Contents lists available at ScienceDirect

Teaching and Teacher Education

Research paper

Breaking in the black box of pedagogical authority. Combined analysis of video and think-aloud protocols

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ABSTRACT

This study examines how ten novice teachers take into account the characteristics of a classroom group while exercising pedagogical authority in teaching-learning situations involving 24 class groups located in nine High Schools in Switzerland. Based on think-aloud protocols produced during 2019 and expressing teachers' professional experience, we examine interactions within the classroom in authority situations. Within an overall complexity of interactions, we found that teachers frequently use double addressing (imposed or chosen) revealing a wide array of strategies. By making them explicit, we contribute to the understanding of pedagogical authority and open the way to further co-designed teacher education.

1. Introduction

In teaching-learning situations, novice teachers are concerned with issues of classroom management and particularly face the problem of authority (Emmer & Stough, 2001; Evertson & Weinstein, 2013; Périer, 2014). In this study, we consider that the teacher exercises pedagogical authority to seek students' recognition, adherence, and consent rather than obedience through submission (Reboul, 2016). When reporting on their experiences, these questions appear as closely linked to the characterists of student groups. Indeed, although pedagogical authority depends above all on the teacher's professional expertise and the recognition of his or her status as well as his or her personal qualities, it is nonetheless impacted by classroom group specificities (Joinel Alvarez, 2023). In teachers' conceptions, the student's response to a teacher's given request considers the presence of other students, the classroom group exerting a form of social control over its members.

While the issue of pedagogical authority in education has been widely explored, Oyler (1996) notes that most studies are theoretical analyses that do not explore how authority relationships unfold in the classroom group. In their literature review, Wenner & Campbell, 2017 highlight the need for new, high-quality empirical research on teacher leadership in order to gain a deeper understanding of the processes at work, as well as the need to clarify definitions in connection with the practice of authority.

The classroom group and the phenomena that operate within it have also been the subject of a wide array of research work in psychology, particularly in social psychology (Bany & Johnson, 1964; Schmuck & Schmuck, 2000). For example, Lewin, Lippitt and White's famous experiments (Lewin, Lippitt, & White, 1939)) showed that changing the style of leadership in a group altered the climate within it, in particular the developing rate of aggression. However, most studies have been done by outside observers who have not considered the teacher's experience, that is, the successive micro-decisions made by teachers and the associated emotions that impact their experience and health at work (Leblanc & Ria, 2014). Moreover, many authors note with regret that the specificities of a classroom group are often ignored by teachers and that knowledge about the importance of the relational dimension in classroom management is virtually absent from the training curricula of future teachers (Bany & Johnson, 1964; Gayet, 2014; Vidal, 2001).

In this research, we seek to understand how teachers exercise their authority in everyday situations and how they consider the characteristics of their classroom group in exercising pedagogical authority. To this end, we filmed teachers' actual activity in their classrooms and confronted them with their activity using think-aloud protocols (self-confrontation interviews *sensu* Poizat & San Martin, 2020). In other words, the aim of our work is to better define the concept of pedagogical authority and to specify the grounds for a situated approach of activity (Poizat, Durand, & Theureau, 2016) that considers the teacher's own experience.

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1.1. What is pedagogical authority?

Defining what is meant by the word authority is not a trivial task. There is a large amount of work done on this topic in a broad range of fields. However, in educational and social sciences in general, the word authority is still strongly inspired by the Weberian model: authority is synonymous with legitimate power (Weber, 2019). Thus, we adopt and translate Reboul's definition (2016) who considers that authority is

the power that someone has to make others do what he or she wants without resorting to violence […]. Our definition is based on the fact that obedience is never purely coerced. Indeed, who obeys can disobey […]. In other words, any authority is based on a legitimacy that is of a completely different order than physical force, and the different figures of authority are defined and based on what makes them legitimate. (p. 69)

Pedagogical authority thus relies on the agreement of the students and implies obedience in which they retain their freedom (Arendt, 2006). Interpreted in this sense, authority does not enslave, but authorizes. In teaching-learning situations, teachers seek recognition and consent from students to do what they ask rather than obedience through submission.

To gain such recognition and consent, teachers may rely on a combination of different sources of legitimacy (Gil, Méndez, Pérez, Sáez, & Zamora, 2020; Harjunen, 2011; Pace & Hemmings, 2006). A meta-analysis of research works from several disciplinary fields has recently enabled a synthetic model of pedagogical authority based on five sources of legitimacy (Joinel Alvarez, 2023). These are made up of three main sources linked to professional expertise: 1) didactic expertise, 2) expertise in the management of a learning environment, 3) relational expertise; and two secondary sources: 4) teachers' status, 5) personal qualities as displayed in the classroom. Depending on the teaching-learning situation, the teacher will rely on one or more of these sources to exercise authority in the classroom. Similarly, Del Pilar Cox-Vial, Sabat-Donoso, Zamora-Poblete, & Meza-Pardo, 2022 have shown that novice high school teachers are deploying six different strategies to establish pedagogical authority (that is, emotional, behavioral regulation, didactic, communication, body language and organizational strategies).

However, as Pace and Hemmings (2006) argue, while authority is indeed a social construct between teachers and students, it is also shaped by local contextual forces and broader social, political and cultural factors. Local contextual forces include student's characteristics, family background and classroom group's characteristics (Joinel Alvarez, 2023), with the latter being considered for over 40 years as strongly influencing pedagogical authority (Metz, 1979), although having been largely ignored in educational science research since then.

1.2. The classroom group: a complex social system

All interactions within the classroom group (that is, teacher-student relationships and peer relationships) are mediated by the presence of the group. In line with Lewin's (1947) work, Rey (2009) observes that the classroom is not a simple juxtaposition of students with individual characteristics, but rather a group with its own dynamics. For example, he notes that students do not behave in the same way in a classroom as they do when they are on their own. As in all groups, phenomena of influence are at work in the classroom group as for instance normalization, conformism, and attraction processes (see Schmuck & Schmuck, 2000). For some students, the need to be accepted is so strong that, under the pressure of the group, they may behave in ways or adhere to beliefs that they disapprove internally. Tensions between the teacher's expectations and those of the class group can thus arise, a situation that may lead the students to express undisciplined attitudes in order to be accepted by the group. The class group then exerts a profound influence, akin to social control, because it confers prestige and recognition on

those who respect the norms and rejection and punishment on the others (Brechwald & Prinstein, 2011). This social control is highly coercive and particularly effective because it is insidious, unlike the teacher's authority, which is institutional and therefore questionable (Rey, 2009). Research on group dynamics thus has the potential to unravel and provide an understanding of the exchanges and relationships that take place within it (Bany & Johnson, 1964). Since authority is first and foremost attributed by the members of the classroom group, it derives from the teacher's ability to perceive and understand the processes at work within the group (Bossert, 1978).

In a sociocultural context in which traditional forms of authority are eroding (Prairat, 2009), novice teachers are particularly concerned with the problem of authority. In the classroom, teachers' authority is no longer supported by the institution and taken for granted by the students (2011). On a daily basis and depending on situations, they strive to build a recognized and legitimized authority (Robbes, 2010). From their first experiences, novice teachers also realize that their status or knowledge are not the sole means by which they establish authority (Carra, Boxberger, Robbes, & Pesce, 2015). They are therefore required to discover and construct new meanings and practices of pedagogical authority that they find coherent and effective in the classroom (Zamora, Gil, Méndez, Galvis, & Tadeo, 2020).

In this study, we seek to understand the extent to which novice teachers identify the challenges associated to group interactions and take account of their own knowledge about groups to exert their authority. Since pedagogical authority is largely based on the teacher's expertise but is also inherent to the situation and its context, we apply a situated approach to activity in order to explore it.

1.3. A situated approach to activity that considers the teacher's own experience

Since the end of the 1990s, activity analysis has been a stimulating approach in order to explore the construction of knowledge in the field of education and training (Flandin, Lussi Borer, & Gaudin, 2018). The interest of an "activity approach" (Poizat, Durand, & Theureau, 2016) in both epistemological and methodological perspectives, lies in its double aim. On the one hand, the analysis of activity captures complex processes in an intelligible way that does not simplify them, thus contributing to the production of knowledge about teachers' real work in their classrooms. On the other hand, it apprehends the teacher's own internally perceived experiences in order to grasp the compromises they make when involved in complex and uncertain situations (Dieumegard, Nogry, Ollagnier-Beldame, & Perrin, 2021; Lussi Borer, Flandin, & Muller, 2018). This double approach enables new perspectives for teacher education and professional development.

Activity analysis aims to transcend the issue of "good practice" which is replaced by a "professional issue" that teachers have to answer and in the course of which they will potentially face a dilemma. In order to act, the teachers will rely on a strategy based on intentions, expectations, emotions and concerns, to which research must be given access so as to understand the reasons why teachers act the way they do (Leblanc, 2018).

By focusing on the activity and narrative of novice teachers, this research aims at producing scientific knowledge on their actual work by reflecting on their subjective experiences in understanding their activity. We are thus interested not only in what teachers do in their classrooms by examining the teaching activity from an external perspective (observable behaviors and the effects of these behaviors on students) but also in the way they experience what they do, that is, their own experience as internally perceived but reported *a posteriori* (Ria, 2015). We refer to the epistemology of situated action, as we consider that all teaching-learning situations (especially situations in which the teacher exercises authority) are singular and based on interactions between individuals and the environment where the activity takes place. To understand such an activity, we assume the need for "acting in a situation"

from the researcher's point of view, and consider.

- the social, temporal and physical context;
- the dynamic, unpredictable and indeterminate character of situations and interactions;
- the teacher's own experience (as internally perceived) and the activity's emotional dimension;
- the collective dimension of the teacher's activity;
- the knowledge of situated action (Saury et al., 2013, pp. 19–20).

We also claim a research approach that considers real work in a non-deficit perspective (Malo, 2008). Such an innovating perspective makes it possible to avoid prejudging novice teachers as having shortcomings compared to experienced teacher, by building on the existing skills and current understanding of the teachers to foster their professional development and improvement in teaching capacities.

Finally, we argue that while there are as many realities as there are individuals, when based on case analyses, one can provide "broad interpretations that make it possible to understand and explain the field of practice under study" (Saury et al., 2013, p. 23). Studying activity thus requires setting up an observatory that renders all methods of data production and analysis visible (Albero & Guérin, 2017; Dieumegard, de Vries, & Perrin, 2021).

2. Methods: constructing and analyzing observation and narrative data

Our study relies on video sequences produced between February 2019 and June 2019. We filmed 10 teachers in training at the University of Teacher Education of the canton de Vaud, Switzerland (*Haute école pédagogique du canton de Vaud*), teaching in nine high schools in the canton de Vaud and in 24 different classroom groups (433 students aged 12 to 15 involved). The ten teachers participating in the study are engaged both in a work-study program and a classroom responsibility. Following Ria (2006), we use the generic term "novice" to describe teachers, whether graduate or not, who are taking their first steps in the profession. We examine their activity by coupling the videotaped traces of their classroom activity with those obtained during think-aloud protocols (Gaudin & Chaliès, 2015). Firstly, each novice teacher selects several video sequences chosen from the entire set of videotaped traces taken from his or her activity. The video sequences were chosen by the teachers themselves in order to provide us with information on what was significant for them in relation to the exercise of authority. If they had difficulty finding any, reminded that these were all the moments when they made a request to a student or a group of students. Secondly, a facilitator trained in techniques of think-aloud protocols guides each teacher in the narrative of his or her professional experience as internally perceived while screening the selected video sequences. This guidance places the novice teachers back into the context in which the activity took place: they express their actions, expectations, emotions, and the knowledge mobilized when carrying out a given activity. To analyze the videos and the teacher's narrative across each video sequence, we base our rationale on the principles of grounded theory (Glaser & Strauss, 1967).

2.1. Construction of the analytical material

Observational and narrative data are produced and organized in the following three steps.

Step 1: Detailed and chronological descriptions of the teacher and student activity (behaviors and interactions) in authority situations are documented during video screening. The observational data that constitute the activity traces include contextual elements (indications on space, time, prescribed task), interactions and behaviors of teachers and students in a given situation.

Step 2: Narrative data are produced by the full transcription of the think-aloud protocols. Narrative data represent the *a posteriori* description of the situation and activity from the teacher's viewpoint, or in other words, the narrative of the teacher's own internally perceived experience, from a professional standpoint, when viewing each selected video sequence.

Step 3: A two-part protocol is used, constructed as a table that matches the different observational and narrative data in a synchronous manner (Poizat et al., 2023) (Table 1).

2.2. Analysis of teacher's requests to students in relation to pedagogical authority

To understand how teachers exercise their pedagogical authority with their students and how they take the classroom group into account in exercising this authority, we identified all the interactions in which each teacher makes an authority-related request to one or more students. In other words, we documented all interactions in which teachers sought to obtain students' recognition, adherence and consent rather than submissive obedience, in agreement with our definition of pedagogical authority.

2.2.1. Components at play in authority situations

In these interactions, we specifically documented the teachers' activity in authority situations by identifying all the relevant components of this activity: i) request(s); ii) action(s) in relation to the request(s); iii) concerns; iv) emotions; v) modalities of interaction; vi) satisfactions.

2.2.2. Modalities of interaction involved in situations of authority

We first classified interactions with students following the three categories proposed by Bressoux (2002): the teacher addresses *one* student, a *subgroup* of students or *all* students. However, these three categories were not sufficient to document all the observed interactions, so we divided them into six interaction modalities: i) single addressing to a single student; ii) single addressing to a set of unidentified students; iii) single addressing to the classroom group recognized as an entity; iv) single addressing to a subgroup of identified students; v) double addressing imposed to the teacher; vi) double addressing chosen by the teacher. We then cross-referenced the different components of the activity involved in authority situations (2.2.1) with these interaction

Table 1

Excerpt from a two-part protocol conducted in Louise's classroom, an example taken from data collected in a pilot research project conducted in January 2019, prior to this study.

Part 1 Observational data Behaviors and interactions	Part 2 Narrative data
Louise is standing in front of her students who are sitting at their desks. She gives them the instructions for the upcoming activity. While the instruction is being given, three students raise their hands to ask to speak.	Louise: *Now we can put it on pause. Yeah, now I'm in a panic because as I'm talking, I realize that there are absentees, people, students, who were here this morning and who aren't here and in fact I realize at that moment, while I'm giving the instructions that it's not going to be possible. So you can see that I'm slowing down. I'm thinking to myself: "Do I continue in the mode I had planned or do I give up this mode and create one now, quickly?* Facilitator: *Ok*
Louise: *So, you'll get into groups. Groups that I will choose. I'll pick your partner. You have physical descriptions of an animal … And there are ten groups … and the people you're working with will have to guess based on your description what your animal is.*	Louise: *I choose this scenario B and will change the instruction.* Facilitator: *And right now, you're thinking: "I'm going to change the instructions"?* Louise: *Yeah and it shows because I've slowed down, I give myself time to think.*

modalities.

3. Results

A total of 17 h and 38 min of think-aloud protocols (that is, teachers' narratives) were recorded. They allowed the development of 10 two-part protocols matching the observational and narrative data. The full set of two-part protocols is provided in original language (French) as Supplementary material. Within these two-part protocols, we identified 347 interaction situations, 222 of which related to pedagogical authority in the classroom (Table 2). Among these, we identified four typical situations of pedagogical authority, which we detail below in order of importance in terms of number of occurrences: 1. situations where teachers deal with inappropriate behavior (for instance, students lying on their desks or chatting during the lesson); 2. beginning of class and getting students to work (for instance, students ask a lot of questions and don't get down to work); 3. problematic teaching/learning situations (for instance, teachers try to obtain silence so that they can explain the exercise they are doing) and 4. successful teaching/learning situations (for instance, group work that goes well).

By combining observational and narrative data, the 222 interaction situations related to pedagogical authority in the classroom were then categorized in six different modalities as described in 2.2.2 and further grouped *a posteriori* into three general addressing categories: a) single addressing to one student, b) single addressing to several students, c) double addressing (Table 3).

Of all the interactions related to pedagogical authority in the classroom, single addressing to a single student in which the teachers' narrative explains that they are addressing only one student directly and do not mention the presence of other students at any time was found in 26.6%.

Interactions in which teachers use a single addressing to several students were retrieved in 40.5% of all interactions in authority situations. More specifically, teachers address a set of students that they consider unidentified in 23% of all interactions in an authority situation. They address the classroom group recognized as an entity in 10.8% of interactions. Here teachers refer explicitly to their classroom group and rely on their knowledge of their classroom group and/or about groups in general to act. Last, they address a subgroup of identified students in 6.8% of interactions: in such a situation, teachers explicitly identify a few students whom they address through a single communication channel.

Finally, we were able to identify the existence of double addressing interactions in nearly one third (32.9%) of all interactions related to pedagogical authority in the classroom. In these interactions, novice teachers describe addressing students simultaneously, using two different communication channels, either verbally or non-verbally, directly or indirectly. This double addressing is experienced either as an imposed situation—teachers face a dilemma that they confront passively (they did not choose to find themselves in this double addressing situation) in 22% of situations— or as a chosen circumstance—teachers rely on student-to-student interactions and deliberately generate double addressing in 10.8% of the situations. In double addressing situations, each of the two recipients (that is, students or student subgroups) are considered separately.

4. Discussion: the complexity of interaction modalities in the classroom group

In this study, we use think-aloud protocols to access the professional experiences of 10 novice teachers in authority situations. This approach allowed us to reveal the complexity of interactions within the classroom and to identify several previously undescribed interaction modalities. More specifically, our study identifies that, in the exercise of authority, teachers are in a situation of double addressing in almost one interaction out of three. In other words, in the interactions involving two recipients, teachers simultaneously address several students or subgroups of distinctly considered students, through two different communication channels (either verbally or nonverbally), in an imposed or in a chosen manner.

Contrasting with our methodology which integrates the teacher's narrative when viewing selected video sequences, most studies so far have relied exclusively on external observers who have not considered the teacher's own professional experience as he or she internally perceived it. In these other works, the identification of recipients therefore relies on a cluster of clues, for example, by making inferences from non-verbal communication (Kerbrat-Orecchioni & Petitjean, 2017). As noted by Poggi et al. (2022) in the setting of TV political talk shows, it can be difficult to determine who the real addressee is, or who the « third listener » is. As far as we know, it comes as no surprise that since Fisher (1976) highlighted indirect messages and Goffman (1981) specified the existence of double addressing, only a handful of studies—all of them took place outside the classroom group—have revealed the existence of this phenomenon in teacher-student interactions. Trébert & Filliettaz, 2017, for example, highlighted such interactions at moments when a trainee, observed by a trainer, was simultaneously addressing the students and his or her trainer. Another study drawing on interactional analysis revealed forms of double addressing among early childhood educators during the end-of-day feedback in a nursery: the educator addresses the parent and the child at the same time (Wolter, 2020). Finally, as Amendola et al. (2015) reported, some early-career teachers, at the moment of being integrated into a teaching team, admit to addressing their classrooms as much as their colleagues when, for example, they ask students to be quiet in the hallways.

While all these studies report double addressing in the presence of an adult third party, they do not identify the existence of such a wide array

Table 2
Descriptive data concerning all filmed participants.

Alias name and gender (m = male or f = female)	Age	Years of teaching experience prior to entering pedagogical training	Number of classroom groups filmed	Subject taught	Number of selected sequences	Duration of the selected sequences	Duration of the teacher's narrative
Andrea (f)	29	1	3	Mathematics; Natural sciences	6	21 min	1 h 54 min
Barry (m)	39	1	2	Economy; Mathematics	3	13 min	1 h 26 min
Chantal (f)	41	0	2	Mathematics	3	13 min	1 h 34 min
Erin (f)	28	1	3	English	4	19 min	1 h 43 min
Fernand (m)	29	1	2	Geography	7	14 min	1 h 49 min
Jerry (m)	30	7	3	Ethics and religious cultures; French; History; Natural sciences	6	24 min	2 h 11 min
Karen (f)	30	2	2	Natural sciences	6	18 min	1 h 37 min
Lorenzo (m)	31	2	2	English; German	4	15 min	1 h 50 min
Nestor (m)	27	4	2	Gym	5	18 min	1 h 47 min
Tanya (f)	57	12	3	Music	4	17 min	1 h 47 min

Table 3
Number of interactions and relative occurrence (%) of each of the six typical interaction modalities as defined in this article, as well as the three corresponding general addressing categories.

General addressing category	Typical interaction situations related to pedagogical authority in the classroom	Number of interactions (222 in total)	Relative occurrence (%)	
			with respect to all six interaction modalities	with respect to the three general addressing categories
a. single addressing to one student	i. single addressing to a single student	59	26.6	26.6
b. single addressing to several students	ii. single addressing to a set of unidentified students	51	23.0	40.5
	iii. single addressing to the classroom group recognized as an identity	24	10.8	
	iv. single addressing to a subgroup of identified students	15	6.8	
c. double addressing	v. double addressing imposed to the teacher	49	22.0	32.9
	vi. double addressing chosen by the teacher	24	10.8	

of addressing situations as shown in our study, revealing a new complexity in teacher-student interactions in the classroom. Here, novice teachers are typically most often involved in single-addressed interactions. However, in reporting on their experience, we were able to demonstrate that in authority situations, novice teachers were often (32.9% of all cases) simultaneously addressing two recipients through two different channels, a key finding that no research had previously revealed.

4.1. Single addressing interactions

In single addressing interactions, those that are most often observed in situations of authority (77.1% of all cases), information flows directly between teachers and their student(s) (Fig. 1). In such cases, teachers do not mention the fact that what they are saying also concerns other members of the classroom group.

If single interactions between teachers and their addressees seem trivial at first sight, questioning the influence of the group's presence as a third-party mediator is essential. Indeed, as Postic (2015) describes, the presence of the classroom group, even if silent, exerts an influence on each of its members. If teachers do not intend to give the group any information, it can still be perceived by group members. Furthermore, the way the recipient student receives it may be influenced by the presence of peers (Gayet, 2014). Also, during these interventions, one can visualize the way novice teachers consider the presence of the group when addressing the students.

Our results show that most novice teachers, when they use a single addressing interaction modality, will focus on that interaction and overlook the presence of other group members. In contrast, a few teachers (for instance, Lorenzo, Jerry, and Nestor) will repeatedly explain that they take the group and their knowledge of groups into account when interacting with a single student. Their experiences, which are based on very different backgrounds and concerns, will be developed in the following paragraphs.

Lorenzo, because he has a strong connection with the classroom group he has had for three years and which he describes as "responsive

to even mild interventions" (see Supplementary Material 1, p. 228), decides to intervene with a smile on several occasions. He even consciously decides not to sanction behaviors which he says he would have done in his other classes. In addition, he explains that he often takes time to praise the whole classroom group at the beginning of a session. By viewing the group in a positive light and expressing it explicitly, he allows his students to experience recognition, one of the fundamental needs identified by Bany and Johnson (1964). In this regard, and as Beretti (2019) suggests, once recognized, students can then in turn give recognition to their teacher. Lorenzo, because he knows that he has succeeded in establishing a relationship based on mutual recognition with his class, can intervene individually with his students in a discrete and effective manner.

In turn, Jerry explains that when he allows a student to work outside the classroom, it is because he knows that students behave differently in a group (they are more likely to get into trouble), whereas he can trust them individually (see Table 4).

Here, the group is seen as a catalyst for inappropriate behavior, and

Table 4
Excerpt of the two-part protocol conducted in Jerry's classroom describing a single addressing interaction in which Jerry takes the classroom group into account (Supplementary Material 1, pp. 180–181).

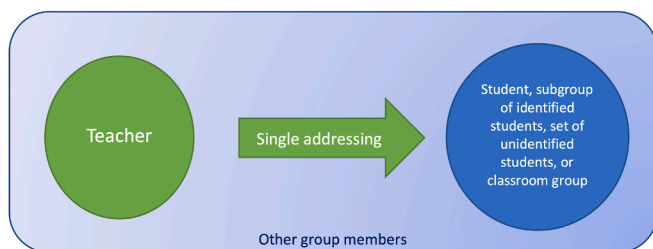| Observational data Behaviors and interactions	Narrative data
A student (Matteo) asks to continue his work in the corridor.	Jerry: *So, it's Matteo who asks me uh … he says "Can I go outside for a while?", then I really ask "Do you need it?" because sometimes it's more "I'm fed up" and then I feel, I feel that he's starting to get fed up and then he's starting to get tired. And it's interesting because he asks me about two or three minutes after I've taken Paul's Behavior Booklet. And I think he's starting to feel threatened, he's starting to say to himself, "If this keeps up, I'm going to be the one to get it". And especially with Zihad next to him, who's also always interacting with him. And then, in the end, he spends the rest of the time outside. But I went by a few times and then … and then he was working.*
A student: *And the man and the neighbor, at the neighbor's, called the police, but they're not policemen, they're investigators, so …*	Facilitator: *Is that a contract you have with this particular student, or with others?*
Matteo: *Sir, can I work outside?* Jerry: *Well, an investigator is a policeman.* Matteo: *Can I work outside, sir?* Jerry: *Do you need this?* Matteo: *I really do.* Jerry: *Well, go ahead, but you'll be back in a moment. Okay?*	Jerry: *No, it happens with others. And then, most of the time, if we're not doing something really important, I tend to let them go out. Because I feel that sometimes there's no point for them staying in class. I'd rather they were out for 5 min rather than in class, not concentrating and disrupting.*

Fig. 1. Illustration of single addressing interactions in presence of other group members (not considered by the teachers).

Jerry says he takes this into account when organizing his teaching. Jerry's strategy converges with the observations of Rey (2009), who reports, as does Lewin (1947), that students' behaviors, particularly among adolescents, differ from those they would adopt if they were alone. This may explain, even though it is strongly advocated in novice teacher education, why the consideration of subgroups in high school remains scarce in our observations as well as in literature (Rey, 2009).

Finally, when observing that the atmosphere in the class as well as the characteristics of a specific student could lead to the designation of a scapegoat, Nestor chooses not to address a particular student even though he has transgressed a rule (see Table 5).

Thus, Nestor avoids stigmatizing Manuel and further increasing dynamics of ostracization in the group. Knowledge of his classroom and in particular the precise identification of roles played by students within it (Redl & Wattenberg, 1959) allowed Nestor to carry out his request while not amplifying possible scapegoating.

Whereas in most single addressing interactions, teachers ignore the presence of the classroom group, these three teachers describe interactions in which they consider the specific context of the group in order to act, even though with a single student. By specifically framing their interventions, they argue that they tailored their response to the measure of the context in which the interactions unfolded. Hiding behind an apparent simplicity, their intervention is guided by rich, complex and dynamic thinking.

Table 5
Excerpt of the two-part protocol conducted in Nestor's classroom describing a single addressing interaction in which Nestor takes the classroom group into account (Supplementary Material 1, pp. 256–257).

Observational data Behaviors and interactions	Narrative data
All the students and Nestor are putting the equipment away. Nestor calls out to Manuel as he pushes a springboard. Manuel turns and runs into one of his classmates.	Nestor: *I felt a bit guilty because I was talking to him, and then he moved his box forward and then he moved into the other one (laughs).*
A student: *We haven't finished yet.*	Facilitator: *But then he apologized right away.*
Nestor: *Even if it's not finished. Even if we haven't had time, we still have to tidy up. Tidy up.*	Nestor: *Yeah, he does. He says sorry. But after he's done that, I'm usually the kind of person to say to him, to point it out. "You might want to be careful, watch where you're going," and then I go on to something else. But in this case, I stayed focused on him and rather than just saying "You could be more careful", I had the impression that because I was looking at him, he understood that it still had a certain importance and said "Oh, sorry". In the end, it calmed things down right away. And so much the better, because usually, well … sometimes they tend to get angry with Manuel, since he's a particularly clumsy student … it's not the first time something like this has happened to him. And that helps prevent things from escalating to a crescendo with this student, who could become a bit of a class scapegoat …*
(Silence)	Facilitator: (Acquiescing) *the one who ran into it, right?*
Nestor: *Manuel, aren't you forgetting something? It's not at the right height.* **(Silence)** **Nestor: *But! Careful, look, look where you're going, you've crashed into him.*** **Manuel: *Oh, sorry.***	Nestor: *He could become a bit of a scapegoat because that's often the case. He often doesn't pay attention. Well, now that I'm looking at him and not telling him anything … Well, it's more discreet, I don't want to stigmatize him and I have the impression that it calmed things down, that he apologized and then the other guy was … well, he didn't get upset. He thought "that's not cool, but it's okay." That's really cool!*

4.2. Double addressing interactions

As previously mentioned, double addressing interactions can be either imposed or chosen. In an imposed interaction, teachers face dilemmas that they must overcome. In a chosen interaction, teachers use the interaction's complexity in order to exercise their authority.

4.2.1. Imposed complex interactions: dilemmas preventing pedagogical authority

When novice teachers find themselves in a double addressing interaction modality, they are most often faced with dilemmas. The results of our study converge on this point with other studies interested in understanding novice teachers. Thus, Ria et al. (2001) note that emergence of dilemmas is characteristic with novice teachers who, within the same action, evoke contradictory experiences that simultaneously involve several concerns considered as incompatible. Trapped in a dilemma they could not anticipate, novice teachers then recall that in these particular situations they found themselves lacking in action strategies and express feelings of discomfort and incompetence. How do the novice teachers in our study describe their activity when facing such dilemmas?

This study distinguishes two types of dilemmas that call for two distinct types of responses. In the first instance, novice teachers try to manage what is considered as an inappropriate behavior while keeping the group active and at work. In the second instance, they find themselves in a constrained situation, tied up with the collective organization of the classroom group. In the latter case, teachers try to intervene individually with certain students while at the same time keeping the group at work. Let us explore the issues related to each of these two types of responses when facing dilemmas.

4.2.1.1. Dealing with inappropriate behavior while keeping the group at work.
Most often, novice teachers solve the dilemma by focusing only on one of the expectations they consider paramount, that is, stopping the problematic behavior as quickly as possible in order to keep the group at work. Interestingly, those who start with addressing the problematic behavior temporarily neglect the group and then return to it once the individual issue is resolved, as Ria et al. (2001) have also noted. By even temporarily giving up their expectation of getting the group to work, several novice teachers then describe losing their pedagogical authority for good: students stop working and often start talking among themselves. As Nestor explains it, implementing this strategy generates new disruptive behaviors with some students who will, for example, deliberately waste the time of the rest of the group by monopolizing the teacher's attention (see Supplementary Material 1, pp. 245–246).

On the other hand, teachers who primarily focus on the group do not neglect their other expectation (that is, stopping the problematic behavior): they always keep the disruptive student in mind. By giving attention to those who are working, they explain that they expect the problematic student to interrupt his disruptive behavior without an explicit external solicitation and, in turn, to start working. In this sense, they agree with Marzano et al. (2003), who recommend adopting behavior management strategies that allow students to modify their behavior while preserving their dignity. By doing so, teachers reinforce expected behaviors, which encourage other students to similarly engage in following the same line. In most interactions of this kind, novice teachers precisely describe this mechanism and generally express a strong sense of satisfaction at having overcome a problematic situation.

Our research shows that the latter strategy is much more effective than the former. When they first beginto address a disruptive behavior, novice teachers either receive protests from the students involved or they lose the group, which interrupts the working dynamic. In contrast, primarily focusing on the group does not imply losing it: the students continue to work, and generally, the one who is intentionally ignored eventually starts working on his or her own.

4.2.1.2. Individualizing interventions while keeping the group at work. The second dilemma is related to issues of educational differentiation. Teachers wonder how to deal with two seemingly irreconcilable logics: on the one hand, differentiating learning in promotion of individual success, and on the other hand, maintaining a collective approach in the learning process thus guaranteeing the transfer of expected knowledge to all students. In this case, the classroom group is an obstacle to the more individualized teaching that some novice teachers say they want to move towards. This dilemma echoes the work of Périer (2014) who raises the issue of the tensions involved in managing the growing heterogeneity of classroom groups. How does one maintain interest and learning dynamics for successful students while nevertheless allowing those who are struggling to progress?

This is also the question asked by three of our novice teachers—Erin, Tanya and Andrea—who find themselves caught between their desire to individualize their interventions and the risk of losing the rest of the classroom group (see Table 6).

The three teachers attempt, with considerable difficulty, to maintain these two seemingly irreconcilable expectations in their teaching. At the end of the interaction, all of them share feelings of partial or total inefficiency, sometimes linked to a form of exasperation or discouragement. They explain that they systematically lose the group and sometimes even fail to address the individual disruptive behavior. Erin thus repeatedly expresses a feeling of fatigue and confusion in echo to Leblanc and Ria (2014) who observe similar emotions in novice teachers when they go through such situations (see Supplementary Material 1, p. 98).

For the novice teachers involved in this study, focusing on one intention (while dropping the other) appears to be a more effective strategy than attempting to maintain both intentions simultaneously. This is especially true if the focus is on the group rather than on individual students.

4.2.2. Chosen complex interactions that promote pedagogical authority

When looking more closely at the interactions in which novice

Table 6
Excerpt of the two-part protocol conducted in Erin's classroom describing an imposed double-addressing interaction in which Erin intervenes individually while keeping the group at work (Supplementary Material 1, pp. 96–97); see also Supplementary Material 1 for excerpt of Tanya's (p. 266) and Andrea's (pp. 8–9) two-part protocols in which imposed double-addressing interactions with individualized interventions are also at work.

Observational data Behaviors and interactions	Narrative data
Erin finishes explaining the upcoming activity. There's a hubbub in the classroom. A student raises her hand.	Erin: *It was an exam question that had nothing to do with what I just said. But you see, I still want to answer her, it's important that she understands. But then we went back to the exam form. So that … I lost the others, they didn't care. And then she went back to the theme she'd been working on before, whereas now it was time for them to get on with the activity or get into groups and start working.*
Erin: *Shhh! Yes, Elyne.*	Facilitator: *At that point, how do you know you're losing the others? What are the clues?*
Elyne asks a question about the exam. Erin approaches Elyne. Students make noise.	Erin: *It's that background noise, the fact that* (pointing the students on the screen) *he's looking there, he's looking there, she's looking at the card, he's looking out the window.*
Erin: *Hey, we're all trying to listen here!*	Facilitator: (Acquiescing) Erin: *I see it right away with this class … I know them well. And then there I am again … I give a uh … a yell and then I try to take them back: "hey, we're all trying to listen here!"*

teachers engage in double addressing, our results enable the modelling of different strategies used by teachers to get students to do what they ask for: they either combine direct and indirect addressing by referring to a student in order to convey a general request to the rest of the classroom group, or address the classroom group to convey a request aimed at a particular student (Fig. 2); alternatively, they can use double addressing to promote exchanges between students (Fig. 3).

4.2.2.1. The use of indirect messages. In interactions that combine direct and indirect addressing, novice teachers implement a strategy aimed at indirectly conveying information to one or more students: there is a contradiction between the apparent and the actual recipients (Kerbrat-Orecchioni & Petitjean, 2017). When facing students' behaviors perceived as inappropriate, novice teachers will use these strategies to deliver a request without changing the course of the interaction.

In situations where the request is indirectly addressed to the group, two different issues are identified by our novice teachers. In the cases of Lorenzo, Jerry and Erin (see Supplementary Material 1, pp. 225–226; pp. 173–174; pp. 115–116), the goal of their intervention is to prevent inappropriate behaviors from spreading throughout the classroom group—Jerry mentions his fear of contagion (see Supplementary Material 1, p. 149). Their purpose is to indirectly convey a warning (or disincentive) message to the group, as first identified by Brown and Levinson (1978). By doing so, they explain that they can maintain some control over the classroom group in a cost-effective manner.

Chantal has a rather different intention: while her pedagogical authority is challenged by the attitude of a student in front of the whole classroom group, she adopts an action that aims to "save face" as referred to by Goffman (1955) (see Supplementary Material 1, pp. 87–89). Her response is thus accompanied by a double intention: ensuring that the disruptive behavior stops, but above all not losing credibility and risking the long-term loss of control over the classroom group. This strategy suggests that the request is sent to an explicit direct recipient (the disruptive student) when in fact the apparent recipient is of secondary importance. The request is thus aimed at an indirect but primary recipient: the rest of the classroom group. In such cases, novice teachers make decisions of which the purpose is not directly related to the learning process but rather to the fact of saving face in front of the classroom group. Thus, they do not lose their pedagogical authority over a longer term.

When the teacher directly addresses the whole classroom meaning to indirectly address one or two students, the purpose is often to make a request without explicitly naming the latter. In such cases, two typical strategies, associated with two different intentions, have been identified.

First, Andrea will not directly address two chattering students because she does not want to stigmatize them (see Supplementary Material 1, p. 35). Thus, by not directly addressing the students engaged in an inappropriate behavior, she does not reinforce the social comparison phenomenon among students, which is very common in class groups (Dijkstra, Kuyper, Van der Werf, Buunk, & van der Zee, 2008). Therefore, she avoids a possible negative influence on the motivation and performance of these students. Here, Andrea's goal is to save the students' face regarding their peers (see Table 7).

Other indirect interventions rely on the conformity pressure to reshape students' behaviors. For example, Fernand uses the group as a witness to change a student's disrespectful behavior (see Supplementary Material 1, pp. 132–133). Chantal explicitly uses the classroom group pressure by challenging a student in front of his peers, pointing out that he is not listening (see Table 8).

Since the need to be accepted in a peer group is particularly strong during adolescence, standing out at the risk of being rejected is generally not an option (Emmer & Gerwels, 2013). Thus, once norms have been established, students will conform to them by adopting the behaviors and opinions of the classroom group or subgroup to which they do or seek to belong. In the case of Fernand and Chantal, it seems that group
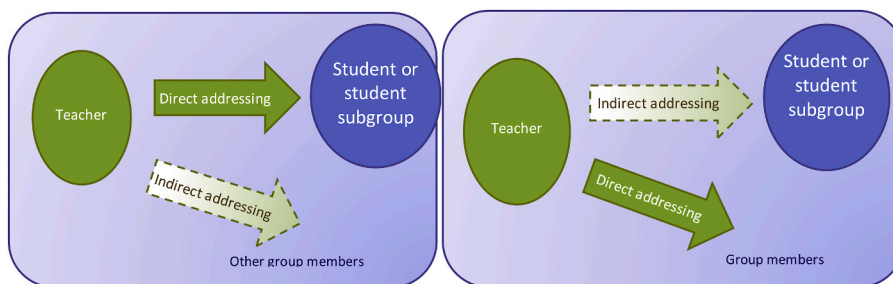
Fig. 2. Illustration of the two types of chosen double addressing interactions, combining direct and indirect addressing.
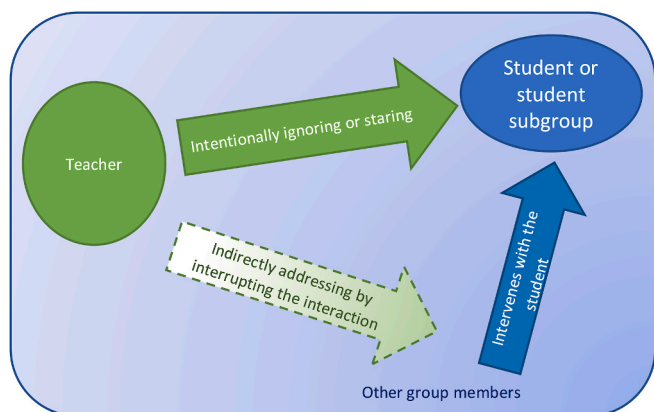

Fig. 3. Illustration of chosen double addressing, with selected interactions where teachers use student-to-student regulation.

Table 7

Excerpt of the two-part protocol conducted in Andrea's classroom describing a chosen double-addressing interaction in which Andrea makes use of an indirect message (Supplementary Material 1, pp. 35–36).

Observational data Behaviors and interactions	Narrative data
Andrea is at the blackboard. She explains how to simplify fractions by asking the students questions and writing the answers on the board. Two students chat while the others listen and answer questions.	Facilitator: *That remark … Can you tell me a little more about it?*
Andrea: *3/9, yes Shhh! Hey, raise your hand. Sandro? Sandro? You divide by 3. Yeah, so what do we do? 3 divided by 3 is 1. Then 9 divided by 3 is …*	Andrea: *The two boys at the front were talking about other things. And uh, well, I wanted them to pay attention to that point because it's important for the test. And so, I… I just reminded them … I just told them well that's valid for everyone …*
Student: *3.*	Facilitator: *Does that apply to everyone?*
Andrea: *So it's possible. You divide by 3. And that applies to everyone, doesn't it?*	Andrea: *Yeah, it does. So … the idea is that they feel concerned, as it's a bit of a collective remark, just like that, without naming them … Without pointing them out, so that they feel … yeah, that it's them I'm talking to.*
The two chattering students fall silent and turn to their teacher.	

Table 8

Excerpt of the two-part protocol conducted in Chantal's classroom describing a chosen double-addressing interaction in which Chantal makes use of an indirect message (Supplementary Material 1, pp. 79–81).

Observational data Behaviors and interactions	Narrative data
Chantal stands in front of the blackboard. She gives explanations by writing answers on the board. One of the two students sitting in front jumps on his chair.	Facilitator: *And so, your objective at that point is for Ethan to become aware of his … Of what he's doing?*
Chantal: *What can be done to have both with the same denominator?*	Chantal: *Yes. Of what … Of what he's missing. So, the fact that he's not behaving, he's not following and he's missing an important moment. I want him to realize how completely lost he is.*
A student: *Divide by 3.*	Facilitator: *Ok.*
Chantal: *You can use this one or simplify it, so it'll make the calculations easier … We'll try to put this one and this other one with the same denominator. What are you going to do? You can't, you change the numbers. Come on, come on, let's see who finds it. Ethan, can you give me an idea of what to do?*	Chantal: *And I manage to catch them at times that … Now I'm thinking "he doesn't know where we are anymore". Now he's going to show the whole class that he has no idea.*
Ethan: *Huh?*	Facilitator: *Yeah, okay, and now you've just said it in front of the whole class. Why is it interesting in front of the whole class?*
Chantal: *Can you give me an idea of what we could do?*	Chantal: *Because I think it's important to learn from your own mistakes. I've had parents who didn't yell at me much, and I learned more than if they'd yelled at me. So I think that's what I'm doing again with my children at home and with my students. That I won't yell at him and he'll realize what a stupid thing he's done.*
Ethan: (Silence)	Facilitator: *Yeah. The idea is to raise awareness. But the element you've just added is in front of the whole class. Why do you think it's important?*
Chantal: *What are we supposed to do here? What did I ask you to do?*	Chantal: *Because I think it puts more pressure on them. They look ridiculous in front of the class. So, I'm not being malicious, but yes, on the one hand, it's my defense.*
A student: *We're doing multiplication on fractions.*	Facilitator: (Acquiescing). *So, you're using …*
Chantal (raising her hand): *Thank you. But what are we going to do with these two fractions?*	Chantal: *Here … I'm using group pressure, the group effect. I want to tell him … "if you think you're a leader in this group, then you're not and the others will make fun of you". Then the group is captured, I feel they're with me, I can use it. And if the student wants to be a leader, he doesn't want the others to make fun of him. And because they're so focused and interested, when I ask him the question, they realize "Wow, he can't even answer that!" So I feel that I can use the group, that they're with me.*
Ethan: *Simplify it?*	
Chantal: *No. We need to compare the two fractions and see which one is bigger or smaller. Okay, give me your behavior book.*	

norms are in line with the school's values, allowing them to build on them. In the opposite case—namely when the group norms do not correspond to those of the school—the pressure to conform would tend to favor behaviors that deviate from the school norms (Bany & Johnson, 1964; Peeters, 2009). Whatever, by not directly confronting the student, they avoid engaging in a power struggle with him or her and may also allow the student to hold his or her head high in front of his or her peers. If we consider, for example, the case of a student who has developed a "clown" role *sensu* Redl and Wattenberg (1959), respecting authority

would mean losing face and perhaps even his or her place in the group.

One should note that it is also possible to observe phenomena of direct and indirect addressing in other, more common situations, in which the teachers' goal is not related to behavior management but to make their attention visible to the other students. Jerry, for example, begins by answering a student's question in a low voice and then, realizing that the question may concern other students, will stand up straight and raise his voice to make it clear that his message is addressed to all (see Supplementary Material 1, p. 157). The intention here is to extend his message, calling on general participation without changing the interaction. Finally, we observe interactions in which teachers address several students to manage more than one activity at a time; a particularly difficult task for novice teachers (Ria et al., 2001). Such a strategy is also adopted on several occasions by other novice teachers such as Tanya and Jerry, who use non-verbal communication to inform a student who asks to speak that he or she has been seen and will have to wait a moment before being able to have a say (see Supplementary Material 1, pp. 270–271; pp. 152–154).

4.2.2.2. The use of regulation between students. In the interactions described hereabove, teachers maintain the course of interaction in order to convey the same request to several students or subgroups of students. In the interactions detailed in the following section, the course of the interaction is voluntarily modified by the teacher to let the students regulate each other (Fig. 3).

At first glance, this type of strategy, used by four of the novice teachers in our study, could be reminiscent of practices stemming from cooperative classes or institutional pedagogy. In these classes, bodies formed by the students are set up to mainly manage the organizational and social aspects of the classroom group. By relying on the intrinsic properties of their group, teachers replace the vertical teacher-student relationship with a more horizontal one between each member of the group including themselves (Rey, 2009). Here, the teachers' purpose is to allow students to be confronted with the community of which they are members and to no longer be subject to the sole authority of their teacher.

However, novice teachers who rely on peer regulation do not explicitly respect these practices. Thus, when commenting on their interactions, they describe the power of peer-to-peer influence, which they often consider to be far more effective than their own interventions. For instance, Lorenzo says:

> But then, the student who doesn't follow, well, I stare at him, so that everyone stares at him, then blah, blah, blah, then one of them says his name, turns around, I look at him and he feels a bit stupid. Sometimes it's better to let them deal with it on their own than to reprimand them directly for 2 minutes. Again, it all depends on the situation. It's true that I find you have to be, um … a bit aware of the context. Sometimes it depends on the time of the day or the subject being taught (Supplementary Material 1, p. 231).

While not explicitly referred to by novice teachers, they again implicitly acknowledge the pressure to conform to the group. In high schools in particular, adolescents exert a profound influence, according to some authors is akin to social control (Brechwald & Prinstein, 2011). Unlike the authority of the teacher, which is legible, institutional, and therefore contestable, the control exercised by the group is more insidious and often very coercive. Also, some authors warn against completely delegating power to the group (Vasquez & Oury, 1967). For these authors, the teacher is and must remain the person who ensures the classroom setting. Students do not have to assume the full weight of an authority that has been transferred to them; the risk of conforming to practices that are much more authoritarian than those of the adult cannot therefore be excluded. One of the interactions Karen commented on illustrates this problem well (see Supplementary Material 1, p. 195). By refusing to answer a student's

question that she considers inappropriate and by voluntarily allowing the group to point it out to her, she runs the risk of ostracizing this student, who may no longer dare to speak spontaneously in the classroom group.

5. Conclusion

In this study, we show that novice teachers are conducting double addressing in nearly one out of three interactions in situations of authority, something that no research had previously revealed. Our fine-grained analysis of double addressing situations reveals a wide array of strategies developed by novice teachers during such interactions, strategies that have been scarcely documented until now. By making them explicit, we contribute to the understanding of the exercise of authority and the difference between pedagogical authority and disguised authoritarianism when, for example, teachers use strategies based on the social control of the classroom group to put pressure on a student. We therefore open the way to reflections about the ethical issues that can be raised following the implementation of such strategies in the classroom, that is, developing the ability, among effective double-addressing strategies, to identify those that carry the risk of ostracizing students. This finding seems particularly crucial, regarding the issue of ethical relations aimed at engaging students in learning. It is important to help novice teachers to realize the impact of what they may have to say in a relational and ethical perspective.

Our approach makes it possible to move beyond the issue of "good practices" and to replace it with that of a professional challenge that teachers have to address and for which they will often encounter relational and learning dilemmas. In order to act, teachers will use strategies based on intentions, expectations, emotions, and concerns, which the researcher needs to access to so as to understand the teachers' reasons for acting in a given way. By accessing to the teachers' own experiences as internally perceived (narrative data), it is possible to engage in a discussion with novice teachers about the effectiveness of their activity, which is assessed either objectively (by evaluating the match or tension between what the teacher asks the students to do and what the students actually do) or subjectively (by examining the match or tension between what the teacher would like to embody and what he or she actually embodies in relational and ethical situations).

We have identified both adequacies and discrepancies between their expectations and reality. We also have analyzed sources and consequences of such matches and tensions on students and teacher activity and identified the more generic and ethical problems of the teaching profession entailed by these situations as well as the knowledge that educational research can provide about them. Having done this, it is now practically conceivable, as a subsequent development in video-enhanced teacher education, to co-design teacher education aimed at proposing activity transformations that can be experimented as close as possible to the ecosystem of a classroom.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data are available as Supplementary material.

Acknowledgements

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tate.2023.104310.

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