Do adult-children dialogical interactions leave space for a full development of argumentation?

A case study

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This paper sets out to analyse a case study of adult-children interaction in an educational context from a perspective of argumentation. We select a case in which 3 argumentative discussions are opened and we analyse them with the aim of understanding whether they are fully developed from a point of view of argumentation; or whether they are cut short and why. Our focus is not on the children's individual productions but on the process of interaction. We assume the pragma-dialectical model of argumentation and the AMT as a theoretical framework. Our findings show that none of the discussions opened gets to a concluding stage, either because the teacher shifts the discussion on a different issue, or because the opening stage is not clear, or because the argumentation stage is not adequately developed. These findings contribute to conceptual clarification about how to interpret the role of a teacher.

Keywords: children's argumentation, interaction, critical discussion, opening stage, issue

1. Objectives of this study

We address this paper primarily to scholars in Argumentation theory, with the aim to open or strengthen interest in building bridges with current research in education that is concerned with the promotion of argumentation and deliberative discussion as resources for learning (for a recent overview, see Asterhan & Schwarz 2016). In fact, we believe that such cooperation could bear interesting fruits for Argumentation theory, as contributing to consider deliberative contexts characterised by a prevalence of knowledge-oriented argumentation. By and large,

we have in mind domains of communicative activity that might be classified as "problem-solving communication" (according to van Eemeren 2010: 143) in educational settings. For example, contexts in which argumentation is "under construction" (i.e. "in development" because standpoints and even issues are yet not stabilized in the children's (and sometimes also adults') minds; or discussions, in which a relational asymmetry might make it more difficult for some of the partners to make their point and defend it. Conversely, we also believe that educational research could progress if attentively considering some recent developments within Argumentation theory, which offer useful clarifications and conceptual distinctions. In the present paper, therefore, our main theoretical and methodological angle is that of Argumentation theory. We will mention (but not review extensively) the educational literature, as our aim is primarily to better understand, from the perspective of chosen (see below) argumentation models, if and how an argumentative discussion may take place within an adult-children dialogical interaction; and what problems might occur within such interaction.

Before moving ahead, a caveat should be considered: these two research traditions (Argumentation theory and Educational sciences) use the term "model" with different meanings. In education, there are at least two different meanings. In a first sense, "model" usually refers to a reality (an example, a template) that participants are invited to adopt or imitate. In this sense, "model" has a prescriptive (or even a normative) dimension. In a second sense, sometimes, "model" designates a specific type of scientific product: for instance in physics education, it is a schematization of reality that serves as a semiotic instrument to reason on data and build a theory. This is also the way in which "model" is generally used in Argumentation theory. It is important to remark that we will use the concept of a "model" here with this latter meaning, which is not prescriptive, but analytical (see below).

As concerns the specific contents of this paper, as a general background, our research moves from the consideration of the importance of argumentation in education. In their introduction to the volume *L'argumentation dans les contextes de l'éducation*, Muller Mirza and Buty (2015: 13) note that there is a renewed and increasing concern for children's argumentation at school. This interest might be due – at least in part – to the fact that argumentation, conceived as a confrontation of points of view in a dialogical interaction, favours the process of knowledge construction and cognitive development (Carugati & Perret-Clermont 2015). For this reason, among others, argumentation seems to be of primary importance in educational contexts (Resnick & Schantz 2015).

Muller Mirza and Buty (2015: 16) also observe that schoolteachers often find the quality of their pupils' argumentative productions insufficient; and that such feeling of insufficiency has often brought researchers in argumentation and education to carefully consider the conditions for promoting the development of

argumentative skills. Therefore, several contributions to the field of argumentation and education, which is probably one of the contexts in which the need for argumentation research is felt as most urgent nowadays, focus on argumentative design (e.g. Andriessen & Schwarz 2009; Jiménez-Aleixandre 2008; Osborne, Erduran & Simon 2004; Simon, Erduran & Osborne 2006). Other studies consider argumentation as a specific discourse genre in educational practices, discussing specific didactic sequences and evaluation practices of individual students' performances (e.g. Dolz, Noverraz, & Schneuwly 2001; Schneuwly & Dolz 2009).

However, as Asterhan & Schwarz (2016) point out, if deliberative argumentation is "preferable from [an educational] perspective, as it embodies important educational and social values (e.g., respect of different views and perspectives, listening to others, accountability to reasoning)" (…) "instead of assuming that students engage in a particular type of discourse (e.g., because we told them so, or because we expected them to) it is imperative to carefully describe (…) the *actual* dialogue that ensued" (authors' emphasis).

Following up on this suggestion, our effort in this paper will be to describe the *actual* dialogue in an educational case study. In this way, our approach within this specific paper differs from approaches to argumentative design as well as from an analysis of children's argumentative skills. First, we are not so much interested here in the performances of *individuals* but rather in the conversation itself and this is why we refer to a theoretical background for the study of argumentation (pragma-dialectics and Argumentum Model of Topics, see Section 2) that considers argumentation as a dialogical (and not monological) activity. Also, we intend to start from a moment in which we have already observed that argumentation is present (Mehmeti & Perret-Clermont 2016); and then see to what extent and how such argumentation is actually developed in the participants' dialogic interaction, what is its quality, taking the contributions into account of both the children and their teacher. In other words, we will analyse the argumentative discussions emerging in the students-teacher interaction and see in which way they are conducted – if they are fully developed in terms of an ideal model of argumentation, i.e. if they are conductive to the resolution of a difference of opinion (van Eemeren & Grootendorst 1984, 2004); and, if not, what the problems are. We will look at the alignment or misalignment of perspectives. Of particular interest is the discovery of where misunderstandings come from. Our approach is informed by a careful consideration of what happens in the here-and-now of the conversation; in this sense, ours is a dialogical approach to argumentation (Plantin 1996, 2005, see Section 2) concerned with the proceeding of the conversation (Trognon 2001).

As many of the authors mentioned above, we have chosen to adopt a case-study approach, which allows a nuanced view on the considered reality (Flyvbjerg 2001: 72). The selected case is a *critical case* (Flyvbjerg 2001: 77–78), in so far as

it is of particular interest to show how children's argumentation might be full of opportunities that are not always exploited. Notably, we do not want to prove that what happens in this case is always present in adult-children interaction. The demonstrative value of a single case-study lies in the fact that we show that certain problems are possible – i.e. they might happen – therefore they are worth understanding and discussing in depth. It is important to remark that we do not aim to measure children's argumentative skills on a specific task, such as for example the production of a written argumentative essay; in this sense, it is not the children's individual argumentative skills that will be under scrutiny but the *process of interaction*. Also, getting to "practical guidelines" for teachers is not our aim. We think, however, that this type of analysis can contribute to the efforts of researchers who try to understand the difficulties, stakes and affordances of asymmetric discussions between adult and children (Schwarz & Baker 2016; see also Perret-Clermont 2015 and Greco 2016). Also, we are not trying to directly contribute to designing pedagogical strategies to deal with the difficulty to teach argumentation to children (interested readers can turn, for instance to: Pontecorvo & Sterponi 2006; Mercer & Littleton 2007; Resnick, Asterhan & Clarke 2015). Our hope is to modestly contribute to the elaboration of conceptual clarifications that can support the careful observation (by researchers and, possibly, teachers) of what actually happens in the present endeavours to implement argumentation in educational settings.

2. Theoretical framework and methodology for the analysis

Plantin (1996: 20–24) distinguishes between a *monological* and a *dialogical* viewpoint on argumentation, stating that at its origin argumentation appears in situations of dialogue (Plantin 1996: 20). In accordance with Plantin's definition, we might characterize the approach adopted in this paper as *dialogical*, because we aim at understanding how argumentation unfolds in a specific context of communicative interaction; as Jacquin (2014: 176) notes, a dialogical model of argumentation such as Plantin's takes the notion of "argumentative situation", based on the opposition of different discourses, as central. In this sense, we do not see argumentation from the perspective of individual "products" that pupils are expected to produce. *We are rather interested in how argumentation is developed in the process of interaction (and whether it is "well developed" in reference to the ideal model), especially in cases in which children actively contribute to argumentation.* Thus, as anticipated in Section 1, we use models from argumentation theory not as prescriptions that teachers should adopt; but as tools for a critical scrutiny of actual interaction.

In order to understand to what extent real argumentative interaction is well-developed, we need to borrow models (in the theoretical sense of the term, see Section 1) that not only describe what is happening, but that help elicit how the different contributions (from adults and children) to interaction are also contributing to argumentation. This requires having a theoretical model of what are is meant by *argumentation*. For this reason, and because of our dialogical perspective, we find useful to adopt here the pragma-dialectical model of argumentation (van Eemeren & Grootendorst 1984, 2004) in order to reconstruct argumentative discussions in our data. From a methodological vantage point, the model of a critical discussion (slightly adapted, as explained later) serves as a grid for the analysis of argumentation in real communicative interactions. As van Eemeren and Grootendorst (2004: 58–59) note, the model has both a heuristic and a critical function. The heuristic function "is that of being a guideline for the analysis" (van Eemeren & Grootendorst 2004: 59), as the model helps reconstruct argumentative discussions from conversations that might be non-completely argumentative. It also has a critical function, because "the model provides a series of norms by which it can be determined in what respects an argumentative exchange of ideas diverges from the procedure that is the most conductive to the resolution of a difference of opinion" (ibid.). This type of normative and critical regard on interaction does not mean that an analyst is assessing the argumentative skills of the speakers involved in conversation; yet analysts will have a grid, i.e. a "normative standard" of how a discussion should[1] proceed in order to resolve the difference of opinion that is at the origin of argumentation in a reasonable fashion. By contrasting this normative standard to what really happens in conversation, we will be able to reconstruct whether argumentative potentialities are fully exploited in such conversation. In this sense, we are not claiming that the model of a critical discussion should be assumed as a "norm" for the development of interaction between a teacher and his/her pupils. We intend to use this model as a tool for analysts, in order to better grasp what is happening in interaction in argumentative terms. Without assuming this type of tool for the analysis, it would not be possible to conduct the type of research that is central in this paper; namely, understanding whether an interaction that appears argumentative is fully developed (to the point of counting as a resolution of a difference of opinion) or not.

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1. It is also probably useful to remember, for such an interdisciplinary study, that the notion of "necessity" does not have the same meaning in different scientific enterprises. In this case "should" does not designate a prescription but something closer to a "logical necessity". Psychologists like Piaget have studied the logical necessity of formal reasoning; theories of argumentation have been interested in the necessities that an argumentative discussion must meet in order to ensure "reasonableness" (on this point, see van Eemeren & Grootendorst 1984, 2004; and the discussion in Rigotti & Greco 2009).

The pragma-dialectical model, which is typically dialogical as it sees argumentation as embedded within a process of dialogical exchange between a protagonist and an antagonist, foresees four stages of a "critical discussion", conceived of as an ideal argumentative discussion in which participants solve their disagreement (difference of opinion) on the merits. In the *confrontation stage* of a critical discussion, a difference of opinion emerges between the arguers. In the *opening stage*, the arguers try to establish "how much relevant common ground they share" (van Eemeren & Grootendorst 2004: 60). Finding some starting points, including what we will call "material premises" (see this section below) is necessary for the discussion to proceed. In fact, should the arguers lack common starting points, their "zone of agreement" would be insufficient to conduct a critical discussion (van Eemeren & Grootendorst 2004). In the *argumentation stage* of a critical discussion, arguments in support or against a standpoint are advanced and critically tested (van Eemeren & Grootendorst 2004: 60). The concept of critical testing is crucial to argumentation: in fact, the arguers are not simply trying to win their cause but they want to do this by remaining within the boundaries of *reasonableness* and finding the best solution possible to their difference of opinion.[2] Finally, a critical discussion is concluded by a *concluding stage* when the difference of opinion is resolved on the merits, i.e. the participants have come to an agreement after having submitted their standpoints and arguments to critical testing. The concluding stage, thus, is not simply the conclusion of a discussion; in fact, discussions can be concluded in many ways, for example because participants are running out of time, or because something else happens and distracts their attention, or for other reasons.[3] A real concluding stage, however, only happens if the issue originating the difference of opinion has been resolved. This model considers that a fully developed argumentative discussion as one that includes all four stages, including the resolution of the difference of opinion on the merits. Of course, in practice, these stages are not always made explicit nor is their order always the one described here; but the point is not to describe the flow of a natural discussion but rather to

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2. This critical attitude, understood as a positive incentive for finding a reasonable solution to disagreement, is relevant for the value that argumentation might have in educational contexts.

3. Here again the reader will notice a difference between the pedagogical perspective that needs to take into account all the events of this kind and understand how relevant the teacher's and students' actions are in the face of the global situation; and the perspective of argumentation theorists, who ask (as we do in this paper): "is the architecture of the conversation allowing for the difference of opinion to be resolved on the merits?" Both perspectives are useful. The latter, as we believe, could help educationalists to identify and take into account with greater precision the cognitive, discursive, and socio-cognitive operations, and communication moves involved in fully developed argumentations.

represent the constitutive elements of a discussion aimed at the resolution of the difference of opinion.

In accordance with the pragma-dialectical model, the analysis of our data will be done by means of an *analytic overview* of argumentation in terms of standpoints and arguments in support of the given standpoints. As van Eemeren and Grootendorst (2004: 118) put it, the analytic overview helps bring to light "which points are at dispute, which parties are involved in the difference of opinion, what their procedural and material premises are, which argumentation is put forward by each of the parties, how their discourses are organised, and how each individual argument is connected with the standpoint that it is supposed to justify or refute". Because the discussion we are considering is multiparty and happens in a face-to-face setting, it is particularly important for us to understand how each participant contributes to raise issues, advance standpoints and present arguments. Notably, as van Eemeren (2010: 12) puts it, "The components of an analytic overview are all pertinent to judging the soundness of an argumentative discourse". For example, if it is not clear what difference of opinion underlies the discourse, "there will be no way of telling whether the difference has been resolved by discourse" (ibid.).

As concerns the analysis of the argumentation stage, i.e. analysing "how each individual argument is connected with the standpoint that it is supposed to justify or refute" (ibid.), we find it useful to integratethe pragma-dialectical model with the *Argumentum Model of Topics* (Rigotti & Greco Morasso 2010) for the reconstruction of argument schemes. The integration of this model within the framework of pragma-dialectics has already been proven apt for the analysis of argument schemes in previous work (see in particular Greco Morasso 2011). In this case, we will adopt this model as we find it particularly suited to reconstruct *implicit premises* that are backing the children's (and adult's) arguments. In fact, in comparison to other models of analysis of argument schemes, the AMT allows to systematically distinguish *procedural* premises, i.e. inferential connections, from *material* premises, including situated contextual assumptions as well as factual data. This helps understanding not only what are the procedural sources of the children's (and adults') reasoning (procedural component based on a locus); but also what their material starting points are, including implicit premises, and their view of the situation. In this sense, reconstructing material premises allows understanding possible misalignments and sources of misunderstandings in the opening stage of a critical discussion; this is true, in particular, when considering material premises, in which children's and adults' views of the world might be reflected. More in general, understanding implicit premises is relevant in order to understand where disagreement comes from (see below Section 4.2.3).

3.   Methodology of data collection

For the case study analysed in this paper, we rely on data previously collected as part of a broader corpus within a research on the psycho-social conditions for an active participation of children in a discussion. The original research project from which these data are taken was situated in a research stream considering that even migrant children or other children normally considered at risk of school failure might perform well if some pedagogical conditions are respected (e.g. Perret-Clermont 1980; Cesari Lusso 2001; César & Kumpulainen 2009; Mehmeti 2013; Resnick & Schantz 2015). In this case, the investigation involved Albanian-speaking students living in Switzerland in the context of Swiss public schools. The original aim of this research is beyond the scope of this paper. However, as a starting point, these data show that children were actually able to produce argumentation (see the discussion in Mehmeti & Perret-Clermont 2016).

Two teachers accepted to participate in this activity; therefore, data were collected with pupils attending classes taught by these two teachers. More in particular, the data used in this paper concern a teacher (trained in Switzerland), who teaches Albanian language and culture as an extra-curricular activity (after the official school hours) in the public school building. The teacher was teaching to two groups: a first group included children from 4 to 8 years, while a second one included children from 8 to 13. This latter group is where our data come from. One of the authors (T. Mehmeti) was present during this class; she did not video-record the interaction, because she did not want to be intrusive; but she took extensive notes, especially of the children's argumentation.

The teacher (who had no previous training on argumentation) accepted to follow a pedagogical activity designed by the researcher. This activity was part of a research line assuming that children's learning will be facilitated, if pedagogical situations leave room to their active engagement and if they can draw upon previous experience in school or elsewhere to make meaning out of it. In this framework, pedagogical activities are designed and tested granting to the pupils an important role of protagonists; while the teachers become "pedagogical designers" of the setting, as well as of activity, tasks, roles of the participants, goals, rules, norms, etc. They are also managers of resources, and attentive coaches, who accompany the students, safeguard the activity and its relational frame and, in particular, verify that the conditions for the progression of the discussion are met by the partners. This type of pedagogical design prepares a general framework for the activity but leaves some open space for the interaction to develop with the initiative of the children (cf. Giglio 2015). In our case, teachers were given the following protocol describing the activity (see Mehmeti & Perret-Clermont 2016 for a more detailed discussion of this protocol):

(1) The teacher presents the researcher to her class: she is a friend who studies psychology and education and is interested in what children do during classroom activities. She explains that this lesson is different from usual: children have to play an important role conducting the discussion; the teacher will be confined to a more passive role.

(2) The teacher says that she expects the students to work in dyads first. She organizes these dyads, and informs them that she will give two photographs (Figure 1) to each dyad. She writes three questions on the blackboard:

1. *What do you see in these pictures? Describe.*
2. *Where could these two pictures have been taken?*
   2.1 *What are the characteristics of this country?*
3. *What creates pollution?*

She tells the children that they have to discuss these questions in their dyad. When they reach an agreement, they will go and write their answer on the blackboard.

(3) The teacher asks the dyads to choose which member of the dyad will write the answers on the blackboard; then, the selected pupil does so. Then the teacher explains that one dyad will discuss the answers of another dyad.

(4) The teacher draws attention to some of the answers written on the blackboard and opens the discussion to the whole class.

Figure 1. Photographs given by the teacher. Sources from which the images have been taken: https://kasaselimi.files.wordpress.com/2010/03/mbetruina.jpg; last visited March 2016 (image on the left); and thinkstockphotos/stockbyte: http://cache4.asset-cache.net/xr/56530327.jpg?v=1&c=IWSAsset&k=3&d=8A33AE939F2E01FF5442AB8FC2AF2ED8 49B62DCF13617E5E26F109DF68AEEBDABCC685C059D63657; last visited March 2016 (image on the right)

This pedagogical design was as explicit as possible concerning both the cognitive task to be addressed by the pupils (questions were written on the blackboard to guarantee clarity) and the social organization of the discussion (in dyads or in the whole class, depending on the stages). Moreover, it is also important to say that the two images proposed (Figure 1) were deliberately chosen in such a way that they could remind these young pupils of Kosovo, even though this country was

not explicitly mentioned. The intention was to select a challenging topic, in order to provoke their reaction. Because of the unsaid allusion to pollution in Kosovo, it was thought that these pictures could trigger a reaction on the part of the children, insofar as they were related to a reality known to them; and, therefore, that children were likely to present their standpoints, defend them, and voice their disagreement on this topic. The role of the teacher, although different in the various stages of the activity, was intended to be a role of "guardianship" and support for the pupils to develop their own discussion; for example, the researcher expected that the teacher would only intervene in order to encourage students to voice their opinion, or to make sure that children abide by the rules but without interfering too much with the content of their discussion.

4.   Analysis

In this paper, we have selected a relatively short bit of interaction in which what the researcher expected in the first place did happen: namely, pupils engaged in argumentation.[4] The extract we analyse (Extract 1), which has already been discussed starting from a different research question in Mehmeti and Perret-Clermont (2016), shows a clear-cut case in which a child does engage in argumentation, even daring to go against the original questions in the activity. In what follows, we will (a) reconstruct the different argumentative discussions that are present in this short bit of interaction; (b) analyse to what extent these discussions are developed into full-fledged argumentative discussions, which are concluded with a resolution of a difference of opinion on the merits; in case they are not developed, we will discuss what problems might have hindered such development. In this sense, we will look at whether children are encouraged to express arguments and ideas; if the interlocutors share the same premises; and if not, what is the effect on the interaction.

This extract is located in the third step of the activity (i.e. when all the pupils have written their answers on the blackboard and the teacher designates a group X to discuss the answers of a group Y). The original language of Extract 1 is French, as this activity took place in the French-speaking part of Switzerland. Albeit pupils are normally expected to speak Albanian in the class in which this interaction takes

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4.   Although this is not within the scope of this paper, it might be noted in passing that this example, by showing a case of lively argumentation, confirms that minority students are not necessarily bound to lacking reasoning skills or the proper socialization to such types of interpersonal relationships at school.

place, the teacher allowed them to use French when needed, because it turned out that their command of Albanian was not sufficient to speak about pollution.

Contrary to other pupils who have answered to the second question by mentioning a city either from Albania or Kosovo, the dyad formed by Burim and Arlind has written "We don't know". Discussions are started by the children and the teacher around the answers given by students who mentioned cities from either Kosovo or Albania. At a certain moment of the emerging debate, Burim intervenes to defend his dyad's answer, followed by the teacher's questions and by the interventions of two pupils, Valon and Shpresa, who, according to the design of the activity, were not expected to discuss Burim and Arlind's answers.

Table 1. Extract 1 (French original and English translation) Participants: three pupils (Burim, Valon, Shpresa) and the teacher

1	Burim	*J'ai écrit on ne sait pas [à la question 2] mais pour dire que je ne suis pas d'accord avec les autres parce que [la pollution] c'est un problème qui est présent partout.*	I wrote we don't know [to the question 2] but to say that I don't agree with the others because it [pollution] is a problem that is present everywhere
2	Teacher	*Et ça veut dire qu'en Suisse aussi ?*	And does it mean that in Switzerland too?
3	Burim:	*Oui*	Yes
4	Teacher	*Ah oui, et où par exemple ?*	Oh yes? and where for example?
5	Burim	*Ben j'ai déjà vu mais aussi parce qu'il y a plein de grandes entreprises et industries qui produisent des choses, ça aussi ça pollue*	Well, I have already seen it but also because there are lot of big companies and industries that produce things, this also pollutes
6	Valon	*Oui mais quand même en Suisse y'a beaucoup moins parce que par exemple y'a pas ces déchets comme ca partout*	Yes but still in Switzerland there is much less because for example there is not so such waste like that everywhere
7	Teacher	*Et comment ça se fait?*	And how does it come?
8	Shpresa	*Ben parce que la Suisse c'est pas un pays pauvre*	Well because Switzerland is not a poor country.
9	Teacher	*Et donc?*	So what?
10	Valon	*On peut payer pour enlever les déchets*	The removal of waste can be paid for
11	Teacher	*Où paye-t-on pour ça, comment ça se passe*	Where is it paid for? How does that work?
12	Burim	*Les impôts*	The taxes

4.1 Analytic overview of argumentation in Extract 1

As a first step of our analysis, we will propose an analytic overview of argumentation in Extract 1. We make a few amendments on how the analytic overview is presented in van Eemeren, Grootendorst and Snoeck-Henkemans (2002). First, we will insert protagonist(s) and antagonist(s) into Table 2; this is because this discussion is multiparty (it involves the teacher and different pupils) and, therefore, it is important to specify who plays the role of protagonist or antagonist in every discussion move.

Second, we will not only mention standpoints and arguments, but we will also make *issues* explicit on which argumentation develops. Introducing a new issue, in fact, means introducing a new argumentative discussion; as it is shown in Table 2, there are 3 potential argumentative discussions emerging in Extract 1. We will equally specify the initiators of these issues. We understand an *issue* as "a more or less determinate object of contention that is, under the circumstances, worth arguing about" (Goodwin 2002: 86). Plantin (2005) notes that argumentation is defined by a confrontation of opposing viewpoints *in response to one and the same question*[5] (our emphasis). The concept of issue is also present in pragma-dialectics, because it is linked to the idea of a difference of opinion to be resolved; anyway, in the model of a critical discussion, the notion of standpoint seems to have a primacy (van Eemeren & Grootendorst 2004: 60). However, in the specific setting analysed in this paper, we observe that it is important to use the concept of issue in order to distinguish the different discussions that are opened, in order to analyse whether they are brought to a concluding stage.

Moreover, the concept of issue is important in this context because, given the adult-children asymmetry, one cannot take for granted that adults and children understand what is at issue, i.e. what is "problematic" and discussion-worthy, in one and the same way. In a different context, debatable issues might be more pre-defined by institutional constraints (as a prime example, see the institutionally highly regulated process of hostile takeovers described in Palmieri 2014). On the opposite, interactions at school may involve different types of discussions and, therefore, it is important how *participants* (adults and children) perceive the context, what is "legitimate" and debatable, and what is the room for opening a discussion (cf. Perret-Clermont & Iannaccone 2005; cf. also Plantin 2005). In practice, this means establishing who is legitimate to open discussion issues (Greco 2016; Greco Morasso 2011; Greco-Morasso, Miserez-Caperos & Perret-Clermont 2015; Schär 2016; Schär & Greco 2016). Concretely, for a child to open a discussion

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5. Plantin adopts the French term "question", from Latin "quaestio", which corresponds to the notion of issue.

issue means that he/she puts forward a standpoint on an issue; otherwise, it might be that a child, acting as an antagonist, puts a proposition advanced by an adult into doubt; in this latter case, the child transforms that proposition into an issue for the discussion.

In Table 2, we mark the issue on which participants are discussing with a letter (A, B, C). Issues are listed in connection with the bit of the discussion in which they emerge (numbered turns). A standpoint which is advanced on a given issue is marked with the traditional pragma-dialectical notation: A1 will be a standpoint on issue A, B1 a standpoint on issue B, and so on.

Table 2. Analytic overview of argumentation in Extract 1

Turns	Issue	Standpoint and arguments (protagonists)	Antagonists
Preceding discussion	A (Teacher) Where have these pictures been taken?	Other pupils: A1 In cities from Kosovo or Albania (various answers written on the blackboard)	
1–2	B (Burim) Can we answer the question "where have these pictures been taken"?	Burim: B1 We cannot answer B1.1 Because pollution is everywhere	Teacher: (?) Challenges B1.1 and thus opens issue C
2–12	C (Teacher) Is there pollution in Switzerland (and where)?	Burim: C1 (Yes) there is pollution in Switzerland C 1.1 there are lot of companies and industries which produce things, this also pollutes	Valon: C1′ No there is much less pollution in Switzerland C1.1′ There is not so much waste everywhere like that Valon + teacher + Shpresa + Burim: C1.1.1′ Because the Swiss pay to remove waste (via taxation) C1.1.1.1′ Because Switzerland is not a poor country

As it emerges from Table 2, the initial issue for the discussion has been decided from the outset, as it depends on the exercise that pupils have been assigned. The second of the three questions proposed to them is: "Where could these pictures have been taken?". When Burim starts talking at turn 1, he is giving an argument to explain why he wrote "We don't know" on the blackboard, differently from the others.

From a purely linguistic viewpoint, Burim's standpoint B1 counts as an opposition to the teacher's original question: he is saying that it is not possible to

answer that question. Thus, Burim's reply is outside of the paradigm of expected answers for the question "Where could these two pictures have been taken?". Burim is actually *raising a new meta-issue* (issue B), which could be formulated as: "Can we answer the question "where have these pictures been taken"?". This is a particularly interesting case of children's argumentative intervention; in fact, the discussion takes a different direction from the one originally expected because of the intervention of a pupil, who introduces a different issue, though connected to the original one. Burim's standpoint on this issue is "No", and he gives an argument for it: pollution is everywhere.

The teacher immediately replies to Burim by asking questions that challenge argument B1.1 (turns 2 and 4). By this doing, however, she shifts the issue of the discussion once more; now the issue becomes: "Is there pollution in Switzerland? (and where?)". For the moment, we limit ourselves to observe that this issue is fairly different from the original problem which had been submitted to students. The discussion is then moved on this new issue (issue C).

The first to take a position on issue C is, again, Burim. This is not surprising, because he has already said that pollution is everywhere; thus, he has already taken a position on issue C in general; he now only needs to specify his position speaking about Switzerland. At turn 5, Burim repeats his standpoint "Yes" and gives as an argument the fact that there are big companies and industries in Switzerland; and this also pollutes. Note that, obviously, he is now speaking about a type of pollution (industrial pollution) that is different from the one represented in the original pictures. However, the original question asked by the teacher contains the more generic word "pollution" (see below Section 4.2.3); therefore, in principle, the wording of the teacher's question admits for this interpretation.

Burim's line of argument is interrupted by Valon, another pupil, who assumes an opposing standpoint. Without going against Burim's argument, Valon says that in Switzerland pollution is "much less" and he spontaneously presents an argument for his standpoint: there is not so much waste (turn 6). At this point, Valon's argumentation further develops with a series of subordinative arguments produced respectively by Shpresa (turn 8), Valon (turn 10) and Burim himself (turn 12). Each one of these arguments (represented in Table 2 as C1.1.1″ and C1.1.1.1″) is actually solicited by a question asked by the teacher. Although we did not represent it in Table 2, we might add that, by means of these interventions, the teacher is again assuming the role of an antagonist in relation to Valon and Shpresa.

4.2 Discussion

Having outlined the analytic overview of argumentation in Extract 1, we will now turn to the main question of this paper; namely, we will analyse more closely if

the three different potential discussions that have been opened are accomplished in terms of an ideal "critical discussion". In this analysis, the role of the teacher emerges as particularly important. In fact, although in the original design of the activity, she had the task to help students develop their points of view without interfering too much with the content of their discussion (see Section 3), what happens is that the teacher's interventions are frequent and clearly steering the discussion (Table 1). At a first glance, it seems that some lines of reasoning are abandoned or cut by teacher's interventions. We might remark that the analytic overview in Section 4.1 is similar to a tree in which some branches are not fully flourishing, while others are. Furthermore, some branches have been cut as soon as they started to grow. The gardener, in this metaphor, is the teacher, who certainly controls the development of the discussion. Some of the potential discussions opened here are not developed into full-fledged argumentative discussions. In what follows, we analyse how they deviate[6] from an ideal model of a critical discussion and why. The model of a critical discussion is useful here (as discussed in Section 2), because we intend to understand whether argumentation is fully-developed, and this model gives us a grid against which it is possible to compare what happens in this specific setting.

In the following sections (4.2.1, 4.2.2 and 4.2.3), we will discuss some aspects in relation to how argumentative discussions have been developed in this interaction. In particular, we will focus on how the discussion responds to the model of a critical discussion (Section 2), thus showing whether all differences of opinion emerged are resolved on the merits or not. Notably, by comparing what happens in this case to a normative model such as the pragma-dialectical model of a critical discussion, our intention is not to set a standard for teachers' intervention. However, we would like to make the point that at least in some cases – as our example proves – even when adults who start from the intention of promoting children's argumentation and letting them free to voice their opinions, as it was the case in the designed activity analysed here (see Section 3), the result does not correspond to a full-fledged argumentative discussion. These considerations intend to foster reflection on what it means to support children's argumentation and how it can be done.

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6. Again, a note is necessary here, as we are dealing with an interdisciplinary research article. We are not wanting to decide if the teacher has acted properly – or as intended – in the face of students unexpected behaviors or arguments (cf. Giglio & Perret-Clermont 2012). We are considering, from a pragma-dialectical perspective, if the formal characteristics of the conversation allow for what has been described in argumentation theory as a "critical discussion".

4.2.1   *Meaningful issues and legitimate issues*

A preliminary observation needs to be made about the issue set by the teacher in her original questions. The teacher asks: "Where have these two pictures been taken?" Our first hypothesis is that, asked to this group of pupils, this question might be actually perceived as a sort of rhetorical question. In fact, it seems evident that, for most pupils, the two pictures have been taken in cities from either Kosovo or Albania; all other answers are consonant except for Burim and Arlind's.

If this hypothesis is true, i.e. if the answer is obvious, why asking this question? This is a problem at a communicative level, which bears an influence on the development of argumentation. In fact, this might seem as a provocative question and one that potentially opens a conflict. Generally speaking, informative questions must ask for something that is not known. In argumentative terms, if there is no actual difference of opinion (because the "issue" is not a real issue) then there is no discussion to be opened. On the opposite, rhetorical questions ask for something that the answerer should already know (Gobber 1999). Therefore, if the answer to a question is perceived as obvious (independently from the original intentions of the questioner), then the answerer is brought to think: why are you asking this question? Independently from the original intention with which this question had been formulated, it is possible that Burim thinks that somehow the picture in question is (mis)leading his fellow pupils to give answers that support a stereotyped and prejudiced view of Kosovo and Albania.

It might be that it is the (alleged) emergence of such stereotype that has provoked Burim's reaction. Notably, when Burim says (turn 1): "I wrote "we don't know" [to question 2] but to say that I don't agree with the others" this might be an "ex-post" reconstruction, because Burim has actually written his answer at the same time as the others. Looking at the blackboard, Burim might have been struck by the uniformity of the others' replies; he might have then decided to interpret his answer as a reaction to those.

A second (and not less important) observation concerns the problem of *who can legitimately raise issues* in this setting (cf. Plantin 2005). At turn 1, Burim sets a new issue (B: Can we answer the question "where have these pictures been taken"?, see Table 2), thus opening a new argumentative discussion. This actually counts as a courageous move on the side of Burim. In fact, he questions his teacher's issue, by saying that it is not possible to answer it. Now, in ordinary school situations, teachers' questions are reputed to be "answerable" as part of a "didactic contract" (Schubauer-Leoni 1993; Sensevy & Mercier 2007). As such, they are perceived as meaningful and not discussed. However, in this case, following the design proposed by the researcher, the teacher has announced that the activity will be different from usual school activities. It could be that, on this basis, Burim dares to question what is normally taken for granted, also providing an argument for his

position on the issue he has introduced. We report here standpoint B1 and argument B1.1 (from Table 2):

B1   We cannot answer
    B1.1   Because pollution is everywhere

The teacher immediately reacts by challenging B1.1 repeatedly at turns 2 and 4. The result is that she introduces another issue (C): "Is there pollution in Switzerland (and where)?" Thus deviating from Burim's proposal. We cannot know if this is done on purpose or inadvertently, but what happens here is that an issue introduced by a young pupil is immediately abandoned as an effect of the teacher's questioning. This is a first argumentative discussion (on issue B), which is however left unaccomplished, as we only have Burim's standpoint and argument but *we do not get to any concluding stage*. Therefore, we might say that this difference of opinion has not been resolved on the merits. This might induce to think that the pupil's issue was not legitimate to enter a school discussion otherwise guided by the teacher.

4.2.2   *Developing different lines of argument?*

At turns 3 and 5, Burim reacts to issue C (is there pollution in Switzerland (and where)?) on which the teacher has steered the discussion. Although his proposal for a new issue has been abandoned, it is noteworthy that he is able to "take up" a new issue proposed by the teacher. It is therefore important to understand how the argumentative discussion on this new issue, which seems to have met the pupils' interests, is conducted. In particular, Burim has a standpoint and an argument that are consistent with his previous remarks (see Table 2):

C1   Yes there is (pollution in Switzerland)
    C 1.1   there are lot of companies and industries which produce things, this also pollutes

To this, another pupil (Valon) replies with another standpoint, which is not contradictory but partially opposed to Burim's; he also gives an argument to support it (see Table 2):

C1″   No there is much less pollution in Switzerland
    C1.1″   There is not so much waste everywhere like that

At this point, even though the teacher has not accepted Burim's issue (see Section 4.2.1) and she has set a new issue about Switzerland, which was not in the original assignment, she still finds herself confronted with a good example of argumentation developed by her pupils. Specifically, the scenario is that of a *mixed dispute* with a protagonist and an antagonist (Burim and Valon) who both have

started to advance arguments in favour of their respective standpoints. From an argumentative point of view, a discussion has started amongst the students, which could be fostered and supported in different ways.

The teacher does intervene in this discussion, asking questions (turns 7–9-11) that make her assume the role of an antagonist in such a way that she seems to be willing to develop children's argumentation. We found a similar role of adults' questioning in previous research (Greco Morasso, Miserez-Caperos & Perret-Clermont 2015): when talking to young children, adults might be willing to act as antagonists in a non-mixed dispute, so that children are invited to give further arguments for their standpoints without being directly challenged by an adult..

However, in this case, the teacher only talks to Valon, while she does not interact with Burim. In this way, it is only one side of the mixed dispute that is developed, namely the antagonist's position. Different persons intervene to develop this line of argument: Shpresa (turn 8), Valon again (turn 10), and even Burim (turn 12), who has been able to follow this line of argument, while de facto abandoning his own.

One can thus observe that a mixed dispute that had developed in a very balanced way up to turn 6 becomes very unbalanced after the teacher's interventions. Because the goal of the argumentation stage of a critical discussion is submitting the parties' standpoints and arguments to critical scrutiny in order to resolve a difference of opinion on the merits (see Section 2), the argumentation stage as it is developed here is questionable at the least. In fact, one argument is completely abandoned while the opposing line of argument is developed; they are not really confronted. As a consequence, there is no proper concluding stage of this discussion. Whether the students have reached agreement or not is not clear because no space is given for exploring this aspect. As we will show later, this problem with the argumentation and concluding stages might be linked to a problem in the opening stage (Section 4.2.3).

Moreover, another aspect is important in relation to Valon's intervention at turn 6. Valon provides *one* possible argument for his standpoint, thus developing a *single* argumentation. A closer look to the effect of the teacher's interventions allows us to point that her interventions conduct her pupils – not just Valon but all of them – to provide *subordinative* argumentation in support of this argument. Eventually, we have three levels of subordinative argumentation (see Table 2). Arguably, this "vertical" (subordinative) development might have prevented the exploration of other possible arguments in support of Valon's (or Burim's) standpoints (i.e. of *multiple* or *compound* argumentation that could potentially be advanced). Our hypothesis is that the teacher's questioning about Valon's argument seems to create a new dynamic and new expectations and interpretations of

the activity: it could be that students feel that they do not need to advance other arguments; but they only need to answer to the teacher's questions.

Now, fostering a process of *inventio* on all sides of an argumentative dispute, so that complex argumentation is generated, is not required, strictly speaking, by a standard critical discussion, unless it is explicitly functional to the goal of resolving the difference of opinion. Thus, one could object that it might have been unnecessary to raise other arguments from a viewpoint of the quality of an argumentative discussion *stricto sensu*. However, the context in which this discussion takes place must be taken into account in order to fully appreciate the potential value of assigning a broader space to *inventio*. In fact, because the aim of the activity was to foster students' active participation and thinking about the proposed subject, it might have been functional to develop the argumentative discussion in such a way that not only the minimum requirement for a critical discussion was reached; but that there was more attention to develop all lines of arguments and explore more opportunities at the level of *inventio*.

4.2.3   What is pollution? A problem with the opening stage

As it emerges from Extract 1, the difference of opinion between Burim and the other pupils could be resolved, at least in part, by directly tackling the meaning that they attribute to the term "pollution". Note that this term is used in a nonspecific way in the original questions proposed in the activity: while the photographs (Figure 1) point to two specific forms of pollution (waste and cars' smoke), the linguistic term "pollution" per se is broader, as it covers a wider area of phenomena. When Burim alludes to industrial pollution, he relies on this broader interpretation, avoiding to specifically refer to the photographs. In this case, a reconstruction based on the Argumentum Model of Topics is useful to understand the participants' starting points; in particular, an AMT analysis highlights if and to what extent these starting points are shared.

Now, if this broader meaning of pollution is adopted, Burim's claim that pollution is everywhere is difficult to contradict. The AMT representation of his argument (standpoint C1 and argument C1.1) is represented in Figure 2). Burim adopts a *locus from cause to effect* to show that there are different independent causes for pollution and some of them (big companies and industries that produce things) are present in Switzerland; therefore, pollution is necessarily present in Switzerland.

However, if one takes the specific meaning of pollution that is suggested by the photographs (Figure 1), then Burim's claim is not acceptable anymore, because his main contextual premise, i.e. the *endoxon*, would fail to be true. It all depends on the meaning of pollution, which appears in the enxodon, i.e. in the general

material premise that is at the basis of Burim's argumentation. In order to defend himself Burim makes this endoxon explicit at turn 5 ("this also pollutes").
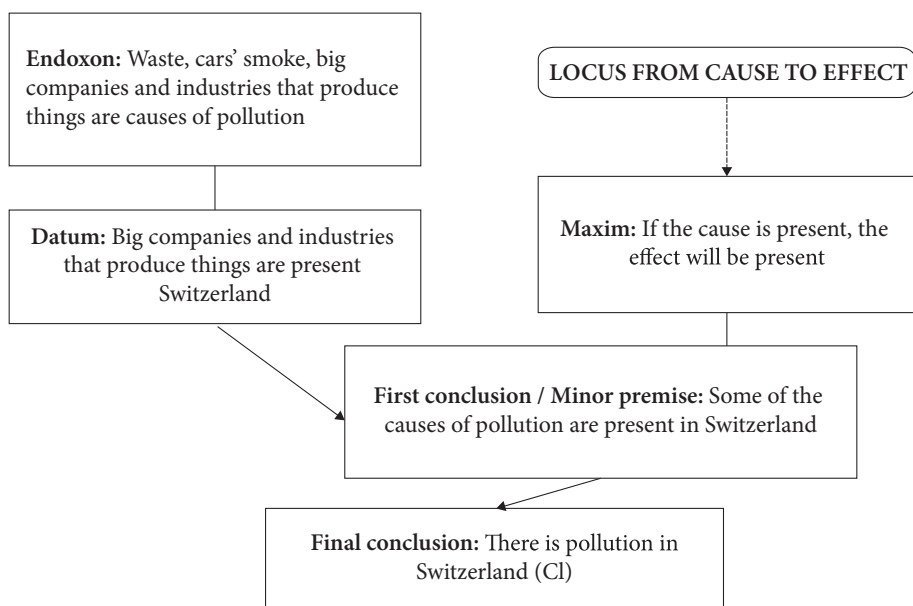

Figure 2. AMT analysis of Burim's argument (standpoint C1 and argument C1.1)

In this passage, we have a typical case of ambiguity raised by a natural language term (i.e. *pollution*). The ambiguity in this case is somewhat amplified by the use of photographs that seem to allude to one specific meaning, while the term is general. Here, there is a problem with the opening stage, as participants do not agree on the meaning of "pollution", which is a central term to the discussion as it appears in the endoxon and datum. This ambiguity means that one of the important common starting points for the discussion (at the level of material premises) is missing; therefore, there is a vice in this argumentative discussion, which hinders a reasonable resolution of the difference of opinion. Problems with the opening stage, especially linked to ambiguities, generate typical forms of misunderstanding that might lead to incomprehension and even conflict (Dascal 2003; Greco Morasso 2011).

Thus, this ambiguity should be resolved for the discussion to proceed in a reasonable way. Notably, clarifying this term could bring to a resolution of the difference of opinion on issue (C), as participants might perhaps agree that there is *industrial* pollution in Switzerland, while other forms of pollution (such as waste abandoned in the streets) will be less frequently seen in Swiss cities. In this case, however, the discussion proceeds without solving this problem. Valon's

intervention at turn 6 could be an attempt to clarify the kind of pollution they are talking about. However, the discussion takes a different path and the argument raised by Burim is not further discussed (see above in Section 4.2.2), thus leaving the difference of opinion unresolved.

5.   Conclusions and openings

This paper has analysed a case of argumentation in which a group of pupils discuss on an issue related to pollution within a pedagogical design. The selected example testifies to the presence of argumentation in an educational context in which minority children are involved. Children were able to open new issues for a discussion; they advanced standpoints and arguments in support of their standpoints. Moreover, they were able to follow the teacher when she shifted the issue and opened new paths for their discussion.

Making a step forward, we wished to understand if the three different discussions opened during this interaction are fully accomplished in terms of being conductive to the resolution of a difference of opinion (van Eemeren & Grootendorst 1984, 2004). By this doing, our aim was to verify to what extent the opportunities for argumentation are really exploited and brought to their full development, starting from the consideration that the designed activity analysed in this paper had the aim of helping children freely voice their opinions and discuss them. For this purpose, we have mainly relied on the pragma-dialectical model of a critical discussion in order to understand if and how argumentation is developed in our case. We have integrated the Argumentum Model of Topics for the reconstruction of implicit premises, which has helped understand problems in the opening stage in particular. As said above, we are not proposing these models as an "ideal" for teachers to adopt. We are using them for the analytical and critical purposes for which they have been developed (as discussed in Sections 1 and 2). Moving from the present findings, further research might consider what it means to foster children's discussion, and how adults might contribute to this; and connect our findings to existing research in education.

At a first level, our data showed that it was important to attribute a particular importance to the concept of *issues* and how they are proposed and negotiated during the interaction. Therefore, issues have been clearly marked in our representation of the analytical overview (Table 2). Such focus on the notion of issue has allowed us to distinguish the 3 different discussions opened during this interaction; also, it has allowed us to better understand how much children's argumentation was developed. Our analysis has shown that there are several aspects for which the three different argumentative discussions initiated by the teacher and her students

are not properly accomplished. In all three cases (see Sections 4.2.1, 4.2.2 and 4.2.3), we have found that the argumentative discussion is not corresponding to an ideal critical discussion because some elements are missing. In Section 4.2.1 and 4.2.2, we have found that the *concluding stage* was missing; in Section 4.2.2, this was linked to a problem with the critical testing of arguments in the *argumentation stage*. In fact, as we remarked, while the antagonist's line of argument is developed by means of subordinative argumentation provoked by the teacher's questions, the protagonist's line of argument is abandoned without discussing it; in both cases (protagonist's and antagonist's), critical testing is missing. In Section 4.2.3, we discussed a problem with the *opening stage* of one of the discussions (on issue C), based on the ambiguity of the term "pollution". This problem hindered a reasonable resolution of the difference of opinion. We also noticed that nobody assumed the task of clarifying this ambiguity.

In Section 4.2.2, we discussed another element, which might not be problematic at the level of a critical discussion; but it might be questionable in view of the specific context in which this discussion is developed. We have remarked that, in the discussion on issue C, Burim and Valon (protagonist and antagonist) only give a single argumentation in support of their standpoint. There is no attempt at the level of *inventio* in order to brainstorm other possible arguments in favour or against the two standpoints that have been advanced. Now, as said in Section 3, in this activity, the teacher was expected to invite students to share, confront and discuss their answers, and to encourage their participation and the development of their own thinking and argumentation. In this sense, some more space left for inventio could have been functional to the specific goals of this activity.

Within this context, we noticed that the teacher has had a crucial role in this case; her interventions did not fully coincide with the expectations set on her within the pedagogical design. The teacher, in fact, as it has emerged in Extract 1, was clearly managing the discussion: she was in control of turn taking, she managed issues and developed arguments. In this way, she went beyond the role of "guarding" children's argumentation that was foreseen in the activity. This raises a question at the level of conceptual reflection on how the ideal role of a teacher helping students develop their discussion, sustaining "a *teacher-led* but *student-owned* process of shared reasoning" (Resnick & Schantz 2015: 344, emphasis in the original), might be achieved. It seems to us that, in some ways, the sophisticated role of the teacher, who participates in the pupils' argumentative discussion in order to allow and support its development, might be compared to the role of a *dispute mediator* (Greco Morasso 2011). The latter is responsible for the creation of an "argumentative space" – a specific type of "thinking space" (Perret-Clermont 2015) – in which parties, who enter the discussion as conflicting disputants, can finally resolve their conflict via argumentation. An ideal mediator will guide the

parties through their process of constructing an argumentative discussion, helping them to build their *confrontation*, *opening*, *argumentation* and *concluding* stages. Although mediators cannot directly intervene in the parties' discussion, as they cannot have a standpoint about the resolution of the conflict, they will often put forward argumentation at a meta-level, for example for managing issues and convincing disputants that they will have to think about one issue instead of another. We therefore assume as a working hypothesis for future research that, in certain circumstances, a teacher (or any adult) who wants to foster children's argumentation, can be usefully conceptualized as a mediator in the disputants' argumentative discussion. Investigating similarities and differences between mediators and teachers could be an interesting line of research to be pursued in argumentation studies concerned with educational contexts.

Moreover, concerning possible future avenues for research in Argumentation theory, if we want to continue to draw upon the pragma-dialectical model that we have chosen to use here, we could try to better situate different types of interaction that take place in educational settings, for example at school, in terms of those *communicative activity types* characterized by the presence of argumentation that have been described by van Eemeren (2010). This aspect has not been considered in this paper. This is, however, a sensible problem, because schools are complex institutions, in which many different interactions happen. Just to mention some important aspects, not all discussions between children and adults in a school need to be argumentative; and not all of them have the same goals and characteristics. Therefore, in future research, in order to better understand how argumentation might be supported, argumentation scholars should carefully consider what activity types are present in an educational domain, taking into account, for example, whether students and teacher(s) are involved in a formal or informal discussion; what discipline is at stake; what texts and other information or cognitive resources are available; what is the goal of that segment of interaction, and how pupils and teachers understand that goal. Also, they should consider how flexible the different activity types might be, how much teachers can decide to capitalize on unforeseen opportunities for learning, thus possibly shifting from one to another activity type.

Acknowledgements

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