The role of teachers' intelligence conceptions, teaching beliefs and self-efficacy on classroom management practices

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Abstract

Substantial evidence has been collected over decades of research on the relationships between optimal classroom management and student learning. In addition, there is a growing body of research on teachers' beliefs, in which their relationships with teachers' practices is viewed as significant. This study investigated classroom management practices in a sample of 1,056 Italian teachers working from pre-primary to secondary school, to analyse the differences by school level and teaching experience, and their associations with three categories of teachers' beliefs: self-efficacy, teaching beliefs and intelligence conceptions. Three dimensions of classroom management were considered: educational relationships, active strategies and emotion regulation. The results show that teachers differ in their practices in relation to school level and years of experience, with associations between different categories of beliefs highlighted. Classroom management was positively linked to self-efficacy, constructive teaching beliefs and constructive intelligence conceptions, and negatively linked to traditional teaching beliefs and innate intelligence conceptions. Hierarchical multiple regression analyses that considered the three dimensions of classroom management as dependent variables highlighted the concurrent contribution of: innate and constructive teaching beliefs for educational relationships; school level, intelligence conceptions, constructive teaching beliefs and self-efficacy on

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classroom management for active strategies; and school level for emotion regulation. These results confirm the strong relationships between classroom management and teachers' beliefs and conceptions. Thus, it is important for teachers to develop reflective processes of their own practices.

Keywords: classroom management, teaching beliefs, self-efficacy, intelligence conceptions, teaching experience.

Introduction

Substantial evidence has been collected over decades of research into the relationships between optimal classroom management and student learning (Emmer & Evertson, 2013), where correct classroom management leads to the expected results for the students (Calvani, 2011). Therefore, one of the primary responsibilities of the teacher is to promote educational practices for effective classroom management (Molinari & Mameli, 2015). At the same time, teachers' practices and decisions in the classroom are influenced by their beliefs (Buehl & Beck, 2015). In this study we investigated the role of different teacher beliefs on their classroom management practices, and in particular, the teacher beliefs about student intelligence conceptions, teaching beliefs and self-efficacy.

Classroom management

The concept of classroom management has various definitions that usually include all of the actions taken by a teacher to establish order, and to engage the students and elicit their cooperation (Jones, 1996; Emmer & Stough, 2001). Emmer and Evertson (2013) suggested that classroom management involves two main aspects: interactions and planning. For interactions, this implies a set of strategies and behaviours, which include careful observation, an ability to relate to the students with support and feedback, and interventions to redirect the activities of students and to stimulate their interest and participation. As many studies have documented, teachers are especially relevant in creating emotional and social support for all of their students, which includes forming good relationships with them, and encouraging positive relationships among the students themselves (Pianta Hamre, & Allenet, 2012; Hamre, Pianta, Downer et al., 2013). When students experience positive and warm relationships with their teachers, they are more likely to respect the rules of their classroom (Rubie-Davies, Asil, & Teo, 2016; Hughes & Coplan, 2017).

Teachers often face situations that can make them feel angry, frustrated or sad, and they need to find appropriate ways to regulate these emotions in the classroom (Hargreaves, 2000). Teachers' emotions are rela-

ted to classroom effectiveness (Sutton, 2005), and therefore the use of emotion regulation strategies can maintain classroom well-being and improve interpersonal relationships between teachers and students.

For planning, this includes organisation of the classroom space, development of incentives to encourage the desired student behaviour, and organisation of activities that promote the engagement and commitment of the students (Emmer & Evertson, 2013). As noted by Danielson (2013), the hallmarks of a well-managed classroom are that instructional groups are used effectively, non-instructional tasks are completed efficiently, and transitions between activities are skilfully managed to maintain the 'momentum' and to maximise instruction time. Activities should be designed to emphasise important learning outcomes that require thoughtful participation on the part of the students (Prince, 2004). Examples of active strategies include brainstorming, collaborative writing, cooperative learning, role-playing, simulation, project-based learning and peer teaching (Zayapragassarazan & Kumar, 2012).

The classroom management practices adopted by teachers are related to their years of teaching experience (Berger, Girardet, Vaudroz, & Crahay, 2018). Comparing novice and expert teachers, several studies have shown that expert teachers are significantly more effective at predicting classroom management events, through their greater repertoire of classroom skills and strategies compared to novice teachers (Martin & Shoho, 2000; Wolff, van den Bogert, Jarodzka, & Boshuizen, 2014). Teachers with more years of experience can typically prioritise tasks, to selectively cover a number of key classroom matters, and to manage the dynamic nature of the classroom setting (Hagger & McIntyre, 2000). Teachers with fewer years of experience tend to be more hesitant, less able to work with speed and fluidity, or to have mental models that allow large amounts of information to be accessed and handled effectively (Kerrins & Cushing, 2000).

The school level is also a determinant in the adoption of specific practices to manage a classroom. There are several reasons why differential practices can be expected from pre-primary schools to secondary schools, at least in Italy. However, there is little empirical evidence to verify this line of reasoning.

As noted by Randall and Engelhard (2009), primary schools use a system in which students remain with one academic lead teacher throughout the day, while in middle and secondary schools, they generally receive instruction from teachers who are specialised in specific academic subjects. For these reasons, the majority of research has focused on student-teacher relationships through analysis of the changes in relationship quality from pre-primary to secondary schools (Hamre & Pianta, 2000;

Prewett, Bergin, & Huang, 2019). At the higher school levels, the student-teacher closeness generally decreases, as teachers become more focused on academic aspects rather than interactions (Jerome, Hamre, & Pianta, 2009). While the evidence is strong on how student-teacher relationships change, less is known about the changes at the different school levels for the more specific aspects of classroom management, such as teaching strategies, classroom setting and student engagement.

Teachers' beliefs and classroom management practices

There is a growing body of research on teachers' beliefs, in which their relationship with teachers' practices is viewed as significant (see Buehl & Beck, 2015 for a review).

An important category of teachers' beliefs is the construct of 'self-efficacy'. According to social cognitive theory (Bandura, 1997), Tschannen-Moran and Woolfolk Hoy (2001, p. 783) defined teachers' self-efficacy as "judgements of their capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated". Research has shown that self-efficacy is a strong predictor of teacher behaviour: if a teacher believes that he/she is capable of managing the classroom and conducting meaningful lessons, he/she will be more likely to do just that (Hoy, 2004). A meta-analysis by Klassen and Tze (2014) showed that a high level of self-efficacy is positively related to the adoption of new practices and innovations in schools. Teachers with strong self-efficacy have closer relationships with their students, are more organised, better prepared, and more likely to select complex challenging tasks and to use different teaching strategies (Anthony & Kritsonis, 2007). Conversely, teachers with lower self-efficacy have a more pessimistic view of students, tend to adopt controlling practices (such as punishment), and strive to maintain strong discipline (Martin & Sass, 2010).

Furthermore, Berger and colleagues (2018) indicated that the general conceptions teachers hold about teaching might explain why they adopt certain teaching practices. For instance, constructivist beliefs about teaching are defined as viewing students as active participants in the process of acquiring knowledge and stressing the development of thinking processes more than the acquisition of specific knowledge. These are significantly related to student-oriented practices and enhanced activities (OECD, 2009). In contrast, direct transmission beliefs are defined as viewing the student as a passive recipient and the role of a teacher as communicating knowledge while making sure that the students concentrate. These are instead related to structuring practices, such as summarising former lessons, reviewing homework and checking exercise books

(OECD, 2009). Among the different methodologies, student-oriented teaching facilitates the optimisation of learning (Lopez, Torres-Vallejos, Ascorra et al., 2018).

Brooks and Brooks (1999) identified some classroom characteristics that are related to traditional or constructivist teacher beliefs. In the traditional case, a strict adherence to a fixed curriculum is highly valued, and the students primarily work alone and are viewed as 'blank slates' onto which the information is sketched by the teacher. In the constructivist case, activities rely heavily on manipulative materials, and the students primarily work in groups and teachers seek the students' points of view, thus behaving in an interactive way.

In addition to their teaching beliefs, teachers also hold beliefs regarding the capabilities of their students. According to Dweck (2000), how teachers define intelligence affects their views towards students' roles. Teachers who believe that intelligence can be cultivated through learning hold an incremental (or constructivist) theory of intelligence. In contrast, those who subscribe to an entity theory of intelligence (as innate) believe that intelligence is fixed and cannot be changed. The literature has illustrated the variations in teachers' conceptions of intelligence (Albanese & Fiorilli, 2003), and it supports the claim that these intelligence conceptions influence the planning, teaching and strategies used (Garcia-Cepero & McCoach, 2009). However, few studies have focused on the relationships between intelligence conceptions and classroom management.

A short literature review relating to teachers' beliefs and practices shows that previous studies have looked at the outcomes of classroom management, rather than the sources, and most of these studies have tended to consider only a limited number of teachers' beliefs when studying their relations to practices. In addition, these categories of beliefs are often referred to specific subjects (e.g., mathematics, science), or to groups of teachers (e.g., pre-service teachers, primary school teachers). As a result, little is known about what drives teachers to adopt one practice rather than another.

Recently, Berger and colleagues (2018) used a dynamic and comprehensive perspective to describe the association between classroom management and some categories of secondary school teachers' beliefs: self-efficacy, general conceptions about teaching and learning, and beliefs about student motivation. Their results suggested that some aspects of classroom management can be predicted by different beliefs and are positively linked to teaching experience.

The present study

According to Berger and colleagues' comprehensive perspective, our study investigated classroom management practices in a sample of Italian teachers working in pre-primary to secondary schools. We analysed the different management practices according to school level and teaching experience, and their association with three categories of teachers' beliefs: self-efficacy, teaching beliefs and intelligence conceptions. In a previous study, we developed a self-reporting instrument, the *Teacher's Educational Practices Questionnaire* (TEP-Q; Catalano, Perucchini, & Vecchio, 2014), to analyse three dimensions of classroom management: educational relationships, active strategies and emotion regulation (Catalano, Vecchio, & Perucchini, 2019). Thus, the three specific aims of the present study were:

1. To explore the differences in these three dimensions of classroom management according to school level and teaching experience;
2. To analyse the relationships between these three dimensions of classroom management and self-efficacy, teaching beliefs and intelligence conceptions;
3. To investigate the concurrent contributions of these teachers' beliefs (i.e., self-efficacy, teaching beliefs, intelligence conceptions) on each of the three dimensions of classroom management.

First, we expected that teachers with more years of teaching experience will adopt more effective classroom management practices (as investigated through the TEP-Q), such as more attention on educational relationships, more emotion regulation capabilities, and more frequent use of active strategies. For the effects of school level on these management practices, no hypothesis can be proposed due to the poor literature.

Secondly, we hypothesised positive correlations of classroom management with self-efficacy, constructive teaching beliefs and constructive intelligence conceptions, and negative correlations with traditional teaching beliefs and innate intelligence conceptions.

The last hypothesis was that self-efficacy has a role in explaining the variance of the different dimensions of classroom management above and beyond the role of intelligence conceptions and teaching beliefs, while controlling for school level and teaching experience.

Methods

Sample

A total of 1,056 Italian in-service teachers were involved in the study, 91.7% of whom were female. The mean age was 43.9 years (SD = 8.9 years), covering a range from 24 years to 66 years. The sample included 16.7% pre-primary school teachers, 51.0% primary school teachers, 14.4% lower-secondary school teachers, and 17.8% upper-secondary school teachers. As their highest educational level, more than half of the teachers (55.2%) had a Master's degree, 6.5% had a Bachelor's degree, and 30.3% had a high school diploma (and 8% not specified). Their mean teaching experience was 14 years (SD = 10.95 years), covering a range from 1 year to 45 years. Across this range, five levels of teaching experience were defined, as less than 6 years (29.9%), 6-10 years (21.3%), 11-20 years (22.9%), 21-30 years (15.6%), and more than 30 years (10.4%).

Instruments and procedures

Data collection was carried out over a period of 4 years. The first data were obtained using a paper-and-pencil questionnaire, and subsequently using the online platform *Uniroma3 Survey RC*. Informed consent was obtained from all participants.

In the first phase, we administered the *Teacher's Educational Practices* (TEP-Q, Catalano et al., 2014) to all of the participating teachers. The TEP-Q contains 24 items that are designed to measure three dimensions of classroom management: Educational Relationships (ER; e.g., "*I show attention and involvement when children express their emotions*"; Cronbach alpha = .81); Emotion Regulation (EMR; e.g., "*When I'm angry, I shout at the class*"; Cronbach alpha = .65); and Active Strategies (AS; e.g., "*During activities, I organise group working*"; Cronbach alpha = .75). The teachers rated their perceived practices on 6-point Likert scales that ranged from 0 (never) to 5 (always).

In the second phase, we administered two further questionnaires to a subsample of 600 teachers: the Constructive Conceptions of Intelligence Scale (CCIS; Albanese & Fiorilli, 2003) and the Teaching Beliefs Survey (TBS; Woolley, Benjamin, & Woolley, 2004).

The CCIS analyses teachers' conceptions about the intelligence of their pupils. This includes 29 items that are designed to measure: Constructive Conceptions (CC; e.g., "*The quality of the teacher-pupil relationship has a lot of influence on school performance*"; Cronbach alpha = .80); and Innate Conceptions (IC; e.g., "*Intellectual potentials are in-*

nate; nobody can change them"; Cronbach alpha = .71). The items were scored based on 6-point Likert scales, which ranged from 1 (strongly disagree) to 6 (strongly agree).

The TBS measures teaching beliefs that are referred to as: Constructive Teaching (CT; e.g., "*I prefer to cluster students' desks or use tables so they can work together*"; Cronbach alpha = .69); Traditional Teaching (TT; e.g., "*I teach subjects separately, although I am aware of the overlap of content and skills*") and Traditional Classroom Management (TCM; e.g., "*It is important that I establish classroom control before I become too friendly with students*"). In the current study, TT and TCM were considered as a unique dimension, termed Traditional Teaching and Classroom Management (TTCM; Cronbach alpha = .72). The teachers rated their beliefs here on 6-point Likert scales, which ranged from 1 (strongly disagree) to 6 (strongly agree).

In the last phase, the Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001) was administered to a subsample of 260 teachers. The TSES contains 24 items that refer to three dimensions of self-efficacy: Efficacy for Instructional Strategies (EIS; e.g., "*How well can you use a variety of assessment strategies?*"; Cronbach alpha = .90); Efficacy for Classroom Management (ECM; e.g., "*How well can you control disruptive behaviour in the classroom?*"; Cronbach alpha = .92); and Efficacy for Student Engagement (ESE; e.g., "*How well can you get students to believe they can do well in schoolwork?*"; Cronbach alpha = .88). The teachers rated their perceived self-efficacy here, on 9-point Likert scales that ranged from 1 (nothing) to 9 (a great deal).

The SPSS (version 26) was used for all of the statistical analyses carried out.

Results

Differences in classroom management practices

To investigate possible differences in the teachers' practices according to their years of teaching experience and school level (aim 1), we ran two multivariate analyses of variance (MANOVA). These data are presented as means, SD and *post-hoc* tests in Table 1.

The teachers differed significantly for both of these variables, as teaching experience [$F(12.958) = 9.18$, $p < .001$, Wilk's $\lambda = .89$, $\eta_p^2 = .04$] and school level [$F(9.983) = 32.12$, $p < .001$, Wilk's $\lambda = .76$, $\eta_p^2 = .09$]. For their teaching experience, univariate ANOVA revealed significant differences for ER ($p < .001$, $\eta^2 = .07$) and AS ($p < .001$, $\eta^2 = .07$). Duncan corrected *post-hoc* tests revealed higher ER and AS scores in the tea-

chers with more than 10 years of experience. For their school level, univariate ANOVA revealed significant differences for ER ($p < .001$, $\eta^2 = .04$), AS ($p < .001$, $\eta^2 = .21$) and EMR ($p < .01$, $\eta^2 = .02$). Duncan corrected *post-hoc* tests revealed significantly higher ER and AS scores for pre-primary and primary school teachers. For EMR scores, the upper-secondary school teachers had higher scores than the primary and lower-secondary school teachers, whereas pre-primary school teachers did not differ from the other school levels.

Tab. 1 – *Statistics for the Teacher's Educational Practices Questionnaire (TEP-Q) dimensions of classroom management according to teaching experience and school level*

Dimensions	Variables										
	Teaching experience (years)					Duncan	School level				Duncan
	<6	6-10	11-20	21-30	>30	post hoc	Pre-primary	Primary	Lower secondary	Upper secondary	post hoc
	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	
Educational Relationship (ER)	4.02 (0.49)	4.13 (0.43)	4.23 (0.43)	4.31 (0.39)	4.33 (0.41)	1 < 2 < 3,4,5	4.24 (0.43)	4.23 (0.43)	4.05 (0.47)	4.01 (0.48)	6,7 > 8,9
Active Strategies (AS)	2.53 (0.87)	2.68 (0.85)	2.95 (0.84)	3.12 (0.80)	3.07 (0.70)	1,2 < 3,4,5	3.59 (0.65)	2.83 (0.75)	2.43 (0.83)	2.38 (0.88)	6,7 > 8,9
Emotional Regulation (EMR)	3.88 (0.57)	3.82 (0.60)	3.84 (0.57)	3.83 (0.61)	3.87 (0.49)		3.86 (0.61)	3.80 (0.54)	3.77 (0.65)	3.98 (0.55)	9 > 7,8

Data are means (standard deviation)

Tab. 2 – *Descriptive statistics and correlations for study variables*

Variables	n	Range	Mean	SD	1	2	3	4	5	6	7	8	9	10
					ER	AS	EMR	CC	IC	CT	**TTCM**	EIS	**ECM**	ESE
TEP-Q:														
1. ER	1056	1-5	4.17	.46	1									
2. AS	1036	1-5	3.23	.87	.42**	1								
3. EMR	1055	1-5	4.25	.57	.18**	.10**	1							
CCIS:														
4. CC	528	1-6	5.12	.50	.30**	.12**	.10*	1						
5. IC	528	1-6	3.14	.45	–.11*	–.05	–.11*	–.20**	1					
TBS:														
6. CT	600	1-6	4.29	.53	.38**	.40**	.14**	.56**	–.15**	1				
7. TTCM	591	1-6	3.39	.55	.03	–.16**	–.05	–.07	.38**	–.15**	1			
TSES:														
8. EIS	258	1-9	7.07	.92	.45**	.27**	.25**	.16*	–.19**	.11	–.00	1		
9. ECM	259	1-9	7.03	.12	.43**	.34**	.23**	.12	–.15*	.04	–.05	.76**	1	
10. ESE	259	1-9	7.23	.93	.47**	.31**	.25**	.26**	–.20**	.16**	–.07	.85**	.80**	1

*p < .05; **p < .01

TEP-Q, Teacher's Educational Practices Questionnaire; CCIS, Constructive Conceptions of Intelligence Scale; TBS, Teaching Beliefs Survey; TSES, Teachers' Sense of Efficacy Scale; ER, Educatio - nal Relationships; AS, Active Strategies; EMR, Emotion Regulation; CC, Constructive Conceptions; IC, Innate Conceptions; CT, Constructive Teaching; TTCM, Traditional Teaching and Classroom Management; EIS, Efficacy for Instructional Strategies; ECM, Efficacy for Classroom Management; ESE, Efficacy for Student Engagement.

Relationships between classroom management practices and beliefs

To investigate the association between practices and beliefs, we examined intercorrelations among the classroom management practices of intelligence conceptions, teaching beliefs and self-efficacy (aim 2). As shown in Table 2, the three dimensions of the TEP-Q were positively related to constructive intelligence conceptions (CCIS) and constructive teaching beliefs (TBS). In addition, the correlations with innate intelligence conceptions (CCIS) were negative and moderate for the subscales ER and EMR (–.11, for both), while those with traditional teaching and classroom management beliefs (TBS) were negative and strong for the subscale AS (–.16). Similarly, all of the TEP-Q dimensions of classroom management were strongly related to self-efficacy (TSES), with correlations ranging from .23 to .42. As expected, teachers who scored higher on their own educational practices were more likely to score higher on their self-efficacy for classroom management, student engagement and instructional strategies.

Effects of beliefs, school level and teaching experience on classroom management practices

For the third aim, three hierarchical regression analyses were conducted as predictors of the three TEP-Q dimensions, which considered: school level and teaching experience (step 1); intelligence conceptions (step 2), teaching beliefs (step 3); and lastly, self-efficacy (step 4). These data are presented in Table 3. For ER, at the second step, the additional contribute of CC significantly improved the explained variance (R^2 = .10). At the third step, IC and both teaching beliefs (CT, TTCM) significantly improved the explained variance (R^2 = .23). At the final step, the contribution of teaching beliefs was still significant, and the explained variance further increased, but there were no effects of the self-efficacy dimensions (R^2 = .33). For AS, at the first step, the effect of school level and teaching experience was significant (R^2 = .09). At the second step, the variables did not significantly contribute to increase the explained variance. At the third step, there were significant effects of school level, teaching experience, both intelligence conceptions (IC, CC) and CT, with a large increase in the explained variance (R^2 = .30). At the final step, the contributions of school level, intelligence conceptions and CT were still significant, with the additional contribution of only ECM self-efficacy, further increasing the explained variance (R^2 = .35). For EMR, there were significant effects of school level for all of the steps, and for CT at the third step (R^2 = .16).

Tab. 3 – *Hierarchical multiple regression models*

Step	**Variable**	Dimensions								
		Educational relationships			Active strategies			Emotion regulation		
		B	SE B	β	B	SE B	β	B	SE B	β
1	School level	.03	.04	.06	–.23	.06	–.26**	.14	.05	.22**
	Teaching experience	.07	.05	.12	.17	.08	.16*	.05	.06	.07
2	School level	.06	.04	.11	1.78	.85	–.26**	3.44	.62	.23**
	Teaching experience	.06	.05	.09	–.23	.06	.17*	.15	.05	.06
	IC (CCIS)	–.15	.09	–.14	.01	.01	.11	.05	.06	–.07
	CC (CCIS)	.21	.08	.21**	.01	.01	.06	–.10	.11	.05
3	School level	.06	.04	.12	.10	.13	–.21**	.06	.09	.24**
	Teaching experience	.06	.04	.09	–.30	.89	.15*	2.58	.73	.06
	IC (CCIS)	–.20	.08	–.18*	–.01	.01	–.17*	.15	.05	–.08
	CC (CCIS)	.04	.08	.04	.01	.01	.18*	.04	.06	–.04
	CT (TBS)	.39	.09	.36**	.32	.13	.51**	-.11	.11	.19*
	TTCM (TBS)	.24	.07	.25**	–.30	.13	–.05	–.05	.10	.08
4	School level	.03	.04	.06	.91	.14	–.24**	.25	.11	.21**
	Teaching experience	.03	.04	.04	–.09	,11	.11	.09	.09	.01
	IC (CCIS)	–.13	.08	–.12	–.02	.01	–.21**	1.68	.76	–.03

CC (CCIS)	.04	.08	.04	.01	.01	.18*	.14	.05	–.02
CT (TBS)	.28	.08	.26**	.11	.07	.45**	.01	.06	.13
TTCM (TBS)	.21	.07	.22**	.40	.13	–.07	–.04	.11	.05
EIS (TSES)	,05	.07	.09	–.28	.12	.05	–.03	.10	.22
ECM (TSES)	.06	.05	.13	.81	.14	.20*	.17	.11	.14
ESE (TSES)	.09	.07	.16	–.12	.11	.01	.06	.09	–.09
R^2	.33			.35			.16		
F	8.97			9.90			3.34		

Step 1, teaching experience; step 2, intelligence conceptions, step 3, teaching beliefs; step 4, self-efficacy; CCIS, Constructive Conceptions of Intelligence Scale; TBS, Teaching Beliefs Survey; TSES, Teachers' Sense of Efficacy Scale: IC: Innate Conceptions; CC: Constructive Conceptions; CT: Constructive Teaching; TTCM: Traditional Teaching and Classroom Management; EIS: Efficacy for Instructional Strategies; ECM: Efficacy for Classroom Management; ESE: Efficacy for Student Engagement.

Discussion

This study uncovers the differences in classroom management practices according to school level and teaching experience, and their associations with the three categories of teachers' beliefs: intelligence conceptions, teaching beliefs and self-efficacy. We considered three dimensions of classroom management: educational relationships, active strategies and emotion regulation.

For the first aim, the results indicate that teachers significantly differed in their practices in relation to their years of experience and the school level where they were teaching. Consistent with previous studies (Martin & Shoho, 2000; Wolff et al., 2014; Berger et al., 2018), the more expert teachers (i.e., those with more than 10 years experience) paid more attention to educational relationships and used more active strategies. This suggests that the quality of teachers' practices develop with their experience. In addition, there were significant differences according to school level. In the literature (Randall & Engelhard, 2009; Jerome et al., 2009), pre-primary and primary school teachers indicated that they use more active strategies and pay more attention to educational relationships. Also, upper-secondary school teachers showed more control of their emotion regulation processes, compared to primary and lower-secondary teachers. The teachers appeared to adopt improved emotional regulation strategies potentially to better cope with the behaviour of adolescents.

The second aim was to analyse the relationships between classroom management practices and different teachers' beliefs. The assumed positive correlations between the three dimensions of classroom management with constructive intelligence conceptions, constructive teaching beliefs and self-efficacy were confirmed by these data. Constructivist beliefs about teaching and students' intelligence were related to teachers' practices. Here, viewing pupils as active participants in the process of acquiring knowledge, and stressing the development of thinking processes more than the acquisition of specific knowledge (OECD, 2009), defines teachers who are be more oriented to optimal classroom management practices. In contrast, we hypothesised negative correlations among classroom management, traditional teaching beliefs and innate intelligence conceptions. This hypothesis is only partially satisfied, because the data did not show links for all of the dimensions of classroom management. Teachers who have traditional teaching and traditional classroom management beliefs do not use active strategies. Here, their role is the communication of knowledge, while making sure that the students concentrate, whereby they are better working alone. Instead, teachers who have

entity theories of intelligence will dedicate less attention to educational relationships, and are less able to regulate their emotion in the classroom (Brooks & Brooks, 1999; OECD, 2009). In line with the literature (Hoy, 2004; Anthony & Kritsonis, 2007; Klassen & Tze, 2014), self-efficacy and practices were linked. Therefore, to feel effective as teacher is strongly related for all of the dimensions of classroom management.

Finally, the results of the hierarchical regression analyses only partially support the third hypothesis. First of all, teaching experience did not explain any of the dimensions of classroom management, while school level was a strong predictor of emotion regulation and active strategies. In line with the already mentioned literature and the MANOVA results, active strategies are explained by lower school levels, while emotion regulation is explained by higher school levels.

For the role of the three categories of beliefs, these did not contribute to the explanation of emotion regulation. On the contrary, all of these beliefs had a role in adoption of active strategies. Intelligence conceptions explained active strategies in the expected direction. According to Dweck (2000), how teachers define intelligence affects their views towards students' roles. It follows that teachers who believe that intelligence can be cultivated through learning tend to use more active strategies, while those who believe that intelligence cannot be changed tend to use more transmissive teaching strategies. Similarly, constructive teaching belief was a predictor of active strategies, as the teachers who adopted more active strategies believed in constructive teaching, as has been shown by previous studies (OECD, 2009). Considering self-efficacy beliefs, only those related to classroom management had a role in active strategies. Teachers who used active strategies felt more confident about managing discipline in the classroom, motivated even the less interested students, and expressed their expectations in the student behaviour. According to Buehl and Beck (2015), the study of teachers' beliefs forms part of the process of understanding how teachers conceptualise their work, which is important, in turn, to an understanding of teachers' practices and their behaviour in the classroom. By empirically examining different teachers' beliefs here, we were able to provide a more comprehensive perspective of classroom management practices in this sample of Italian teachers.

This study has several limitations that can be improved upon in future studies. First, the self-reporting nature of the data might have limited the interpretation of the results. Here, the teachers might have reported their ideal behaviour, which might differ from the real educational practices that they adopt in the classroom. In addition, the data were collected at one time point, while practices and beliefs will indeed vary across one or

more school years. Future studies need to consider the same variables within a longitudinal design, while also considering outcomes variables, such as the school climate and academic achievements.

The results of this study have some particular implications for teacher training. To better equip teachers to manage the classroom, pre-service teacher and continuing education programmes could be used to introduce the impactful role that practices and beliefs have in the classroom. In particular, it will be important to create concrete opportunities for teachers to develop systematic reflective processes (e.g., Perrenoud, 1996), to provide occasions of mastery experience and modelling (see Bandura, 1997), and to develop socio-emotional key competences in the school context (Jennings & Greenberg, 2009).

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