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Deliberative emotional talk

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Abstract

High-quality talk about issues that raise high-intensity emotions in the public sphere is timely needed. Still, researchers committed to the fostering of high-quality types of school talk generally disregard the role of emotions. We show that this disregard is not accidental and that it conveys a customary reluctance in schools to consider the handling of emotions as they pertain to cognition. We argue that helping students regulate emotions in social interactions and in discussions that raise high-intensity emotions is an important educational purpose, and we show that discussions about controversial issues provide a suitable context for this purpose. To support the emergence of high-quality talk that involves strong emotions, we adopted a design-based research approach and developed a new Computer-supported Collaborative Learning (CSCL) tool, the Hot Discussions Platform (HDP). The functionalities of HDP are crucial for the emergence and guidance of high-quality talk that involves strong emotions, and they describe a novel professional development (PD) approach to the enhancement and moderation of this kind of talk. In the in-service PD course, teachers are prepared to design, moderate, and analyze discussions about controversial issues. Group assignments in the course and personal interviews revealed that the teachers that underwent this program reported on a very rich list of practices and beliefs about the emotional labor involved in designing and moderating discussions about controversial issues. The study provides an existence proof of a kind of talk that combines compliance with argumentative-critical standards and an eagerness to express and regulate strong emotions. We call this general kind of talk *deliberative emotional talk*. We conclude by reflecting on future research and technological developments to be invested into studying forms of deliberative emotional talk and support its emergence.

Keywords Emotions · CSCL · Deliberation · Dialogue

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Introduction

In this paper, we discuss the need for a new kind of educational dialogue that recognizes the indispensable role of emotions in one's encounters with others. Our ambition is to identify a new equilibrium point between emotion and cognition in learning discussions so that emotions are rehabilitated and integrated in deliberative processes as welcomed signifiers of engagement and as crucial dialogic building blocks. We will demonstrate that the emotional aspect of learning interactions is seldom considered as a significant part of learning processes. At best, it is considered as a facilitating/inhibiting factor; it is never considered as an end in itself. At a time when "objective facts are less influential in shaping public opinion than appeals to emotion and personal belief," as the Oxford dictionary's highly quoted definition of "post-truth" suggests, the scholarly argumentative culture cannot ignore and resist any legitimate forms of talk in which social argumentation interweaves reasoning processes and emotions. In fact, since most reasoning occurs in an emotional context (McIntyre 2018), it might be argued that it never could. Recognition of emotions and seeing them as equally disputable components of the discussion are two complementary parts of the type of talk we envisioned fostering.

Deliberation about controversies in digital discussions and learning to maintain openness to differences among participants/opinions are important to democratic education in the digital age. In light of the widening gap between the accepted public discussion norms of students and the desired communicative competencies needed in a functioning democracy, the educational and developmental processes of becoming a citizen must include the freedom for future citizens to organize and negotiate their emotions in diverse practices. This newly envisaged type of dialogue is emotionally intense, not because there is a need to add emotions to discussions, but because they are imminently there. We take the position that educational dialogue that educational dialogue has the dual mission of learning to present and regulate emotions as a component of engaged deliberative discussions while maintaining a high level of group thinking. The conjecture, based on psychological developments we describe in the theoretical background, helps in envisioning the ideal type of talk with characteristics that combine high-quality argumentative, dialogical, and emotional aspects when discussants are engaged in high-intensity discussions. This conjecture is fuzzy, yet it fits the beginning of a design-based study for which theoretical foundations help in its formulation. The goal of this study is to lay the groundwork for a new mode of talk, outline technological and pedagogical designs that could support it, and check the existence proof of this kind of talk.

This paper is presented as a first step to palliate the absence of emotions-centered scaffolding moves in educational dialogues by training teachers to teach and moderate controversial learning discussions. Our goals for this paper are to set a theoretical foundation for the introduction of emotions into educational dialogue, report on the current pedagogical knowledge teachers hold with regard to emotionally loaded discussions and describe the technological and pedagogical design we developed for the educational mission of bringing emotions into dialogue as a legitimate and productive component. All goals are meant to serve as a search for proof of existence of a kind of talk with characteristics that fit this ideal type. We ask whether the ideal type of talk we envision, dialogue with characteristics that combine high-quality argumentative and emotional aspects when discussants are engaged in discussions that raise high-intensity discussions, is viable.

The paper begins with stressing the need for *planned, allocated, and content-related emotional design* as a shift from the current paradigmatic incidental treatment of emotions

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in deliberative processes. Next, we review the place emotions have in classroom pedagogy. It is argued that the intimidating presence of emotions in controversial educational dialogues, such as political discussions, paradoxically contributes to the elimination of such dialogues in schools. We show then that the elimination of emotions from educational talk is rooted in classical theories of learning and development. We also mention a surprising theoretical deficiency: so far, the dialogic theory to which we adhere did not occupy itself with the role of emotions in educational dialogues. The HDP system and the instructional design are then introduced and discussed, alongside the current pedagogical knowledge teachers maintain regarding designing and moderating heated discussions.

Theoretical background

Incidental versus planned, allocated, and content-related emotions

Large parts of the literature on emotions, thinking processes, and learning deal with *incidental* emotions, which are defined as "emotions not semantically linked to the reasoning stimuli" (Blanchette and Nougarou 2017, p. 98). Despite of the need for careful and adapted moderation of emotional learning discussions, teachers are not used to such moderation in face-to-face interactions and in digital discussion platforms. A priori, this moderation faces challenges that reflect the two-fold educational goals of controversy deliberation: how to fully engage in the issues at hand while not threatening the possibility of a productive outcome and how to avoid sabotaging the dialogic encounter. From the teachers' perspective, this means to facilitate dialogues across differences, i.e., to facilitate discussions in which the diversity of interests and opinions is wide and the emotional engagement of the students is high. The teacher is expected to foster dialogical moves while the voices in the dialogue are remote or even contradictory. Common educational settings do not offer a proper context for such dialogues, as educational discussions are generally set to surmount high cognitive demands and ignore any emotional burden, even the one necessary to handle the difficulties that the cognitive demands illuminate. When the teacher decides to enable the expression of emotions without careful moderation, this sharing of views may come at the expense of learning outcomes due to the additional cognitive load it represents (Newton 2018).

The integration of strong emotions with complicated group-thinking processes is particularly challenging. Moreover, high-level states of emotions have differing effects on students' ability to maintain a consistent line of inquiry (Blanchette and Nougarou 2017). Alternatively, the expression of emotions is considered dangerous, as it may lead to uncontrolled outbursts of what seems intolerable or threatening (Hess and McAvoy 2014; Gindi and Erlich 2018).

Our educational vision differs from what is regarded as an "optimal classroom climate" (Jennings and Greenberg 2009), heralded for its "low level of conflict" (ibid, p. 492). In addition to incidental emotions, we argue that planned, allocated, and content-related intense emotional engagement should accompany some educational activities. Such integration is important for the sake of broad citizenship education; thus, this integration needs to be introduced and not just worked out solely in the discipline of civics. Emotional engagement is a premise of sense-making and negotiations in which people deal not only with knowledge integration and joint building, they also simultaneously address questions of identity and power, including symbolic power, and its distribution. While the literature on emotion regulation and its role in negotiation, interpretation, judgment, and decision-making is rapidly growing (Blanchette and Richards 2010), it has yet to influence the ways in which instruction

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is done, as well as the ways in which deliberative learning processes are perceived and designed. Regardless of their exact content, political discussions are arenas for negotiating power, for making joint decisions regarding questions in the public sphere, and hopefully, for place-making (Slakmon and Schwarz 2017). It is a definite characteristic of such discussions that the decisions being made during the discussion have strong ramifications for the participants, their perceptions, their communities, and their ways of living. Studies showed the extent to which emotional commitment influences people's moral judgement and decision-making (Valdesolo and DeSteno 2006). It is exactly in these real-life, emotionally demanding conditions that students,and citizens in general, need to enter dialogue. Planned (designed-for and allocated), content-related emotions are necessary as part of the introduction of a new, fully engaged deliberative talk modality—one that is epitomized in civic discussions around value-laden controversial issues.

The emotionless reality of classroom deliberation

An overview of the existing literature on collaborative learning and dialogic teaching indicates that naïve realism is a very widespread tacit assumption regarding the role of epistemological beliefs in learning. Naïve realism is a bias that leads people to perceive themselves or others in a reality that is objective. The individual sees events in reality and holds social attitude, beliefs, preferences and priorities that stem from a relatively dispassionate, unbiased, unmediated, and rational consideration of the information at hand. Naïve realism also includes the assumption that this sort of epistemological mode is shared by many others (Ward et al., 1997). This emotionless grasp of reality is highly subjective, of course (Duncan and Barrett 2007; Nosek and Hansen 2008). Even when misconceptions and miscalculations are identified and discussed, it is done mainly from within a cognitive framework of widely spread fallacies.

The subjective disappearance of the role of emotions from the classroom scene has become more pronounced due to an objective factor: Students suffer from boredom and disengagement (Macklem 2015). Additionally, in recent years, the involvement of adolescents and young adults in formal civic organizations has declined (Wells 2015). This decrease is an indicator of the lack of civic engagement in democratic practices of these groups and a sign of distrust, despair (or at least, disinterest), in the formal, institutionalized political process. Further, for reasons of fear, political polarization, and the loss of classroom discourse as autonomous, free, inquiry-based discourse, schools are getting less and less involved in providing adolescents with opportunities for political discussions on controversial issues. The fear of controversial political discussions and the turmoil they might generate in the current public climate seem to have a paralyzing effect on teachers; essentially, the classroom has lost its ability to serve as a training ground or a microcosm of the public sphere for basic democratic political education (Hess 2009; Hess and McAvoy 2014). Teachers lack opportunities to rehearse and reflect on the problem of practice (Horn and Little 2010) that rises from conducting discussions.

Political and controversial discussions are characterized by high stakes and division according to different ideologies, ethnicities, or values. Yet, introducing societal controversies in schools provides three educational goals. These objectives help students(a) learn about the stakes involved in the controversies, (b) learn to maintain inclusive participation in agonistic dialogue (Mouffe, 2000) that entails discursive components which are not reducible to accepted argumentation, and (c) creatively practice collective decision making. If the learning environment is to resemble real-life decisions, all three goals must be sought simultaneously. Thus, students are expected to relate to their *emotion work* (Hochschild 1979, 1983) and

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address and express it authentically without strong impositions of surface-level and deep-level acting (Zapf 2002) as they learn to jointly regulate it.

Productive group talk around societal controversies is defined in this paper as a kind of talk in which the emotive is (a) present, (b) taken into consideration, and (c) needed as part of the learning process. Controversial issues are contexts in which such emotive aspects might be recognized, handled, and negotiated if these controversies reflect societal issues. Once perceived as part of the disciplinary knowledge of the humanities, groups (e.g., students and citizens) are expected to learn to include their diverse and often contradicting emotive aspects in their discussions and manage them—as an end in itself—without impairing the elaboration of ideas/decisions that are believed to bring social welfare.

Against this background of concern over the decline in civic activity and engagement and the actual decline of civic deliberation in classrooms, digital realms are playing an increasing role in the lives of young adults and adolescents. Virtual spaces are perceived by the younger generation as *living spaces* in which people dwell (Ito et al. 2009; Boyd 2014). New media technologies are acknowledged as manifestations of the public sphere with important political functions and significance (Dahlberg 2001; Wegerif 2017). Indeed, for many, digital virtual discussion platforms comprise a large part of our presence in the public sphere. From social networking sites to designated environments for political education (Slakmon and Schwarz 2017; Slakmon, 2017), much of our engagement in public discussions is digitally mediated. Internet-based platforms for online deliberation and collaborative knowledge integration are on the rise (Towne and Herbsleb 2012; Price 2009; Mancini 2015). In addition, communication behaviors with such technologies create strong emotions in the public sphere. The ubiquity of these technologies, the manifestations they yield (e.g., shaming, cyberbullying, or simply exposure of the individual to the public sphere—for better or for worse), and the activities that they afford have led educators dedicated to progressive pedagogies to integrate these phenomena in the educational realm.

We have seen that the classroom is emotionless in the sense that emotions are incidental rather than planned, that from a societal-civic point of view, introducing discussions in which emotions are high is important, and we have noted why technologies may help in this endeavor.

Emotions in the constructivist tradition

Although cognitive conflict is no longer considered as a basic mechanism of human development (Chinn and Brewer 1998), the influence of Piaget, and particularly the cognitive conflict, is still present in schools. This influence can be identified in the meandrous history of research in human development. For Piaget, cognitive conflicts were not emotional conflicts. In a memorable course he delivered at the Sorbonne on human development in 1950, he explained the flow from emotions to sentiments, then to the coordination of sentiments through the coordination of values (Pain 1989). However, he stated that *emotions fuel human thought but do not structure it*; they motivate (the etymological meaning of emotions points at a movement) either negatively, by blocking the action or thought through fear, intimidation (of the authority), boredom, etc., or positively, by stimulating action or thought (Piaget 1954, 1981). In Piaget's theory, this stimulation does not explain the "how" of human thought and does not give it its form (Perret-Clermont 1980).

Nevertheless, this line of study was not of the highest interest for Piaget. In 1954, he invited Geneva psychoanalysts to focus on the role of emotions in human thought, but for personal

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reasons, he preferred to commit himself exclusively to research on the development of cognition. Piaget wanted to fortify the autonomy of the cognitive. Based on his interpretation of fascism and its origin, his passion towards rationalism was consistent with his enlightenment-derived and modern antifascist project: He wanted the cognitive to be recognized, to be made salient and respected in education. When the cognitive conflict occurred through contradictions or failures of the action,[1] it led to the re-equilibration of the comprehensions, thereby participating in an optimistic march toward the takeover of the cognitive conflict. For him, the role of the cognitive conflict was to elevate people progressively to become no less than more intelligent.

Neo-Piagetian scholars, including Doise, Mugny, and Perret-Clermont, were critical toward Piaget's theory of human development, which was centered on the individual (Doise et al. 1975). When they began studying the effects of social interactions on development, they capitalized on cognitive conflict and its advantages and drawbacks. However, the context of social interactions broadened the hitherto exclusively cognitive perspective of conflict: Mugny developed his research around the regulation of conflicts (Mugny et al. 1984), and Butera extended his research on the study of the effects of emotionally negative evaluations (Butera and Mugny 1995). Factors pertaining to identity became preponderant in interactions (e.g., "saving face", or the feeling of being a "loser"). Moreover, additional dimensions emerged as relevant for the study of interacting cognitions, such as the emotional need to understand or to give a meaning to a situation, along with the role of friendship. However, despite the recognition of the role of emotions in the neo-Piagetian tradition, this convention preserved the Piagetian distinction between the cognitive and the affective, which refers to the perennial Aristotelian distinction between logos and pathos (Perret-Clermont, personal communication, July 24, 2018). Consequently, it could be argued that schools educate students to perform a radical kind of *emotional labor* (Hochschild 1979) that decontextualizes the emotional state from the learning assignments.

Emotions according to the theory and practice of dialogue

Many theorists have denied the separation between the cognitive and the emotions. In his well-known book, *Descartes' Error: Emotion, Reason, and the Human Brain*, neurologist António Damásio (1994) explains that emotions guide (or bias) behavior and posits that rationality requires emotional input. He argues that René Descartes' "error" was the dualist separation of mind and body and rationality and emotion. Researchers from other domains express comparable claims: For biologists Maturana and Varela (1987), cognition, language, and mood or emotion are inextricable. For semioticians Radford (2015) or Roth (2007), all emotions and motivations are inherently social and culturally constructed, and they do not necessarily obstruct thinking. In the domain of talk, Bakhtin's theory of dialogue, emotions, self, and communication represent inseparable processes that emerge and flow together in the day-to-day occurrences of dialogical partners. Furthermore, emotions serve to punctuate, from the flow of communication, the different positions each dialogical partner occupies (Bakhtin 1986). Those who accept the omnipresence of emotions in cognition or dialogue in general remain perplexed when attempting to understand their roles. The recognition of the

[1] see his later works Science of education and the psychology of the child (1970) and Intellectual evolution from adolescence to adulthood (1977)

inseparability of emotions from cognition does not mean that educationalists or analysts should not consider emotions as the object of their interventions or of their analyses. However, for them, Bakhtin's theory of dialogism does not have much to say beyond the fundamental messages it conveys. The same is true with more recent accounts on dialogue in which emotions are said to be important to dialogue (Burbules 1993; Lefstein and Snell 2013). To exemplify the point, the *Dialogic Pedagogy Journal* did not publish any paper related to emotions in its entire history; emotions during dialogue are neither discussed in Howe and Abedin's 2013 systematic review into the research on classroom dialogue, nor in Mercer and Dawes' 2014 review which focused on research on teacher-student interactions within the dialogic framework. The same is true with regard to recent accounts on dialogue and dialogic teaching (Kim and Wilkinson 2019; Calcagni and Lago 2018).

Identifying emotions related to objects of talk in educational dialogues is an untrodden field. In contrast, identifying the social functions of emotions in educational dialogues seems attainable, since the goals, methods, and norms the group adopts are discernable. Indeed, the three types that Mercer and colleagues (Mercer et al. 1999) identified in classroom talk, namely the cumulative, disputative, and explanatory talk, are linguistically identifiable. In two case studies, Polo et al. (2016) showed that the social function of emotions into which the group is immersed can be identified through the type of talk adopted by the group. In the first case, they associated low-intensity emotional framing on the cognitive side with cumulative talk on the social side. In the second case, they correlated high-intensity emotional framing on the cognitive side with disputative talk on the social side. The importance of the study lies in its ability to move beyond the individual and bring the expressed group-emotions in the context of learning tasks to the forefront. The correlation found between high-intensity cognitive functions of emotions and disputative talk is intuitively obvious and also theoretically important. The same obviousness concerns the correlation between cumulative talk and low-intensity cognitive functions of emotions. However, the study surprisingly avoids dealing with group emotions in a context one could expect would be central—the context of *exploratory talk*.

Indeed, Wegerif, Dawes, and Mercer et al. (1999) showed that exploratory talk could be beneficial for learning and development, in contrast with disputative and cumulative talk. Other researchers identified different types of talk that can boost cognitive development, like *deliberative argumentation* (Asterhan and Schwarz 2016; Schwarz and Baker 2016) or *Accountable Talk* (Michaels et al. 2008; Resnick et al. 2018). The differences between exploratory talk, deliberative argumentation, or Accountable Talk are quite subtle, but for all of them, cognition (construction of knowledge or epistemology) considerations regarding the sources or the certainty of this knowledge are at stake. Our general argument is that the lack of clarity concerning the productivity of high-quality forms of talk partly relates to the disregarding of the role of emotions in these types of talk. The social functions of emotions in types of talk that have been designated as "exploratory" or "deliberative argumentation" seem highly diverse. Together, emulation, competition, or a search for consensus may socially motivate people to participate in high-quality talk. Essentially, dialogic theoreticians and practitioners agree about the ubiquity of emotions. Still, nothing is said about their handling, especially when pedagogues insist that high-intensity emotions should be included in educational dialogues.

Recent approaches to emotions in argumentation theory

Besides the recognized importance of emotions in dialogue theory and its disregard in the practice of dialogue theory, researchers in argumentation theory have initiated interesting

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advancements. This is the case of Christian Plantin, who dynamically focuses on emotions deployed in the course of argumentative talk in which the "interactive process (is) taking place between competing points of view. In argumentative situations, people are deeply involved in what they say, experiencing doubt, uneasiness, impatience, (and) certainly irritation against the competing possibility, embodied in the opponent's speech" (Plantin 2004, p. 265). Plantin does not focus on the emotions felt; rather, the focus is on emotions as they are expressed in group-interaction—on the *emotive* and not on the *emotional*, to state Caffi and Janney's (1994) terms. This does not mean that he disregards emotions that discussants have regarding the issue at stake—before, during or after the discussion. For example, he distinguishes between *thymic* and *phasic* moods: the thymic refers to the normal state of composure that the subject experiences before an emotional episode; this mood sets the groundwork for the local phasic emotional state that accompanies specific argumentative moves (Plantin, 2017). Plantin distinguishes between the cognitive and the social functions of emotions. The cognitive function refers to the process of *schematization* (Grize 1996, 1997), which is a process of characterizing and appraising an object and the resulting product of its representation in discourse. Any emotional tonality associated with discourse, positive, negative, strong, slight, or even neutral, results from active discursive-cognitive work conveying a specific, argumentatively oriented vision. The social function of emotions refers to recognition-oriented behaviors that fit engagement into specific types of group talk. In other words, the social functions of emotions focuses on emotions whose expression is conveyed by the type of talk adopted, whereas the cognitive functions of emotions relate to the subject matter of this talk.

Computer-supported educational dialogues in the CSCL tradition

An important feature of CSCL tools for deliberation is that they are designed to provide a *visible* dialogic space (Wegerif 2007); thus, talk is materialized and can later serve for reflection on discussants' talk and group-thinking performances. Some CSCL tools provide features that emphasize the dual nature of talk as a phenomenon that operates simultaneously on a personal (private) and collective (public) level (Slakmon and Schwarz 2017). These two features of CSCL tools for deliberation—visibility and distinction between public and private space—are potentially important for inserting emotions in educational dialogue: Visibility affords reflection as a moderation move, which then facilitates the expression of emotions that often cannot be articulated during discussions. The distinction between public and private space has the potential to regulate actions in general, and emotions in particular: what to post, how, and when. CSCL tools also provide the much-needed fine-grained resolution on talk moves for improving dialogic competence (Asterhan and Schwarz 2016). The characteristics of CSCL tools for deliberation and their potential to include emotions in educational dialogues led us to develop a CSCL environment that serves as a training ground for moderation and implant it in a new curricular design that supports reflection on selected prior talk performances. On the instructional level, our hypotheses were as follows: (1) technological support can enhance the reflexivity levels of teachers concerning their moderation practices (through the visibility of deliberations), which will then result in better facilitation and promotion of interactions in groups that combine high-quality talk with the expression of emotions; (2) the creation of public and private channels of communication would help discussants regulate their emotions. Our approach can be compared to the efforts of Rasmussen and Smørdal (2009), who developed tools for helping teachers reflect on wiki practices of their students. However, the focus on emotions rather than solely on collaborative practices is a novel direction that we adopted in our developments.

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On the student learning level, the platform continues long-lasting efforts for greater reflection on educational products, based on the possibilities unfolded once talk/argumentation is materialized and shared when deploying in CSCL tools; hence, prior utterances become an object of inquiry (see the collection of contributions in Andriessen et al. 2003). The parallel emergence of an emphasis on co-construction of knowledge and the emergence of tools to represent argumentation in the discourse led educational psychologists to collaborate with computer software designers to represent argumentative components as material and natural building blocks for co-construction of knowledge in discourse. The use of new tools for argumentation led to the emergence of new practices: discussions that deployed in the form of argumentative maps (Schwarz and de Groot 2007) that enabled their summary (van Amelsvoort, Andriessen, & Kanselaar, 2007), collective reflection on the quality of discussions, peer evaluation of arguments and of moves in discussions, and scaffolding of (multiple) discussion groups (Schwarz and Asterhan 2011). This tradition of CSCL developments, although it disregarded the role of emotions in discussions, provides a propitious context for fostering their (positive) combination in deliberation. In designing the Hot Discussions Platform, we considered the insights the CSCL community offered. Q12

The hot discussions platform (HDP)

A basic hypothesis in the developed program is that CSCL technologies are not only proper tools through which democratic education must be enacted, they are also tools that enable reflection on (classroom) interaction; as such, they are central in moderating hot discussions and in training teachers to moderate controversial discussions. HDP is a platform specially designed to enable both text-based and open discussions among small groups by training students to reflect on their discussions and training teachers to design and moderate controversial discussions. Figure 1 displays a platform for online discussion, which seems familiar to many. Beyond this familiar look, HDP adds support for the features necessary to enable reflection on past activities, thereby suggesting moderation moves in controversial discussions.

The basic design of HDP provides a threaded discussion platform which affords participants to open up a new thread by using the "new idea" option on the upper right of Fig. 1 (highlighted box 1). They can also reply to a previous contribution (highlighted box 2). A chart of online active participants appears on the upper right (box 3). Every assigned participant is associated with a colored icon (box 4) with his/her name (box 5) and role. In all of the discussion modes,

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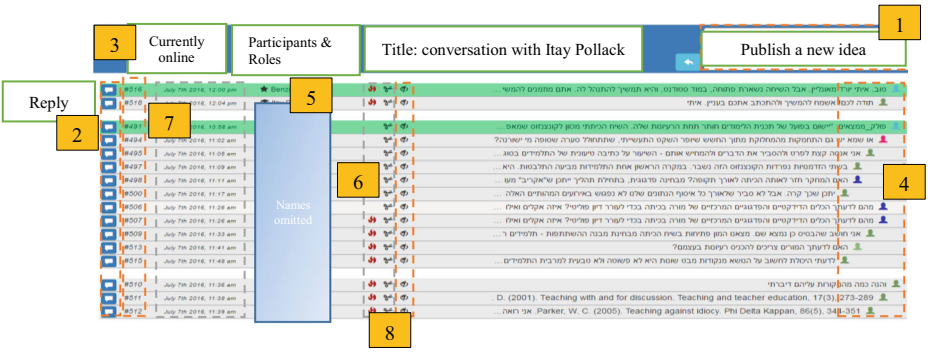

Fig. 1 The Hot Discussion Platform (HDP): Discussion in "Discussion" mode (see Appendix 1 for the translation of the thread) Q13

the contributions of the administrator are colored (two such contributions appear in green). HDP supports text-based discussion in its broadest sense. It has an open space in which moderators can upload artifacts in various formats (i.e., Etherpad, pdf, jpeg, etc.). Integration with dynamic geometry spaces and audio and video files is now under development. Each format has its own unique way of annotating as well as a way to connect the annotations and highlighting systems to the main thread. Hence, these functions help people share and annotate resources. The platform enables both synchronous and asynchronous discussions. We opted for a stagnant form of discussion tree where the display represents the initial time the entire thread was created so that new threads would appear at the top of the screen. To inform participants where the discussion actually takes place, we added the "flame" icon (box 6) and attached it to the last ten contributions in every discussion. Box 7 in Fig. 1 indicates the ordinal number of the utterance in the entire corpus. Throughout the courses, we added this feature to help users easily relate with each other's contributions. However, we should mention that we are still in search of a design solution for an orientation mechanism that would enable participants to get a general view of major developments in threads other than the one in which he is invested.

Figure 2 shows the system in the way it is displayed in a *post-discussion reflection mode*. This mode was designed to support participants with analyzing selected discursive moves and issues after the discussion ended. The moderator has three options for using this mode of retrospect reflection. The moderator can (1) turn an existing room into an arena for reflection; (2) pick specific utterances or episodes from a room while deleting the rest (for focusing on a specific linguistic/dialogic move); or (3) assemble utterances and episodes from several rooms and build a new room for reflection in which only they will appear and be reflected upon. A typical practice consists of collecting utterances from a specific student throughout his/her ongoing activities to learn more about his/her communication patterns.

The switch between the discussion mode and the reflection mode is initiated by the administrator. The administrator can also lock rooms to prevent participants from writing in them. The system uses color differentiation to distinguish between original contributions made in the "discussion" phase (in grey, upper part of Fig. 2) and new contributions from "reflective participants," who are studying the produced discussion (in pale yellow, Fig. 2). Thus, the reflective participants "interrupt" the original discussion and use it as resource for exploring the characteristics of controversial discussions and evaluating the quality of their previous contributions.

Another mode of reflection that has recently been developed is the "reflection online" (Fig. 3). This mode resembles the fishbowl discussion strategy. In this mode, certain users are invited to discuss (on the right side of the figure), while other users are invited to observe the developing discussion and have their own meta-discussion on it (left side of the figure). The discussion and the

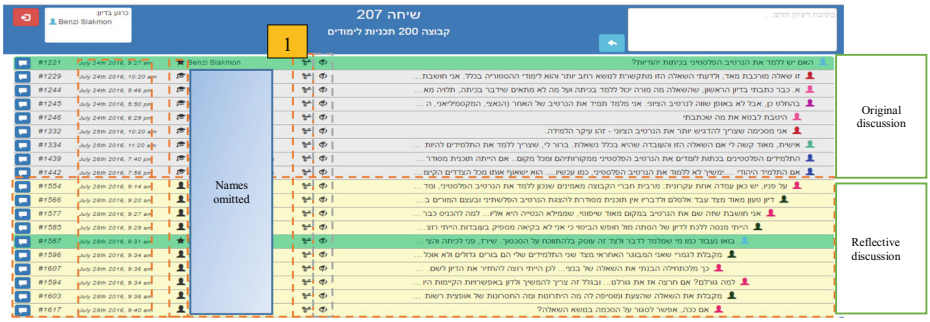

Fig. 2 The Hot Discussion Platform (HDP): "Post-discussion (Retrospect) reflection" mode

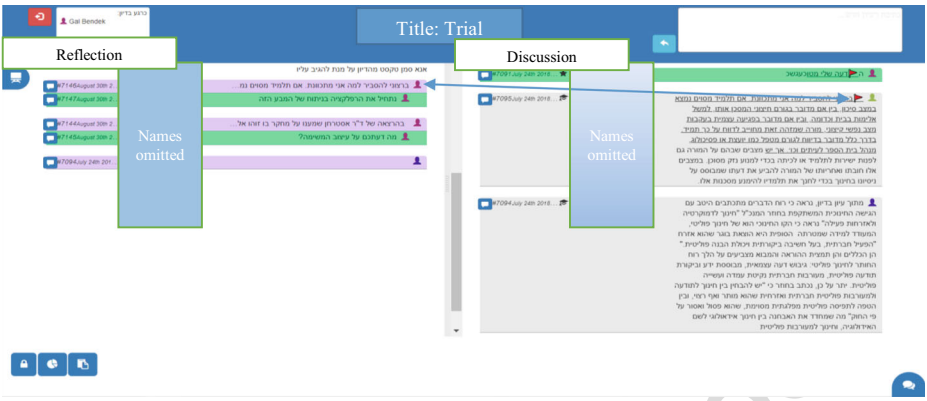

Fig. 3 The Hot Discussion Platform (HDP): "Online discussion (Fishbowl) reflection" mode

reflective discussion are unfolded simultaneously, yet the "discussants," although aware of being watched, are not exposed to the content of the reflective discussion. The utterances of the discussion are used as references for reflection. Discussion utterances that are being referred to are signaled with the "flag" icon and copied to the reflection board. Uses of the two reflection modes vary. A group of students can analyze their own performances; rooms can also be replicated so that several groups of reflective participants can work on the same "original" materials simultaneously.

Each room is also equipped with a chat (lower right in Fig. 3), which is mainly used for assignment management and off-topic talk and a hidden private messaging system. The chat can only be initiated by moderators and administrators to communicate with some students privately, to signal the moderator (who is not always present in the room) that his/her presence is needed, and to allow the anonymous dispatching of alerts to the moderator in case of abuse or misconduct Fig. 4, 5, and 6. Q14

Description of the study

Context

The research begins with an investigation into the common pedagogical knowledge on which teachers naturally rely in digital moderation of controversies. We first aimed at understanding the natural ways in which teachers moderate such discussions and at building a repertoire of moderation moves made by teachers in such discussions. We did this because moderation practices of high-level controversies are usually not part of teachers' professional development. Also, we aimed at understanding what kinds of speech events are perceived by teachers as events that need their intervention and grasping their considerations while they are deciding whether to act or to refrain from intervening. Our initial and general hypothesis in this design-based research was that (thymic) emotions can be modified (Halperin 2015).

Data for this study was taken mainly from a 30-h blended professional development course given to 25 teachers. The course, Pedagogy for Moderation of Controversial Discussions, was delivered in the summer of 2016 by the first author. HDP was the discussion platform used in the course. Feedback from the participants was used in further development of the system. The improved HDP was then used to host an undergraduate course at Hebrew University, led by the second author. The second course, Contemporary Issues in Society and Educational Research, was taught in the 2017/2018 academic year Table 1. Q15

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Instructional design

The PD course focused on training teachers to guide small groups in discussions involving political and/or social controversies. Specifically, the course aimed at re-conceptualizing participants' views on what discussions are and what learning goals could be achieved by thoughtful discussion design and moderation. It aimed to improve teachers' pedagogical knowledge and moderation practices in controversial discussions. Twenty-five in-service elementary and high school Israeli teachers participated in the 6-week, 30-h blended course. Except for the first two meetings, all meetings were held online on the HDP. The course goals were to study the way teachers perceive and handle controversies and to improve their pedagogical knowledge and moderation practices. The teachers alternated between two roles: discussants and reflective participants. Typically, an activity day began with e-discussions and switched to reflection mode and analysis of the various aspects of their performances as discussants. Groups' protocols and documents were analyzed after every synchronous session. By comparing their retrospective reflections (the fishbowl reflection mode was developed afterward) with the e-discussions, we were able to identify how teachers understood controversies in dialogue and what pedagogical approaches they found useful in addressing them.

Each participant was assigned to an asynchronous discussion group, which changed each week. They were also assigned to a different synchronous reflection group, which was fixed throughout the course. The fixed groups were created based on age groups and the domains in which the teachers taught. During the week, the discussion groups were assigned to their designated rooms, and they discussed questions raised by the facilitator. Issues for debate included (a) political engagement of teachers in classrooms—the freedom that teachers have to express political opinions in their classroom, (b) the "right to leave" cultural groups and the limitation closed cultural groups can have over their members, (c) gentrification—the process of renovating houses or whole districts to conform to the middle-class taste, and (d) tensions between Palestinian and Zionist narratives in the history curriculum. The facilitator of the course limited his involvement at these stages to encouraging participation, and to assigning a participant to serve as a moderator of his/her group's discussion. The protocols of the weekly discussions were a resource for reflection and analysis by the participants: Each week ended with a 90-min synchronous discussion session in the reflection groups, where participants reflected on selected discussions generated during the week. The reflection phase provided the following instructions:

1. Read the discussion produced by your group.
2. Describe the ways your group participated in the discussion.
3. Point out utterances that broadened the discussion and utterances that narrowed its scope or discouraged participation from others.
4. Choose one speech event during which a controversy burst. Explain the way it unfolded and follow the way it ended. If you served as a moderator, could you think of other moderation practices that could be useful in such cases?

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5. Reread the discussion, this time with a focus on the structure of the participation and characteristics of ___ (participant's name). Read all of his/her contributions, the utterances that led to them, and the replies received. Jointly build a communicative-dialogic portfolio for ___ (participant's name).

   a. Try to characterize the ways in which he/she engaged in the discussion.
   b. Imagine that this is a group of discussing students and you are their teacher/moderator.

      i. Write comprehensive feedback to improve her/his communicative competence.
      ii. What strengths will you highlight?
      iii. What points need improvement?
      iv. Imagine you are about to,eet the student. Write down feedback of her/his accomplishments in the discussion.
6. Edit your findings in the group's designated Google Doc.

In the final assignment, groups were asked to read over the small corpora of pedagogical knowledge they complied throughout the course (the designated Google Docs files) and to jointly compose a manual for moderating controversial discussions in classrooms. In this assignment, the participants were asked to collectively address the following questions:

1. What makes a good classroom discussion in your discipline? Participants were asked to refer to the following components:

   a. aims of the discussion
   b. organization of the discussion
   c. structure of student participation
   d. quality of the dialogue in terms of

      i. content knowledge
      ii. thinking and argumentation
      iii. emotions
      iv. inter-subjective and interpersonal relations among students
      v. moderators' intervention strategies
      vi. evaluation.
   e. The participants were also asked to name the open questions they still have regarding guiding discussions on controversial issues in the classroom.

Data collection

The 28 participants, including twenty-five students, the course facilitator, and two expert guests who hosted open discussions about their research on the discussed topics, generated 1898 data points (messages). All data points were logged and later stored in the database. The data also included four Google Docs from the four reflection groups and their jointly created guide to moderating controversial discussion. We chose written paragraphs as the initial unit of

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analysis. The assignments went through three stages of content analysis of categorization, mapping relations between themes and (on occasion) unification into higher-level themes (De Wever et al. 2006).[2]

The natural methodology for this research was the case study method, mainly because it fits a phenomenon that cannot be compared to other already-known phenomena (Eisenhardt & Graebner, 2007). Q16

Findings

The analysis of the course yielded results on four levels: information about the pedagogical beliefs of teachers regarding discussions on controversial issues, their envisaged practices in guiding such discussions, the pedagogical design of the course, and the HDP design. We first list the pedagogical knowledge of teachers regarding moderation of controversial discussions.

Teachers' beliefs on the aims of discussions on controversial issues The teachers identified five groups of aims in the sustenance of discussions around controversial issues:

1. *Democratic*: discussions around controversial issues demonstrate freedom of speech by showing that every issue and every opinion can be expressed as long as it respects other opinions and is legal.
2. *Emotional*: discussions around controversial issues provide an emotional release in school learning.
3. *Instructional*: discussions around controversial issues increase students' motivation for learning and participation. The discussions give the opportunity to evaluate the quality of their talk and enable the teaching of important societal issues.
4. *Character-Building*: discussions around controversial issues are believed to help clarify values, build individual positions on societal issues, and develop critical autonomous thinking.
5. *Dialogical*: discussions around controversial issues are believed to help inquiry processes. They help in:

    a. Introducing different perspectives.
    b. Deepening the underlying data base and conducting discussions based on those data.
    c. Cultivating issue-specific vocabulary.
    d. Getting acquainted with various approaches of responding.
    e. Learning to explicate opposition and agreement.
    f. Asking questions.
    g. Creating an atmosphere which facilitates participation.
    h. Focusing on the issue and minimizing distractions.
    i. Expressing oneself while relating to others.

[2] The decision to take isolated turns as the unit of analysis is questionable since, especially in highly loaded discussions, moves follow each other as emotional reactions. The dialogic stance we adopt naturally appeals to other analytical methods, such as *Conversation Analysis*, which grasps the sequence of turns and considers the function of turns in relation to preceding and following turns. However, the theoretical developments presented, and the description of technologies did not leave enough room for a meticulous analysis of the discussions. The relative shallowness of content analysis helped us illustrate rather than analyze the characteristics of a new form of talk that emerged in the environment we elaborated.

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Teachers' intervention practices

Two groups of practices were reported: dialogue-related and knowledge-related. The dialogue-related categories include actions that teachers take in advance to comply with their expectations for discussions on controversial issues. This group contains practices of reflecting and revoicing, restating, requests for background, justification, and commenting. These practices also include the mediation of emotions, balancing, calming, and dealing with challenges and oppositions to the talk guidelines. The knowledge-based practices include all actions made regarding the shared knowledge of the group: breaking complex content issues down into smaller, more accessible units; providing knowledge; referring to resources; sticking to the discussed issue across instances and expansion of relevant questions; pointing out inconsistencies in arguments; consolidation of knowledge and the management of knowledge-sharing by intermediate and closing summaries; and practices of deepening the discussion by providing examples, insights, leading questions, and comparisons between cases. Besides the dialogue and the knowledge-related practices, teachers underscored two general teaching actions: encouraging participation and motivating students.

Pedagogical design

In addition to the practices that the teachers envisaged enacting in controversial discussions, the teachers that participated in the course elaborated on design ideas that would foster or inhibit the deployment of discussions on controversial issues:

1. They predicted that moderating discussions with large numbers of participants would be a very difficult task.
2. They thought that dealing with disengaged students was a challenging issue and ways to incorporate these students into discussions should be explored.
3. They also raised the issue regarding the risk involved in discussions around controversial issues such as violent, insulting, or abusive acts. Teachers should then identify moments in which the group goes beyond acceptable limits and into risky territory. They expressed the need to identify contributions that represent the potential of harm (towards oneself as well as towards others) and cases where participants "froze" as a result of previous contributions—generally, cases of students at risk.
4. The teachers foresaw the importance of the social *context* of the discussion. They stressed that the discussion takes place in a larger context, which also includes the social lives and statuses of the participants. The connection between the desired online deliberation norms with other social settings in which the students live and act is an issue for consideration and reflection. On one hand, students might refrain from saying something controversial or utterances they perceive not to be consensual so as not to threaten their social status. In an act of social desirability, other students might say things that seem to them as reflecting the consensus. Undesirable social consequences may stem from such discussions. Therefore, the relationship between "virtual identities" and "real identities" must be considered as part of the pedagogical scheme of online moderation. Teachers also thought about how to encourage school staff and the community to engage in discussions around controversial issues by presenting them as a context for more meaningful learning.

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Finally, the teachers raised questions regarding specific practices of moderation related to controversial issues. For example, they considered whether it is pedagogically right to instigate provocations. They determined that they should be trained to pose the right questions to stimulate the flow of conversation. Below, we present an example of discussion and reflection among participants of the course around the very hot issue of the limits of political engagement of teachers in classrooms.

An example of a controversial issue discussed in the course: The case of Adam Verete

The Adam Verete case was a nationwide controversial issue that arose during the 2014/2015 school year (Skop and Kashti 2014; Skop 2014). Verete was a non-tenured high-school philosophy and Jewish thought teacher in northern Israel. The summer of 2014 saw Israel perform a fierce, 50-day attack on the Palestinian Gaza strip, located at the west southern border of Israel. The attack, named "Tzuck Eitan" (Strong Cliff), polarized opinions. On one hand, the majority of Israeli Jews saw it as a legitimate, justified, and timely defensive, albeit harsh, response to the Palestinian mortar bombings of nearby Israeli villages. These attacks deliberatively sought to terrorizing civilians, and they occurred continuously—to a point where they went too far in terms of Israeli public opinion. As the capacity to tolerate the terror attacks evaporated, the government was pushed to act militarily. Conversely, a minority of Israeli Jews, the majority of the Arab Israeli citizen population, and the international community were highly critical of the operation. The critics were radicalized once the extent of the destruction and injury to Gaza's civilian population was publicized.

During the following school year, the issue was discussed in one of Verete's classrooms. A discussion on the morality of the Israel Defense Forces (IDF) and the legitimacy of its actions in Gaza immediately became heated and turbulent. Verete tried to critically question the widely popular Israeli assertion that the IDF acts morally, and is, in fact, considered to be "the most moral army in the world", according to majority circles. The discussion escalated rapidly, and one student accused the teacher of being a traitor. This comment, later revealed, was merely a new episode in a quarrel the two were having for more than a year involving Verete's complaints on the student and her family that were not addressed by the school's administration. The student wrote a complaint letter to the education minister. Several days later, the letter was publicized in a radical right wing's Parliament Member Facebook page. Amid the agitated public response, including threats to the teacher's life and demonstrations near his house, Verete was called into a hearing before dismissal at the general offices of the network of schools. Reprimanded but not fired, Verete kept on teaching throughout the year. At the end of the year, he was informed that his adjunct contract would not be renewed for procedural reasons of involving a lack in teaching hours. The case also led the ministry of education to initiate an ad-hoc committee on the "Limits of freedom of speech" in schools, later leading to new restrictions on legitimate speech topics in schools (Israel's Ministry of Education 2016). While encouraging teachers to conduct discussions on controversial issues, the new regulations prohibited discussions on the legitimacy of the "Jewishness" of the state and its institutions.

In the PD course, the discussion assignment requested that the participating teachers deliberate on the following questions:

1. What do you think of the way the case was handled by the school chain senior officials? Three figures are of main interest here: (1) the previous high school principal, who conducted a previous inquiry into a similar case in which the student called the teacher

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a traitor and urged the application of the legally consequent death sentence on Verete, (2) the new high school principal and his conduct during Verete's hearing, and (3) the CEO of a network of schools who is an active member in the "Jewish Home" party (a coalition to which the general secretary of the ministry of education belongs). In a radio news show quoted the latter as saying, "the IDF does not trigger debate anywhere. We educate for military service. There are sacred cows I won't let be slaughtered. If Verete will say (in the forthcoming hearing) that the IDF is not a moral army, he will not be a teacher in the Ort chain of schools…It is prohibited to speak of the IDF as immoral." When pressed whether discussion on moral issues is legitimate, he answered: "no, because it is one-dimensional, and the students lack tools to examine the issue." (Kashti 2014)

2. Regarding Adam Verete's mistakes, what were they, and what illegitimate actions did he take?

The discussion went on simultaneously in all four discussion groups. We present an excerpt of the discussion in Group 1 regarding this issue:

#100 Matan: If we need to give our view on the network senior officials, their quotes in the media are not needed. Let them express themselves, enjoy it even, that's their right. [but] do they have right to act against a teacher based on their opinions? Of course not.
#112 Livat: to the best of my understanding, and provided that the facts were presented accurately, all three senior officials failed and missed an opportunity to do some significant educational work: the former principal did not deal with harassment (some limit are not allowed to be crossed, for students as well, and certainly it is wrong to dismiss the issues without addressing them) as well as with the relations between the student and the teacher (it is inconceivable to have a student walking around with feelings of insult: if the teacher insulted her, he went over the line and the lines must be drawn again; if the student was insulted but the teacher has done no wrong, there is a need to clarify the origins of the insult and to try to reflect to her the teacher's real intentions and to bring the conflict to an end. In any case, the case must be dealt with. During the hearing, the [new] principal and the CEO failed to check the facts, did not address the real controversies, opting instead to deal with the sides' perceptions of things. Both ignored Verete's repeated explanation that he was not saying that the IDF isn't moral, instead questioning the saying as an argument, as he dealt with IDF's non-moral actions. By failing to address Verete's words, they missed on dealing with the central issues that had to be addressed, namely the limits of the discussion and its way of facilitation. Regarding the CEO's perception on prohibition to speak about moral failures, it does not stand in line with the curriculum in civic education…
#138 Iris: during the presentation [hearing?] it became very clear that the relations between the directors and Verete were not appropriate. Adam didn't receive backing or support, he even sensed he had to defend himself from the principal. The issue evolves around the issue of political stances (the sentences that were said) and not around treating the real problems (the teacher – how to present a stance before your students, the student – crossing the line in front of the classroom).
#143 Matan: I agree with you about the principals' lack of support. Unfortunately, this pattern characterizes many principals who prefer silence at any cost. They refrain from critical conflicts and as time passes by, they become hoary and rotten bureaucrats with no educational values and principles. For them, let the year end quietly, without people

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writing on them in the newspapers, except of course for one reason, the percentages of the matriculation exams – this is how their pride has narrowed. Sad, tragic, and needs another PD course. The school principal made two mistakes, not only on Adam Verete, to which he estranged in words and deeds, but to the school's staff as a whole, as a way to signal "look, you have been warned."

#167 Iris: That's why I understand Adam Verete's decision to "fold his tail," to prefer resigning [Verete did not resign] over staying and fighting for the majority of the teachers' population. Don't you think so?

#189 Matan: I don't expect him to fight for "the teacher's population," but his wrong conduct certainly has repercussions on them. In general, I expect two things from a teacher in such cases: one, to fiercely fight for his rights. Two, to serve as a role model for the younger generation. For the students, the teacher has to be like a Strong Cliff [the name of the operation in Gaza—a way to say that teachers should struggle], teaching to pursue truth and justice, particularly when a case like this knocks at his door. A teacher like Verete, who chooses not to fight for his rights, instead preferring to victimize himself as a martyr, is both a bad educator and unfortunately also impairs the status of all teachers.

#172 Tamar: Iris, the critical issues of the case should certainly have been dealt, instead of dealing with Verete's political views. The school principal should have stood alongside his teacher even though he disagreed with his stance, in order to give a sense of support to the entire staff. He should have had a pre-hearing clarification discussion with Verete to back him even if he did not act right.

#184 Iris: because of this lack of support, Verete acted defensively and resigned [he did not]. The system makes us be "smart but not right" and Matan, that's why I think he did not crash the status of teachers, maybe the ones who crash the teachers' status are the ones above us?

Excerpt 1: Reflection on the Adam Verete discussion This excerpt shows a discussion in which all discussants are engaged. The turns are quite long and the issues raised are societal: the freedom of speech in educational talk (Livat 112, Iris 138, and Matan 189), solidarity among workers in an organization (Iris 138, Matan 189, Tamar 172, and Iris 184), and political considerations among workers in a public organization (Matan 100, Livat 112, Iris 138, and Tamar, 172). There are other issues, such as the struggle of citizens against the system. All these issues are brought forward emotionally. Matan's "they become hoary and rotten bureaucrats," Iris' "Verete's decision to 'fold his tail," or Matan's "fiercely fight for his rights…the teacher has to be like a Strong Cliff… teaching to pursue truth and justice, particularly when a case like this knocks at his door. A teacher like Verete, who chooses not to fight for his rights, instead preferring to victimize himself as a martyr…," are several of the many manifestations of these emotions. Yet, the discussion is reasoned as students back their arguments. However, it is not very focused, and most often, the discussants do not clearly refer to their peers. True, in 143, Matan reacts to Iris in 138, and in 189, he reacts to Iris in 167, but most of the discussants bring forward reasoned opinions in a monologic way, without really challenging or refuting each other's views. In other words, students expressed arguments and emotions in the discussion, but high argumentative standards (for example, challenging or refuting) were not attained. Similarly, emotions are expressed but not reflected as learning objects. As we will see, the reflective activity is the context in which the quality of argumentation and emotions will be tackled.

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Post-discussion reflection

After completing the 4-day long asynchronous discussions, the facilities of the HDP platform helped us organize synchronous discussions as reflections on previous discussions. The reflection groups (see pages 18–19 for the pedagogical design) were asked to follow the below instructions:

The purpose of this reflective discussion is to pedagogically analyze the discussion as teachers. We will try to formulate the successful parts of the discussion, identify weaknesses, think about what characterizes the discussion, and ponder over possible adequate teacher interventions. For this, please do the following:

1. Describe the structure of participation among discussants.
2. Signal out utterances and behaviors that contributed to the expansion of the discussion; signal out utterances and behaviors that narrowed it.

Reflecting on Group 1's discussion about Adam Verete, Dana highlighted two comments made by Matan. His #100 comment was mentioned and reflected on by her as follows (#246):

> In my humble view, Matan brings here a close and definite opinion that fails to take the discussion forward. One can make a lot of noise for the quote, especially in the light of the fact that Verete was "judged" on having a political and coherent strong view when the officials of the network of schools make the same sin themselves.
> On Matan's #143 comment, Dana reflected as follows (#294):
> Although I strongly agree with Matan, I do not accept the blatant, determined tone of his words. Especially with regards to the words "hoary and rotten bureaucrats with no educational values and principles"…. I find it hard to understand how such narrowing words could take the discussion forward. Matan, my personal view is that you are portrayed here as demagogue and arrogant, you put in some very powerful style of talk that can only scare and reduce the possibility of response from whoever disagrees with him but not only them, but also to whoever agrees with him but not with his way, and remembering that it is a public conversation.

Dana's reflection is remarkable. In #246, she criticized the lack of dialogic dimension in Matan's turn in #100. She more or less expresses the same criticism in #294, but adds that despite her criticism, she agrees with the opinion Matan communicates. She characterizes Matan's turns as arrogant and demagogic. She is critical, and at the same time, emotionally engaged. Yet, this reflection does not provide ways to repair the harsh emotional flaws she detects. The three other reflective questions posed opened a venue to deal with the regulation of emotions in discussions:

3. Pick one episode containing a controversy. Read it carefully and explain in a detailed way what happens before, during, and after the episode.
4. Upon jointly finalizing the analysis, edit your main insight and conclusion in the group's designated Google Doc.
5. Find an utterance in which disagreement is productive. Think how you would present it in a general way to your students.

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We present an excerpt from the reflective discussions that focused on these questions. The group we chose refers to a hot discussion on the issue of whether the Palestinian narrative and/or the Zionist narrative should be taught in Israeli-Arabic and Jewish schools.

> #1665 Rotem: A productive expression of disagreement is: "as long as the state ignores the existence of another nation inside the country, you cannot force them to teach whatever you want…and why (should one do it)? Does is bring people together? Does it strengthen the loyalty? Or does it make the opposite? Each human has the right to know his narrative"
>
> #1686 Einav: I feel that this utterance is quite aggressive really.
>
> #1692 Rotem: it is aggressive yet controversial. I would settle only for "the one's right to know his narrative." It would have brought the utterance to conclusion without controversy.
>
> #1702 Moderator: could you explain that again? I meant to look for a controversial utterance that correlates with how you define your "good conversation", to the way you see how controversies should be managed.
>
> #1711 Rotem: in case the goal of the conversation is making the discussants' opinions public, then there is room for loaded views or opinions that some find harder to hear. In case the goal of the discussions is to provide a unifying activity, there is no controversy here.
>
> #1715 Moderator: absolutely, if I got you right, you emphasize the dimensions of civic courage, honesty and the fact that high levels of openness and sharing are needed.
>
> #1712 Mirit: If so, perhaps [we should] tell the students: Ahmed presents to us a difficult feeling he has, he shares with us his point of view on things and asks us to deliberate on current affairs from this perspective. I would ask to speak with him privately after the lesson though, to suggest that his important messages are possibly hindered by the aggressiveness of his speech, thus reducing his interlocutors' ability to adhere to them. I'll ask him in what ways could he say the same wonderful things without polarizing the classroom into "clans."

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Excerpt 2: Reflection on the Zionist-Palestinian curriculum discussion

We see in this episode that the reflective teachers appreciate the value of tensed discussions. At the same time, they understand the difficulties involved in maintaining this welcome tension: In #1665, Rotem assesses an utterance as a productive expression of disagreement and reacts to Einav's criticism that it is aggressive. She asserts in #1692 that although it is aggressive, it is "controversial". It seems that for her, "controversial" means that it can be shared in a frame of disagreement. The moderator leads the reflective teachers to consider "how controversies should be managed," in other words, how emotions should be regulated in loaded discussions. In #1711, Rotem values these discussions, and in #1712, Mirit gives recommendations on how to share harsh opinions in public. It appears that she recommends that discussants diminish aggressiveness to enable other discussants to adhere to their viewpoints.

We present now a last example of reflective activity in which the regulation of emotions is brought further. It is subsequent to a sixth question (below) that invites teachers to identify the communicational competence of the students and figure out their needs:

6. Compose a dialogic-communicative profile out of Dana, as if she was your student. Read all of Dana's comments. Characterize her comments. Can you determine who she responds to and who she ignores? Can you identify to what sort of utterances she responds, content-wise? At what times does she initiate some responses and when does she refrain from responding? What characterizes her talk on the emotional level? What characterizes her talk on the dialogic level? What characterizes her talk on the argumentative level? Imagine you need to present her with her points of strength in the conversations. What would you say, and how you would present them to her? Provide her with some ways to improve her communicative capacity. Provide evidence and examples in your intervention. Avoid judgment; refrain from high inferences and general impressions.

In response to this reflective assignment, Group 4 provided the following analysis (moderation provided by the first author):

#1272 Sarit: I think that the emotional aspect is very present in Dana's responses. I'll speak in second person. I think you give an important place for students'/people's feelings and it is evident from your responses, which often relate to that.

#1274 Moderator: give a specific feedback, the most specific feedback. Present the thing you are talking about. Explain what you saw there; how you interpret it; how you evaluate it, but so only after presenting the utterance, so everybody could understand exactly what we're talking about.

#1275 Moderator: and yes, utterances do not just appear in vacuum, they appear as a response to something; they generate additional responses. Let's analyze the utterances in a dialogic way, not in a way that detach and decontextualize them from its origin as well as from what they generated.

#1276 Maya: indeed, it seems that Dana does not respond so much, and some of the things she said are not replies to anyone. However, there are places in which she relates to other participants, opening her speech from a place of her relation to them, like in her phrase: "I agree and disagree". I think we should offer her to refrain from writing so many question marks, because they sometimes tell about intolerance towards the things she is talking about.

#1279 Ruth: Dana, as a continuation of what I wrote, do you agree with the argument that when you write many question marks, in a sense, it means that we do not give room for what we disagree with? It seems to me that when we write this, we emphasize that our question is so strong, that there is no answer to it…

1282 Dana: Hi Ruth, I do understand that the written medium provides greater interpretation, so a responsibility lies on the writer to assure that his sayings would be understood. Indeed, I wanted to emphasize that the question is important in the sense that we are always looking for the like. Often, too often, we find out that the one we were sure he is very very very similar to us is eventually different, like east to west…I find it important to reflect and echo this question so that everyone that agreed with the stance favoring homogenous settlements would be able to look deep inside into himself and see whether it is really the case that homogenous settlements does not contain any diversity?? If the answer to this question is "yes- there is diversity also in homogeneity", then the entire discussion on settlements admission committees is absurd, to some extent because the answer lies in the question.

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Excerpt 3: Analysis of Dana's (participant) communicative patterns

This discussion about Dana's communicative patterns is undertaken in the presence of Dana herself. The discussion touches her emotions, and quite naturally, it is emotionally loaded. We will refer to signs of these emotions later on. In this discussion, the injections of the moderator in #1274 and #1275 explicitly encourage the reflective teachers to not only describe, but to also give some feedback. The interjections also encourage the teachers to think about actions to be undertaken and to think that each utterance belongs to a whole. This invitation leads the reflective teachers to not only reflect on Dana's participation, but also to propose some guidance concerning some emotional aspects of her contributions. In #1276, Maya "offers Dana to refrain from writing so many question marks because they sometimes tell about intolerance…." In #1279, Ruth adds that these question marks "do not give room to what we disagree with." Dana's reaction is interesting in the sense that she tries to explain that her harsh written style is a way to express her right for difference, for contrast. Her emotions are intense. For example, she often used the word "do" to emphasize her position (e.g., I *do* understand that the written medium provides greater interpretation). She also repeats the same term (e.g., "the one we were sure he is *very very very* similar to us").

The excerpts that we presented show that the teachers in the course learn to value highly loaded discussions, regulate emotions by finding a balance between expressing personal voices—even when these voices are not agreeable, and eagerly listen to others. Dana expresses her responsibility as well as her right. Although the type of talk that develops in the course is still burgeoning, it puts reason and strong emotion together.

Discussion

The discussion of controversial issues is not new in schools. The use of CSCL tools for representing and discussing (socioscientific) controversies is also not new. For example, Solli et al. (2018) showed how digital mapping tools developed within science and technology studies (STS) are used by upper secondary science students for the collaborative exploration and ordering of controversial socio-scientific issues (SSIs) found online. Venturini and Latour (2010) used technologies for mapping controversies. Yet, even when SSIs were strongly seen as a way to enhance citizenship education (Ratcliffe and Grace 2003; Sadler 2011), emotions were not considered to be part of the learning scheme (with the exception of seeing them as instrumental for students' engagement). The novelty of the approach presented here is that emotions are seen as intertwined with the cognitive and as a new aim for which to design. The analysis of the group assignments and of the personal reflective work showed that the teachers that participated in the course on discussions about controversial issues expressed emotional, argumentative, and dialogical aspects during those discussions. At the same time, we also noticed that the teachers showed a remarkable propensity in envisioning the pedagogical benefits and deficiencies involved in the implementation of discussions about controversial issues in classrooms. The ways in which emotions popped up during these discussions were two-fold. First, the discussants talked about their emotions; secondly, their talk remained emotional (but civil). The course supported these aspects through its delicate, yet direct engagement with controversial issues, the reflective layer of the assignments in which dialogic performance analysis was required, and through the HDP and its capacity to enable a fine-grained, micro-analytic level of resolution into conversations. We assume that while participating in the course, the teachers brought their own experience

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on hot discussions in non-educational contexts, probably because their participation activated this previous experience. At the same time, the course led the teachers to reflect on what a good discussion on controversial issues should look like. The instructions given to them as "students" or "teachers" did not force them to accept rules prepared in advance about what a good discussion on controversial issues should be; rather, they were allowed to articulate highly interesting insights on practices and design related to controversial issues. The examples of discussion and of reflection on discussion we provided allude to the fact that the functionalities of HDP helped in articulating some of the discretions and "know-hows" that teachers may not have been able to formulate otherwise. Particularly, people find it difficult to unpack the emotions they feel in discussions and, more generally, while acting. The reflective functionalities of HDP probably help in deconstructing discussions to identify emotions regarding the textual bits and pieces of these discussions. However, although teachers' moderation knowledge is substantive, it lacks knowledge on pedagogical design and only conveys advice about what should or should not be done during discussions.

The ideational and the emotional were intertwined in the teachers' efforts to come to grips with controversial issues. With the help of technologies that helped them to reflect on previous discussions as artifacts, the talk embedded ideas and emotions—not as entities that emerged from their interactions, but as objects on which to elaborate during their discussions. Our main claim here is that this kind of talk is possible among learners in educational institutions, and it is valuable. We call this type of talk deliberative emotional talk, as it ties accountability for more profound participation—reasoning *and* emotions—in relatively long learning discussions in which diversity of identities and opinions are a given. The accountability for emotions concerns not only the expression and identification of emotions, but also the evaluation of their use—their meaning—in the discussions regarding their introduction and regulation as dialogic building blocks.

In a world where citizens want to express their identities, a strict regulation of emotions is not the only way to be emotionally involved and to participate properly in public deliberations. The protocols we presented serve as evidence for the answer to our research question—a concept proof on the feasibility of designing for and reaching deliberative emotional talk. Is this a kind of talk where participants regulate their emotions while complying with standards of critical discussions? Or rather, it is a kind of talk in which bursts of (harsh) emotions alternate with reasoned moves and add yet another element of tension to collaboration? Additional efforts are needed to characterize its pragmatic nature. The same is true for the other pillars of the structure we tried to present: techno-pedagogical designs, different settings, and theory-building.

Improving HDP design

Based on the first iteration, HDP was redesigned to better support discussions and the monitoring of discussions around controversial issues. The participatory (re-)design we present is based on the analysis of the final assignment and the reflection of the teachers. The first improvement focused on communication channels. The teachers explained that the system lacks informal/immediate modes of communication. For example, the facilitator used external channels to communicate with participants in a private channel. Another problem was that chat communication was directed both to talk and meta-talk in issues of task management, resulting in dense screens. These requests led us to add two communication channels: First, every room now has a chat functionality for those who are present in the room. It provides discussants the opportunity to communicate more directly and gives them a chance to differentiate between

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levels of talk. Second, a one-way private messaging system has been added, enabling the administrator to send messages to individuals or ad-hoc groups. To cope with incidents involving an aggressive exchange of words, the moderator and the administrators were supplied with the functionality to hide selected lines.

In the first round of the research, every "student" discussion could host only one group of "teachers" for a reflective session. However, not all student discussions have the same importance and require further inquiry. Furthermore, allowing groups of teachers to reflect on the same discussions seemed pedagogically interesting to us, as this possibility could enlarge the scope of collective reflection. Toward this end, HDP was added with a functionality of duplicating discussions, enabling them to serve as resources for as many teacher-groups as needed. Beyond duplication, we aimed at guiding reflection toward a highly critical activity by highlighting and focusing on specific talk moves. For this use, we added the *trimming* functionality (highlighted box 8 in Fig. 1), through which the admin and the moderator could select the lines they wished to focus on during the next session and filter out the background. The chosen utterances can now be copied and pasted to new reflection rooms. The trimming functionality was designed to identify critical moments of a group from an emotional point of view, compile and analyze individual user portfolios, and facilitate the development of productive ideas in highly loaded discussions.

Future research and implementation

In the same way that emergent forms of collaborative creation of (new) knowledge is perceived as CSCL's community "gold standard" (Cress et al. 2015) collaborative social tuning of emotions in a delicate balance of authentic voicing, accepting difference, and building knowledge together is collaborative and non-reductive, and in this sense, brings an additional dynamic to the established research efforts of dialogism in CSCL (Stahl et al. 2014; Stahl 2015; Polo et al. 2016). The outlined "emotional project" described in this paper calls for a better understanding of the role emotions play in CSCL, the recognition and integration of emotions into deliberative processes, and the introduction of emotional designs as an educational goal. While all three are in their infancy, realization of these research goals or the allocation of new meanings to what used to be considered as the emotive aspects in CSCL (Rummel, 2018) will demand the exploration of emotions along the established lines of CSCL research (Cress et al. 2015; Law et al. 2017; Wise and Schwarz 2017), as follows: Q17

- The role of emotions in the social aspects of the collaborative situation on the individual level, the group level, and the constituted relations between the levels
- Better understanding of the pragmatics of emotions in written and spoken learning discussions
- Integration of "emotional cues" in CSCL tools design, for example, in the forms of prompts, scripts, emotions metrics (emotional engagement and levels of political emotions in the discussion space), and consequent awareness tools.
- Careful and iterative pedagogical designs for pre-service and in-service teachers, as well as for instructional purposes in the humanities, the social sciences, and SSI

Different versions of HDP are currently implemented in various educational settings. First, it is being implemented in elementary schools (approximately 10 classrooms in Israel and 10 in Europe). Secondly, it has been implemented in eighth grade civics, history, life sciences, and math

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classrooms (two schools in 2018/2019 and twenty schools for the 2019/2020 term). Finally, in higher education, a course entitled Contemporary Issues in Society and Educational Research is currently offered to undergraduate education students in Hebrew University. In all settings, the quality of talk from ideational and emotional points of view is at stake. Learning issues involving these points of view are studied during and from interaction. To do so, the collected data are combined with computational modeling tools to identify weaknesses in the discussion and provide feedback. The computational modeling tools include the following implementations:

1. Algorithms for recognizing critical moments in group discussions causing stagnation, such as ignoring arguments stated by another participant and poorly structured (dull) responses (similar algorithms have already been developed in the SAGLET system (Schwarz et al. 2018) in group discussions about problems in geometry).
2. A detailed analysis of dynamics of student participation in existing data to observe how participants interact and what emotional cues trigger discussions.

Coda

Although our project is still in its very beginnings, it is already clear that the present study brings democratic education to the new digital public sphere. Many have already brought controversies to classrooms: For example, Zeidler (2014) has emphasized the importance of socioscientific issues in the science curriculum. We have already mentioned that researchers have used CSCL tools and information technologies for mapping (Venturini and Latour 2010) and discussing controversies (Solli et al. 2018). Such efforts are important for exposing citizens to important issues in their society. However, the emotions of the discussants are not considered to be part of the design in these activities, despite the crucial role they play. Building on the existing knowledge on the importance of reflective discussions on instructional practices, the innovative design of HDP offers a new way to look at teachers' digital moderation, both for understanding teachers' practice and for designing productive PD interventions that help in engaging cognitively and emotionally thorny issues. The "political classrooms" observed by Hess and McAvoy (2014) in rare classrooms in which exceptional teachers dared to introduce students to controversies as political agents may augur a major change in education with the help of dedicated technologies. The popularity (in Israel and Europe) of courses we preconized is one of the signs of this change.

The context of our study was discussions around societal controversies. Other contexts may raise high-intensity emotions in the public sphere, and the educated citizen should know how handle his/her emotions while talking with others (often how to regulate them, among other handling) in a constructive way—how to participate in deliberative emotional talk. It is imperative to foster deliberative emotional talk in schools. With the help of CSCL technologies that have functionalities common to HDP (first, the reflective ones), deliberative emotional talk will shortly become a central type of talk—and a new benchmark of collaborative learning.

As teachers begin to understand how to guide societal controversies in which the intensity of emotions is high and help students express, acknowledge, elaborate, and regulate their emotions, a new form of high-quality talk emerges, one that fits a democratic vision of education. HDP begins to realize one of the visions of the CSCL community: to support students in developing the skills required for learning and participating as citizens in the digital age (Wise and Schwarz 2017).

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Appendix 1

Translations of the figured discussions Q18

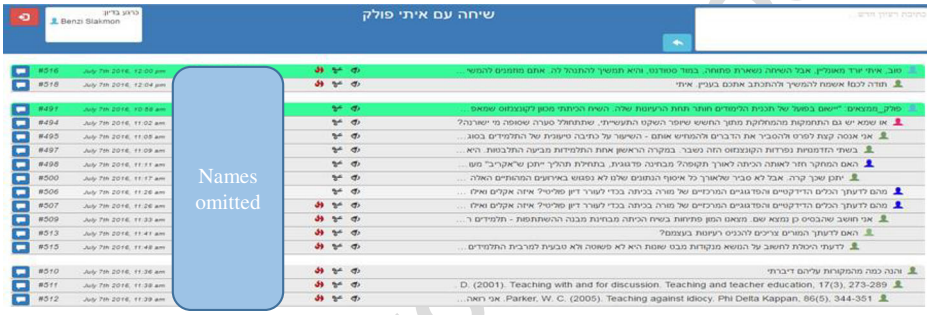

Fig. 4 Discussion title: Conversation with Itay Pollak

Utterance Number	User	Text
#516	Moderator	OK, Itay goes offline, but the conversation remains open, in a student mode, and it will go on, you are welcome to continue… (The text is continued in the "expand" mode—not visible in the screenshot.)
#518	Itay Pollak (hosted expert)	Thank you! I will be happy to continue corresponding with you on this matter. Itay
New Thread		
#491	Moderator	Pollak_Findings: "The actual name of the study program undermines its ideas. The classroom discourse is directed at the consensus, characterizing…(Text is continued in the "expand" mode, not seen in the screenshot.)
#494	Student 1	Or perhaps there is also moving away from disagreement, for fear that the temporary state of peace will be disrupted, that a stormy discussion will occur, the end of which can't be estimated.
#495	Itay	I will try to explain and illustrate the matter somewhat, in detail—the students' lesson about argumentative writing…(Text is continued in the "expand" mode, not seen in the screenshot.)
#497	Itay	On two separate occasions, this consensus was broken. In the first case, one of the students expresses hesitation. She…(Text is continued in the "expand" mode, not seen in the screenshot.)
#498	Student 2	Has the study returned to the same classroom throughout a period of time? Pedagogically speaking, in the beginning of the process I might "sacrifice"… (Text is continued in the "expand" mode, not seen on the screenshot.)
#500	Itay	

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Utterance Number	User	Text
		This may have happened. But it is unlikely that throughout the entire collection of data, we would not encounter these material events…(Text is continued in the "expand" mode, not seen on the screenshot.)
#506	Student 2	What in your opinion are the teacher's main didactic and pedagogical tools in the classroom, to raise a political discussion? Which climate and which…(Text is continued in the "expand" mode, not seen on the screenshot.)
#507	Student 2	What in your opinion are the teacher's main didactic and pedagogical tools in the classroom, to raise a political discussion? Which climate and which…[a] (Text is continued in the "expand" mode, not seen on the screenshot.)
#509	Itay	I think that the foundation is there. We have found a lot of openness in the classroom discourse in terms of participation structure—students…(Text is continued in the "expand" mode, not seen on the screenshot.)
#513	Student 3	Do you think teachers should introduce ideas themselves?
#515	Itay	I think that the ability to think about the subject from different points of view isn't simple or natural to most students…
New Thread		
#510	Itay	And here are some of the sources that I talked about:
#511	Itay	D. (2001). Teaching with and for discussion. *Teaching and teacher education*, *17*(3), 273–289.
#512	Itay	Parker, W. C. (2005). Teaching against idiocy. *Phi Delta Kappan*, *86*(5), 344–351. I see…

[a] #506 & #507 are originally identical

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Appendix 2

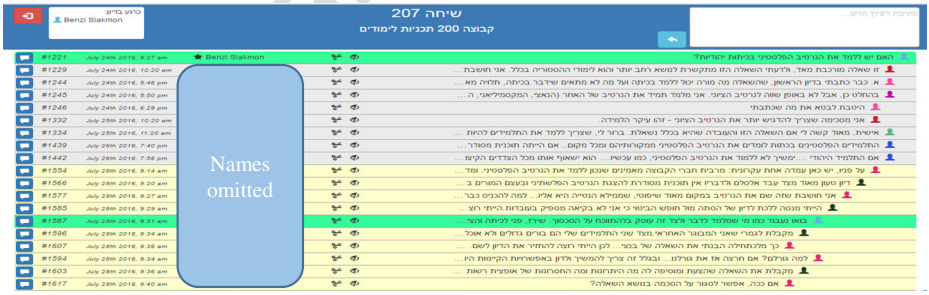

Fig. 5 The Hot Discussion Platform (HDP): "Post Discussion (Retrospect) reflection" mode

Discussion Title: Conversation 207, Group 2000 (on) Curriculum

Utterance Number	User	Text
#1221	Moderator	Should the Palestinian narrative be taught in Jewish classrooms?
#1229	Student 1	This is a very complex question, and I think this question connects to a larger topic of teaching history in general. I think…
#1244	Student 2	

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Utterance Number	User	Text
		I have already written in the first discussion that the question about what a teacher can teach in the classroom and what is inappropriate to talk about in the classroom depends…
#1245	Student 3	Certainly, but not equally to the Zionist narrative. I always teach the other's narrative (Nazi, Maximillian…).
#1246	Student 2	You have expressed well what I have written.
#1332	Student 1	I agree that the Zionist narrative should be emphasized more—this is the main part of learning.
#1334	Student 4	Personally, this question and the fact that it is asked at all is very difficult for me. It is clear to me that the students should be taught how to be…
#1439	Student 5	The Palestinian students in the classrooms learn the Palestinian narrative from their own sources and different places…if there had been an orderly program…
#1442	Student 5	If the Jewish students…continue not to study the Palestinian narrative…they will get it from all of the extreme sides…
Reflection Mode (yellow thread)		
#1554	Student 6	On the surface, there is one principal position here: most of the group members believe that it is correct to teach the Palestinian narrative…
#1566	Student 7	A very charged discussion on the part of Student 5. According to him, there is no orderly program to present the Palestinian narrative and actually the teachers…
#1577	Student 6	I think that this puts the narrative in a very judgmental place, which is the tendency in any case…why already introduce…
#1585	Student 7	I would try to go towards a discussion about sedition versus freedom of speech, because I'm not knowledgeable enough about the facts. I would like…
#1587	Moderator	Let's work like we are teaching to speak, and at the same time dealing with arguing about the conflict. Student 7, address the class and…
#1596	Student 7	I totally accept that I am the responsible adult. On the other hand, my students are very ignorant, and I would not be able…
#1607	Student 6	This is how I understood the moderator's question in the first place…This is why I would like to bring the discussion back in that direction…
#1594	Student 6	Why their fate? If you like, our fate…and this is why we have to continue discussing the existing possibilities…
#1603	Student 7	I accept the question that you suggested and add to it: what are the advantages and the disadvantages of the option…
#1617	Student 6	If so, can we end with an agreement on the question?

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Appendix 3

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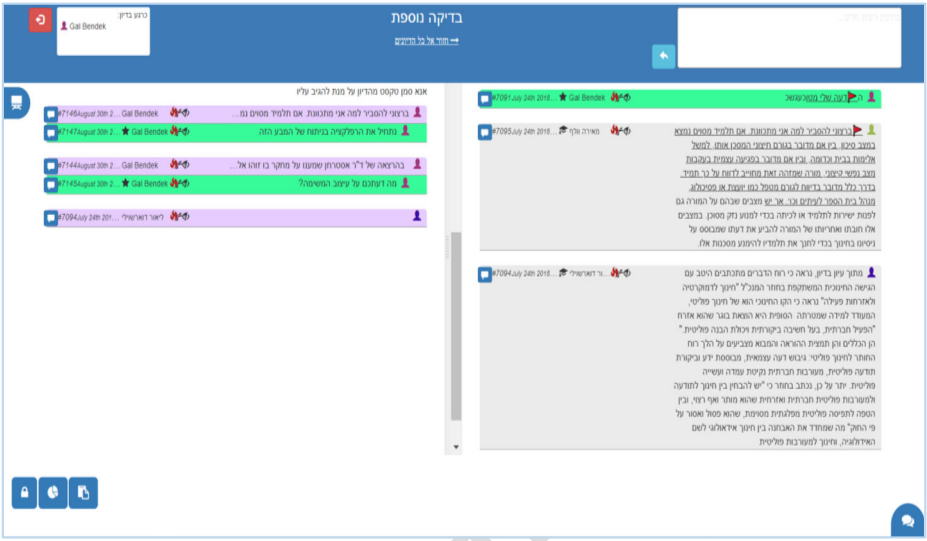

Fig. 6 The Hot Discussion Platform (HDP): "Online Discussion (Fishbowl) Reflection" mode. Title: Additional Check Q20

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Appendix 4

Table 1 Discussion Title-additional check

Reflection (left) Please select text from the discussion in order to reflect on it				Discussion (right)		
Utterance Number	User	Text		Utterance Number	User	Text
#7146	Student 10	I would like to explain what I mean if a particular student…(originally #7095)		#7091	Student 8	My opinion [gibberish]
#7147	Moderator	Let us begin the reflection with an analysis of this utterance		#7095	Student 9	I would like to explain what I mean, if a particular student is at risk, whether it is an external factor that endangers him, for example domestic violence, or if it is self-harm due to an extreme mental state. A teacher who identifies this must always report it. Usually the report is to a treating agent, such as a counsellor or a psychologist, sometimes the school principal, etc., but in some situations, the teacher must also address the student or the class directly in order to prevent dangerous harm. In such situations, it is the teacher's duty and responsibility to express his opinion based on his experience in education to educate his students and avoid these dangers.
New Thread						
#7144	Student 10	In a lecture by Dr. Asterhan, we have heard about a study where it was identified…		#7094	Student 8	From reading the discussion, it appears that its spirit corresponds well with the educational approach reflected in the management circular "Education for democracy and active citizenship," and it appears that the educational line is that of political education, encouraging, learning with the final purpose of producing a graduate who would be a citizen who is "socially active, with critical thinking and a political understanding ability." Both the rules and the essence of teaching and the introduction point to a spirit that strives for political education, consolidating an independent opinion based on knowledge and critical political consciousness, social involvement, taking a position, and political activity. Moreover, the circular says that "a distinction should be made between education for political, social, and civil consciousness and involvement, which is allowed and even desirable and preaching a particular political party perception, which is wrong and forbidden according to the Law," which underlines the distinction between ideological education for the sake of an ideology and education for political involvement.
#7145	Moderator	What do you think about the task format?				
New Thread						
#7094	Student 8	(originally left blank)				

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