

**Disengaged students and dialogic learning:  
the role of CSCL affordances**4  
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**Abstract** Only a few studies have dealt with the challenge of bridging the linguistic gap between the dialogic realm and the talk of disengaged students. Bridging this gap is particularly relevant to the CSCL community since one of its utmost aims is to promote the dialogic. This study aims to articulate how to harness the CSCL design and affordances to enhance dialogic pedagogy with disengaged students. Using temporal analysis of philosophical discussions for children, we focus on three disengaged 8th grade students participating in successive discussions mediated by a CSCL tool (Argonaut), and follow the way they talk with their peers in the classroom. The study shows the gradual emergence of the dialogic among those students. We describe the transition of their talk moves, from initially reproducing the way they talk to adopting dialogical norms. To explain this we conceptualize the notion of *carriers of discursive norms* and discuss its transformative role in dialogue. The dialogic transition was made possible by the pedagogical design and the design of the CSCL tools. These affordances allowed the students change the meaning of the conversational building blocks of space, silence, addressee, and the ethics of talk.

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**Keywords** Disengaged students · Dialogic pedagogy · Technology affordances · Discursive norms · Philosophy for children

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**Introduction**

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In this study we explore the questions of how to introduce dialogic talk to disengaged student, the mechanism involved in the integration and the role CSCL tools might play in this process. The *dialogic space* (Wegerif 2007) has the potential to be the place where one realizes the intertwined state of the dialogic self. One might start a conversation and gradually grasp the extent and the depth of the dialogical experience; the role one's own talk plays in the voicing of other participants and in collaborative knowledge building. For this reason trajectories of talk

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might illustrate the emergence of feelings of serenity of the participants and the broadening effect it has on their speech as a result of being heard and recognized.

The issue of engaging the disengaged student in the conversation is of great interest to us. Engagement is defined in this paper as the stretching of the social identification of students in such a way that their identity will include multiple memberships in speech communities. This approach is different from the authoritative approach of the cultural appropriator in that it acknowledges the students' own voice. The study of trajectories of participation will be used here to explain changes in the patterns of talk of three disengaged students in the CSCL environments. Recently it has been suggested that *high-expectation curricula* (Dudley-Marling and Michaels 2012) ought to be the preferred pedagogy when dealing with minorities and students from low-income families. The program described here—integrating *Philosophy for Children* with CSCL tools; putting a lot of trust on student's autonomous activity; and deliberately focusing on ambiguous questions—is definitely such a curriculum. In this paper, we discuss the problem of integrating disengaged students into the dialogic and the changes made in the curriculum in order to facilitate this integration. The technological affordances of the examined CSCL tool – the Argonaut system—have been helpful in the process. The pedagogical design and the delicate discursive moves of group members are also discussed.

Our starting point is Baker and colleagues' (Baker et al. 2012) concluding remark in a paper in which they acknowledge their failure to engage low socio-economic level students in e-discussions:

“...What would the theory of learning in schools be like, which also takes into account students who do not accept to ‘play the educational game’? such a theory might foreground social relations and identities, social *milieu*, and discourse genres, seeing knowledge elaborated as a social, cognitive, and discursive practice to be appropriated and articulated with others” (p.14).

## On voice and language inequality of disengaged students in the classroom and in CSCL settings

In his classic *Speech and language: on the origins and foundations of inequality among speakers* (1973/1996), Dell Hymes laments the fact that “we have no accepted way of combining our understanding of inequality with our understanding of the nature of language”. But since that time much work has been done in the field. Among the most important ideas is the strong correlation between linguistic differences and the social values. Gumperz (1982) argued that linguistic differences are not only causes of misunderstandings, but they

... Play an important, positive role in signaling information as well as in creating and maintaining the subtle boundaries of power, status, role and occupational specialization that make up the fabric of our social life. Assumptions about value differences associated with these boundaries in fact form the very basis for the indirect communicative strategies employed in key gate keeping encounters...which have come to be crucial in determining the quality of an individual's life in urban society (pp. 6–7).

The teachers/gatekeepers find themselves in the paradoxical position of working toward homogeneity of discourse on the one hand (associated with his acculturation mission) and trying to embrace linguistic diversity on the other (associated with his societal obligations). Hymes' notion of ‘ways of speaking’ is in this sense a departure from the monolith-humanistic model of language in favor of learning about the form of language from its actual realization,

accepting the fact that “the generic potentiality of the human faculty for language is realized differently” (Hymes 1980, 20). As much as communication and understanding within the same language is a matter of ideational expression, it is also an issue of interaction norms and conversational conduct between communities of speech which are based not only on interactive aspects but also on power relations, identity, membership and identification. Therefore, we might explore the educational challenge of inter-subjectivity, which is the pedagogical aim of engaging and abiding students from different speech communities in the dialogic. In cases when teacher and students do not share the same speech community, the pedagogical challenge for the teacher who embraces linguistic diversity is to introduce a way of speaking constituted on the disciplinary speech community, and to integrate students into that community without expecting that the appropriation into the disciplinary speech community will yield homogeneous speakers. In Hymes terms, it is a question of “adaptation of languages” and the integration must take into consideration the fact that it is a two-sided process. Diversity must not be seen as a problem to overcome but as a fundamental characteristic of the speaker, and of his identity (Wortham 2006).

To understand the speech community and its members, Hymes highlighted the idea of looking at the subject from the perspective of the communicative repertoire which goes beyond the formal language: “A repertoire comprises a set of *ways of speaking*. Ways of speaking, in turn, comprise speech styles, on the one hand, and contexts of discourse, on the other, together with the relations of appropriateness obtaining between styles and contexts” (Hymes 1980, 27). To be a member of a community is to know its inner speech style *as well as* its appropriate use. The notion of multivoicedness is presented here to signal the potential capacity to enter one speech community without losing hold on the original. Following Bakhtin (1981), we will describe complementary accounts of the notion of voice suggested by Hymes (1996), and Blommaert (2005). The idea of voice as the embodiment of the self is derived from Bakhtin’s account of voice as “the speaking personality, the speaking consciousness” (Holquist and Emerson, 1981, p.431). In order to be understood one needs to generate meaning and to affix it to objects. One needs to negotiate it. Speakers should be able to transform given utterances dialogically, contextualize them, and create the conditions for their response in a way that will enable their peers to understand these utterances as closely as possible to the speaker’s intended meaning. (Blommaert 2005). Voicing is then socially dialectical: since voice implies a response of any kind, an answer, the addressee/other might be indeed hell, because the other holds the conditions and the constraints for being heard, but at the same time he is the only path towards recognition. Of course, Bakhtin’s notions of *authoritative and internally persuasive discourses* reflect the fact that the movement is not only from the speaker towards the society and the addressee but in the opposite direction as well. For Bakhtin, the mechanism of *assimilating the other’s discourse* into one’s own is a psychological given. Each word/discourse (“*solvo*”) comes with its societal regime, as signified by the multiple meaning of the term “*solvo*” that comes from uniting the uttered aspect of the word with the method of using it, with its political grounding. Words hold different meanings when they are assimilated into one’s voice. The authoritative discourse “strives rather to determine the very bases of our ideological inter-relations with the world, the very basis of our behavior” (Bakhtin 1981, p.342). Educational discourse, as well as Moral discourse, are only two types of authoritative discourses explicitly mentioned by Bakhtin, as they “demand that we acknowledge it, that we make it our own; it binds us...it is, so to speak, the word of the fathers. Its authority was already acknowledges in the past...the language is a special language”. The authoritative voice of the teacher is constituted dialogically from the encounter. In this passage we also see Bakhtin’s debt to Buber’s ideas on dialogue, as the interlocutor is seen, from the standpoint of the authoritative imposer, as “Thou” and not as “I”, as instrumental, or as vehicle to circulating ideas.

Voicing is thought to be a personal achievement and an act of authorship (Holquist 2002), therefore voice, as the capacity to communicate (Blommaert 2005; Nikulin 2006) might also be perceived as agency. The notion of voice has certain similarities with the political notion of recognition developed by Honneth (1996). Recognition is defined as a social act, aimed at approving and ratifying a person (or group) or a specific act, always carrying a positive value with it. Based on the view of the self as dialogical and social (as opposed to the atomistic view) the need for recognition is fundamental and developmental, as it is perceived as a condition for self-recognition. Being recognized is part of becoming a subject: "The self is to be understood as a communicatively dialogical and as constituted by and through the recognition of the other in communication" (Nikulin 2006, p.29). Ignoring, exclusion, and insult are but three of the strategies used to disclaim it. As with voice, so is the moral act of recognition: in order to become visible, one needs not only to be present in the public sphere; one also needs the ratification of others. One needs to be identified and, most important, to be accepted.

There are inherent paradoxes with learning philosophy in a school setting from the perspective of voice and authority. Philosophy is often taught in school as the history of philosophical ideas. When presented as an activity, however, the goal is for students to come to terms with the authoritative discourse, for the sake of overcoming it, not obeying it. In other words, successful instructional design will lead to the development of multivoicedness among participants in the community of philosophical inquiry. The capacity to incorporate some of the institutional voice into one's own voice, to enlarge one's repertoire in a way that will include institutional discursive and ideational moves without being oppressed by it, while staying loyal to one's own voice is the goal.

#### Disengagement characteristics of the students discussed

The three students discussed in the study—Dor, Yoel, and Avi (all names have been changed; students chose their cover names)—were not among classroom's best achievers. The source for concern is not founded solely on their poor achievement; all three seemed unwilling to enter the discursive realm, the speech community that constitutes the unique activity of philosophical inquiry. Through avoidance, mockery, or extreme resistance, Yoel, Dor, and Avi, respectively, were unwilling to share the discursive norms taught by the teacher in the classroom. During the entire course Yoel refrained from participating in whole class discussions. Moreover, even when the teacher directly addressed a question to him or encouraged him to participate in the conversation, he remained silent. As for Dor, he was highly critical of the fact that the lesson focused on speaking norms, utterances and epistemologies. He saw these practices as intrusive because the purpose of the constitution of the philosophical community of inquiry is changing practices and dispositions. Its interest lies not only on the ideational. Dor opposed what he regarded as an attack on his way of talking and acting in the classroom, and he opted to make a mockery of the teacher's discourse ridiculing his utterances and mimicking other students' efforts to modify their manner of talking. Maybe implicitly grasping a strong insight about talk and identities, Dor opposed the possibility of multivoicedness. He advocated a strong separation between the voices by making fun of other student's attempts to speak with the norms and utterances suggested by the teacher. Dor epitomized the long lasting effect of the classic IRE patterns in classrooms by his unwillingness to move from his classic 'student' position or to participate in different modalities of classroom talk, Dor suggests that the (non) engagement between the teacher and his students should be kept at an ideational level, on which the student might be able to model the voice of the teacher without allowing it to influence issues of identity and being. Dor does not expect teaching to be relevant to his education.

Avi acted as if he would not allow other voices, the teacher's voice in particular, to break through his defenses. Whereas Dor used humor, irony, criticism of the talk of the teachers and

that of the other students as 'high' language, Avi expressed himself, not just through language, but by continuing to be late, missing many classes, and explicitly avoiding participation in linguistically changing practices. He expressed his protest explicitly through outbursts towards the teacher on many occasions, claiming that classroom activities should not exceed the limit of the 'subject matter', and the teacher should not pretentiously engage in attempts to affect students' ways of talk. Although he liked to express his thoughts and ideas in the classroom, his outbursts were common when the feedback he received seemed to cross his line of appropriate intervention from the side of the teacher. As a result, we did not expect the transition from the face to face discussion to the Argunaut plane to dramatically change the way students talk, nor did we expect it to be any different from their ordinary classroom performance.

Interventions aimed at changing discourse practices in urban classroom culture showed immense problems (Rampton and Harris 2010). Indeed, productive argumentation is extremely difficult to sustain in school (Schwarz 2009). Because the widespread implementation of CSCL tools in authentic classrooms is relatively new, there are few studies dealing with its integration in classrooms, and sociolinguistic studies that take into account students' actual way of speaking and modalities of interaction on virtual planes are only in their very early stages. Baker and colleagues (Baker et al. 2012) examined attempts to integrate dialogism with students from mixed socioeconomic backgrounds through the CSCL tool ('DREW': Dialogical Reasoning Educational Webtool). DREW was used for network discussions on the legitimization of growing Genetically Modified (GM) products in France. Discussions were held in a history-geography classroom of a secondary school. Most of the students came from families who had recently immigrated and fell into the category of socio-economically disadvantaged. The integration of the CSCL into the classroom failed, as the classroom "degenerated into chaos and physical threats" (Baker et al. 2001, p. 2). Most (64 %–79 % of the discussion on average) of the students' online contributions were off-topic, socio-relational, or used for managing the interaction. The results are poor in terms of argumentative quality that compared comparison to other studies in this field (Baker et al. 2003). The study also shows that the teacher moderated debate was argumentatively much better, on topic and more elaborated; it correlates teacher control to argumentative quality of the discussions. Baker and colleagues explained their failure by suggesting that CHATs and text messages are part of students' life (termed as 'everyday genre'). Students imported their manner of speaking into the classroom debate. The results are also better when talking to a teacher. The authors suggest that the entire educational genre is typically conceived by students only as *interaction with teachers, formal representatives of the institution*. They suggest that the distance between students' everyday genre and the genre used in educational settings may explain the failure to communicate "educationally". Baker and colleagues called attention to the need for the analysis of the cultural dimension of students in CSCL settings.

## The Argunaut system

The Argunaut system is a moderating interface that provides the moderator with online awareness tools and intervention facilities (Schwarz and Asterhan 2011). The rationale in Argunaut is to deliver a unified mechanism of awareness and feedback to support moderators in multiple e-discussion environments. The Argunaut interface was added to the Digalo CSCL software, a tool for enhancing dialogic teaching through argumentative practices (Schwarz and de Groot 2007). This tool encapsulates many layers of ideas about dialogue: for example, dialogue is not only a tool for knowing but also an object of reflection. Discussants emerge not just as individuals, but as parts of the dialogic space. Finally, the context for which Argunaut was designed included dialogical rules of talk to which participants must comply. Students are

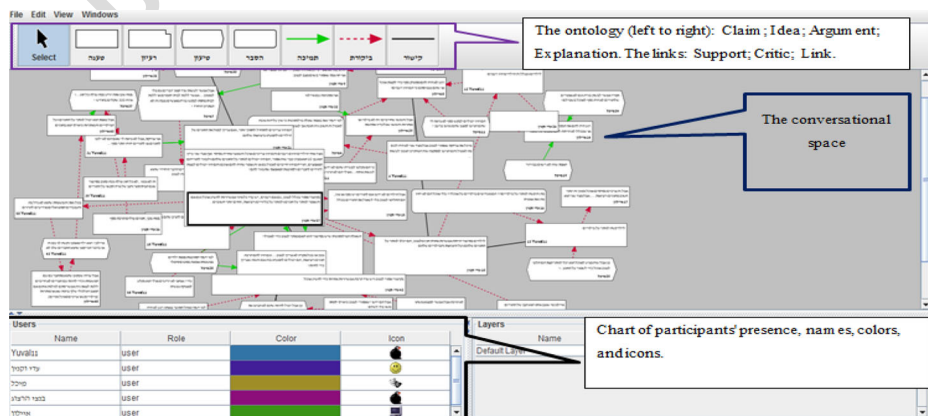


assigned to a particular conversational space made in advance by the moderator. Inside the conversation space, students post their contributions in a way similar to chat: they may post messages simultaneously, without knowing the other participants' activity; unlike chat, there is no pre-scripted or designed form of thread to the ongoing posts. For each and every post, the students choose a contingent location. None of the argumentative maps, conversational space, are identical at the end of a session. Students must also choose the form of the post before making a contribution because each form from the repertoire afforded and tailored by the moderator for the specific discussion, represents something different: warrants, claims, data, etc. This feature supports argumentation by limiting the possibility of posting general notes without previously referring to the argumentative nature or in the best case scenario, without channeling the thought into a structural argumentative form. Another unique feature of the Digalo/Argunaut conversational space is the choice students have to make when connecting their post to the evolving conversation. In this respect they only have to choose to which previous contributions their current post will connect (using connection arrows). They also, however, have to choose the appropriate sort of connectivity from the repertoire pre-designed by the moderator. In the classroom described, students had to choose among three options: linking as agreement (green arrow), linking as criticizing (red), and linking in a neutral way (black).

The Argunaut system provides researchers and facilitators with immediate feedback with regard to the ongoing conversations. Among these features: graphical representation of the contribution of utterances between the participants in each of the discussions; a detailed personal segmentation of the argumentative characteristics of the participants, and of segmentation of their linking; social network analysis of group discussions; and transcripts of the discussion in certain modes. Most important, the research interest, or the documentation apparatus is already embedded as an integral part of the interface: the Argunaut system documents and web-stores automatically every discussion as it takes place, and provides immediate or a delayed opportunity for replaying the conversations in any desired speed (Schwarz and Asterhan 2011). Figure 1

Contextualizing the present study on dialogic education in the use of Argunaut and Digalo as representative CSCL tools

The present study is based on many contexts: philosophy and moral issues discussed (also) in CSCL settings, authentic classroom-based secondary education environment, a heterogeneous



**Fig. 1** The Argunaut's conversational space and main features: a student view

classroom in which some of the students are typically described as disengaged, and of course a year-long study with the same students. There is no clear body of literature referring to the work presented here: most of the research about the tools has been carried out in laboratory/university settings, and usually in science education. Yet, the most important field that ought to be integrated into the CSCL literature is sociolinguistics. Group linguistic differences, as well as individual ways of talk, have not yet been investigated: as if the imagined CSCL student and object of inquiry has no gender, race, class or ethnicity. In the following section we will introduce our preliminary work in the field.

As mentioned, the Argunaut moderator interface was a further development in the design-cycle of the Digalo. In a pedagogical-implementation study conducted by Schwarz et al. (2011), the Digalo was used for the learning about the day/night cycle in an 8th grade science classroom. Students engaged in e-synchronous discussions and picture-based perspective taking. The study reported not only high learning gains, regarded as conceptual change, but also the successful implementation of the new pedagogical setting, although in this case the setting was very different from a real-life classroom situation. The tool was also used in a school-based context for the promotion of argumentative interaction while learning about electricity in primary science classrooms (Simon et al. 2012). In their research the documentation facility of the system was used as a pedagogical tool. The students use the discussion maps they created for further elaboration and as a preliminary phase to experimenting with the assumptions yielded. The Digalo, when carefully designed, proved to be useful for prompting reasoning, although it did not enhance the quality of the argumentation. Digalo was found to be pedagogically helpful when used as a reflective tool for students and as an instrument at hand for the teacher's ongoing evaluation of students evolving scientific stances. The problem of moderating the many ongoing small group discussions is the subject of Schwarz and Asterhan's (2011) inquiry into teacher moderating practices. Despite their report of "nascent practice" modes of e-moderation that proved to be successful in engaging students in the conversation, in this study we opted for a radical non-interventionist mode of moderation, in which the teacher did not enter the conversational space once the discussions started. The rationale for the decision will be explained later.

Working with the Digalo/Argunaut tools from the dialogic perspective, Wegerif et al. (2010) emphasized the need to go beyond formalistic argumentation, or the "dialectic paradigm", as they refer to it. Wegerif's notion of creativity in dialogues as the mechanism behind the ideational tension that leads to emergence of new perspectives is indeed intriguing, but in order to establish it, there is a need for a temporal approach and for complementary studies with *children*. The above mentioned study was done with undergraduate students. Mirza and Perret-Clermont (2009) also studied undergraduates in their use of Digalo, but they combined Digalo in the activities in humanities. The fact that the research involved adults probably explained, at least in part, the perfectly organized discussions. It was hypothesized that the Digalo design affordances helped in reaching mutual understanding and perspective taking. But from the perspective of this study, this engagement was preconditioned by motivational aspects, communicative expectations, and argumentative capacities, not established in youngsters. All students were incorporated in a monolithic state of mind entailed by the environment. As in the case of other CSCL tools, no research has thus far been carried out that describes student trajectories developing over longer periods of time. Without such descriptions and without observing the intersections of trajectories in elaborating meanings, tools and ideals do not achieve their goals.

Philosophy for children and dialogic teaching

*Philosophy for Children* (Lipman and Sharp 1978; Lipman et al. 1980; Lipman 1988; 2003) is a program aiming at fostering thinking skills: critical, creative, and caring through apprenticeship

in a *community of philosophical inquiry*. Although the program can be seen as a discipline with its own curriculum, it is more commonly recognized as a complete pedagogy which can be implemented in a variety of disciplines. *Philosophy for Children* (P4C) is recognized for its proven achievements in promoting sustainable cognitive learning gains and socio-emotional effects, such as students' self-perception as learners and as problem-solvers (Topping and Trickey 2007; Trickey and Topping 2006). The fact that the program is taught all over the world without obligatory core curricula might explain the ever growing creativity in its implementation in schools and the ongoing content developments that branch out from Lipman and Sharp's original program.

*Philosophy for Children* is regarded as a fine manifestation of *dialogic pedagogy* (Hardman and Delafield 2010). *Dialogic pedagogy* has been extensively developed and studied as a mean to promote children's thinking (Mercer and Littleton 2007). The radical view even sees dialogue as an end in itself, arguing that other thinking skills are derived once the participant enters the dialogic (Wegerif 2007). Possessing a rich repertoire of discussion tools is associated with higher level thinking skills and with deeper understanding. Such a repertoire is most likely to develop (Alexander 2008) through dialogic teaching. When engaged in dialogue, students are attuned to each other. They listen with care and encourage the participation and the sharing of ideas of the others. They build on each other ideas, and while respecting the perspective of the minority, they strive for mutual understanding and conclusions (Alexander 2004).

CSCL tools carry with them the potential to foster such learning (Pifarré and Staarman 2011; Mercer et al. 2010), and the program described in this research reflects such integration of dialogic pedagogy, P4C and CSCL. In accordance with Lipman's late writings (2003), it seeks to foster student's *philosophical disposition*, as opposed to capabilities. Becoming a member of such a philosophical community necessitates multiple engagements. First of all, the engagement is epistemological. It moves to a sort of regression towards semantics of the key ideas (Passmore 1970). The act of going beyond definitions we take for granted, and the effort to adopt more acceptable ones as a precondition for further elaboration of the dilemma or problem at stake, lies at the very heart of the philosophical activity. The pedagogical design of the program studied differed from the original program in three major ways. First, discussions were based on biblical stories and students' own writing. Second, a large part of the curriculum was dedicated to small group discussion about the 'big questions', and finally, for the first time we are aware of, CSCL tools were used as a discursive platform for the elaboration of philosophical discussions. The latter two distinctions were designed specifically to analyze the entire classroom chain of activity, from the teacher's institutional voice, through meaning making in a small group as an intermediate stage towards the personal interpretation of the individual student (Stahl 2006).

The open inquiry sessions around canonical texts are not new in the teaching and learning of the humanities. In fact, the Great Books Approach (Adler 1984) did exactly that. *Philosophy for Children* differed from this classicist approach to the humanities, in a shift that resembles the historical fault line in the debate between the progressives and the conservatives at the start of the 20th century (Cremin, 1961). Lipman took the entire corpus of canonical philosophy, and put his trust in a Deweyan based mode of inquiry. Adler (1984) claimed that his Paideia approach is intentionally directed to disadvantaged students and that this kind of equal treatment to all has the potential to create a classless society.

In the curricular design of our study we integrated the above approaches. As frequently done in P4C, our community of inquiry discussions started off from the introduction of a story. At a certain stage of the program, as the main themes were established, students defined the



major question to be pursued and practiced whole group and small group discussions of the major questions. Only after they practiced writing about these questions, were classical philosophical texts dealing with these issues introduced. For example, after students thought of pursuing questions of societal inequality as part of the theme of Justice, was the Cain and Abel story introduced. Students then wrote an essay about the origins of inequality among humans. Following that the teacher introduced Rousseau’s *discourse on inequality*. At the same time we followed the important pedagogical rule of the P4C, that whatever anyone says is cited as literal quotations. In doing so, students realize that not only are their utterances written on the whiteboard and treated with respect, so are the utterances of others. We used this idea when deciding on the moral issues to be discussed in the Argunaut sessions.

Another way to look at Adler’s assumption regarding the suitability of the Paidiea proposal for disengaged students is the sociolinguistic perspective developed by Bernstein (1972). He noted that “elaborated code” associated with abstract and context-free meanings, is speaking style in use in meta-communicative discussion, in which discussants are negotiating social meanings, ways to decide meanings, and how to conduct the discussion about it. The philosophical dialogue might be perceived as a specific and strong example of such a universalistic code. For this reason Hymes sees the importance of introducing the elaborated code to all students. Adler’s assumption seems to represent more of an educational ideal than a planned pedagogy, and the question remains as to how to move from an inner-group restricted speech community and become a member of the community of philosophical inquiry, the elaborated over-powered and privileged speech community introduced by the teacher.

Method

The interactions of our three students, Yoel, Dor, and Avi, among themselves and with other students, in four consecutive activities are temporally analyzed (Table 1). The corpus is taken from a year long corpus of P4C 8th grade curricula. In the following section we describe the curricular context of the study, the students/participants, the process of documentation and the methodological approach for the analyses.

The curricular context of the study

The philosophy course took place in a class of 28 8th grade humanities students in a junior high school whose policy is to integrate students from very different socio-economic

Table 1 Study’s course of activities

	Activity 1	Activity 2	Activity 3	Activity 4
	First Argunaut session	Teacher-led whole class reflection based on activity 1	Second Argunaut session	Third Argunaut session
Avi	Involved with Gabby and Yoel	Absent	Absent	Involved with Gabby and Yoel
Yoel	Involved with Gabby and Avi	Absent	Involved with Agam, Lea, and Noa	Involved with Gabby and Avi
Dor	Involved with Almog and Nadav	Participated	Involved with Shira and Sharon	Involved with Almog, Nadav, and Barry

backgrounds. The yearlong course was organized around three general themes: Justice and the notion of inequality; Truth, especially as manifested in the notions of 'understanding' and 'interpretation'; and the idea of "the Good". At the same time, there was a constant transversal engagement in dialogue as well as with the question of the "good conversation". The discussions analyzed are taken from the third learning cycle, which dealt with the notion of "the Good". During the year, students were involved in different types of activities to facilitate the practicing and appropriating a *community of philosophical inquiry* norms (Lipman 2003): listening to one another with respect; building on one another's ideas; challenging one another to supply reasons for otherwise unsupported opinions; assisting each other in drawing inferences from what has been said, and seeking to identify each other's assumptions. A community of philosophical inquiry usually includes the following: introduction of a text; construction of the agenda through collecting students' contributions, questions and fields of interest; solidifying the community; the use of exercises to consolidate understanding, and to achieve greater meaning.

The subject matters in the analyzed discussions are taken from the students' own writing. Prior to the Argonaut discussion, students were asked to compose a philosophical story on their own. The teacher collated the stories into a small anthology, deleting the authors' names. In the lesson preceding the first Argonaut discussion, the students read the anthology. They were surprised to find that their own stories were included, and experienced their classmates reading and referring to their own creative works with enthusiasm and respect as well as occasional criticism. Some maintained their anonymity while others were proud to be identified with their work. As the first Argonaut session began, students had already familiarized themselves with the stories, or at least the opening ones. Students were placed into six groups, with three to four members in each, and were all given the same task: to read Sharon's story (which hopefully they already were familiar with) and discuss the philosophical issues in it. Sharon's story was about two young brothers, Idan, age 15 years old (the age of the author, Sharon), and Noya, his 2 year old sister. After the sudden death of their parents, they moved in with a foster family. When this arrangement failed, they moved in with another family, in which Idan became a close friend of Jonathan, who was a little younger than he was. After tranquil and happy times with Jonathan's family, hard times began: the parents faced financial difficulties which threatened the possibility of keeping Idan and Noya. In an act that might be interpreted as helping the parents, Idan and Jonathan stole food from a nearby supermarket, were caught by the police, and taken to a police station where they were confronted with the moral problem of stealing. This story, like the others, was the basis of discussion the students conducted during their group sessions. Students were asked to read the story, to extract the philosophical questions from it, and to discuss them.

The Argonaut discussions were held on a weekly basis as part of their course. These sessions took place in the computer room of the school. Each student sat in front of their own computer screen, activating the Argonaut interface individually. Students sat next to each other in a square pattern, but they were assigned to different discussion groups. They were free to talk to each other but encouraged to maintain all on-topic discussions online. The first session was dedicated to the moral dilemmas arising from Sharon's story. In a time limit of 45 min per session, students were encouraged to deliberate on the issues at hand. After each Argonaut session the teacher held an evaluation and feedback session in the form of a teacher-led conversation using Argonaut's Moderator-Interface awareness tools in order to highlight, analyze, criticize, and encourage certain patterns of discussion. The first session was dedicated to the moral dilemmas arising from Sharon's story.

## Setting

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We will follow the personal trajectories of participation of Yoel, Avi, and Dor, and their interwoven encounters in the larger picture of their group's discussions. The analysis includes the following steps: (1) first Argonaut discussion, (2) the following teacher-led reflection session, and the successive (3) second and (4) third Argonaut sessions held in the classroom. The groups were randomly formed by the teacher, taking into consideration students' preferences. As seen in Table 1, for the first discussion, Yoel and Avi teamed up with Gabby, as Dor teamed with Nadav and Almog (all boys). Yoel and Avi were absent for the second activity; Dor did participate. Avi (and Gabby, his peer from the first discussion) did not show up the following week for the third activity (the second Argonaut discussion), so Yoel, whose teammates were both missing, joined another group named here Agam's group, after the name of one of the participants. In Agam's group all other three participants were female; all three had also been together during the first session (activity 1). Nadav and Almog, Dor's teammates from activity 1 were also absent the following week (Activity 3), so Dor was regrouped with Shira and Sharon, both female. The following week (Activity 4) Yoel and Avi regrouped with Gabby again as in Activity 1. Dor also regrouped with Almog and Nadav from Activity 1. Another student, Barry (who is also the author of the story discussed in Activity 3), was added to Dor's group.

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## Documentation

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The Argonaut sessions (activities 1, 3, 4) were documented automatically—screen shots of the evolving discussion and the moderator moves—as part of the Argonaut interface. All of the discussions are web-stored and (are available on-line and) can be replayed. Moreover, Argonaut's analysis and organization features are also available a-synchronously and we used those feature for the production of discussion protocols and as a tool for replaying the discussions for the sake of analyzing its' temporal evolvement and student's spatial moves in the conversational space. Furthermore, Argonaut affords the following analytic features: graphical representation of the contribution of utterances between the participants; a detailed personal segmentation of the argumentative characteristics; linking segmentation; social network analysis. All were used as sources for the analysis. Activity 2 held as a whole-class session in which the teacher replayed Argonaut moves, taken from activity 1, and uses them for highlighting some discursive moves. The lesson was video-taped and transcribed.

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## Analysis

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The analysis presented in the study combines analytical frameworks suitable for the actual occurrence (Sacks and Jefferson 1992; Baker et al. 2007) with comparative temporal analysis which tries to point at the changes happening at the same activities across iterations and timescales, and explain them by pointing out to the learning episodes that precedes them (Mercer 2004, 2008). For categorizing students' utterances during the Argonaut discussions, we used Baker and colleagues' "Rainbow" framework (2007). The framework is consisted on seven analytical categories of talk, organized in a hierarchical order. The first distinction made throughout the computer-mediated interaction is about whether talk is outside activity (category 1) or inside it. Inside activity talk is differentiated between non-task focused activities—social relation (category 2) and interaction management (category 3)—and task-focused activities. The lower category (4) of task-focused activity is task management. It is followed by stating opinions (5), the forming of arguments (6), and broadening and deepening the

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arguments (7). We will turn to the rainbow framework whenever we refer to the argumentative state of the utterance *during a single session*.

Conversational analysis (Sacks and Jefferson 1992; Psathas 1995) was in use for two purposes. First it is used, in order to understand the production of the social order. Such is the case when we trace discursive norms - shared responsibility for participating for example - and its transformation from one modality to the other in the classroom. Second, it is used when *interactional* issues - turn taking, adjacency pairs - are discussed and the meanings of interactional moves in the participants "eyes". In CA methodology, grounded in the sociological and philosophical assumptions of the ethno-methodology (Garfinkel 1984), the analysis refrains from imposing existing social categories on the data, thus invites new communicative aspect to emerge (Mercer 2010). Working with conversation analysis assumptions in the field of CSCL is complex. CA main focus is peers in interaction whereas the discussions analyzed here consisted of three to five participants. Moreover, what remains from CA when transferred to the virtual plane? True, a lot of work has been done about interaction in phones (for example, help seeking CA and talk to the audience radio shows. But as Stahl (2011) pointed out when moving to inside the CSCL realm,

"The rules of turn taking, etc. have all been transformed. What remains, however, is that people still develop methods for creating and sustaining social order and shared meaning- making...

...It is the analyst's job to recognize and describe these methods, which are generally taken for granted by the participants" (Stahl 2011, p.198).

## Analyzing learning through trajectories of participation

At these meeting points objects are created, shared and negotiated while temporalities intersect in ways that are only partly predictable. Learning is perceived as a time-conditioned phenomenon since it is dependent upon the intersection between the past and the present. The study of trajectories across contexts is generally extremely complex but technology can provide tools through which CSCL scientists hope both to trigger change in practices, and to provide multiple artifacts in successive phases. Interestingly, in spite of the importance of the study of trajectories of participations from a socio-cultural perspective, such studies are rare, and none of them dealt with the sociolinguistic aspect of the intersection between temporalities. Stahl (2011) described trajectories of participation of students working on joint mathematical problem solving in the Virtual Math Teams. He compared the students' inability to individually solve problems and their success solving them collaboratively. The comparison between unsuccessful individual efforts and successful collaborative efforts enabled Stahl to infer that the collaborative sequential process evolved in a way similar to an individual cognitive one but exceeded it at the same time, through the group cognition characteristics, missing in the individual process, such as the reduction of pressure through peers' cloning and the non-threatening yet critical repair mechanism. Lund and Eiliv Hauge's (2011) account on interaction among students while pursuing a culturally produced shared object of inquiry. Four students were asked to deal with the "ill-defined" course of events during the 2004 Beslan school hostage crisis which led to the death of 344 people. The groups' learning trajectory with respect to the object is described as the effort to contextualize the fragmented pieces of information into ambiguous social phenomena that hold various and conflicting meaning potentials. In the process of actualizing these insights, students reviewed the following phases: identification of the object, its construction through dialogue and IT mediated activities, and making sense of it as meaningful phenomenon. In our study with the Argonaut system, as in

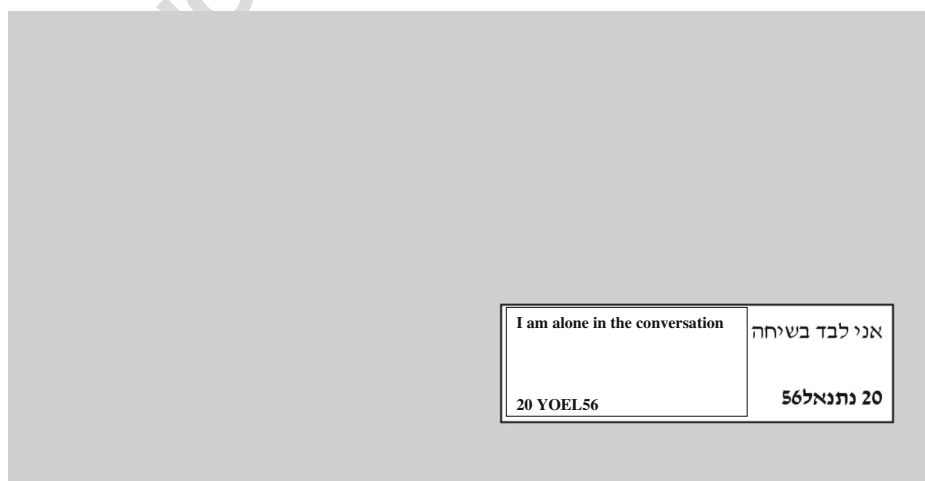
Stahl's VMT, we capitalize on the systems' documentation feature and on the replay facility. Moreover, it helps us focus on students whose ordinary classrooms way of talking is different from the dialogic scope, while taking the group perspective at the same time (Cobb et al. 2001; Stahl 2006).

### The first Argonaut session

During the first session Dor was intrusive and off-task. Although the discussion lasted for almost 14 min, the session ended without any discussion of the topic. When Nadav claimed to have read Sharon's story he received only insults in response. The actual content of the session was poor since it contained only 14 utterances (including those which were deleted ones). None of the participants was willing to be accountable for the moderating the dialogue. Many of the connection arrows used by the participants were painted red, signaling criticism, emphasizing the personal and negative nature of the discussion. The dialogue was highly explicit ("you moron", "idiot") and participants spoke their mind ("it's boring here"), expressing comments to each other rather than opinions. The discussion evolved very slowly, adding to their frustration with each other. Dor did not know what the task was and when Nadav explained it to him he actually tried in vain to energize his peers ("c'mmon read da [the] story"). They ended the lesson at the starting point, and simply read the story. Dor saw his modest efforts fail, and as we observed in his next session, he began to act in the conversational space with the same spirit of doing nearly nothing.

Yoel's performance in his first group session was characterized by non-participation. Avi, Yoel, and Gabby's first discussion lasted 17 min. Still, it concluded with only one formal contribution. Yoel said: "I'm alone in the conversation" (Fig. 2.).

Actually he made this utterance in the final minute of the discussion and it was not the first utterance in the session. As we used the moderating tools and watched the conversation evolve, we discovered that it was richer than we had thought at first glance, although many contributions had been erased by participants, leaving the dialogic space empty and clean. We



**Fig. 2** Avi's group (Avi, Yoel, Gabby) argumentative final map of the first discussion (all contributions were gradually deleted. Translation added)



will return to this point later in the discussion, but before that, below (excerpt 1) is the full transcript of the erased conversation:

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Excerpt 1

1. Avi: yoellllll, ya [you] stinkkkker!!
2. ~~Avi: yoellllll, ya stinkkkker!!~~
3. Avi: yoell, ya [you] stinkkkkkkkkkkkker!
4. Gabby: schnitzel [wrongly writes in English letters instead of Hebrew]
5. ~~Gabby: schnitzel~~
6. Gabby: Nathan Sulem [name of a classmate] loves schnitzel
7. ~~Gabby: Nathan Sulem loves schnitzels~~
8. Avi: Sandra [name of a classmate's mother]
9. ~~Avi: Sandra~~
10. Avi: let's crash stinker Amos.. [another classmate]
11. Gabby: c'mmon, letz [let's]
12. ~~Gabby: c'mmon, letz~~
13. ~~Avi: let's crash stinker Amos..~~
14. Gabby: Sulemmmm
15. Avi: is it right to steal for foodd?!
16. ~~: Gabby: Sulemmmm~~
17. Gabby: ye[,] what[,] didn't you see Sulem doing it
18. Yoel: why not?
19. ~~Gabby: Ye what didn't you see Sulem doing it~~
20. ~~Avi: let's do super [market, let's go shopping] today...~~
21. ~~Avi: let's do super today~~
22. ~~Yoel: Why not?~~
23. Yoel: I'm alone in the conversation

Gabby contributed five utterances, all of which were off-task but with strong cohesion among them. He started writing to an abstract addressee, naming an external classmate (6). His next utterances (11,17) were replies to Avi's interjections, accompanied by another cry to the external classmate, which apparently was made as an inside joke. Yoel contributed only two utterances, one was on task [line 18, referring to Avi's 15], and the other (23) reflected his situation in the conversation. He did not assume any role in the moderation of the conversation. He was willing to participate but not as an initiator or as a moderator. He did not respond to Avi's harassment (1, 3). Avi contributed six utterances. After insulting Yoel, he continued in another direction (10) and received a positive response from Gabby. Then, after erasing his former contributions (2, 9, 13), he returned to the story and related to the main dilemma in his utterance. This came, in a sense, out of the blue, without any prior indication of the fact that he was actually on task or even that he had read the story. Yoel replied by asking (18) 'why not?' to signal his presence for the first time, but the topic was abandoned. Still, Avi's last contribution echoed the story (12), as he called his friends to go to the supermarket (just as the characters in the story). After a long 10 min, Yoel expressed his feelings of solitude (23).

### Post-discussion: a reflective teacher-led lesson

In the following session, the teacher showed the class maps of the discussion, and emphasized certain dialogical attributes, among them the importance of caring for others which is manifested in *responsibility for participating of the other* in the conversation, the emphasis on the quality, rather than the quantity of the utterances, the need to be accountable for your own arguments, and the need to anchor the conversation in a preliminary mutual understanding of the topic to be discussed. The teacher encouraged the students to adopt a more dialectic approach in their thinking and to accept ideas only on the grounds of their rational appeal; he highlighted a well-balanced discussion in terms of participation structure, and praised certain talk-moves, such as a broad opening to the discussion ("So, what do you think about the story?") and personal statements, as opposed to clear-cut convictions. Good talk was described as having a genuine blend of care, criticism, and creativity. In regard to the content, the teacher clarified the notion of a moral dilemma as a state of affairs in which one needs to decide how to act in the world, knowing that there are consequences to our choices. Given that both aspects of a dilemma are established and justified, one needs to make decisions based on judgment of one's concept of "the Good". In this way, the teacher encouraged the students to discuss solution to a moral dilemma using the "on one hand ...on the other hand structure" to make a judgment after stating their vision of "the Good". The teacher uploaded their discussion of Avi's group, praised the balanced connections among the three, and used the content itself both as comic relief and as an example of an off-topic conversation. This enabled the students to envision new limits for their future conversations. It made them aware of the fact that the Argonaut system records all moves even when they are public and or have been erased. All three discussants were missing the day of the reflective session.

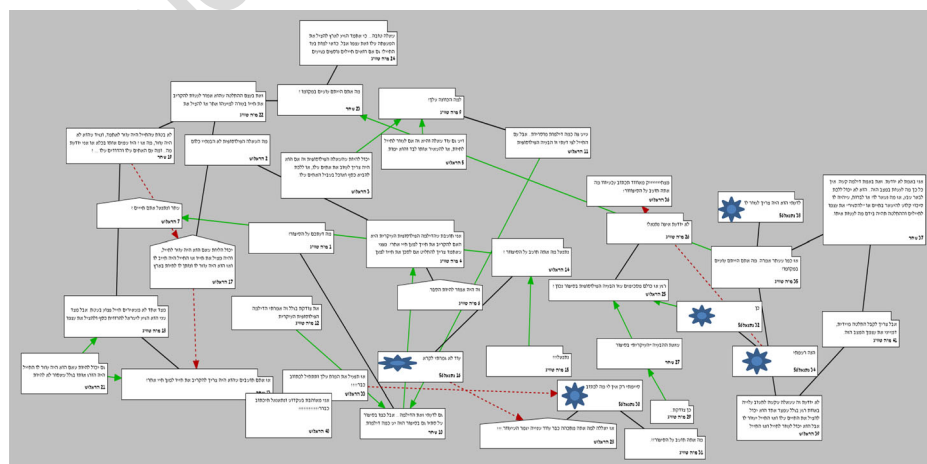
### The second Argonaut session

The session was held a week later, and the discussions referred to another philosophical story, this time composed by Barry. The story accompanied Ahmed, an Eritrean-born teen, who tried

to enter Israel illegally via the Egyptian border. Ahmed's entire family in Eritrea was depending on his success, waiting for him to deliver goods and money. As he crossed the Israeli border with a convoy of refugees led by Bedouin smugglers, they encountered patrolling Israeli forces. A shootout took place following which Ahmed found himself alone in Israeli territory with a wounded Israeli soldier lying close by. As the story ends, another platoon approached, and Ahmed had to decide whether to help the soldier and expose himself by doing so, risking immediate deportation and/or detention (and put his fate in the hands of others, maybe to his benefit) or to ignore the soldier's condition and continue to make his way into Israel to find work. All groups were asked to talk about the dilemma Barry's story unfolds.

Because Avi and Gabby were absent, Yoel joined the group with three girls in the class: Agam, Lea, and Noa who had collaborated as a discussion group (together with Natalie, yet another absentee). Figure 3 captures Yoel's second session as it ended. This time the discussion was longer and more elaborate: It lasted 34 min- twice as long as the first session and contained 39 utterances, as oppose to 13. All 39 utterances were on-task (as opposed to 2 out of 13 in the first discussion). Discussants found several dilemmas in the story and they continued to find a wide range of interpretations (as they had done in the first session). They all spoke with triple referentiality: propositional, social and expressive. As they reached agreement on the main dilemma, they used empathic engagement as a tool for decision making, or at least, for articulating the experience ("What would you do in his situation?"; "Imagine yourself in his place").

How was Yoel doing in this environment, so different from his former one? Throughout the discussion, Yoel was not actively present. The first 10 min consisted of a dialogue solely between Lea and Agam, leading Agam to ask Noa and Yoel: "are you alive?" As oppose to Noa, who participated extensively in the discussion from this point. Yoel remained unresponsive. Four minutes later Agam asked him: "Yoel, what do you think of the story?" At the same time Lea called: "Yoel???" Another 30 s passed - 15 min from the start- and Yoel wrote his first contribution: "I haven't finished reding [reading]". After another 7 min Lea asked "Yoel, what are you thinking?" Three minutes later, as the other discussant seem to agree upon the philosophical problem ("[wait] a minute [,] so we



**Fig. 3** Argumentative map of Yoel's second discussion group (Yoel, Agam, Lea, Noa, Natalie. Yoels' contributions were highlighted)

all agree this is the philosophical problem in the story, right?”), Lea called on Yoel again. Agam also tried to stimulate him: “so, c’mon what are you waiting for [?] the lesson is over in a second.!!!”. Yoel replied: “I finished [,] just don’t have what to write”, but this is not what Lea had in mind (“what do you think about the story??.”), nor what Agam had in mind (“so turn on your brain and start writing right now!!!!”). Yoel responded, making a mockery out of Agam’s pressure (“here [,] I wrote”). Agam kept pushing him, demanding his thoughts about the story (“verrrrrrry funny now wrttttte what you think of the storyyyy”). Only 2 min later, 3 min before the session ended, Yoel said: “in my opinion, he should help him”. That is his final contribution. Yoel was the subject of enormous pressure to participate and express himself.

In some sense, Dor shared a similar fate. Although his discussion took place in a more sympathetic environment, he was also subject to strong pressure regarding his commitment to the dialogue. Teamed with Sharon (author of the story discussed in the first session) and Shira, he explicitly declared his unwillingness to enter into a serious discussion about the story (“I don’t have the powerrrrrrrr” which story is it anyway?”; I do not know”), thus bringing into the discussion the norms of his old group. Unlike Yoel, Dor received encouragement from Sharon: she responded to his utterances of unwillingness with enthusiasm (“Dorrr, ya blood brother!!!”; that’s why Dor is here..!! he is the only professor we have in the group”) and adding utterances like: “this story is too complicated for me”; “too tired to think now” and “nothing! (To Shira) you just open a subject and we will flow with it”. But despite the non-engaged environment, Shira is putting pressure on both of them in order to participate (“what is the story’s question?”; Sharon what do you think?”; “OK, I see you’re making a joke out of it but let’s be serious”; Come on now, be serious; so what more do you have to say?”. Dor drifted from perfunctory and sporadic statements on topic to expressing his frustration at Shira’s pressure (“I think he [Ahmed] needs to continue”/“dddddooooooonnnntttt have what to write@!!!!!!!!!!!!!!!!!!!!1”). Sharon is trying to act in accordance with the teacher’s demands expressed in the previous lesson but received no cooperation from her peers. Committed to the notion of shared meaning as an educational task on the one hand and the non-engaged micro-culture inside her discussion group on the other hand, Sharon was frustrated. She maintained her personal views on the story, but only expressed them when Dor and Shira were unwilling to contribute. At those times she produced well elaborated contributions on the subject (“OK, since nobody is saying anything I’ll say something, I think Ahmed was in a difficult dilemma, because if he stayed he could have been killed and if he walked away, guilt would go with him”). However, that did not result in a genuine opening of a conversation. Surprisingly, Sharon’s insistence on participation and her mode of accountability (which only resulted in her frustration in this discussion) bore fruit in future conversations.

### The third Argonaut session

The third session was dedicated to a critical discussion with regard to a provocative argument philosopher Peter Singer put forward (Singer 1993): “a hungry man’s lunch is a greater need than the second car of an economically affluent family, therefore a moral person in a wealthy country (including Israel), must contribute a significant portion of personal income to the basic needs of the poor. Failing to do so, is tantamount to letting the poor starve and it is like murder”. Yoel regrouped with Avi & Gabby; Dor regrouped with Nadav and Almog. Barry (the author of the story on Ahmed) joined them as well.

As mentioned, Yoel joined Agam's group in the second session because Avi and Gabby were absent that day. It was their second session, and Yoel's third. This time, the session lasted almost 24 min (17 in the first). Excerpt 2 shows their entire Argonaut discussion:

Excerpt 2

1. Avi: yoel ya [you] stinker
2. (Yoel is aiming a red arrow, signaling critique, toward Avi's [1]).
3. Avi: yoel ya stinker
4. (Yoel erases his arrow)
5. Gabby: hjgl [??]
6. Avi: what to do?
7. Yoel: need to talk about what Benzi wrote
8. Yoel: it's not fair that there are people who need to pay for other people but you can't let them starve.
9. Avi: eef [if] I didn't have money for food I would steal...
10. Yoel: but it is not considered murder
11. Avi: look left -----> you stupid (,) it's right
12. ~~Avi: look left -----> you stupid it's right~~
13. Avi: right, it is not considered murder...
14. Yoel: is it right to steal eef [if] you don't have money for food?
15. Gabby: I also don't think it is considered murder (,) I think it is one's own right to decide what to do with his money
16. Avi: yeahhhhh... ..
17. Yoel: right
18. Avi: in short [,] you can steal for food but only for food! (uses an Argonaut functionality to considerably enlarge the box of his contribution)

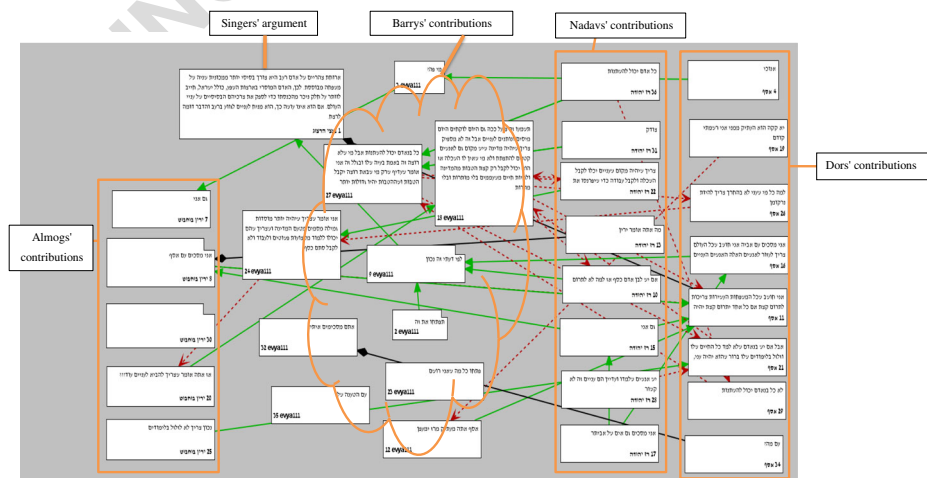
Although 2 weeks passed between the first and the third sessions, once again Avi started the session in a strikingly similar manner, that is, with an assault on Yoel (1). Just as before, Yoel did not respond directly but sent an arrow signaling criticism towards Avi's insulting contribution. In response, Avi deleted his utterance. Yoel followed and erased his arrow. Avi then asked for



instructions (6), which Yoel provided (7), by referring to Singer's argument (8). Avi replied, but from reading his contribution one can only suggest he was referring to their previous discussion (held 2 weeks earlier). Yoel did not seem to be aware of that as he maintained his line of thought (10). Avi contributed a joke (11). Sacks and Jefferson (1992) suggested that it is common in conversations that when one starts a joke, the entire circle of discussants gets a turn to add other jokes. Thus, the jokes were being used as fillers, objects of talk with volume but without thematic meaning. They served the purpose of avoiding silence and of saying something without exposing one's own beliefs or chunks of 'heavy' biography. That's exactly what Avi did, but this time the other participants do not insert their own jokes. Avi received no response so he deleted his joke and posted an on-topic confirmation of Yoel's claim (12, 13). Yoel followed Avi's line and summarized the dilemma of the first lesson. Gabby, who hadn't been involved since his contribution twelve and a half minutes earlier, posted a contribution that received his peers' consent (15–17). Avi, unaware of the fact that there was another topic, summarized with a moral rule: not only did he use an exclamation point, he also enlarged the contribution form on the virtual space to make it much larger than other contributions. The session ended. Thematically, the discussion never revolved around one topic. Unaware of that, Avi showed his satisfaction regarding the communicative achievement, the success of reaching a consensus.

Dor's third discussion lasted for 18 min, produced 30 statements, of which 25 were opinions and arguments on the topic (the remaining five were interaction management and task management utterances). All peers contributed to the content-based discussion in a well balanced organization of the contributions (five contributions from Almog, eight each from Nadav and Dor, and ten from Barry). After a short time in which the students verified "all-in", Dor, Nadav and Barry simultaneously introduced an opening utterance. After initiating three responses to each other's contributions, they called on Almog to participate. He then started to contribute (the left column of contributions in Fig. 4). The final argumentative map shown in Fig. 4 reveals a highly engaged, well-balanced discussion: Dor's contributions are arranged in right column, Nadav's contributions are arranged in the column on its left, and the rest, scattered around the middle of the space and to its right represents Barry's contributions).

Thematically, all three posed the same idea, referring to the same aspect of the initial argument: wealthy people ought to contribute (Barry even called for sharing) in order to enable



**Fig. 4** Argumentative map of Dor's group third discussion (Dor, Barry, Nadav, Almog)

the poor to survive. All three limited the applicability of their claim. Nadav and Dor limited the amount of the contribution to a small one; Barry dedicated the help only for those “who are not lazy” and suggested that the social order remains just as long as the “junior maintenance man earns more than the diligent manager just because he has a large family or something like that”. As they all expressed their agreement with each other, it was not clear where the conversation was heading. Barry strengthened his argument, suggesting that the current policy was in fact a policy of redistribution, but “it’s not enough, the country needs to be a place in which average people can develop”. He related to the poor as both lacking education and as having financial needs. As with the initial argument, the part that caught the participants’ attention was the call for intervention by the rich. Dor then questioned the possibility of ‘normalizing’, or ‘fixing’ some of the poor who were raised without proper education due to their “disregard for school” (literally, he used the expression “straighten them out”). In doing so, he sparked the main communicative project of the dialogue, which dealt with the possibility of change.

All of Dor’s contributions were sequential: responses and references to previous statements or to the spatial order of the virtual space they work on. As opposed to past discussions, he did not direct any insults toward any of the participants. Instead of the “other-directed” utterances he produced in the first discussions, now Dor referred to what was said and not to the speaker even when his response was critical. *The “I” replaced the older “you”; the internal (“think”, “agree”) replaced the external (“have you read the story?” “you moron”).* The accountability and engagement Shira demanded from him so vigorously in the last discussion was found in his speech acts during this session. In this sense, Shira was very much present in this conversation, although she was not actually part of it.

## Discussion

The contagious effect of dialogism and the role of the *discursive norms carriers*

We find the cases presented here to be interesting because they allow us to trace elusive micro-practices and emergent norms in authentic class activity where discussion groups are formed and students work together. Occasionally, the groups discontinue due to absences, and groups have to be re-formed. This was the case when Yoel and Dor were forced to move into different groups, Agam’s and Shira’s respectively. The groups worked with the same subject matter in the same environment, and yet the experience was radically different, due to the norms demonstrated by the peers. The groups performed with different expectations from their members. Despite the fact they were not very active thematically and avoided participation, they were exposed to more pressure to participate, to state their thoughts and to become engaged deliberately in the project of constructing co-meaning. They witnessed, from the perspective of a marginal participant, how one can be treated with the same regard and importance to the discussion as the leading participants. This pressure was encouraged by the teacher’s emphasis on concern for every voice to be heard in the group’s discussion as an ethical imperative, as he had stated in the feedback session.

Agam’s discussion group revealed cohesion and directedness unfamiliar to Yoel from his own experience. The other three students in the group were very capable discussants, who could easily ignore Yoel’s passivity, but they demanded his participation and constantly confronted him with his silence. Moreover, they held him as accountable as the rest for the performance of the entire group and were unwilling to accept his maneuvers of avoiding serious statements. In Dor’s case, the discussion was less cohesive, and *shared responsibility* (Zhang et al. 2009) was less a part of it, yet Shira’s vision about how the discussion should

unfold was collaborative and she made it clear that she was not willing to be identified with a discussion which she considered to be beneath her. Thus, she put great pressure on her peers in a somewhat hostile environment.

From a non-temporal perspective, zooming in on the sole discussion, the mechanism of *guided participation* presented here did not bear fruit; Yoel and Dor showed *resistance* to the norms imposed on them. But a temporal analysis suggests that in the following discussion their personal trajectories of participation changed dramatically and along with it, their group interaction. As they reunited with their former groups, they represented the norms they 'inherited' and embodied them in unique and individual ways. They showed responsibility for other participants' performance. In Dor's case, the potential for further off-topic, external, insulting discussion unfolded as Nadav and Almog remained targets of harassment as before. This time he showed commitment and respect for others. Yoel took an active role, moderated the discussion and kept it on task. He played an important sequential role in the conversation, by responding to other participant's contributions with continuity and generalization, trying to develop the discussion. During the weeks of the study the discursive norms were in a constant state of mediation, from the teacher to the engaged students, from them to Yoel and Dor, and finally to Avi. We refer to the transition of discursive norms as the *contagious effect of dialogism* (Slakmon and Schwarz 2013).

Yoel and Dor's peers did not show any discomfort with the change they introduced, nor did they demonstrate suspicion or alienation towards them. Instead, they also assumed different roles. We do not claim that the quality of the performance was based solely on the extent to which they appropriated the teacher's voice, but on their willingness to accept the presence of the formal educational genre 'within' oneself. This was a preliminary condition for *entering* discussion, and this is where Yoel's importance as a *discursive norms carrier* made its central contribution. As an in-group trustworthy member he mediated the gap between the 'external' teacher's voice—including his use of authority in order to exert control—and his peers' genre which did not resemble the authoritative voice of the teacher. He did so without being labeled as an outsider. They maintained their previous genre, which enabled them to engage other students in a conversation unlike what they were used to. The home comer's talk was playful rather than strictly a matter of identity conversion. The dynamic nature of the playful stance was at the heart of their success in being agents of change.

Virtual conversational space as part of the linguistic apparatus

Avi started to harass Yoel once more, with the exact opening words he used in discussion 1, but on this occasion the response was resistance, not silence. Yoel responded by producing a critical arrow and pointed it towards Avi's insulting contribution until Avi removed it. In the same space as before, with the same participants, the discussion started with identical talk. But Yoel no longer uses the same code. Differences in speech communities are largely based on different functioning of the language (Hymes 1980). Yoel's response changes the function of the space, the role of the participants, and to a certain extent, the boundaries of the normative. In this sense we learned that the CSCL platform should be seen as part of the linguistic apparatus, as a change in its function alters the entire linguistic performance of the community.

CSCL and the dismantling of the teacher/student voice dichotomy

The instructional design of the entire course did not adhere to the discursive regime common in classrooms (Mehan 1979; Nystrand 2003), and even more so in the third learning cycle in which the Argonaut was introduced. In the Argonaut lessons described, the teacher organized

the groups, and publicly reflected on the groups' performance in the post-discussion reflective sessions. However, he did not moderate the ongoing discussion synchronically, leaving the floor to the students. The results of study contradict the results of Baker et al. (2012). In our study, these disengaged students maintained off-topic and social talk during the initial stages of a whole subclass moderated debate. As the sessions progressed, the off-topic and social talk came to an end. The seemingly unbridgeable gap between classroom talk and a subculture's group genre (Hymes 1996), became bridgeable through the mediating presence of the high performing students who, without the teacher's presence, maintained his voice and introduced it as legitimate to Yoel and Dor. In Agam's discussion, the teacher's voice was so naturally assimilated that the conversational space actually was saved only for on task contributions. Yoel witnessed how talk goes on without an institutional moderator. He felt the group's pressure on him to try to excel. His peers did not exclude him because he was a newcomer. In his old group, talking like the teacher without his imposition could not happen. The virtual conversational space reproduced the same old power relations, but Agam's group discussion showed another possibility. Coming back to his original discussion group the following week, Yoel acted out his recently acquired role of participant. It was not only a matter of being thematically attuned, nor was it a greater degree of accountability. His "response-ability" had undergone a change, thus transforming the virtual conversational space into a different and reclaimed one, a *common space* belonging to the group.

How were Dor and Yoel treated while participating as newcomers in the Argonaut second session? If we think of the situation in terms of *apprenticeship* or in terms of *guided participation*, we might see some of its powerful transformative traits. In fact, it seems that the apprenticeship or the guided participation was effective primarily because those serving in the roles did so unwittingly. The tutors/peers were also unaware aware of the fact that the newcomer comes from a different speech community. The confusion was magnified by the fact that both Yoel and Dor acted as technically capable discussants of the Argonaut. It was not the capacity to produce but their norms that distinguished them. As a result, the tutor/peers treated them as equals. Guided participation is basically considered a process of becoming, through gradual involvement and through greater exposure to the multiple facets of the act. The transformative power of the situation was related to the unique guided-participation process of Dor and Yoel likely resulted from the equal status of the peers; the fact that no one assumed the *role of teacher* meant that no one was put in the position of not knowing something *already known by others*. Instead, it was a situation in which all peers were 'just' acting together. The dialogic education that transpired in the discussions was not mentioned. The normative message was so subtle that even the messengers spreading it had no educational pretenses which harm so many educational encounters based on the unequal positioning between the one who knows and the one who does not know. What would have happened if the situation were to have taken place in the presence of the teacher? First, students would have been categorized in accordance with their performance levels. Second, the teacher would have brought the communicational-dialogical aspect of the situation to the fore. Third, he would never have used the explicit words, nor would he have reacted to the under-performing students in the same way their peers did, not only because it is not appropriate, but because he would have seen them as *subjects for teaching*. He would have used *instructional discourse* (Johnstone 2008) and doing so would have transformed the setting into his own space, thus reaffirming Yoel and Dor's original group's perceptions of it. Moreover, if the teacher were to have suggested the discursive behavior he was trying to implement, it would have turned into a dichotomous space in which there were two ways to talk: the teacher's authoritative voice, oppressive to some, or the students' non-thematic subversive voice. The *possibility of the in-between*, a space tolerant of the existence of the multivoicedness would never have emerged.

By overcoming the dichotomy between the teacher's voice and their own voices, they acquired the space, broadened their views on how to be a student and expanded their discursive repertoire.

The meaning of silence and the transformed conversational space

The Argonaut interface highlights a central characteristic of talk, which is the ambiguity of silence. Unlike face-to-face dialogue between two participants in which the sequencing is clearer, Argonaut discussions usually involve more than two peers and moreover, the act of posting a contribution, is not like an act of addressing a specific addressee. Addressing specific individuals takes place *only* when students (voluntarily) link their contribution to others through naming or usage of links. Participants also lacking complementary communicational information like gazes and gestures. As a result, unless one is directly mentioning his peer or linking a post to someone else's, it is not clear who the addressee is. This feature has the potential of producing a high level of engagement as well as detachment. The Argonaut environment makes the order of sequential relations unusual in that they have to be performed intentionally and not automatically. The subtle relations which usually go unnoticed in ordinary talk among peers now need to be carefully reconsidered.

That is also the case with silence in the conversational space. Participants need to revise their assumptions on sequential delicate issues such as when is there silence; what is the participant's obligation to his peers in terms of the appropriate amount of participation? How long might one avoid posting before being labeled as an avoider? Looking at silence from the perspective of dialogue and sequentiality, the phenomenon is a consequence of tacit expectations between participants with regard to the space of conversation. Being silent is a problem when there are uncoordinated expectations about how to share the space. It is clear that the discursive behavior is interpreted in situ, in accordance with the norms governing: the teacher won't view a silent student as problematic when the lesson is designed as a lecture. The same discursive behavior, however, will be seen as such in a different setting. More than that, silence is a psychological issue of production capacity. In educational settings, silence is a political issue having to do with the question of "who owns the floor" (Sacks and Jefferson 1992). What the Argonaut approach does is to redistribute the 'floor'. As the teacher fades out, the space is given to the students to reclaim. Dor and Yoel's silence in the second discussion proved to mean something completely different from the same silence in the classroom, where the teacher owns the floor. The notion of students' proprietorship over the space was achieved through the reactions to their silence and non-participation. Their later acts of high-engagement in the third discussion are interpreted as first signs of feelings of ownership towards the space.

Opening space for multivoicedness

Avi's contributions (excerpt 3) were very polarized: most of them are off-topic, discussant-intended and pidginized. Yet, once in a while, Avi moved into another register, used a different function of the language and contributed on-task utterances using a different kind of discourse. We believe that the Argonaut dialogic characteristics made a unique contribution to the smooth movement across speech communities. The Argonaut system nurtures this broadening of the repertoire in three ways: first, by eliminating the prosody of the utterance and softening the linguistic differences and the immediate social identification and attribution that comes with it; second, through the written delayed responses. There is a greater 'wait time' between the act of reading and the reaction of writing. The possibility of bursting out at someone is softened through writing. One cannot merely shout at someone. Third, the burden of immediate turn-



taking is not present. Not only does the response not have to come immediately, some utterances are not directed towards a specific addressee. One might read it as a general contribution directed to the entire community. Hence, participants respond intentionally after selecting what's worth replying to and after formulating the appropriate response. Although the utterance is ever present, it is detached from its creator so the other participants can relate to it without being obligated to the speaker. This detachment of the utterance from the speaker/writer reduces the power of imposition the speaker has on the other discussants, or if seen from the other side of the dialogue, it gives greater freedom to the addressees. The interesting finding here is that the relative detachment described here between the speaker/writer to the utterance has a liberating effect on the general contributions of the students; they are not obligated to speak from a fixed position, they can allow themselves to be incoherent, i.e., to get involved in the on-task conversation at the same time they are maintaining their old ways of talking in the conversational space.

Excerpt 3 gathers Avi's contributions in the first session after filtering the contributions of the students of his group. All of them are very much response-oriented. As a result, the importance of the delayed-response and the disregard of time are crucial. It is interesting to see how Avi captured himself in his own prison of one-dimensional voicing of insult and harassment, especially as we place it in the context of his dialogicality, that is, his reliance on the other for the sake of getting responses. Yoel and Gabby are his points of reference, and he acknowledges that. In a sense, Avi's statement brings to the fore the incongruence between particularity and communality in his inner voice (Nikulin 2006). In his case, the crying need for expressivity was based on an unsteady foundation of communication. Avi is heavily dependent on his peers for his bullying. In the normal classroom scenario one would delete the other, as neither the teacher nor the students would be willing to relinquish space for insulting expressions as a basis of communication. The Argonaut afforded ways to balance between the two, through its decentralizing effect and by changing the immediate dialogic sequentiality.

#### Excerpt 3

yoelllllll ya stinkkkker!!"

yoellll ya stinkkkkkkkkkkkker!!"

"let's crash stinker Amos"

"is it right to steal for foodd?!"

"let's do super [market] today...."

## Conclusion

In the present study, we analyzed three personal trajectories of participation and their intersection with the group to which they belonged. Tracing the trajectories of disengaged students in a classroom engaged in CSCL is an important goal in pursuing a more complete understanding of learning. Disengaged and other underperforming groups of students are highly neglected in the learning sciences literature. The common approach to such students views them as if they were all similar. The study of trajectories of participation carries the potential to look carefully and continuously at the particularity of performances in order to incorporate them into a full account of classroom talk and learning.

Major discursive changes occurred, with a special kind of apprenticeship as the catalyst. Peer pressure encouraged students to join the collaborative effort without teacher intervention.

The conversational space functioned as a collective playground in which every contribution—or the lack of contributions (e.g., silence) – matters to all.

This study presents the possibility that multivoicedness is necessary in the process of developing richer stances toward classroom assignments. Incorporating multivoicedness develops gradually with the mediation of different intermediate levels of activity. Establishing desired norms in the classroom occurs when these norms exist alongside student's former way of talking. CSDL affordances played a crucial role in this opening towards multivoicedness; among them are the suspension of immediate response, the elimination of prosody, a time to think things through, a less socially-signed environment and the 'general-addressee' effect. The very fact that the perception of the space and its meaning itself is not clearly defined, turns Argonaut into a sphere of potential transition and change. Argonaut encourages students to visit and experience different discursive cultures, all performing under the same conditions, thus adding to students' repertoire and encouraging the possibility to dialogize.

Major classroom 'identities' such as 'weak', 'non-achiever', or 'disengaged' lose their imposing hold on the conversation unfolded in the virtual space. We believe that this was a result of the teacher not participating in the Argonaut discussions. On the other hand, those discussions followed other discussions during which he helped establishing desirable dialogical discursive norms among engaged students. Moreover, the teacher was not totally absent during Argonaut discussions: the design of the assignments encouraged collaboration, deliberately emphasizing care for the other and full participation, as 'good conversation' characteristics. As the presence of the teacher faded from the virtual space, the appropriated discursive norms remained; the discussions continued to develop, without any reference to the students' status, only to their utterances (or their lack of utterances). This demonstrates the extent to which classroom social identification categories are discursive constructs organized around teachers' presence and activities.

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