell and Plano Clark (2011) within the framework of mixed methods.

Considering the degree of perceptivity, the indirect observation method (Anguera, 2010; Portell et al., 2015) has been used, since textual material generated indirectly from audio recordings has been accessed.

2.1 Study design

The observational design (Anguera et al., 2001) was Nomothetic (nine class groups); Monitoring both within sessions (from the agreed class time) and between sessions (once a week, for five consecutive weeks), and Multidimensional (four major dimensions and subdimensions comprising the observation instrument).

2.2 Participants

In order to observe students between 10 and 12 years of age in different school settings, the observed classes were fifth and sixth grade students from three schools located in places with different population sizes: a fishing village, a town, and a city in the Araucanía Region, Chile.

The observed groups are shown in Table 1.

2.3 Procedure

After signing the informed consent form allowing teachers, students, and parents to observe and record the audio recordings in their classrooms, the recordings began using a small audio recorder

TABLE 1 Distribution of observed groups.

Location	School funding	Grade	Number of students	Subject
Fishermen's Cove (2000 inhabitants)	Public	5°	15–16	Class council (tutorships)
		6°	16–17	Language and communication
Municipal Capital (10,000 inhabitants)	Public	5°	24–26	Language and communication
		6°	16–23	Music education (national holidays)
		6°	17–19	Class council (tutorships) and natural sciences
Regional Capital (230,000 inhabitants)	Subsidized (coordinated)	5°	39–40	Class council (tutorships)
		5°	34–40	Class council (tutorships)
		6°	33–42	Class council (tutorships)
		6°	26–40	Class council (tutorships)

placed on a table. In each case, the students were observed in a classroom with one or two teachers in charge, for the entire class hour.

The observer visited each school and class on two previous occasions without recording any observations, in order to familiarize herself with the place, to be previously known by the participants and thereby minimize effects that could alter the participants' behavior in the observations that were subsequently made.

Once the information on verbal behavior was recorded in audio, all the information was transcribed into Excel files, delimiting the observation units to carry out indirect observation. The observation units were delimited (segmenting the discourse using interlocutory and syntactic criteria) (Anguera, 2021) and coded using the observation instrument Guide for the Observation of Communication and Emotional Self-Regulation (OCAE) (Alarcón-Espinoza et al., 2024). The coding was carried out by assigning the codes indicated by the observation instrument to each previously delimited observation unit.

2.4 Reliability analysis

Cohen's kappa coefficient was calculated using the free program GSEQ5, with multi-event data, type II (Bakeman, 1978) to guarantee the quality of the data obtained. Values greater than 0.60 of agreement between three codes of the same sessions, corresponding to 15% of the data, were considered appropriate (Cohen, 1968).

2.5 Data analysis

The quantitative methods of lag sequential analysis and polar coordinate analysis were used to analyze the data after their quality

was ensured. Subsequently, observing the similarities of the results, multiple cases were detected.

The analyses correspond to the significant relationships between the behaviors corresponding to dimension D of the OCAE guideline, which refers to effective conflict management as a criterion behavior and the other categories proposed by the observational instrument as conditioned behaviors.

2.5.1 Lag sequential analysis

The lag sequential analysis detects sequential patterns of behavior (Bakeman, 1978; Anguera and Hernández-Mendo, 2015). It was performed by searching for sequential contingencies between categories or codes of behavior, recorded according to the order parameter. This process made it possible to calculate fitted residuals between the criterion behavior (proposed for each analysis as the potential initiator of a behavior pattern) and the conditioned behaviors (all those for which it is desired to know if they are part of a behavior pattern). This analysis requires a crucial element called lag, which refers to the orderly succession of the respective behavioral co-occurrences. Lags are positive ($R + 1$, $R + 2$, $R + 3$,...) when they prospectively include behaviors recorded after the occurrence of the criterion behavior; negative ($R - 1$, $R - 2$, $R - 3$,...) when they retrospectively take into account behaviors that occurred in the last, penultimate, etc. place before the occurrence of the criterion behavior; and lag 0 when co-occurrences between the criterion behavior and conditioned behaviors are studied. Following Bakeman (1978), the binomial test contrasts the conditioned and unconditioned probabilities. The adjustment suggested by Allison and Liker (1982) is recommended to obtain the fitted residuals, which can detect activating relations (>1.96 , for a significance level of 0.05) or inhibiting relations (<-1.96 , for a significance level of 0.05) between the criterion behavior and the conditioned behaviors. From the significant values obtained in the activating and inhibiting fitted residuals, the behavioral pattern(s) is/are extracted, taking into account the conventional rules established to facilitate the interpretation of the terminations of these patterns (Anguera et al., 2021).

2.5.2 Polar coordinate analysis

After the lag sequential analysis, a polar coordinate analysis was performed to vectorize the behavior (Anguera and Losada, 1999; Sackett, 1980), considering as focal behaviors those that respond to the study objectives and which in our study were most significant in the lag sequential analysis (D1, D21, and D24), and as conditioned behaviors all those with a relationship with the focal behavior is of interest.

The polar coordinate analysis is an analytical technique proposed by Sackett (1980) that starts from the results of fitted residuals obtained in the sequential lag analysis, constituting the data for this analysis. The aim is to ascertain the reciprocal relationships between focal and conditioned behaviors. First, a lag sequential analysis must be performed, and from the fitted residuals obtained, and taking into account the same number of positive (prospective perspective) and negative (retrospective perspective) lags, the prospective and retrospective Zsum parameter (Cochran, 1954) is calculated for each of the conditioned behaviors, which enables an intense data reduction. The derived values enable the length and angle of each vector to be determined, facilitating the plotting of the relationship between the focal behavior and each conditioned behavior.

Vectors are interpreted in terms of their length and angle. As for the length, it is considered significant when its value is greater than 1.96—for a significance level of 0.05—and the angle of the vector indicates the nature of the relationship it establishes with the focal behavior, depending on the quadrant in which it is located, with the following associative relationships becoming evident:

Quadrant I: The focal behavior and conditioned behavior activate each other.

Quadrant II: The focal behavior inhibits the conditioned behavior, and the conditioned behavior activates the focal behavior.

Quadrant III: The focal behavior and conditioned behavior inhibit each other.

Quadrant IV: The focal behavior activates the conditioned behavior, and the conditioned behavior inhibits the focal behavior.

2.5.3 Multi-case analysis

Once both the lag sequential analysis and the polar coordinate analysis for each class had been conducted, the coincidences of conditioned behaviors for each criterion or focal behaviors in the different classes were reviewed, highlighting those that occur on three or more occasions. This made it possible to detect the presence of multiple cases (Anguera, 2018; Stake, 2006; Yin, 2014).

3 Results

Regarding how problems or conflicts that emerge in the classroom are detected and addressed, using the lag sequential analysis, the identification of a problem (D1) (Table 2) is a behavior mainly carried out by the head teacher (E1), who tends to use directive language (C13), inhibiting the use of informative language (C11). In doing so, they inhibit the participation of a male student (E4), a female student (E3), and/or several students who express the same idea at the same time (E5). Before a problem is identified (D1), in $R - 1$, parallel conversations (S2) are likely to have taken place, inhibiting informative language (C11); in $R - 2$, the head teacher (E1) will have participated, with directive language (C13); and in $R - 3$ parallel conversations (S2) will also have taken place. After the identification of a problem (D1), in $R + 1$, parallel conversations (S2) are reiterated, and/or a male student participates (E4); in $R + 2$, again the teacher (E1) participates, with directive language (C13), inhibiting a possible silent pause of

more than 1 s (C412); in $R + 3$, the teacher (E1) is inhibited, who participates again in $R + 4$.

Proposing a solution to a problem (D21) (Table 3) is an action in which informative language (C11) is used, inhibiting directive language (C13), and/or expressive language (C12) is developed by a male student (E4), a female student (E3), and/or several students expressing the same idea at the same time (E5), inhibiting the teacher (E1). Earlier, in $R - 1$, the teacher (E1) will have participated, using informative language (C11), and/or there was a silent pause of less than 1 s (C411), inhibiting parallel conversations (S2) and/or whispering (S1); in $R - 2$, the participation of the teacher (E1) and the use of directive language (C13) will have been inhibited; and in $R - 3$, parallel conversations (S2) will have been inhibited. After someone proposes a solution to a problem (D21), in $R + 1$, the participation of the teacher (E1) will be observed; in $R + 2$, a male student (E4) will participate, inhibiting the use of directive language (C13); in $R + 3$ the teacher (E1) will start speaking again; and in $R + 4$ informative language (C11) will be exhibited, whereas directive language (C13) will be inhibited.

Addressing a problem without proposing solutions (D24) (Table 4) is an action carried out mainly with informative language (C11), inhibiting directive language (C13) by a female student (E3), a male student (E4), and/or several students expressing the same idea at the same time (E5), inhibiting the head teacher (E1). Before this occurs, in $R - 1$, the head teacher (E1) and/or a non-teaching adult or senior student (E7) will have been involved, likely using informative language (C11), inhibiting parallel conversations (S2). In $R - 2$, an idea will have been expressed by several students at the same time (E5), inhibiting the head teacher (E1) and the use of directive language (C13). After a problem has been addressed without proposing a solution (D24), in $R + 1$, the head teacher (E1) and/or a non-teaching adult or senior student (E7) will participate.

Observing, in the lag sequential analysis, the recurring appearance of behaviors such as identifying the problem (D1), addressing a problem by proposing solutions (D21) and/or not proposing them (D24), the polar coordinate analysis was performed, establishing these behaviors as focal behaviors, showing that: Identifying a problem (D1) (Table 5) is mutually activated with the behaviors of proposing a solution to the problem (D21), addressing it without proposing solutions (D24), and showing calmness when addressing the problem (D31), showing resentment when addressing the problem (D32), and with the confused expression of emotions (A12) and/or addressing the problem by suggesting that someone else solve or make the decision (D22). Likewise, identifying a problem (D1) is mutually activated by

TABLE 2 Conditioned behaviors associated with the behavior of identifying a problem (D1).

R - 3	R - 2	R - 1	R0	R + 1	R + 2	R + 3	R + 4
S2	E1	S2	D1	E4	E1	<i>E1</i>	E1
	C13	<i>C11</i>	E1	S2	C13		
			C13		<i>C412</i>		
			<i>C11</i>				
			<i>E3</i>				
			<i>E4</i>				
			<i>E5</i>				

This table shows the categories that, as conditioned behaviors, are associated with the behavior of identifying a problem (D1), which is considered as the criterion behavior, from lag -3 ($R - 3$) to lag 4 ($R + 4$). Conditioned behaviors (categories) in regular text represent an activating relationship, and those in italics represent an inhibiting relationship.

TABLE 3 Conditioned behaviors associated with the behavior of proposing a solution to a problem (D21).

R – 3	R – 2	R – 1	R0	R + 1	R + 2	R + 3	R + 4
S2	<i>E1</i>	E1	D21	E1	E4	E1	C11
	<i>C13</i>	C11	E3		<i>C13</i>		<i>C13</i>
		C411	E4				
		S2	E5				
		<i>S1</i>	C11				
			<i>E1</i>				
			<i>C13</i>				
			<i>C12</i>				

This table shows the categories that, as conditioned behaviors, are associated with the behavior of proposing a solution to a problem (D21), which is considered as a criterion behavior, from lag –3 (R – 3) to lag 4 (R + 4). Conditioned behaviors (categories) in regular text represent an activating relationship, and those in italics represent an inhibiting relationship.

TABLE 4 Conditioned behaviors associated with the behavior of addressing a problem without proposing a solution (D24).

R – 3	R – 2	R – 1	R0	R + 1	R + 2	R + 3	R + 4
	E5	E1	D24	E1			
	<i>E1</i>	E7	E3	E7			
	<i>C13</i>	C11	E4				
		S2	E5				
			C11				
			<i>E1</i>				
			<i>C13</i>				

This table shows the categories that, as conditioned behaviors, are associated with the behavior addressing a problem without proposing solutions (D24), which is considered the criterion behavior, from lag –3 (R – 3) to lag 4 (R + 4). Conditioned behaviors (categories) in regular text represent an activating relationship, and those in italics represent an inhibiting relationship.

TABLE 5 Multiple cases: identifying a problem (D1) as a focal behavior with category selection as conditioned behaviors.

Class	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
1	<i>A11</i> , A21 , A41 , <i>C13</i> , <i>C411</i> , <i>C412</i> , D21 , D24 , D31 , D32 , D33 , D34 , E7	A12, C12	D23, E1 , E4, S2	B11, B21, C11
2	B11, B24 , C11, C411 , <i>C412</i> , D21 , D22 , D23 , D24 , D31 , D33 , D34 , D35 , E2, E3, E4	A21, A31, S1	A41, B12, <i>B13</i> , B14, B23, C12, C13, E1 , E5, S2	
3	A12 , A21 , B12, B13, <i>B23</i> , B24 , <i>C12</i> , C13, D21 , D22 , D24 , D31 , D32 , D33 , D34 , E2, E4, S1, S2	A11, B11, B14	B21 , C11 , E3, E7, E1	A51, C412, D35
4	A12 , A41 , <i>C12</i> , D21 , D23 , D24 , D31 , D32 , D35 , E3, E4, E5, E7	S2	B11 , B21 , C11 , E1 , E2 , E6	C2141, C412, D22
5	A12 , <i>B22</i> , B24 , C13, D21 , D24 , D31 , D32 , S2	B14	A41, B11 , <i>B13</i> , B21 , C11 , E1 , E2, S1	E4, D34
6	A12 , A41 , B13, <i>B22</i> , <i>B23</i> , B24 , C13, D21 , D22 , D23 , D24 , D31 , D32 , D33 , D34 , D35 , E5, S1	A31, S2	C412, B11 , B21 , C11 , E1 , E2	E4
7	<i>A11</i> , A21 , A31, A41 , C411 , C412 , D21 , D22 , D23 , D24 , D31 , D32	B22	B11 , B21 , C11 , E1 , S1, S2	C12, E5, A12
8	A12 , A21 , A31, A41 , A51, B14, <i>B22</i> , D21 , D22 , D23 , D24 , D31 , D35 , E3	D32	B11 , B21 , C11 , E2	E4
9	<i>A11</i> , A12 , A31, <i>B23</i> , B24 , <i>C12</i> , C13, C411 , C412 , D21 , D22 , D24 , D31 , D32 , D33 , D34 , E1, E6, S1, S2		B11 , <i>B13</i> , B21 , C11 , E2 , E4, E5	A21, D23, D35

Categories repeated in the same quadrant more than three times are in italics, and those categories present more than four times in the same quadrant are highlighted in bold.

the use of directive language (C13) and the possibilities of relating other people's behavior to their emotions (A41), regulating the participation of specific individuals (B24), encouraging everyone to agree on a solution to the problem (D23), of approaching the problem with inhibition (D33) and/or aggression (D34). Identifying a problem (D1) is mutually activated by associating personal behaviors with one's own emotions (A21), showing empathy when dealing with a problem

(D35), having silent pauses of less (C411) or more (C412) than 1 s; and also mutually activated by the participation of a female student (E3) or male student (E4), the use of expressive language (C12), the clear expression of emotions (A11), showing awareness of others' affective reactions (A31), limiting participants' expression (B22), encouraging self-regulation in student participation (B23), the presence of whispering (S1), or parallel conversations (S2).

TABLE 6 Multiple cases: proposing a solution to a problem (D21) as a focal behavior with category selection as conditioned behaviors.

Class	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
1	B22, C13, D1, D31, D34, E7	<i>A11, B24, D24, E5</i>	<i>A31, A41, A51, B11, C11, C12, E1, E3</i>	B12, B21
2	B24, C13, D1, D24, D31, D35, E2, S1, S2	A12, A21	<i>A31, A41, B11, B21, C11, C12, E1</i>	
3	A12, A21, B13, B14, B24, C12, C13, D1, D24, D31, D32, D33, E4, S1, S2	<i>A11, A41, D22</i>	B11, B21, C11, E1, E7	<i>C412</i>
4	A12, C412, D1, D31, E5, E7	D24, S2	B11, B24, C11, D22, E1, E2	E3, E6
5	A12, B22, B24, D1, D24, D31, D32, D34, S2	B14	<i>A41, B11, B13, B21, C11, E1, E2, E5</i>	S1, <i>C412</i>
6	A21, A41, A51, B13, B22, B23, B24, C13, D1, D22, D23, D31, D32, D33, D34, D35, E5, S1		<i>A11, B14, C11, C12, E2, E3, S2</i>	
7	A41, B23, C13, C411, C412, D1, D24, D31	A21	<i>B14, B24, C11, C12, E3, E7, S1, S2</i>	A31
8	A12, A21, A31, A41, B14, B22, C13, D1, D22, D31, D35, S1	C12, C411	B11, B23, C11, E2	<i>C2142</i>
9	A21, A31, A41, C13, B12, B23, B24, C411, C412, D1, D23, D24, D31, D32, D33, D34, D35, S1, S2	<i>A11, D22</i>	C11, B11, B21; E2, E4, E5	

Categories repeated in the same quadrant more than three times are in italics, and those present more than four times in the same quadrant are in bold.

Identifying a problem (D1) is mutually inhibited by the participation of the head teacher (E1), the use of informative language (C11), the encouragement of student participation (B21), and also by the behavior of contributing to the topic of discussion (B11), with the involvement of the assistant teacher and the potential for redundancy in the topic of discussion (B13) and/or the observation of parallel conversations (S2).

When a problem is identified (D1), the participation of a male student (E4) is activated, and when a male student (E4) participates, the possibility of identifying a problem (D1) is inhibited.

Proposing solutions to a problem (D21) (Table 6) is mutually activated with identifying a problem (D1) and addressing it calmly (D31), with the use of directive language (C13), and with regulating the participation of specific individuals (B24), of addressing a problem without proposing a solution (D24) and/or of observing whispering (S1). In addition, proposing solutions to a problem (D21) is mutually activated with the confused expression of emotions (A12), the association between emotions and personal behaviors (A21), limiting the participation of others (B22), approaching a problem with resentment (D32), aggression (D34) or empathy (D35), and/or with parallel conversations (S2), and encouraging self-regulation in student participation (B23), approaching a problem with inhibition (D33) and/or a silent pause of more than 1 s (C412).

When a solution to a problem is proposed (D21), the clear expression of emotions is inhibited (A11). When emotions are clearly expressed (A11), the possibility of proposing a solution to a problem is activated (D21).

Proposing solutions to a problem (D21) is mutually inhibited by the use of informative language (C11) and the possibility of contributing to the topic of discussion (B11). Additionally, proposing solutions to a problem (D21) is mutually inhibited by the participation of the head (E1) and assistant (E2) teachers, by the use of expressive language (C12) and encouraging students' participation (B23), and by the participation of a female student (E3) and relating other people's behavior to their emotions (A41).

When a solution to a problem is proposed (D21), a silent pause of more than 1 s (C412) is activated, and when this silent pause (C412)

is present, the possibility of proposing a solution to a problem (D21) is inhibited.

A silent pause of more than 1 s (C412) is present in both quadrants I and IV, which indicates that proposing a solution to a problem (D21) always activates a silent pause of more than 1 s (C412), while a silent pause of more than 1 s (C412) sometimes activates the proposal of a solution to a problem (D21) and sometimes inhibits the proposal (D21) from being presented.

Addressing a problem without proposing solutions (D24) (Table 7) is mutually activated with the behaviors of identifying a problem (D1) and addressing it calmly (D31), with the possibilities of addressing the problem with inhibition (D33) and with the confused expression of emotions (A12), the use of informative language (C11), proposing a solution (D21) and/or proposing that another person decide or resolve to address the problem (D22). Also addressing a problem without proposing a solution (D24) is mutually activated with the possibilities of addressing a problem with resentment (D32) and/or aggression (D34), with the eventual occurrence of a silent pause of less (C411) or more (C412) than 1 s, and with the involvement of a non-teaching adult or senior student (E7), clear expression of emotions (A11), showing awareness of other people's emotional reactions (A31), and/or showing empathy when addressing a problem (D35).

Addressing a problem without proposing solutions (D24) inhibits the possibility of facilitating the participation of others (B21), and encouraging the participation of others (B21) activates the possibility of addressing a problem without proposing solutions (D24).

Addressing a problem without proposing solutions (D24) is mutually inhibited by parallel conversations (S2), whispering, the use of directive language (C13), and/or encouraging students' self-regulation of their participation in the classroom (B23).

4 Discussion

The first intriguing finding about the detection and handling of conflicts in the classrooms examined by the lag sequential analysis is that, in addition to the three categories (D1, D21, and D24) being

TABLE 7 Multiple cases: addressing a problem without proposing a solution (D24) as a focal behavior with category selection as conditioned behaviors.

Class	Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
1	<i>A11</i> , <i>A31</i> , <i>A41</i> , C411 , C412 , D1 , D31 , D32 , D33 , <i>E7</i>	<i>C12</i>	<i>E1</i> , <i>E4</i> , S2	<i>B11</i> , <i>C11</i>
2	<i>A31</i> , <i>B11</i> , <i>B24</i> , C11 , C411 , C412 , D1 , D21 , D22 , <i>D23</i> , D31 , D33 , D34 , <i>D35</i> , <i>E2</i> , <i>E3</i> , <i>E4</i>		<i>A41</i> , <i>B13</i> , <i>B14</i> , <i>B23</i> , <i>C12</i> , <i>C13</i> , <i>E1</i> , <i>E5</i> , S1 , S2	
3	A12 , <i>A21</i> , <i>B13</i> , <i>C12</i> , C412 , D1 , D21 , D22 , D31 , D32 , D33 , D34 , <i>E4</i> , <i>E6</i>	<i>A31</i> , <i>B11</i> , <i>B21</i>	<i>B14</i> , <i>C11</i> , S1	<i>S2</i>
4	A12 , <i>B12</i> , <i>B21</i> , C11 , <i>C12</i> , C411 , D1 , D22 , <i>D23</i> , D31 , D32 , <i>D35</i> , <i>E7</i>	<i>A41</i> , <i>B13</i> , <i>B24</i> , <i>E4</i>	S1	<i>B23</i> , <i>S2</i> , <i>D21</i>
5	A12 , D1 , D21 , D31 , D34		<i>B22</i> , <i>E4</i> , S2	
6	<i>A21</i> , <i>B12</i> , <i>B14</i> , <i>B22</i> , C11 , D1 , D22 , D31 , D33 , <i>E1</i> , <i>E5</i> , <i>S1</i>	<i>B21</i> , <i>D23</i>	<i>B23</i> , <i>B24</i> , <i>E2</i> , S2	
7	<i>A11</i> , <i>A51</i> , <i>B11</i> , C11 , D1 , D21 , D31 , D32 , D33 , <i>D35</i> , <i>S1</i>	<i>B21</i>	<i>B23</i> , <i>C13</i> , S2	
8	A12 , <i>A41</i> , <i>B11</i> , <i>B21</i> , C11 , D1 , D31 , <i>E7</i>		<i>C12</i> , <i>C13</i> , S1	<i>D23</i>
9	<i>A11</i> , A12 , <i>A31</i> , <i>C12</i> , C411 , C412 , D1 , D21 , D22 , D31 , D32 , D33 , D34 , <i>E1</i> , <i>E3</i> , <i>E6</i>	<i>C13</i> , <i>S2</i>	<i>C11</i> , <i>E2</i>	<i>D23</i>

Categories repeated in the same quadrant more than three times are in italics, and those present more than four times in the same quadrant are in bold.

significant, these are also clearly linked to the same actors in the various classes. This suggests that, typically, teachers are the ones who identify the problems (D1), and students are responsible for either proposing a solution (D21) or failing to propose one (D24).

In this context, conducting a lag sequential analysis reveals a notable alternation between the activation of problem identification and the inhibition of behaviors aimed at addressing the problem, whether by proposing a solution or refraining from doing so. Conversely, both behaviors are activated in the preceding or subsequent lag while problem identification is inhibited.

In addition to previous observations, polar coordinate analysis reveals that the clear expression of emotions (A11) activates the possibility of proposing solutions and is inhibited when such a proposal is offered. Moreover, addressing a problem without proposing solutions inhibits the opportunity for others to express themselves, perhaps seeking to continue the current focus and/or to evade a deeper discussion. Facilitating the involvement of others activates the potential to address an issue without proposing solutions, necessitating a reconsideration of the methods or objectives used to encourage student participation.

This calls for an examination of the worldviews that inform conflict resolution strategies and their implications for the evolutionary process (Taves, 2022). It is pertinent to emphasize the importance of proposing effective solutions to conflicts, as this distinction can influence a teaching-learning process that imparts values and rules conducive to the common good versus teaching methods that, by tolerating situations that harm others, perpetuate asymmetries linked to violence (Riquelme-Mella and Montero, 2016).

This scenario suggests that presenting real solutions to a conflict may facilitate the ongoing proposal of solutions as new problems arise, thereby encouraging participation, self-regulation among individuals, and the pursuit of the common good (Rojas et al., 2022). Addressing a problem without proposing solutions could be more closely associated with the need to avoid or downplay the importance of a given conflict, thus modeling that when new difficulties are identified, this behavior continues without the presence of proposed solutions. This would mean that there would be no chance to demonstrate how

to learn and manage emotions in conflict situations (Garaigordóbil, 2014; Marchesi, 2017; Samper, 2014), address any emotional needs that might be connected to the issue, and promote everyone's participation in the current and future classroom process (Encinas, 2018).

In this regard, it should be noted that while the head teacher typically identifies the problem in the lag sequential analysis, the polar coordinate analysis shows that the head teacher's participation and problem identification are mutually inhibiting. This indicates the presence of an interlocutory situation between the behavior of identifying a problem and the participation of the head teacher, in which both possibilities are presented together and, simultaneously, inhibit each other, which could indicate an accelerated exchange of ideas of questions and answers. This would seem to be more closely linked to the need to identify difficulties in controlling possible problematic situations, and not necessarily in reflecting on and dealing with everyday conflicts, which would be greatly necessary to encourage the development of empathy (Levi-Keren et al., 2022), the management of stressful events (Marchesi, 2017), the progressive learning by which everyone becomes responsible for the decisions they make (Volansky, 2023), and the formation of democratic citizens who can agree on certain ideals and principles that allow them to live together (Jónsson and Garces Rodríguez, 2021), respecting and valuing the cultural differences they may have (Eden et al., 2024).

In this context, the behavioral sequence indicates that when parallel conversations emerge that obstruct the use of informative language, the teacher employing directive language recognizes a problem, consequently inhibiting student engagement. Subsequently, when parallel discussions re-emerge, they are inhibited as the teacher resumes speaking, employing informative language. This may prompt a student to propose a solution using informative language, thereby inhibiting the teacher's involvement, after which the conversational thread and the alternation between teacher and students begin again. However, it is also observed that in an attempt to inhibit parallel conversations that have arisen previously, the teacher intervenes. Then, the students respond by addressing the problem without proposing solutions, with informative language and inhibiting both

the teacher's participation and the use of directive language, which would subsequently imply the teacher's new participation, not making it clear that the thread of the conversation between teacher and students can be resumed.

The primary role of the head teacher in managing conflict resolution processes is significant, as both the assistant teacher and the students assume lesser roles in the classroom. This results in fewer opportunities for autonomous participation, leading to dynamics where student contributions often divert the topic of discussion. Consequently, the teacher attempts to reassert control over the process, seemingly believing that students would struggle to meet the class objectives by themselves. This is expected to impede the development of skills enabling individuals to confront conflict situations and exhibit more socially appropriate behaviors, which [Samper \(2014\)](#) identifies as essential for successful emotional self-regulation. This would make it possible to manage stressors and psychosocial risks effectively, practice and cultivate various methods of emotional self-regulation and negotiation with others and develop metacognitive skills by observing themselves during the emotional regulation process ([Tsarkos, 2025](#)).

5 Conclusion

This study has observed that the identification of conflicts in daily classroom life is usually carried out by teachers, with students sometimes responding to the identification of the problem by proposing solutions, and other times by not proposing solutions, thus contributing to the failure to address the conflicts.

Proposing solutions to a problem would be an action facilitated by the clear expression of emotions, while not proposing solutions would be more closely associated with group or mass participation, seemingly disorganized and poorly guided, by students, which would be linked to some individuals' inhibition of participation. This reflects poorly regulated classroom interactions that do not contribute to addressing conflicts, missing the opportunity to generate spaces for emotional education among students and, consequently, the achievement of emotional self-regulation.

In this sense, along with drawing attention to how a problem is addressed without proposing solutions, it would seem of interest to observe in greater detail the use and effects of directive language, observing that it does little to contribute to effectively addressing conflicts as an opportunity to advance the development of emotional awareness ([Alarcón-Espinoza et al., 2025](#)), which, as [Zelazo et al. \(2024\)](#) point out, can allow children to interrupt the emotional program underway, become more flexible, and adapt to a new situation where they can choose a more appropriate emotional response.

This underscores the need for teachers and schools (principals and policymakers) to create enabling environments for emotional education training, and therefore for the comprehensive development of students, and for the development of culturally sensitive teaching ([Guberina, 2023](#)). Preparing current and future teachers to guide students through the emotional education process is a complex task that necessarily involves training teachers in emotional education and helping them recover from the emotional burnout ([Juárez and Becton, 2024](#)), which they face daily in the classroom.

In future research, in addition to overcoming the aforementioned limitations, it is considered relevant to investigate conflict management and emotional self-regulation in different ages, cultures, and developmental contexts, such as the family or other educational settings.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by Comisión de Bioética, Universidad de Barcelona. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin. Written informed consent was obtained from the individual(s), and minor(s)' legal guardian/next of kin, for the publication of any potentially identifiable images or data included in this article.

Author contributions

MA-E: Conceptualization, Formal analysis, Investigation, Writing – original draft, Writing – review & editing. PS: Conceptualization, Writing – original draft, Writing – review & editing. MA: Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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