

Publication status: Not informed by the submitting author

EMOTION REGULATION IN THE WORKPLACE: A QUALITATIVE STUDY WITH TEACHERS

Franciane Andrade de Moraes, Sônia Maria Guedes Gondim, Emanuel Missias Silva Palma

<https://doi.org/10.1590/SciELOPreprints.4672>

Submitted on: 2022-08-28

Posted on: 2022-08-31 (version 1)

(YYYY-MM-DD)

REGULAÇÃO EMOCIONAL NO LOCAL DE TRABALHO: UM ESTUDO QUALITATIVO COM PROFESSORES

FRANCIANE ANDRADE DE MORAIS

Escola Bahiana de Medicina e Saúde Pública

ORCID: <https://orcid.org/0000-0003-0389-3345>

SÔNIA MARIA GUEDES GONDIM

Universidade Federal da Bahia

ORCID: <https://orcid.org/0000-0003-3482-166X>

EMANUEL MISSIAS SILVA PALMA

Escola Bahiana de Medicina e Saúde Pública

ORCID: <https://orcid.org/0000-0002-7376-6483>

RESUMO: Este estudo teve como objetivo caracterizar o trabalho emocional do professor da educação profissional e tecnológica, ao examinar as emoções e as estratégias de regulação emocional adotadas pelos professores. Foram realizados oito grupos focais, com a participação de quarenta e um professores para coletar os dados. Para a análise de dados, adotou-se o método indutivo e dedutivo de categorização. Os resultados mostraram que são ativadas diferentes emoções frente às demandas emocionais específicas e que os professores usam uma variedade de estratégias, de forma isolada ou encadeada, para regulá-las. No entanto, as estratégias de modificação cognitiva e modificação da situação do modelo processual de regulação emocional foram mais frequentemente relatadas. Os resultados sugerem diferenças nas preferências regulatórias dos professores, baseadas no período da carreira e na área de formação/atuação. Pesquisas futuras poderiam utilizar métodos variados (e.g., observação, diário) para investigar o processo dinâmico e contextual da regulação e seus desfechos, além de propor uma escala contextual de regulação emocional docente. As descobertas têm implicações para programas de formação docente, gestão educacional e pesquisas futuras.

Palavras-chave: Trabalho Emocional. Regulação Emocional. Professor.

EMOTION REGULATION IN THE WORKPLACE: A QUALITATIVE STUDY WITH TEACHERS

Abstract: This study aimed to characterize the emotional labor of the professional and technological education teacher by examining the emotions and the emotion regulation strategies adopted by teachers. Eight focus groups were held, with the participation of forty-one teachers in total, to collect the data. For the data analysis, we adopted the inductive and deductive categorization methods. The results showed that different emotions are activated in the face of specific emotional demands and that teachers use a variety of strategies, either in isolation or in chains, to regulate them. However, cognitive change strategies and situation modification of the procedural model of emotional regulation were more frequently reported. The results suggest differences in the regulatory preferences of the teachers based on the career period and the training /performance area. Future research could use varied methods (e.g., observation diary) to investigate regulation's dynamic and contextual process and its outcomes and propose a contextual scale of teacher emotional regulation. The findings have implications for teacher training programs, educational management, and future research.

Key-words: Emotional Labor. Emotion Regulation. Teacher.

REGULACIÓN EMOCIONAL EN EL LUGAR DE TRABAJO: UN ESTUDIO CUALITATIVO CON DOCENTES

Resumen: Este estudio tuvo como objetivo caracterizar el trabajo emocional del profesor de educación profesional y tecnológica, examinando las emociones y las estrategias de regulación emocional adoptadas por los profesores. Se realizaron ocho grupos focales, con la participación de cuarenta y un docentes en total, para recolectar datos. Para el análisis de los datos, se adoptó el método inductivo y deductivo de categorización. Los resultados mostraron que diferentes emociones se activan ante demandas emocionales específicas y que los docentes utilizan una variedad de estrategias, aisladas o encadenadas, para regularlas. Sin embargo, las estrategias de modificación cognitiva y modificación de situaciones del modelo procedimental de regulación emocional fueron reportadas con mayor frecuencia. Los resultados sugieren diferencias en las preferencias normativas de los docentes, con base en el período de carrera y área de formación/actividad. Futuras investigaciones podrían utilizar diferentes métodos (por ejemplo, observación, diario) para investigar el proceso dinámico y contextual de regulación y sus resultados, además de proponer una escala contextual de regulación emocional docente. Los hallazgos tienen implicaciones para los programas de formación docente, la gestión educativa y la investigación futura.

Palabras clave: Trabajo Emocional. Regulación Emocional. Profesor.

INTRODUCTION

The emotion regulation field has grown exponentially in terms of theoretical and empirical work over the last 20 years (GROSS, 2015). However, only recently has it sparked interest in educational research (TAXER; GROSS, 2018; YIN, 2016). Literature reviews on teachers' emotions (e.g., FRIED; MANSFIELD; DOBOZY, 2015; UITTO; JOKIKOKKO; ESTOLA, 2015) highlight the growing concern over emotion regulation as one of the main topics of investigation, taking into account the high levels of burnout and harm to teachers' well-being resulting, in part, from processes associated with emotion dysregulation and emotional demands (e.g., CHANG, 2013; YIN et al., 2016). Nevertheless, studies have also pointed out that emotion regulation seems to enhance professional performance (e.g., TAXER; FRENZEL, 2015), teachers' mental health, and teacher-student interactions (e.g., CHANG; DAVIS, 2009; TAXER; FRENZEL, 2015; YIN, 2015).

In this sense, Bahia, Freire, Amaral, and Estrela (2013) and Taxer and Frenzel (2015) claim that teachers' emotional lives encompass a great variety of genuinely expressed or regulated emotions. However, studies have focused mainly on a few self-regulation strategies, especially cognitive reappraisal and suppression (TAXER; GROSS, 2018). Furthermore, these investigations are generally decontextualized and cannot capture regulation as it occurs in the classroom (e.g., CHANG, 2013; UITTO *et al.*, 2015), which might lead to superficial and hasty conclusions (GROSS, 2014). In this regard, it is noteworthy to investigate how the context can influence teachers' emotional experiences and their selection of regulatory strategies because most studies focus on an intrapersonal perspective, thus neglecting interpersonal and situational aspects (ENGLISH; LEE; JOHN; GROSS, 2017; FRIED *et al.*, 2015; UITTO *et al.*, 2015).

Gross (2015) suggests that research on emotional regulation in specific work contexts can yield important information about the process, the contextual application, and the immediate outcomes (e.g., emotional outcomes) of particular types of regulation. Moreover, this author holds that a promising line of investigation is to identify how each strategy translates into specific tactics and how different strategies combine, producing a chain, thus departing with traditional models that consider strategies in a decontextualized, isolated, and linear way. In practical terms, such an approach can more effectively assist teacher education programs and interventions to broaden the teacher's emotional repertoire. Theoretical and conceptual issues, empirical evidence, and recent questions that underlie and justify this study are presented in the following sections.

Emotion regulation: Theoretical and conceptual issues

Emotional labor can be understood as a form of emotion regulation in response to emotional demands to achieve work outcomes (GRANDEY, 2000; MALLORY; RUPP, 2016). In her integrative model of emotional labor, Grandey (2000) claimed that events and emotion rules from the work environment activate and guide workers' emotional regulation, influencing the selection and the implementation of strategies. Emotion regulation is a process that involves the modulation of different dimensions of the emotional episode, such as its context of occurrence, intensity, valence, frequency, and expression. It encompasses physiological, behavioral, and cognitive processes (ALDAO, 2013; GROSS, 2015) and can start automatically or deliberately when emotions are perceived as dysfunctional in a given situation (GROSS, 2015).

Different theoretical models have been proposed to account for emotion regulation. The Process Model of Emotion Regulation (GROSS, 1998; GROSS; THOMPSON, 2007) has been considered the most suitable to an educational context (BURIĆ; SORIĆ; PENEZIĆ, 2016). For analytical purposes, this model encompasses five families of emotion regulation strategies that progress from the activation to the manifestation of the emotion (GROSS, 2015), namely: a) *situation selection* refers to actions that approach or avoid emotion eliciting stimuli; b) *situation modification* refers to actions that alter features of the external situation, thus changing its emotional impact; c) *attentional deployment* refers to attempts to pay attention to inner or outer events to modify the emotion; d) *cognitive change* refers to reinterpretations of inner or outer situations, thus altering their emotional impact and e) *response modulation* refers to the direct manipulation of physiological, experiential, and behavioral components after total emotional activation.

Recent studies in emotion regulation have underscored that strategies have different outcomes depending on the context (ALDAO; SHEPPES; GROSS, 2015; Gross, 2015). As such, the strategy's efficacy and adequacy should not be assessed *a priori* because its adaptive nature (i.e., costs and benefits) must be considered in light of contextual factors (e.g., ALDAO; SHEPPES; GROSS, 2015; GROSS, 2015). Furthermore, each regulatory effort might lead to changes in the regulator, the situation, and the interaction partners. Such changes might generate new emotion regulation demands and require additional strategies in a random and alternative way until there is no need for further regulation, thus creating a feedback loop (GROSS, 2015; TAXER; GROSS, 2018). These issues represent recent advancements in emotion regulation research, as pointed out by Taxer and Gross (2018). However, such a model has not been consistently explored, especially in work contexts where there has been a trend towards mainly examining two major strategies, i.e., cognitive reappraisal and suppression (MALLORY; RUPP, 2016).

Teachers' emotion regulation: empirical evidence and recent issues

Little attention has been paid to teachers' emotions despite their considerable relevance to teaching and student learning (AKBARI *et al.*, 2016; BURIĆ *et al.*, 2016; TAXER; GROSS, 2018).

Studies on teachers' emotional experiences, especially in Brazil, have been carried out using the theoretical framework of stress and coping, focusing mainly on teachers' stress responses and stressful events (BURIĆ *et al.*, 2016; LIPP, 2016). Emotion regulation, in turn, encompasses a variety of negative and positive emotions evoked under teachers' normative work circumstances, which might broaden investigative possibilities on the topic.

In a qualitative study with professional and technological education, for instance, contextual emotional demands in the classroom were identified and grouped into three categories: affective interaction events (e.g., conflict with students and inappropriate behavior), technical-pedagogical (e.g., learning difficulties and student demotivation), and intrapersonal (e.g., frustration and emotional dissonance). These elements seem to evoke various negative emotions in teachers, thus requiring adequate regulation to minimize their harmful impact on teachers' performance and well-being (Morais, Gondim, & Palma, *in press*).

Evidence suggests that various emotion regulation strategies are used in the classroom (e.g., AKBARI *et al.*, 2017; TAXER; GROSS, 2018). For instance, some teachers might adopt strategies to prevent attending to student misbehavior, whereas others might use reactive strategies such as leaving the classroom until they achieve emotional balance (AKBARI *et al.*, 2017; SUTTON, 2004). In another study by Taxer and Gross (2018), teachers reported mainly using response modulation (e.g., suppression) strategies. In an opposite vein, Sutton (2004) and Burić *et al.* (2016) found that teachers prefer using cognitive change (e.g., reappraisal) strategies. However, Akbari *et al.* (2017) found that teachers were more likely to use situation selection and modification strategies. Taken together, these findings reveal divergent conclusions regarding the use of emotion regulation strategies by teachers. These discrepancies might be accounted for, in part, by contextual factors that were not adequately explored in previous research (FRIED *et al.*, 2015).

Other issues have been raised regarding research on teachers' emotions. For instance, in terms of emotion regulation strategies and their consequences, studies have shown a tendency to focus on specific tactics used by teachers. For example, a study by Yin *et al.* (2016) revealed that, under emotionally exhaustive circumstances, teachers were more likely to suppress than to reappraise their emotions. Similarly, Burić *et al.*, (2016) found that reappraisal is usually more beneficial and that suppression is associated with exhaustion. As can be observed, studies tend to group teachers' emotion regulation strategies into adaptive and maladaptive categories, neglecting, to some extent, their primary functions and the influence of personal and situational factors.

The literature review has revealed that researchers have mainly concentrated on how emotions are regulated in terms of teachers' emotion regulation, thus neglecting what emotions are regulated and why regulation occurs. Therefore, far too little is known about what specific emotions are activated in the classroom in different situations. Furthermore, most research has focused primarily on intrapersonal dimensions, not considering interpersonal and contextual

factors associated with teachers' emotion regulation. The consequences of emotion regulation and the chaining of strategies have not been adequately addressed by the literature either. According to Field et al. (2015), more research still needs to deal with the dynamics and contextual nature of emotion regulation in an educational context. These are some of the issues that motivated the present study. In this regard, the research question is: how do teachers in vocational and technological education regulate their emotions in the face of the diverse emotional demands of the classroom? This study aimed to characterize the emotional work of the vocational and technological education teachers by examining the emotions and the emotional regulation strategies they adopt in the face of the emotional demands of the classroom.

The present investigation focused on vocational and technological education due to the complexity of this context. It is a hybrid model of education, encompassing different levels and modalities of education, ranging from basic education to higher education (baccalaureate and graduate programs), in addition to professional and continuing education courses, involving research, extension, and activities related to technological development (PACHECO; MORIGI, 2012). It is assumed that such characteristics imply a broad and diversified audience with increasing emotional demands on the teacher (MORAIS; GONDIM; PALMA, 2020). The recent implementation of this model and the scarcity of research on psychosocial issues in this context were also considered.

METHOD

Study Design and Data Collection Procedures

This is an exploratory study with a case study design because it occurs in a specific context, a Federal Institute (IF), located in a northeastern state in Brazil. Data collection was performed using the focus group technique to explore teachers' emotions and how teachers deal with emotional demands. Eight focus groups were performed with an average duration of one hour each. First, we conducted four focus groups (A, B, C, and D) and then the other four (E, F, G, and H). We adopted this procedure to cover the diversity of training areas/occupations (basic and technical subjects) and career paths at the IF (beginners - up to five years of experience at the IF, and non-beginners - more than five years of experience at IF). This procedure allowed us to explore the effects of these variables on strategy selection, encompassing a greater diversity of situations experienced and to detail strategies (see Figure 1). This criterion was adopted considering three stages: a) the beginning of the teaching career in Brazil (1 - 5 years), marked by introductory formative experiences and difficulties in adaptation, b) stabilization phase (5 - 8 years), and c) the career maturity phase (FERREIRA, 2014).

The focus groups were conducted in four phases (Figure 1): I) presentation of the research focus and signing of the Informed Consent Form; II) presentation of the demands of emotional work identified and organized into three categories: a) interactional demands arising from relationships with students, colleagues, and managers; b) technical-pedagogical, related to

the teaching practice itself and; c) intrapersonal, as a result of internal conflicts, dissonances, etc. (MORAIS; GONDIM; PALMA, 2020); III) presentation of the guiding questions involving which emotions are activated by specific emotional demands and how teachers deal with these emotional demands, and IV) moment of group discussion in search of consensus, disagreement, and deepening of the topic. Each emotional demand (e.g., interactional, technical-pedagogical, and intrapersonal) was discussed individually, and the guiding questions were presented sequentially.

Participants

Teachers were allocated to groups based on two criteria to maximize sample characteristics and compare results (Figure 1): areas of training/occupations at IF and career levels. The total sample consisted of 41 vocational and technological education teachers invited to participate in the study by IF course coordinators. Most were male ($n = 25$). Detailed information about this sample is shown in Figure 1.

It is worth highlighting the training characteristics of the participants. In the Basic Group, most teachers had a master's degree ($n = 8$), followed by two PhDs and one specialist. The others had a background in social science ($n = 3$), pedagogy ($n = 2$), philosophy ($n = 2$), mathematics ($n = 2$), geography ($n = 2$), arts ($n = 1$), chemistry ($n = 1$), history ($n = 1$) and physical education ($n = 1$). Among the teachers in the Technical Group, most had a Ph.D. ($n = 9$), seven had a master's degree, and two were specialists. Their areas of study were engineering ($n = 10$), followed by computer science ($n = 7$), gastronomy ($n = 2$) and agribusiness ($n = 1$). The Ethics Committee at the Institute of Psychology of the Federal University of Bahia approved this research project (CAA 92122318.1.0000.5686).

Focus Group	Basic Area Beginners	Basic Area Non-beginners	Technical Area Beginners	Technical Area Non-beginners			
A	4 Teachers Sex F=2 M=2 Career at IF = 2,3 years Mean Age 39,5	B	4 Teachers Sex F=3 M=1 Career at IF = 7,8 years Mean Age 40,5	C	3 Teachers Sex F=2 M=1 Career at IF = 2,3 years Mean Age 43	D	6 Teachers Sex F=2 M=4 Career at IF = 10,3 years Mean Age 41,8
E	7 Teachers Sex F=2 M=5 Career at IF = 2,3 years Mean Age 36,7	F	6 Teachers Sex F=1 M=5 Career at IF = 6,8 years Mean Age 42,5	G	4 Teachers Sex F=2 M=2 Career at IF = 1,3 years Mean Age 27,3	H	7 Teachers Sex F=1 M=6 Career at IF = 8,1 years Mean Age 41,1

Figure 1. Data collection procedures and participants

Note: Prepared by the author

Data Analysis Procedure

The focus groups were recorded and transcribed, generating a corpus of 103 pages. To categorize emotions, we used deductive analysis using the list of primary and secondary emotions proposed by Parrot (2001). Bardin's (2011) thematic content analysis was initially adopted to investigate the strategies, using the support of the emotional regulation models available in the literature to assist in elaborating an open coding system of the strategies grouping them into previous and broad categories. After defining the system, an inductive analysis supported by the Atlas.ti software was employed to help identify context-specific strategies and tactics not covered in the literature and help group, quantify, and analyze the data. Thus, the procedure of systematic comparison between coded items was performed until data saturation, exhausting the emergence of new (sub) categories or the need for further reorganization of data. This method revealed a wide variety of strategies and tactics used by classroom teachers, supported by a theoretical model of emotional regulation in the literature (see Figure 2).

To ensure the reliability of data analysis, the encodings were compared and examined repeatedly until the information was reliable and unchanged. Then, content validity was used. Finally, another researcher, a Ph.D. in emotional regulation, analyzed the corpus validating the codes and categorization until a consensus was reached. This process resulted in 97.2% consistency among the researchers.

RESULTS

Twenty-four emotional regulation strategies were identified, broken down into tactics (concrete and more specific actions that help operationalize the strategy), adopted by teachers in the face of the emotional demands of the classroom, how often emotions and strategies emerged as shown in Table 1. In the discussion section, these dimensions are explored, related, and discussed, providing a contextual framework for teacher emotional regulation.

Participants reported numerous emotions triggered by the investigated emotional demands (Table 1). Although they also cited positive emotions, the focus of the study was on negative ones. The most mentioned and important ones were anger, frustration, helplessness, and sadness. Interactional demands such as inappropriate behavior, perceived lack of support, and over-bureaucracy primarily trigger emotions such as anger, frustration, fear, and anger. On the other hand, technical-pedagogical demands such as demotivation, learning disability, classroom management, diversity, and academic indiscipline seem to trigger more frustration, worry, compassion, impotence, and anguish, especially for the first two demands. In short, interactional demands seem to trigger the most intense and difficult negative emotions to regulate.

Table 1. Emotion and activated emotion regulation strategy in the face of emotional demand

Emotion and emotion regulation strategies		Emotional demands							
		Interactional (N=154)			Technical-pedagogical (N=109)				
		Inappropriate Behavior	Strained relations hip	Lack of support and over-bureaucracy	Diversity	Learning disability	Demotivation	Academic indiscipline	Classroom management
Emotion	Surprise	5 (7%)	—	1(2%)	1(7%)	1(3%)	—	—	—
	Anger	30(45%)	2(29%)	23(39%)	3(13%)	—	3(12%)	1(16%)	2(20%)
	Sadness	23(34%)	4(57%)	30(51%)	10(73%)	28(93%)	20(87%)	4(67%)	6(60%)
	Fear	9(13%)	1(14%)	5(8%)	1(7%)	1(3%)	3(12%)	1(16%)	2(20%)
Emotional regulation strategy	Situation selection	9(6%)	3(6%)	16(21%)	10(18%)	14(19%)	7(11%)	3(38%)	12(16%)
	Situation modification	52(32%)	17(33%)	9(12%)	12(22%)	18(25%)	21(32%)	2(25%)	26(35%)
	Attention deployment	18(11%)	3(6%)	12(16%)	10(18%)	11(15%)	17(26%)	—	8(11%)
	Cognitive modification	44(27%)	25(48%)	14(18%)	17(31%)	22(30%)	14(22%)	3(38%)	19(25%)
	Response modulation	24(15%)	3(6%)	26(34%)	5(6%)	8(11%)	6(9%)	—	9(12%)
	Genuine expression	18(11%)	1(2%)	—	1(5%)	—	—	—	1(1%)

Table 1. Emotions and activated emotion regulation strategies in the face of emotional demand¹

The deductive and inductive analysis of the data allowed us to arrive at the categorical system of teacher emotional regulation illustrated in Figure 2. It is observed that the identified emotional regulation strategies adequately adhered to the five strategy families of the Process Model of Emotion Regulation. Table 2 presents the definition of the strategies, their breaking down into tactics, the (general) frequency of families and strategies, and the examples that characterize them. Breaking down the strategies into tactics and their detailed description helped characterize the emotional regulation in the context investigated and to highlight its specificities. Furthermore, it allowed groups comparison. We considered that a more general analysis would make such findings difficult to reveal.

¹ Detailing of reported emotions according to Parrot's model (2001):

Primary emotion love: affection (N=4)

Primary emotion joy: secondary emotions joy (N=4), contentment (5) and optimism (4)

Primary emotion anger: secondary emotions anger (N=48), anger (7)

Primary emotion sadness: secondary emotions sadness (N=16), frustration (N=59), helplessness (N=19), worry (N=10), Compassion (N=7) and Guilt (N=6)

Primary emotion fear: secondary emotions fear (N=9) and distress (10)

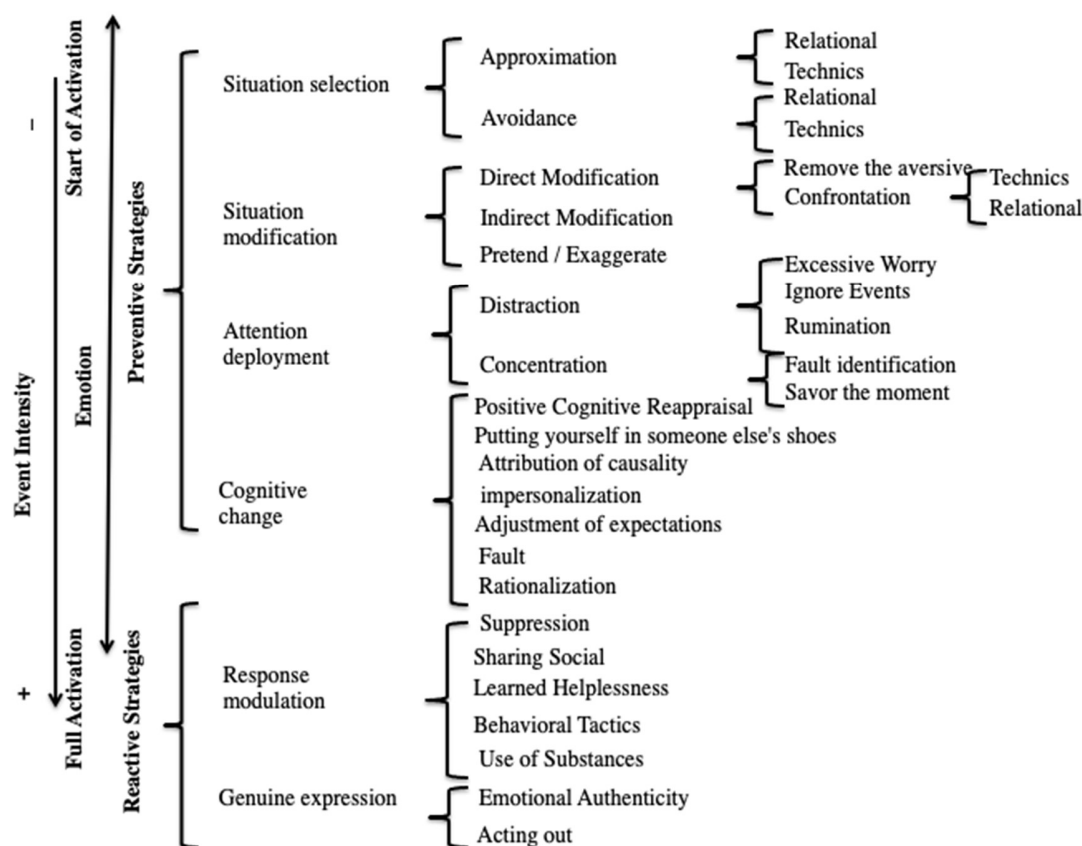


Figure 2. Categorical system of teachers' emotional regulation strategies²

Regarding frequency and definition, the family of cognitive change strategies ($n = 135/30\%$) was the most cited and referred to attempts to reassess the situation or teachers' ability to deal with it to change the emotional impact it may have caused. Situation modification ($n = 117/26\%$) was the second most mentioned family of strategies and referred to attempts to modify directly or indirectly (for instance, by requesting someone else's help or intervention) a situation to alter its emotional impact or to intentionally display emotions (for instance, by pretending/exaggerating) to influence students and other social actors. Response modulation ($n = 69/15\%$) was the third most frequent family and involved attempts to influence the emotional response's experiential, behavioral, and physiological components. Attention deployment ($n = 63/14\%$) was the fourth and occurred by redirecting attention by distracting or concentrating on something to alter emotional responses. Finally, situation selection ($N = 53/12\%$) involved approaching or avoiding certain circumstances (e.g., methodologies, activities, classes, students,

² Note: Emotional authenticity does not occur in genuine expression, so it is not configured as a strategy, but appears in the Figure because its regulation is a form of emotional display relevant to the teacher

colleagues, etc.) based on the prediction of emotions that may be activated. More specifically, among the preventive strategies, direct modification ($n = 89$) – situation modification - was the most cited, followed by positive cognitive reappraisal ($n = 40$), external causal attribution ($n = 28$), putting oneself in someone else's place ($n = 27$) and cognitive modification. Suppression ($n = 25$) was strongly emphasized among the reactive strategies, followed by social sharing ($n = 21$) – response modulation. Although genuine expression ($n = 19/4\%$) is not considered a self-regulating strategy because experience and emotional expression are not regulated, it emerged in focus groups as one of the ways of coping with demands and so is discussed in this study.

Teachers reported using more than one emotion regulation strategy to deal with each of the emotional demands they were presented with. In general, cognitive change was the most used one in conjunction with other strategies. It was used with situation selection ($n = 16$), situation modification ($n = 32$), attention deployment ($n = 10$) and response modulation ($n = 14$). The most cited chainings (chains/threads) or sequences were: a) situation selection with cognitive modification and b) situation modification with cognitive change.

Table 2. Result of the quantitative-qualitative analysis: frequency of families and strategies, definitions of strategies, unfolding in tactics and examples of citations of emotion regulation strategies

Emotion Regulation Strategies	N (%)	Definition of strategies	Tactics	Example
Situation selection 53(12%)	Approximation/Adaptation: Relational(1) and technical(2)	30(56%) Approaching circumstances that promote a pleasant emotional response (Gross, 1998;2002)	(1)Students, colleagues, groups that have empathy, strengthening ties (2)Plan classes: methodologies/resources/themes/activities (events, research, extension, orientation, etc.), preventing(1)	When I see the student with a lot of difficulty, but with a commitment to overcoming, it brings me to positive emotions, coming together and trying to help (B4) I try to set up a class style, use methodologies and didactics that are more appropriate to the class profile [...] I use games, videos [...] they love it (C1)
	Avoidance: Relational(1) and Technique(2)	23(44%) Withdrawing from circumstances that promote unwanted emotion (Gross, 1998; 2015)	(1) Avoid students, colleagues, classes, etc. (2)Plan classes or avoid themes/methodologies/activities (events, research, extension, orientation, etc.)	I can no longer work with PROEJA students, first because of frustration and also because of commitment (C3) [...] There are students who don't make an effort [...] if they don't appreciate it, neither do we (B3) To stop feeling this stress, we avoid activities (H3)
Situation modification 117(26%)	Direct modification: Remove the aversive(1); Relational(2) and technical(3) coping	89(76%) Implement practical actions to modify the ongoing situation and emotion (Nelis et al, 2011)	(1) Removing students from the room, strategic breaks when predicting difficult times (2)Open spaces for dialogue/reflection to adjust the student, redirect the discipline; individual service, etc. (3)Adjust the class (methodologies/resources/didactic materials/themes) to make the class attractive or palatable.	Last Saturday I removed three students from the classroom (due to cell phone use). I used this strategy first because I was already irritated and had already been oriented about it (A2) The unmotivated class is terrible [...] for both the student and the teacher. What do you have to do? Look for activities that change (D1) When I see that the class is not responding [...] I try to do [...] a practical activity (D4) We do it like this... be welcoming, know how to listen, try to [...] stop one day and do, like washing the dirty clothes (B1) Many times I have to stop the class to ask for respect [...] I get indignant, so I stop the class and ask: if they laughed at your hair, your mouth, your eyes, would you feel good? When I do this, it works (A2)
	Indirect modification	14(12%) Requires third-person intervention to modify the ongoing situation and emotion (Nelis, 2011)	Request help from the pedagogical team, superior, colleagues, other students in the current situation (external intervention)	If the student continues to interfere with my class and the situation becomes uncomfortable, I simply refer him to the responsible sector or I call someone to come and solve it (G2) When I saw the situation I thought: It's better to calm down [...] I looked for other people to take the measures (D5)
	Fake/exaggerate emotion	14(12%) Faking/intensifying an emotion, intentionally, to change the ongoing situation (Gross, 1998)	Display emotion to model student behavior (motivate or punish)	There is a student who says she doesn't know everything, sometimes she puts her head down in the classroom and sleeps [...] and you try to put on a show to see if the class is pleasant for her and sometimes it works, at other times you comes out worse (D6)
Attention deployment 63(14%)	Distraction: Excessive worry(1); Rumination(2)	25(40%) Avoid the ongoing situation by positioning attention to (Gross, 1998): (1) Future threats (Nelis et al., 2011) (2) Negative feelings and consequences (Nelis et al., 2011) (3) Simply divert attention	Worrying excessively about situations because you don't feel prepared; to be under control of the conduct taken in a room assessed as inappropriate; ignore minor student infractions;	He manages to continue the class, but he is afraid, he is shaken, with that thing... he asks himself: Am I giving a good class? Because of the boy's reaction [...] And it doesn't go away with two/three days, it drags on (D1) If I'm in the classroom and I hear something inappropriate, I pretend I'm not listening. [...] If you're going to take everything seriously [...] it's going to be a great wear and tear (G2)
	Concentration: Fault identification(1); Savor the moment(2)	38(60%) (1)Focus attention on what could have been better / negative elements of the situation (Nelis et al, 2011) (2) Deliberately directing eyes/awareness/attention to present pleasurable experiences (Nelis et al, 2011)	Focus on unmotivated and agitated students, learning difficulties, lack of resources and inappropriate conduct. Focus on motivated, dedicated students, progress and positive feedback	One student called the other: Ah, you faggot!. Oh, I complained [...]. The student sat down and was very upset. Then I was thinking: Did I do it right with the question? Should I have hit on the question more? [...] So my hands were tied, I felt frustrated, because then they left (A4) When I take these attitudes I am happy, when I see that the student is integrating, when I see that he is growing, that this is leading him to understand the subject. This is gratifying (B3)

Emotion Regulation Strategies	N (%)	Definition of strategies	Tactics	Example
Positive Cognitive Reappraisal	40(30%)	Cognitively transform the external situation by giving positive meanings to events, changing their emotional impact (Gross, 2015)	Perceiving progress and development potential of students, thinking that difficult situations promote development and expands repertoire, and the importance of the profession, etc.	Classroom is a space of conflict [...] it is the moment of debate, discussion and these discussions I see as healthy (F6) He entered the room and apologized to me [...] I thought I had taken an appropriate attitude in the room [...] it showed that everyone approved of my attitude (C3)
Attribution of external causality	28(21%)	Having thoughts that "justify" the situation, lessening its impact (Jermann et al, 2006)	Attributes to external factors (weakness of education, socioeconomic and family environment, etc) and student attributes (age, personality, etc.)	I realize that when the student shows violence, aggression, he has a problem that can be family, personal (H5) They are family issues that hurt the emotional in such a way that it reflects on learning (A3) This thing that is typical of youth, this place of claiming a space (E5)
Cognitive modification 135(30%)	Putting yourself in someone else's shoes	27(20%) Having thoughts that relativize the situation, reducing its impact (Jermann et al, 2006)	Putting yourself in the place of the student/colleagues/supervisor, reinterpreting their behaviors and difficulties, reflecting on the student's own experiences, empathy	You have to try to understand the other side. You begin to see different realities and begin to understand the reason for the rebellion. I started trying to understand what is happening and it no longer affected me (F3) I do this exercise: If I were in his place, what kind of behavior would I have? [...] I think that makes it easier (F5)
	Impersonalization	12(9%) Distinguish personal versus professional criticism and emotions by being impersonal	Understand that the rejection and difficulty of students is due to the school and discipline, not to the figure of the teacher	Problem students [...] disrupt, cause trauma and emotional problems! I can deal with it by professionalizing myself, being strictly professional: I am the teacher and you are the student (H6)
	Adjustment of expectations	12(9%) Adjust or modify goals, responsibilities and assignments (Jermann et al, 2006)	Limit the scope of action, establish new ways of evaluating the student and professional performance	I believe it's part of the education they receive at home, so I believe it's not something they can change quickly [...] we have to set our limits (D2)
	Self-blame	10(7%) Reassess the situation in order to take responsibility (Jermann et al, 2006)	Negatively reviewing events and performance by taking the blame	Make an appointment and he doesn't show up [...] then you'll find him lost [...] he puts on another negative feeling that is the feeling of guilt, he couldn't do the service he planned (B1)
	Rationalization	6(4%) Analyze the situation consciously, by facts and logic, to reduce its impact (Gross, 1998)	Attempting to mask negative events by perceiving them as natural, commonplace, or from a theoretical perspective	Coping is even part of the micropolitics of the classroom (E6)
	Suppression	25(36%) Inhibit the expression of ongoing emotion (Gross, 1998)	To be silent, to withdraw for a moment, to mask*, expressive neutrality	I felt anger and frustration [...] I shut up, calmed down and left the room [...] not to respond to the student [...] I came back as if nothing had happened (D5)
	Social Sharing	21(30%) Sharing experiences and emotion seeking support/guidance/celebration (Gross, 1998; Nelis et al, 2011)	Exchange experiences and emotions with colleagues, superiors, friends, family, etc.	Conversation among themselves, among colleagues: You are not the only one who suffers from this. Improves when externalizing (H3)
Response modulation 69(15%)	Learned helplessness (resignation)	10(14%) Behaving passively, through acceptance, accompanied by a feeling of helplessness (Nelis, et al, 2011)	Adopting a passive and accommodating posture when thinking that you are not able to deal with emotional demands	When I see the student unmotivated I feel powerless to solve. I don't have a strategy to deal with this lack of motivation, I just regret it (B4)
	Behavioral Tactic	10(14%) Influencing the physiological and experiential aspects of emotion through action (Gross, 1998)	Control breathing, count to 10, meditate, exercise and leisure	Você é o profissional, vai respirar, contar até dez e vai pensar mais pedagogicamente (E2)
	Substance Use	3(4%) Using substances to reduce physiological/experiential aspects (Gross, 1998)	Controlled drug use	The indiscipline makes me frustrated [...] I do psychological and psychiatric follow-up, I only sleep on medication (A4)
	Adaptive Expression	7(37%) Express genuine emotion when perceiving it as appropriate	Authentically display moderate emotions in the face of events	When I'm already at my limit, they already realize that I'm not enjoying it, I stop the class and talk and explain that it's not just a moral lesson (A2)
Genuine expression	Impulsive Reaction (Acting out)	12(63%) Dealing with the emotional event giving rise to the action tendency of the emotion (Nelis et al, 2011)	Authentically display intense negative emotion in a maladaptive and dysfunctional way	Some students acted aggressively and threateningly and my strategy was to act like that too [...] I was not afraid, I was really angry (H3)

Note: Some codes may have multiple strategies

DISCUSSION

What emotions are triggered by interactional, technical-pedagogical, and intrapersonal emotional demands?

As in the study by Burić et al. (2016), teachers reported experiencing a wide range of emotions with significant intensity when teaching, interacting, and dealing with students. However, they also focused more intensely on negative emotions, illustrating their efforts to regulate them. In general, primary emotions of anger and sadness stood out and were mainly related to interactional demands such as student misbehavior and peer/boss relationships, which is similar to other studies (e.g., BURIĆ *et al.*, 2016; CHANG; DAVIS, 2009; TAXER; GROSS, 2018). The technical-pedagogical demands also seem to trigger negative but less intense emotions, such as frustration, worry, compassion, helplessness, and anguish. Additionally, teachers still regulate frustration arising from intrapersonal demands such as internal conflicts and dissatisfaction. The findings of Taxer and Frenzel (2015) suggest that the genuine display of negative emotions is related to teacher-student relationship impairment and emotional exhaustion, which underscores the importance of emotion regulation in this occupation.

Characterization of emotional regulation strategies: costs, benefits, and aspects associated with intrapersonal, interpersonal, and contextual factors

Teachers use a wide variety of emotional regulation strategies to primarily avoid or reduce negative emotions before, during, and after class. These results are similar to ones found by Burić et al. (2016) and Taxer and Gross (2018). The strategies identified were appropriately grouped into the five families of the Process Model of Emotion Regulation, suggesting that this model serves the classroom context well and is consistent with previous studies (e.g., AKBARI *et al.*, 2017; BURIĆ *et al.*, 2016; SUTTON, 2004; TAXER; GROSS, 2018). The families of cognitive change and situation modification were the most salient, which is similar to the findings by Burić et al. (2016). Sutton (2004) also found the prevalence of cognitive change. However, authors such as Taxer and Gross (2018) found that teachers are more likely to use response modulation (e.g., suppression), whereas Akbari et al. (2017) highlighted the use of situation selection. These divergent findings point to disagreements in the literature about how teachers regulate their emotions in the classroom.

Although the origin of these discrepancies is unclear, it is possible to assume that there are cultural and contextual influences on regulation (e.g., SUTTON, 2004). For example, the studies mentioned above were conducted with elementary and high school teachers from Croatia and the USA (e.g., BURIĆ *et al.*, 2016; SUTTON, 2004; TAXER; GROSS, 2018), except the study by Akbari et al. (2017), conducted with Iranian teachers who taught foreign language. This study, in turn, focused on teachers of vocational and technological education in a specific region

of Brazil. In addition, the present study expanded the situational factors investigated, whereas previous studies focused primarily on the student's inappropriate behavior. Thus, certain situations trigger specific emotions and strategies (Table 1). Additionally, personal factors related to the area of training/career level also seem to affect strategy selection (FRIED *et al.*, 2015). Next, the families of strategies are broadly discussed according to their salience.

- Cognitive change:

The cognitive change family was the most prominent, suggesting that teachers often reinterpret events or their own ability to deal with them to minimize the impact of adverse circumstances and reduce emotional work (e.g., AKBARI *et al.*, 2016; BURIC *et al.*, 2016; TAXER; GROSS, 2018). Cognitive change takes several forms (MALLORY; RUPP, 2016). For example, teachers strive to positively reinterpret undesirable circumstances, such as students' demotivation and inappropriate behavior. For instance, they try to perceive unmotivated students' efforts at doing better at school (SUTTON, 2004; YIN, 2016). In addition, they try to blame the external context (socioeconomic, cultural, the educational system, etc.) or the attributes of the students (personality, age, etc.) - the attribution of external causality (BURIC *et al.*, 2016). They also try to put the situation in perspective to understand and accept it - putting themselves in the other's place (AKBARI *et al.*, 2016; CLARÀ, 2017; TAXER; GROSS, 2018). Other forms of cognitive change involve personalization, adjustment of expectations, rationalization, and self-blame (Table 2).

Although these strategies are topographically distinct, they have the function of adjusting cognition to circumstances and emotional goals to reduce contradictions and dissonances. They change teachers' attitudes towards the events (CLARÀ, 2017) to reduce the emotional impact and influence on their behaviors. For example, teachers can become involved in the change process when putting themselves in the student's place. Likewise, positive reevaluation can bring teachers and students closer together. Thus, knowing and understanding the students' context can stimulate teacher empathy, engagement, and flexibility. This helps to challenge negative stereotypes (AKBARI *et al.*, 2017; CHANG; DAVES, 2009; CROSS; HONG, 2012), promotes a more positive perception of the teacher-student relationship (CLARÀ, 2017), and stimulates helping behaviors (GROSS, 2014). These considerations are consonant with evidence that cognitive modification is related to positive emotions, better relationships, and teacher well-being (CHANG, 2013; CLARÀ, 2017).

However, cognitive change also involves costs. For example, although attributing external causality helps mitigate negative emotions in the short term, it can also put long-term performance at risk by exempting teachers from responsibility for students' development (PEREIRA; MARINOTTI; LUNA, 2004). In addition, teachers also reassess the situation, their performance, and their ability negatively, taking responsibility for unpleasant circumstances through self-blame. This type of evaluation might damage teachers' well-being because they perceive themselves as inadequate and incapable, leading to feeling frustrated, distressed, and

guilty (CLARÀ, 2017). Thus, cognitive change focusing on the negative can enhance negative emotions and strengthen apathy and impotence, reducing the repertoire to deal with circumstances.

Thus, although this family seems to be the most accessible and adaptive, it was observed that it might also lead to lesser well-being when analyzing its functions and the interpersonal and contextual aspects. Moreover, as it involves more elaborate regulatory components, such as memory and verbal representations, it requires greater effort and energy in monitoring cognitive processes, consuming individual resources, resulting in greater exhaustion and poorer performance (e.g., SHEPPES, 2014; YIN, 2016). Taken together, these considerations reveal that cognitive modification is not always beneficial and resolving, although it is essential for gradual adaptation.

- Situation modification:

This was the second most prominent family of emotion regulation strategies, suggesting that teachers constantly try to change situations (physical and external) capable of activating negative emotions (GROSS, 1998; TAXER; GROSS, 2018). In this study, situation modification included strategies for: a) direct modification, the most salient one, and was characterized (i) by adjusting the lesson plan to the specific needs that arise in the classroom, such as adopting alternative resources to modify the affective tone of the class, motivate the student and facilitate learning (AKBARI *et al.*, 2016; SUTTON, 2004) and for (ii) facing (dialoguing or scolding) students with inappropriate behavior to adjust their conduct or to remove them from the room (SUTTON, 2004); b) indirect modification, characterized by the teachers' request for school staff intervention to deal with the students' inappropriate behavior; c) faking emotion, characterized by the intentional display of a false emotion or intensification of the expression of genuine emotion to model the students' behavior, (for instance, showing either negative or positive emotions to regulate students' behavior) (GROSS, 1998; YIN, 2016).

Consistent with previous findings, situation modification was mainly used to deal with inappropriate behavior (CHANG; DAVES, 2009; SUTTON, 2004; TAXER & GROSS, 2018), demotivation, and learning difficulties (AKBARI *et al.*, 2018; SUTTON, 2004; YIN, 2016). It seems that, in anticipating unpleasant circumstances, teachers avoid or decrease negative emotions in self (self-regulation) and students (hetero-regulation) (BURIĆ *et al.*, 2016; TAXER; GROSS, 2018), thus avoiding unnecessary conflicts and interruptions (SUTTON, 2004).

It seems that there are also possible costs in changing the situation. For example, although strategies such as indirect modification can provide immediate relief, they can also install and maintain avoidance behaviors in the long term, thus harming teachers' repertoire and professional development (GROSS, 2015). Likewise, strategies such as exaggerating/faking emotion may require additional effort and impact teaching performance and teacher mental health (GROSS, 2015; TAXER; FRENZEL, 2015).

- Response modulation:

Response modulation was the third most prominent family of regulation strategies, suggesting that teachers try to change their emotion regulation tendencies, even when it is impossible to avoid them (GROSS, 2015). It was related to extreme events, mainly with student's inappropriate behavior (ENGLISH *et al.*, 2017; SUTTON, 2004; TAXER; GROSS, 2018; YIN, 2016) and conflict with colleagues and superiors, perhaps due to the perception of low control over these events (BURIĆ *et al.*, 2016). Like other studies, teachers modulate their emotions through suppression strategies, behavioral tactics, and social sharing (AKBARI *et al.*, 2016; SUTTON, 2004; TAXER; GROSS, 2018; YIN, 2016).

There is evidence that suppression would be the strategy most used by teachers (e.g., TAXER; GROSS, 2018). In the present study, it was the most frequent reactive strategy and generally used to avoid or resolve interpersonal conflicts. These findings suggest the relevance of suppression in teaching, thus strengthening evidence that suppression is not necessarily harmful in this context and can be useful in the short term (ENGLISH *et al.*, 2017). This might help explain its high frequency. However, it should be considered that the literature emphasizes the maladaptive character of suppression, a priori because it has been associated with burnout (e.g., CHANG, 2013; YIN, 2016). In addition, suppression can hinder interpersonal closeness (GROSS, 2014), which is a vital component of the quality of the teacher-student relationship (TAXER; FRENZEL, 2015). Finally, in line with the findings by Akbari et al. (2017) and Sutton (2004), the most mentioned suppression tactics in this study were: masking (hiding genuine emotion and showing another), expressive neutrality, being silent, and leaving the room for a while.

On the other hand, social sharing involves the exchange of experiences and feelings with other teachers, superiors, teaching staff, friends, and family (BURIĆ *et al.*, 2016; SUTTON, 2004). Teachers who perceived social support highlighted the relevance of this strategy in expanding their regulatory repertoire and reducing negative emotions. Sharing emotions helps relieve stress, build resilience, promote effective teaching, and increase well-being (CLARÀ, 2017).

Finally, behavioral tactics, such as breathing deeply and counting to ten, were also highlighted to reduce emotional arousal (AKBARI *et al.*, 2017; BURIĆ *et al.*, 2016; YIN, 2016). It seems that they help the teacher contain the reactive emotional impulse in the face of the intensely unpleasant situation and reduce tension and negative emotion during class (CHANG; DAVIS, 2009; SUTTON, 2004).

- Attention deployment:

Congruent with Akbari et al. (2016) and Burić et al. (2016), this family was rarely mentioned. For Sheppes (2014), the high frequency of demand requires strategies that are more adaptive to the context, such as reappraisal or cognitive change. Attention deployment involves distraction strategies, such as excessive worry and rumination, focusing on non-emotional aspects of the situation or other thoughts and memories.

On the one hand, it was found that teachers use strategies that seem to mitigate negative emotional responses in advance, for example, by ignoring events such as minor behavioral infractions (TAXER; GROSS, 2018; YIN, 2016) or savoring pleasant circumstances (in directing attention to motivated students and academic progress, for example) (TAXER; GROSS, 2018). However, the avoidance provided by these strategies seems to hamper the resolution of routine, emotional events, pointing out long-term costs, according to Sheppes (2014). On the other hand, strategies such as excessive worry, rumination, and fault identification seem to harm the affective state by anticipating, increasing, and prolonging the unpleasant emotional experience. This can lead to emotional and physical exhaustion, as Nelis et al. (2011) noted. In this sense, these latter strategies are counterproductive to teaching. They seem to direct individual resources to a negative experience and not to the resolution of concrete and recurring problems in the classroom, thus reducing the adaptive and functional potential of regulation.

- Situation selection:

Although less mentioned, the situation selection family emerged in all focus groups. It entails avoiding circumstances and events (for instance, people, activities, and methodologies) that trigger negative emotions and approaching those situations that activate positive emotions. This occurs especially when teachers prepare lesson plans, activities, and teaching materials and program alternative resources, such as videos, games and music, considering the stage of life, difficulties, affinities, and interests of their classes to be responsive, effective, and minimize the emotional work that can be activated by unpleasant events (TAXER; GROSS, 2018; PEREIRA; MARINOTTI; LUNA, 2004). Although situation selection appears beneficial for the teacher and the student, it seems to be used less often because it is a more forward-looking strategy, which requires repertoire, the ability to predict their own emotional reactions and those of others (GROSS, 2015). Thus, it is possible that teachers' planning, technical and relational preparation, and emotional awareness make it possible to implement these strategies.

Similar to other findings, avoidance was mainly directed at colleagues, superiors, and institutional activities (e.g., research and extension), which can be explained by the absence or low control over the environment (AKBARI *et al.*, 2016; BURIC *et al.*, 2016). In other words, teachers cannot physically avoid the classroom and interaction with students, but they can choose or avoid colleagues and activities. In this way, avoidance can help to justify some of the counterproductive behaviors.

- Genuine expression of emotion:

In line with Yin's findings (2016), teachers reported genuine displays of negative emotion in the face of inappropriate student behavior. These emotional expressions were grouped into emotional authenticity and impulsive reaction (acting out). Emotional authenticity refers to the emotional expression that is more adjusted to the context, related to lesser intensity events (for example, cell phone misuse and side-talking). However, there was disagreement about the

appropriateness of this display. While some teachers reported being open to moderate expression to regulate student behavior (CHANG; DAVES, 2009; YIN, 2016), others considered it inappropriate to the ethics the function of teaching (BURIĆ *et al.*, 2016; SUTTON, 2004). Interestingly, those who reported emotional authenticity rated themselves as more effective and well connected with students (SUTTON, 2004; TAXER; FRENZEL, 2015). It seems that exhibiting authentic emotions, congruent with the demands of the situation, helps the teacher influence the student's behavior (hetero-regulation) by bringing them together (SUTTON, 2004; YIN, 2016). Thus, authenticity can be an effective form of emotional work in this context (ASHFORTH; HUMPHREY, 2013; TAXER; FRENZEL, 2015; YIN, 2016).

The acting out reaction refers to the loss of emotional control (such as the use of offensive language and aggression) (NELIS *et al.*, 2011) in the face of hostile behavior and threats from students, which activate anger and impotence in the teacher (CHANG; DEVIS, 2009). According to Taxer and Frenzel (2015), the expression of anger is counterproductive because it impairs the relationship with students. In this sense, there was a consensus that impulsive reactions are dysfunctional and might hurt the idealized image of the profession (SUTTON, 2004; SUTTON *et al.*, 2009).

Exploring possible effects of the training or teaching area and career periods on teacher emotional regulation

Differences in teachers' emotion regulation were inferred according to the area of training or teaching and the career period. Firstly, a greater frequency and variety of strategies were identified in groups in the basic area, especially among non-beginners, in line with Sutton *et al.* (2009) and Burić *et al.* (2016), evidencing that more experienced teachers are more efficient in emotional regulation. Second, although the situation modification and cognitive change families stood out in all groups, subtle differences were noted in the strategies of these families, suggesting that teachers in the basic area tend to use strategies for approaching and coping with emotional demands. In contrast, technical domains tend to use strategies to avoid such demands. These differences are accentuated when comparing beginner and non-beginner groups, suggesting that career time strengthens these trends. In other words, among teachers from the basic area, non-beginners seem to face more demands and have greater variability in regulation than beginners. For technical education teachers, this relationship has been reversed, so that the experience seems to reinforce the avoidance patterns.

Contradictorily, strategies such as excessive worry, identification of flaws, and self-blame, all related to psychological disorders (NELIS *et al.*, 2011) were most often cited by more experienced teachers in the basic area. As these teachers were also the ones who most mentioned active coping and approaching attitude, a possible explanation is that the high frequency and intensity of interaction with students requires considerable emotional work, leading to exhaustion throughout their careers (YIN *et al.*, 2017). Another assumption is that excessive emotional work, unsuccessful attempts, and misdirected effort (usually through trial and error)

can overload and undermine emotional and cognitive resources causing teachers to reevaluate their professional competence and self-image negatively. Although exposure to emotional events seems beneficial because it expands the emotional repertoire (ALDAO *et al.*, 2015), it can also be harmful throughout the career if not properly directed and channeled.

Although similar empirical studies have not been identified, it has been inferred that teachers in the basic area seem to have greater awareness and emotional repertoire based on other research. This seems to help face the demands in a more purposeful and result-oriented manner (GROSS, 2014). Castejón, Cantero, and Pérez (2010) support this finding, affirming that professionals with training in the technology area pay less attention to emotions than professionals from other areas such as social sciences, education, and humanities, for example.

Another possible explanation may be in the pedagogical training received, which, although generally reported as ineffective by most teachers, can somehow offer resources to face the demands of the classroom (TAXER; GROSS, 2018). In this regard, teachers in the technical area seem to be more likely to report problems because most are trained in engineering and technology fields, which has traditionally paid less attention to pedagogical aspects of teaching.

Finally, to fill the gap caused by inadequate training, non-beginner teachers emphasized the importance of career time in expanding the emotional and pedagogical repertoire. In contrast, beginners tended to rely on social support, which was not widely shared because many do not perceive the support of colleagues and superiors. These findings reinforce Sutton's (2004) assumption that teachers mainly learn to regulate negative emotions through their classroom practice.

Chaining of emotional regulation strategies

Similar to the results of Taxer and Gross (2018), teachers use more than one emotion regulation strategy at a time. However, unlike their study, which highlighted the use of attention deployment, the cognitive change stood out here, appearing linked to situation modification (e.g., relational coping). That is, when facing a difficult situation and talking to students about the event, the teacher can both modify its impact by influencing student emotion regulation (hetero-regulation) (TAXER; GROSS, 2018) and reinterpreting the negative circumstances (self-regulation). The second most salient link was situation selection (technical approach) and situation modification (technological confrontation). This suggests that teachers use their previous experiences to anticipate emotions (their own and others') and technical-pedagogical knowledge to plan, anticipate and prepare for the negative circumstances that arise in the classroom and modify them when they are unavoidable.

These findings indicate that there are times when teachers combine strategies of hetero-regulation and self-regulation to deal with emotional demands and make emotion regulation more effective, revealing the dynamics and complexity of teacher emotional regulation (e.g., SUTTON, 2004; TAXER; GROSS, 2018). It is added that both emotional and pedagogical repertoire are necessary for the chains to be effective.

In summary, the findings are congruent with research that suggests that negative emotions, genuine or regulated, are present in daily classroom work and mark the emotional lives of teachers (e.g., BAHIA *et al.*, 2013; TAXER; FRENZEL, 2015). It also corroborates the model by Fried *et al.* (2015) that considers the teachers' emotions as intrapersonal, interpersonal, and contextual due to the specificities of the occupation. Furthermore, it is suggested that negative emotions are often the target of regulation given their counter-hedonic, counterproductive, and disruptive potential in the context investigated (e.g., ENGLISH *et al.*, 2017; TAXER; FRENZEL, 2015).

It can also be said that teachers try to prevent, anticipate, and prepare for events that occur in the classroom (TAXER; GROSS, 2018). And even when they have no choice or influence over teaching situations, they regulate emotions to adjust their emotional responses and those of students (AKBARI *et al.*, 2016). When preventive strategies can no longer be used due to a lack the repertoire and resources or when the situation is highly adverse, teachers tend to resort to reactive strategies. This might be an attempt to control the impulse of action of the unwanted emotion and mitigate its effects (e.g., SHEPPES, 2014; SUTTON, 2004; SUTTON *et al.*, 2009; TAXER; GROSS, 2018). It was also possible to infer that the regulatory process occurs in a cyclical, dynamic, and contextual way, suggesting that teachers resort to a chain of strategies to cope with emotional modulation, in line with the Process Model of Emotional Regulation (GROSS, 2015). In addition, regulation appears to be influenced by professional factors (area of expertise and career) and specific to the situation (demands) (SHEPPES, 2014; ENGLISH *et al.*, 2017).

The results of this study also allow us to infer that the strategies are not inherently "good" or "bad," although it is admitted that some of them are more adaptive (GROSS, 2015). However, this assessment depends on the context, available resources, expected outcomes, and extent of the effects (immediate or long-term) (e.g., ALDAO *et al.*, 2015; GROSS, 2015; ENGLISH *et al.*, 2017). Thus, the form and the function of the different strategies teachers employ from a contextual perspective might be located in the second generation of studies in emotion regulation research. This suggests that strategies have costs and benefits, revealing inconsistencies in applying the labels such as adaptive or maladaptive a priori. Additionally, it is in line with Sheppes (2014) and Aldao *et al.* (2015) perspective that skillful regulation results from the flexible choice of strategies to adapt to different emotional demands.

CONCLUSION

This study aimed to examine teachers' emotions and emotional regulation strategies in the face of the different emotional demands of the classroom. The study advanced the field by presenting a contextual framework of teachers' emotion regulation, going beyond previous qualitative investigations that focused on intrapersonal factors associated with regulation. It is innovative in terms of methodology because it uses focus groups and compares different groups

to search for individual differences in regulation. In addition, by unfolding the strategy families, the study can guide teachers in the implementation of the strategies and help them become more aware of the possible costs and benefits of specific strategies. Finally, it is believed that learning a variety of forms of emotional regulation can influence the desired emotional flexibility, which might enable the teacher for more functional regulation of emotion.

Conducting an exploratory and qualitative study proved necessary, given the scarcity of studies of this nature in the field. This methodology also filled some gaps in international studies. However, the present study has limitations that must be considered, such as the generalization of the results and its reliance on behavioral memories. In addition, the high frequency of cognitive change and situation modification strategies, considered adaptive, a priori, may indicate response bias due to the "healthy worker" effect. Another limitation was disregarding the impact of demographic variables, such as gender and age, which can influence emotional regulation.

Finally, future research could use the inputs of this study to elaborate a contextual scale of teacher emotional regulation and examine the phenomenon in a more extensive and more diverse sample using quantitative methods. In addition, other techniques such as behavioral observation and diaries and others that consider the dynamic process of regulation to better understand teachers' contextual emotion regulation could be used. Finally, one can also investigate the reasons that lead teachers to regulate their emotions and the outcomes in terms of mental health.

REFERENCES

- ALDAO, A. (2013). The future of emotion regulation research: Capturing context. *Perspectives on Psychological Science*, 8 (2), 155-172. doi: 10.1177/1745691612459518.
- ALDAO, A., Sheppes, G. & Gross, J. J. (2015). Emotion regulation flexibility. *Cognitive Therapy and Research*, 39, 263–278. doi:10.1007/s10608-014-9662-4
- ASHFORTH, B. E., & HUMPHREY, R. H. (2013). Emotional labor: Looking back nearly 20 years. In A. A. Grandey, J. M. Diefendorff, & D. E. Rupp (Eds.), *Emotional labor in the 21st century: Diverse perspectives on emotion regulation at work*: 276–281. New York, NY: Psychology Press/Routledge.
- BAHIA, S., FREIRE, I., AMARAL, A. & ESTRELA, M. T. (2013) The emotional dimension of teaching in a group of Portuguese teachers. *Teachers and Teaching: theory and practice*, 19(3), 275-292, doi: 10.1080/13540602.2012.754160
- BARDIN, L. (2011). *Análise de conteúdo*. São Paulo: Edições 70.
- BURIĆ, I., SORIĆ, I., & PENEZIĆ, Z. (2016). Emotion regulation in academic domain: development and validation of the academic emotion regulation questionnaire (AERQ). *Personality and Individual Differences*, 96, 138–147. <https://doi.org/10.1016/j.paid.2016.02.074>

- CASTEJÓN, J. L., CANTERO, M. P. & PÉREZ, N. (2010). Differences in the sócio-emotional competence profile in university students from different disciplinary áreas. *Journal of Research in Educational Psychology*, 15, 6, 339-362. Disponível em: <https://eric.ed.gov/?id=EJ853173> Acesso em: 12/07/2022.
- CHANG, M. L. (2009). An Appraisal Perspective of Teacher Burnout: Examining the Emotional Work of Teachers. *Educ Psychol Rev*, 21, 193–218. doi: <http://dx.doi.org/10.1007/s10648-009-9106-y>
- CHANG, M. L. (2013). Toward a theoretical model to understand teacher emotions and teacher burnout in the context of student misbehavior: Appraisal, regulation and coping. *Motivation and Emotion*, 37, 799– 817. <http://dx.doi.org/10.1007/s11031-012-9335-0>
- CHANG, M. L. & Davis, H. A. (2009). Understanding the role of teacher appraisals in shaping the dynamics of their relationships with students: Deconstructing teachers’ judgments of disruptive behavior/students. In: P. A. Schutz & M. Zembylas (Eds.). *Advances in teacher emotions research*. New York: Springer.
- CLARÀ, M. (2017). Teacher resilience and meaning transformation: How teachers reappraise situations of adversity. *Teaching and Teacher Education*, 63, 82-91 <https://doi.org/10.1016/j.tate.2016.12.010>.
- CROSS, D. I. & HONG, J. Y. (2012). An ecological examination of teachers' emotions in the school context. *Teaching and Teacher Education*, 28, 957-967. <http://dx.doi.org/10.1016/j.tate.2012.05.001>.
- ENGLISH, T., LEE, I. A., JOHN, O. P. & GROSS, J. J. (2017). Emotion regulation strategy selection in daily life: The role of social context and goals. *Motivation and Emotion*, 41, 230–242. <https://doi.org/10.1007/s11031-016-9597-z>
- FRIED, L., MANSFIELD, C., & DOBOZY, E. (2015). Teacher emotion research: Introducing a conceptual model to guide future research. *Issues in Educational Research*, 25(4), 415- 441. Disponível em: https://www.researchgate.net/publication/290459480_Teacher_emotion_research_Introducing_a_conceptual_model_to_guide_future_research Acesso em: 12/07/2022
- GRANDEY, A. A. (2003). When “the show must go on”: surface and deep acting as predictors of emotional ex-haustion and service delivery. *Acad. Manag. J.* 46(1), 86–96. <https://doi.org/10.2307/30040678>
- GROSS, J.J. (1998). Antecedent-and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *J. Pers. Soc. Psychol.*, 74, 224– 237. DOI: 10.1037//0022-3514.74.1.224
- GROSS, J.J. (2014). Emotion regulation: conceptual and empirical foundations. In J.J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed.) (pp. 3-20). New York, NY: Guilford.

- GROSS, J. J. (2015). Emotion Regulation: Current status and future prospects. *Psychological Inquiry*, 26, 1-26. doi:10.1080/104784X.2014.940781.
- GROSS, J.J. & THOMPSON, R.A. (2007). Emotion regulation: Conceptual foundations. In J.J. Gross (Ed.), *Handbook of emotion regulation*. New York: Guilford Press.
- LIPP, M. N. (2016) O estresse do professor frente ao mau comportamento do aluno. In: Fava, D. C. (Org.) *A prática da psicologia na escola*. (pp. 351-372). Belo Horizonte: Ed. Artesã.
- MALLORY, D. B. & RUPP, D. E. (2016). Focusing in on the Emotion Laborer. Emotion Regulation at Work. Em R. Baumeister, & K. Vohs, *Handbook of Self-Regulation: Research, Theory, and Applications* (3 ed., pp. 323-342). Nova York: Gilford. Disponível em: <http://library1.org/ads/C9AC7301A78B8E1B5D3543E65A7BE88A>. Acessado em: 12/07/2022
- MORAIS, F. A. (2012). *Trabalho emocional e estratégias de autorregulação em motoristas de transporte público*. (Dissertação de Mestrado) Instituto de Psicologia, Universidade Federal da Bahia, Salvador, Bahia, Brasil. Disponível em: <https://pospsi.ufba.br/pt-br/trabalho-emocional-autorregulacao-e-bem-estar-psicologico-em-motoristas-de-transporte-publico> Acesso em: 12/07.2022
- MORAIS, F. A., GONDIM, S. M. G & PALMA, E. M. S. (2020). Demandas de trabajo emocional docente: un estudio en una institución educativa federal. *Quaderns de Psicologia*, 22 (1). doi: <https://doi.org/10.5565/rev/qpsicologia.1582>
- NELIS, D., QUOIDBACH, J., HANSENNE, M. & MIKOLAJCZAK, M. (2011). Measuring individual differences in emotion regulation: The emotion regulation profile-revised (ERP-R). *Psychologica Belgica*, 51(1), 49-91. DOI:10.5334/pb-51-1-49
- PARROTT, W. (2001). *Emotions in social psychology*. Philadelphia, PA: Psychology Press.
- PEREIRA, M. E. M.; MARINOTTI, M. & LUNA, S. V. (2004). O compromisso do professor com a aprendizagem do aluno: contribuições da análise do comportamento. In: Hübner, Maria Martha Costa, Marinotti, Miriam (Org.). *Análise do comportamento para a educação: contribuições recentes* (pp.11-32). Santo André: Esetec.
- SÁNCHEZ-MOLANO, A. S. (2018). *Trabalho emocional na stand-up comedy: interação comediante/audiência em duas cidades da América Latina*. (Dissertação de Mestrado). (P. de, Ed.) Universidade Federal da Bahia, Salvador, Bahia, Brasil. Disponível em: <http://repositorio.ufba.br/ri/handle/ri/28189>. Acesso em: 12/07/2022
- SHEPPES, G. (2014). Emotion regulation choice: Theory and findings. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 126–139). New York, NY: Guilford.
- SUTTON, R.E. (2004). Emotional regulation goals and strategies of teachers. *Soc. Psychol. Educ.* 7, 379–398. <https://doi.org/10.1007/s11218-004-4229-y>

- SUTTON, R.E., Mudrey-Camino, R. & Knight, C.C. (2009). Teachers' emotion regulation and classroom management. *Theor. Pract.*, 48, 130–137. <https://doi.org/10.1080/00405840902776418>
- TAXER, J. L. & FRENZEL, A. C (2015). Facets of teachers' emotional lives: A quantitative investigation of teachers' genuine, faked, and hidden emotions. *Teaching and Teacher Education*. 49, 78–88 <https://doi.org/10.1016/j.tate.2015.03.003>
- TAXER, J. L. & GROSS, J. J. (2018). Emotion regulation in teachers: The “why” and “how”. *Teaching and Teacher Education*, 74, 180-189. doi.org/10.1016/j.tate.2018.05.008
- YIN, H. (2015). The effect of teachers' emotional labour on teaching satisfaction: Moderation of emotional intelligence. *Teachers and Teaching*, 21, 789-810. <https://doi.org/10.1080/13540602.2014.995482>
- YIN, H. (2016). Knife-like mouth and tofu-like heart: Emotion regulation by Chinese teachers in classroom teaching. *Soc. Psychol. Educ.*, 19, 1–22. <https://doi.org/10.1007/s11218-015-9319-5>
- YIN, H., HUANG, S., & WANG, W. (2016). Work environment characteristics and teacher well-being: The mediation of emotion regulation strategies. *International Journal of Environmental Research and Public Health*, 13(9). doi: 10.3390/ijerph13090907.
- YIN, H., HUANG, S. & LEE, J. C. K. (2017). Choose your strategy wisely: Examining the relationships between emotional labor in teaching and teacher efficacy in Hong Kong primary schools. *Teaching and Teacher Education*, 66, 127-136. doi: <https://doi.org/10.1016/j.tate.2017.04.006>
- UITTO, M., JOKIKOKKO, K. & ESTOLA, E. (2015) Virtual special issue on teachers and emotions in Teaching and teacher education (TATE) in 1985 e 2014. *Teaching and Teacher Education*, 50, 124-135. <https://doi.org/10.1016/j.tate.2015.05.008>

CONTRIBUIÇÃO DOS AUTORES

Autora 1 – Coordenadora do projeto, coleta de dados, análise dos dados e escrita do texto

Autora 2 - Participação ativa na análise dos dados e revisão da escrita final

Autor 3 - Participação ativa na análise dos dados e revisão da escrita final

DECLARAÇÃO DE CONFLITO DE INTERESSE

Os autores declaram que não há conflito de interesse com o presente artigo.

DECLARAÇÃO APROVAÇÃO EM COMITÊ DE ÉTICA

Esta pesquisa foi aprovada pelo Comitê de Ética do Instituto de Psicologia da Universidade Federal da Bahia (CAAE 92122318.1.0000.5686).

This preprint was submitted under the following conditions:

- The authors declare that they are aware that they are solely responsible for the content of the preprint and that the deposit in SciELO Preprints does not mean any commitment on the part of SciELO, except its preservation and dissemination.
- The authors declare that the necessary Terms of Free and Informed Consent of participants or patients in the research were obtained and are described in the manuscript, when applicable.
- The authors declare that the preparation of the manuscript followed the ethical norms of scientific communication.
- The authors declare that the data, applications, and other content underlying the manuscript are referenced.
- The deposited manuscript is in PDF format.
- The authors declare that the research that originated the manuscript followed good ethical practices and that the necessary approvals from research ethics committees, when applicable, are described in the manuscript.
- The authors declare that once a manuscript is posted on the SciELO Preprints server, it can only be taken down on request to the SciELO Preprints server Editorial Secretariat, who will post a retraction notice in its place.
- The authors agree that the approved manuscript will be made available under a [Creative Commons CC-BY](#) license.
- The submitting author declares that the contributions of all authors and conflict of interest statement are included explicitly and in specific sections of the manuscript.
- The authors declare that the manuscript was not deposited and/or previously made available on another preprint server or published by a journal.
- If the manuscript is being reviewed or being prepared for publishing but not yet published by a journal, the authors declare that they have received authorization from the journal to make this deposit.
- The submitting author declares that all authors of the manuscript agree with the submission to SciELO Preprints.