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Emotional Positioning as a Cognitive Resource for Arguing: Lessons from the Study of Mexican Students Debating about Drinking Water Management.

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Abstract:

This paper consists of a detailed analysis of how the participants in a debate build their emotional position during the interaction and how such a position is strongly related to the conclusion they defend. Our case study of teenage Mexican students arguing about access to drinking water in the future shows extensive discursive work on the emotional tonality given to the issue. Methodological tools proposed by Plantin (2011) are used to follow two alternative emotional framings produced by disagreeing students, starting from a common, highly negative, thymical tonality. Through the analysis of four parameters (distance to the problem; causality/agentivity; possibility of control and conformity to the shared norms) we describe how the emotional dimension of the *schematization* (Grize, 1997) is argumentatively relevant. In the authentic discourse, it is impossible to separate emotion from reason. The conclusion section discusses the implications for the development of pedagogical design of argumentation-based learning activities.

Keywords: argumentation, *schematization*, norms, values, socio-scientific issue, emotional positioning, group cognition

1. Introduction

Emotions have long been considered as introducing bias or illegitimate justifications to a claim, and therefore associated to potentially fallacious argumentation practice, especially in critical argumentation studies (Hamblin, 1970, Walton, 1992). Recent studies based on authentic discourse rehabilitated emotions as an object of interest for argumentation studies (e.g. Plantin, Doury & Traverso, 2000; Micheli, 2010; Plantin, 2011). Literature of research in education also provides interesting and contrasting views on emotions related to argumentation, most authors focusing on the emotions related to the process of arguing itself (i. e. Andriessen, Pardijs, Baker, 2013, Baker, Andriessen, Lund, 2009). Still, we maintain that argumentation cannot be studied as a formal practice disconnected from the substantial objects of discourse under discussion. In science education, some specific issues, characterized as 'socio-scientific', are considered as emblematic topics about which emotions, values and daily knowledge are generally used together with school institutionalized knowledge. Many authors and educational policy makers agree that such controversies involving multiple scientific, technical, social, political, ethical and moral aspects should be tackled in the classroom, both as part of the science curriculum and as contributing to teaching scientific literacy for citizenship education (i. e. Albe 2006; Fowler, Zeidler, & Sadler 2009; Kacem & Simonneaux 2009). Blurring the boundaries between natural and social sciences, subjectivity and objectivity, knowledge and opinion, such socio-scientific issues offer a great opportunity to study the argumentative use of emotions.

In this paper, we present a case study of Mexican students debating about access to drinking water, a typical socio-scientific issue, and show how their defense of a given argumentative claim is intrinsically attached to their discursive emotional positioning. We claim that such framing arises from the emotional dimension of the cognitive process of *schematization* of discours objects (Grize, 1997), which is constitutive of the argumentative *orientation* of the discourse (Anscombre & Ducrot, 1997 [1981]). We describe students' work of emotional framing through the analysis of a diversity of discursive markers, including an interpretation of some implicit elements, mainly based on the tools developed by Plantin (2011) for the study of emotions in argumentation. In the first section, we specify our theoretical background, referring to the vision of emotions in argumentation in two different

research fields: education and argumentation studies. We give a larger review of conceptual tools from the empirical approaches to argumentation, which we later use for our study. In the second section, we detail the data and the social corpus investigated. Our methodology is presented in the third, analytical, section, together with the corresponding results. Finally, implications of the role of emotional positioning in argumentation are discussed, both for the analysis of argumentation interactions and for the design of appropriate pedagogical settings.

2. Theoretical background

In this section, we first present different views on the place of emotions in argumentation across two fields: education research and argumentation studies (within linguistics). We then focus on a recent research tradition of the latter, the empirical approach to argumentation studies.

2.1 Emotions in Educational Argumentation

Educational practices of argumentation respond to two distinct pedagogical orientations, that both leave a space for emotions. Research on collaborative learning generally considers argumentation as a way to foster socio-cognitive conflict (Roschelle & Teasley, 1995). In this perspective, some specific feelings have been studied for their impact on learning. Some emotional tensions related to real socio-cognitive conflicts are considered positive (Andriessen, Pardijs, Baker, 2013, Baker, Quignard, Lund, van Amelsvoort, 2002, Sins & Karlgren, 2013), whereas the regulation of emotion is promoted as a means of avoiding negative tensions that could be detrimental to learning (e. g. Järvenoja & Järvelä, 2013).

In science education, emotions have been studied less as related to the activity of arguing in itself, and rather in association to specific emotioning objects of debate. More specifically, some didactical objects recently introduced in the curricula tend to provoke appeals to emotions: the ‘socio-scientific issues’ (Albe 2006; Fowler, Zeidler, & Sadler 2009; Kacem & Simonneaux 2009). They consist of dilemmas, such as those around GMOs or environmental issues, which include significant scientific or technological underpinnings, and dealing with broad questions of the future of society. In such case, the correct use of basic knowledge can often lead to a diversity of legitimate responses. In such controversies, divergent opinions are

defined chiefly through values and interests, bringing together a diversity of emotional attitudes toward a given technological or scientific option.

2.2 The Discursive Construction of Emotions as Part of Authentic Argumentation Practices

In linguistics, the use of emotions in argumentation has been given different status over time and along divergent research traditions. While rhetorics from Antiquity clearly included the argumentative functions of emotions, the institutionalization of argumentative studies as an autonomous field of research was associated with a discredit of emotions as legitimate objects of study. For example Toulmin (1958)'s seminal work, barely mentions emotions, and even Perelman and Olbrechts-Tyteca (1958)'s project, which explicitly aims at conciliating subjectivity with rationality, does not provide for the analysis of emotions. Each focuses rather on 'values'.

Later on, in the critical theory of argumentation, emotions are reintegrated, but only as indicators of fallacious (Hamblin, 1970) or potentially fallacious (Walton, 1992) arguments.

But recent works based on empirical study of authentic discourse describe a strong presence of emotions in argumentation, and led to a more complex analysis of their argumentative functions (e. g. Plantin, Doury & Traverso 2000; Micheli 2010; Plantin 2011). In a descriptive perspective, this line of research aims neither at judging the validity of arguments, nor at describing people's emotional state[1] : the idea is rather to understand how interactants use emotions to argue within their discourse.

This paper takes this latter view on emotions, but such an analysis is complex as emotions can be semiotized in discourse through a diversity of forms, including implicit ones.

Actually, Plantin (2011) suggests diverse indicators for studying emotions in discourse, ranking from deep lexical analysis to emotional inferences based on cultural stereotypes.

[1] We find interesting Caffi & Janney (1994)'s distinction between 'emotional' and 'émotive', the first adjective referring to emotions actually felt by the speaker, and the second one corresponding to the emotions that are semiotized in the communicative situation. In this paper, we focus on 'emotive' positioning, according to this distinction, but we feel more at ease with using the word 'emotional'. Moreover, in practice, distinguishing between the two meanings is often difficult. For instance, as explained earlier, some researchers analyze students' emotional feeling through discursive clues. A specificity of the empirical approach of argumentation studies is to focus on how argumentative discourse works with little interest in sincerity of people's actual beliefs and emotions.

The analysis of not explicitly thematized emotions includes a continuum of more or less implicit inferences. Micheli's distinction between 'shown' emotions and 'scaffolded' emotions (Micheli, 2013) differs in the nature of the inferred component. The 'shown' emotion is inferred through cultural stereotypes about the way emotion is expressed, or downstream emotional signals. Such signals correspond to the usual symptoms associated with a given feeling, as, for instance, 'a red face' (anger or shame). On the other hand, the 'scaffolded' emotion relies on upstream signals, involving stereotypes about the type of situations that are likely to produce a given emotion (metaphorically associated to emotion-triggering and therefore earlier events). For example, in Western culture, a burial is expected to be sad.

The analysis of the role of emotions in argumentative discourse does not necessarly imply labeling them precisely. The argumentative value of a given emotion consists of its localization along the two axes of valency (whether it is a pleasant or unpleasant emotion) and intensity (referring to the strength of the emotion) (e. g. Plantin, 2011; Cahour, 2013). In the case of implicit emotions, the inferential mechanisms are also structured along these two axes. Plantin (2011) identifies several parameters involved in emotion intensity construction: (1) framing a situation as more or less distant to the participants; (2) presenting it as possible or impossible to control; (3) describing the problem as a fatality or a result of a causal event, or of a precise agent. On the valency axis, two main spectra contribute to emotion construction: 4) the life-death continuum, consisting of a positive perception of what is associated to life, in opposition to what tends to death, which is negatively evaluated (this aspect can be directly identified in the lexicon and topics, or analogically alluded to); and 5) conformity to shared norms, with a positive appraisal of elements presented as conform to the norms and a negative appraisal of non-conformity to the norms.

In this paper, students' emotional framing of the question and the rival alternative responses are characterized along the aforementioned parameters, and the resulting argumentative *orientation* of discourse toward the claim that they are defending is derived. In terms of argumentative orientation of discourse, we study, more precisely, what Grize calls the 'schematization' of discourse objects: 'a schematization casts light on specific aspects of a discourse object' (Grize, 1997 [1990]: 73), and tries to 'modify the diverse representations [the interlocutor] might

have, by emphasizing some aspects of things, hiding others, suggesting new ones' (Idem: 40).

3. Data and Social Context Investigated

In this section, we first present the pedagogical situation leading to the debate studied and specify the type of data on which we base our analysis.

3.1 Pedagogical situation

The junior "scientific *café*" pedagogical situation can be described as a semi-formal educational setting. The activity is held at school, but outside of the curriculum, and not specified as part of a given disciplinary lesson. Teachers, when they are present, are only observing the debates, which are facilitated by a duo of older students (aged 15-16) for younger students (aged 13-14). The pedagogical macro-script was co-designed by the XXXX research laboratory and a French non-profit specialized in informal science education. It was implemented and videotaped in Mexico, the US and France (XXXX, 2014: 83-106). This case study is based on a *café* held in a Mexican private upper class secondary school in November 2011, in Tehuacán (Puebla).

The participating students are seated by fours around tables dispersed in the room. The 110-minute-long activity is organized around a multiple-choice questionnaire and themed around a main question about what would determine access to drinking water in the future (reproduced in figure 1). The students are first asked to answer the main question individually and anonymously. Then, three subtopics are explored, providing students with basic information on the current water resources, the uses of water and how water is currently managed. Each subtopic ends with a socio-scientific question, referred to as 'opinion question'. When this type of question is asked, the students follow 4 explicit steps. First, they discuss it at their table and collectively choose an answer. Then, they are asked to show their answer by holding up the corresponding letter (A, B, C, D, E or F). The third step consists of a debate session at the class level (5 to 15 minutes). Fianlly, each student selects an individual and anonymous answer to the question, which can differ (or not) from the one defended by his group.

After the three thematic phases, the main question which had been asked, but not

discussed initially, appears again, but this time as an 'opinion question' to be treated following these four steps (group debate, group vote, class-debate, individual vote). The data analyzed in this paper correspond to this last phase, the debate held at the class level about the main question. In the case studied here, the students display great investment and motivation to argue, including occasional direct interaction between students, without any prompting from the moderator.

INSERT FIG 1 HERE

The multiple-choice question under discussion.[2]

3.2 Recording and Treatment of the Data

The videographic techniques used in this study allow for a particularly well documented analytic object on which we focus our attention. Four video documents include a global view from the rear of the classroom, a frontal view of each table group, and a screen capture recording the diaporama which was projected, displaying the multiple choice questionnaire and information slides. Fixed images of the whiteboard notes taken by the moderator on opinion questions during the debates were obtained. The individual anonymous votes of the students were gathered for each opinion question and the main question. Full transcripts of the last phase of the activity are available, used the XXXX conventions[3]. Relevant utterances for analysis are reproduced in tables 1-6, indicating the number of speech turn and the three first letters of the speakers' name. Ad hoc literal translations in English, following original Spanish structure, are provided to help the reader understand the authentic uterrances.

4. Students' Strategic Emotional Positioning in Argumentative Discourse

In this section, we present our case study, explaining our analyses and results, so that the reader can follow our methodological approach 'in action'. In order to set the stage for our case study, we first present the general emotional framing of the debate, serving as a basis for the construction of rival arguments. This emotional tonality that is part of the scene is called 'thymical'. We then specify the diverging emotional positions constructed by the students as they argue to defend different options. These

[2] Literally: "In your opinion, access to drinking water, for a person, in the future, would mainly depend on: A) economic income; B) physical ability to live consuming water of lower quality; C) current effort made to preserve and save water; D) place of origin on the planet; E) nature's capacity to adapt to our needs in terms of water consumption; F) scientific advances."

[3] See internetlink (not given here for blind review).

emotional variations that depend on the argumentative orientation of the contributions to the debate are called ‘phasic’. This thymical/phasic distinction originates from the literature on the psychology of emotions, and has been fruitfully used to describe emotional trajectories in argumentative discourse (Plantin, 2011: 121-125). *Thymical* emotions constitute a stable framework for the advent of emotional phasic events, often of higher intensity and shorter duration.

4.1 Thymical characterization of the debate: "a matter of life or death"

The basic emotional tone the participants agree on, despite phasic perturbations occurring during the debate, is rather grave. The debate is emotionally framed as intense and negative through the use of the cultural stereotype concerning the preference of life over death (Plantin, 2011). The students build such thymical states using two different tools: lexical markers and causal reasoning based on the image of ‘lack’.

4.1.1 Use of lexical markers. The grave thymical tonality is not only attached to the issue at stake in itself (access to drinking water). It is also created by students’ discursive work, which presents the issue as a matter of life or death. For instance, Alejandro, choosing option B (an answer which emphasizes physical resistance), claims that people would end up fighting for water, and that only the strongest would survive:

8 ALE la desesperación de la demás gente que no tiene agua la gente pobre yo creo que se van a estar peleando por el como por conseguirla[4]

Defending another option, answer A (access to drinking water would depend on how rich the person is), Gaspar also takes part to the construction of this grave tonality through lexical markers:

25 GAS el dinero en comprar el agua para vivir (…) mucha gente puede morir por la falt- la falta de agua[5]

Emilia, also pro-A, even makes an analogy with situations of starvation:

64 EMI igual que: por decir los niños que están moriendo de hambre en África\[6]

Moreover, the use of the verb ‘agotar(se)’ (to (be) exhaust(ed)), introduced by Gaspar in his first contribution to the discussion, and reused twice, is emblematic of this framing of the debate on the side of the risk of death:

2 GAS se va a empezar a agotar bueno ya se está agotando el agua (it’s gonna start to exhaust well water’s exhausting yet) 21 EMI ya lo estamos agotando (we’re exhausting it yet) 60 EDU [lo que ahorramos] se va a agotar ([what we save] is going to exhaust)

[4] others’ despair people who doesn’t have water poor people i believe that they would be fighting to the: like to get some

[5] the money to buy water to live (…) a lot of people can die because of a la- a lack of water

[6] similarly to: let's say the children who are starving in Africa\

The definitions of ‘agotar’ (exhaust) from the Real Academia of Spanish Language (2001) confirms that this term is strongly orientated toward death:

1. Extraer todo el líquido que hay en una capacidad cualquiera. (To extract all the liquid which is in a given container).

2. Gastar del todo, consumir. Agotar el caudal, las provisiones (...). (To totally spend, consume. Exhaust the flow, the stock.)

3. Cansar extremadamente. (To tire extremely).

Actually, meanings 2 and 3 refer to the extreme exhaustion of resources, directly associated to death. Meaning 1 is rather metaphorical, using the symbol to empty one’s strength, water, blood. The image of drought is generally associated to sterility and absence of life, both at the level of an ecosystem and at the level of an organism.

4.1.2 ‘Necessity’: death-orientated causal reasoning based on upstream signals. Such thymical characterization of the issue is not questioned all along the debate. Still, many students do not directly use a lexicon associated to death, but rather insist on the lack of water, both as a current or a potential situation. This leitmotiv of the lack of water contributes to this thymical framing of the debate, by appealling to inference: the need for water is at the beginning of a causal chain ending up with a serious risk of death. Some students present the lack of water as a matter concerning specific categories of people, for instance poor people:

62 OAN los ricos tendrán el agua que quieran y los pobres no\ (the rich people will get the water they want and the poor people won’t) 76 MAR ni va a poder tomarla\ ([this person] is not even gonna be able to have some)

But most of the sentences of the students are more radical, describing the lack of water as having no water at all or not knowing how to get any. Radical lack of water can still be associated to some types of people, always perceived as ‘others’, sometimes specified as belonging to lower social class:

8 ALE la demás gente que no tiene agua (other people who do not have water) 51 ART tú no vas a tener (you won’t have any) 64 EMI la gente que no tiene dinero se va a quedar sin agua tal vez a lo mejor en esos lugares donde se van a quedar sin agua (the people who do not have money they are going to stay without water maybe well in those places where they would stay without water) 66 ADR cómo van a tener agua después/ (how are they going to have water after/)

Eduardo is even more radical, including everybody as potential victims of a dramatic lack of water:

4 EDU si no hay agua ahorrada cómo van a: este avance científico sin agua/[7]

Such a radicalization contributes to the emotional gravity of thymical basic tension, orientating the debate toward death, situated at the extreme negative pole on the

[7] if no water is saved how are you going to: these scientific advances without water/

emotional valency axis. The causal reasoning based on necessity is usually implicit in students' discourse, but it is made explicit through Gaspar and Raúl's contributions:

25 GAS mucha gente puede morir por la falt- por la falta de agua (a lot of people can die because of a la- a lack of water) 68 RAU la gente que la necesita o sea la va es la que en verdad la necesita (the people who need it i mean those who really need it)

Raúl here produces an interesting argumentative dissociation: he specifies the impacted people as 'those who really need it', in opposition to those who would not really need water. This figure reminds us that we all need water. But, on the other hand, this dissociation allows him to insist on the specific situation of some people who are in a vital need for water, which is to say, those who are at risk of dying because of a lack of water.

The grave thymical tonality associated to the Question through students' discourse has implications for the way they can debate about it. A specific 'emotional behaviour' is expected, a moral duty to take it seriously constrains the possible arguments to be used in defense of any one of the possible answers. This fairly intense thymical tonality also makes easier, and somehow legitimate, the use of emotions to argue throughout the debate.

4.2 Different emotional positions supporting competing argumentative claims

During this discussion, the students tend to polarize the debate by opposing two of the available options: A (access to drinking water will depend on how rich the person is) and C (access to drinking water will depend on efforts made today). The rival option[8] is discredited by an alternative description of the situation that orients the discourse towards the chosen argumentative conclusion, or claim. Through different *schematizations* (Grize, 1997) of the discourse objects under discussion, two different argumentatively orientated emotional positions emerge.

Three relevant differences in the two emotional positions play important argumentative roles: (1) the distance to the issue; (2) the possibility of controlling the evolution of the situation and the cause(s) or person(s) responsible for it and (3) the norms used to present the options as more or less emotionally pleasant. These dimensions are detailed in the three next subsections, and a fourth section offers discussion about the relation between axiological and emotional conflicts.

4.2.1 Emotional Distance to the Issue. One of the structuring elements of emotion discursive construction on the intensity axis is, according to Plantin, the distance to the issue (2011: 168-171). In this case, the relatively high thymic tonality relies on a problem definition being 'close' to the participants, even if they are in fact members of the upper class, and not directly concerned by the lack of water. The distance to the issue is not only an objective contextual data, but it is gradually designed through the exchanges, along three dimensions: who is concerned, where, and when.

INSERT TABLE 1 HERE

Construction of phasic emotions along the intensitivy axis: concerned people.

Table 1[9] allows us to compare the terms used by students from each side (pro-A and pro-C) to define the people concerned by the problem of access to drinking water, in a chronological order as they emerge along the debate.

Oana gives the criterion of having money or not to define who is concerned by a problem of access to drinking water. Later on, Miguel and Emilia use the same criterion. The three students defend option A.

The students defending option C counter-argue by reframing the problem as a problem for everyone, with a recurrent use of the first plural person. Raúl offers a different criterion to define people concerned by the problem of access to drinking water, based on necessity. Then the issue is matter of all the human beings, even if some might be in a more vital need than others. 'We' here represents an abstract idea of concerned group as mankind. Arturo elaborates the 'we' into a more concrete context, referring to the group of participating students, involving Gaspar in a fictive example, in which he would be poor.

To defend himself, Gaspar (who defends option A) uses another criterion to define the people facing a problem of access to water: their capacity to 'adapt' and get money to satisfy their needs. This argument based on the value of 'merit' is further analyzed at section 4.2.3.

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[8] It is important to note that these two claims are not contradictory per se, but are put in competition due to the exercise's format, in which the students are expected to choose only one option for a collective group answer.

[9] For each one of the following tables, the column "turn" indicates the number of the speech turn and the three first letters of the speaker.

The phasic variations of the distance to the problem reflect which option the students are defending, those in favour of answer A presenting the issue as more distant than those in favour of option C, in terms of concerned people.

The distance to the issue also varies along the spatio-temporal dimension. Emilia, defending option A, describes the places concerned by a lack of water as far away from her:

64 EMI en esos lugares donde se van a quedar sin agua[10]

On the contrary, according to Raúl, pro-C, everything starts from 'home', a word both associated to spatial and temporal proximity, related to daily life:

68 RAU todo empieza desde la casa\ todo\[11]

This analysis of the discursive construction of the distance to the issue shows that the problem is here defined in two different perspectives, which are not given by the situation nor the question itself, nor do they randomly emerge in the conversation. Each of the two rival views is emotionally and argumentatively orientated. For instance, situating the issue 'at home' is not neutral at all. The way pro-A side students construct the distance to the issue is likely to provoke a feeling of charitable compassion toward the affected people, as long as they have proved to deserve it. On the opposite, pro-C students consider that they are directly concerned by the issue, an attitude that potentially produces solidarity or indignation as a response to the lack of water that other people might experience.

On the temporal aspect, it is the other way around: pro-A students tend to emotionally 'warm' the debate up, claiming that the critical moment has already been reached or is going to occur soon. In fact, option C (access to drinking water would depend on efforts made) implies the existence of a minimal time period making an action possible and potentially efficient before the water resources are totally consumed. Table 2 allows the reader to follow these two competing temporal *schematization* of the issue.

INSERT TABLE 2 HERE

Construction of phasic emotions along the intensitivy axis: temporal dimension.

[10] in those places where they are going to be without water

[11] everything starts from home\ everything\

Gaspar opens the debate presenting the situation as a spontaneous auto-determined phenomenon, without mentioning any human agent responsible for the evolution of water resources, using a pronominal form. A rhetorical effect is created by the succession of the verbal forms ‘is going to exhaust’ and ‘is exhausting’, giving the feeling that the phenomenon is acceleration. Such proximity between the announcement and the happening of the process implies that there is no space for action. Students defending option A are consistent with this temporal schematization all along the debate, always considering that the critical point has already been reach or is currently being reached.

For students defending option C, as Maria or Oana, the figure of the ‘we’ discursively built is an actor able to have an impact on the evolution of the situation before ‘we get there’: we need to hurry, but there is still time to act. Raúl renders this construction of the problem explicit by insisting on future consequences of today’s behaviour. This temporal distance to the issue tends to make the thymic tonality ‘colder’ and offers a space for control over the way things go.

Yet, the temporal distance to the problem leads us to other dimensions which emotionally and argumentatively orientate students’ discourse: the degree of control of the situation and the potential cause or agent responsible for it.

4.2.2 Possibility of Control, Causality and Agentivity as Emotional Intensity Framing Parameters. These dimensions are also very different in the discursive construction of the issue by students of each rival side. Pro-A and pro-C students design a coherent image of the issue, consistent with the argumentative claim that they are defending.

INSERT TABLE 3 HERE

Construction of phasic emotions along the intensitivy axis: control over the situation.

Contributions to the debate related to the degree of control of the situation are reproduced in table 3. The students who believe that current efforts can determine access to drinking water in the future elaborate a picture in which the situation can be modified by some effort.

It is on this precise point that Oana disagrees with them, when she is defending the rival option (A). Aligned with her framing, Gaspar and Alejandro, in their argumentation, consider that it is uncertain, or even impossible to have control of the evolution of the situation.

Emotionally, thinking that a control of the evolution of the water resourses is possible tends to render the issue ‘colder’, corresponding to a decrease the intensity of the thymical tonality. On the contrary, claiming that there can be no control over the situation produces a feeling of fatality that, associated to the initial negative thymical tonality, presents the issue as even more critical. This distinction is yet a matter of agentivity. Actually, Oana questions proposition C using a dissociation from her interlocutor, willing to make effort to save water, and the people who would not make any effort. Doing so, she operates a shift from the microsocial to the macrosocial level. Gaspar and Alejandro keep on using this argumentative strategy. But, on the other side, no student defending option C aligns on this dissociation of the global human ‘we’ into ‘we’, the environmental friendly people and a ‘they’ corresponding to the people not willing to make effort. Jesus and Maria rather reuse the global ‘we’. Interestingly, Raúl introduces a variant of the ‘pro-C’ positioning, insisting on individual responsibility, at the microscopic level, as a basis for social change, at the macroscopic level. In authentic argumentative discourse, the degree of control over a given problematic situation is highly related to what or who can be considered as a cause or agent responsible for the problem at stake.

INSERT TABLE 4 HERE

Construction of phasic emotions along the intensitivy axis: causes or agents.

Table 4 presents elements of the two diverging discourses referring to a cause or agent of the problem, and their argumentative functions. Mentioning a specific cause or agent is likely to produce a radically different emotion than claiming that a phenomenon is pure fatality. In one case, you might expect indignation, for instance, and, in the other case, resignation. You must have pity on the people touched by a natural disaster, but you don’t feel sorry for someone who is responsible for his own problems.

On pro-A side, fatality framing dominates, as Gaspar and Miguel's contributions show. Gaspar's pronominal form 'water is being exhausted' focuses on the evolution of the resource itself and creates a feeling of a spontaneous phenomenon independant from human action. Miguel uses the oil analogy: here fatality is both attached to a resource's natural disappearance, and the social organization which always privileges the rich for access to scarce products. Nevertheless, a few students defending option A use of the value of merit, which leads them to mention forms of responsibility associated with the evolution of access to water. To Gaspar, what counts is the responsibility for each individual to adapt and find ways to satisfy one's own needs. Oana, Gaspar and Emilia also mention people who do not use water the right way as being responsible for the evolution of water resources. In doing so, they describe the people without water not as victims but as people who deserve what is happening to them because they are not capable of managing their own resources. Such agentivity is not contradictory to the feeling of fatality described earlier: fatality is due to the fact that there will always be some people who will not make the efforts suggested by the students defending option C.

On the pro-C side, supporters also consider that people who use water poorly are somehow responsible for the current situation. But this responsibility is both extended to the macro-social level and brought down to individual action. What counts is everyone's practice, starting from each person's individual behaviour. The recurrent use of 'we' by the students defending option C refers at the same time to the whole society and to the people physically present in the classroom.

Considering 'we' rather as the people responsible for exhausting water supplies (Emilia) or rather as the people capable of stopping it (Jesus, Maria), is not argumentatively neutral. Similarly, presenting the poor as unable to have a reasoned use of water (Emilia) or recalling that some rich people waste water (Raúl) does not orient the discourse toward the same argumentative use of the merit ideal. These analyses of causality and agentivity within the two opposed argumentative discourse reveal two different representations of human beings and society. These representations are emotionally marked and axiologically founded.

4.2.3 The Use of Norms to Define Appropriate, More or Less Pleasant, Emotions. Causal and agentivity construction are key parameters for building emotions along the valency axis. They frame the nature of the appropriate emotional reaction

(resignation or revenge). Another essential dimension that contributes to the discursive emotional construction along the valency axis is the conformity to shared norms (Ungerer, 1997; Plantin, 2011: 170).

INSERT TABLES 5a AND 5b HERE

5a. Construction of phasic emotions along the valency axis: option A depicted by supporters as conforming with norms and laws.

5b. Construction of phasic emotions along the valency axis: option A depicted by opposants as not conforming with norms and laws.

Pro-A students and pro-C students are opposed concerning what should be done in the context of a grave problematic situation (cf. 4.1). We observed that, in order to defend their response and to counter-argue the rival one, the interactants use several types of general principles. These are: (1) fundamental norms (f), corresponding to strong values related to a vision of the world; (2) procedural norms (p), concerning the rules of the debate, both about argument validation and the interactional script of the exercise; and (3) general laws (l), principles presented as uncontroversial facts and phenomena. Fundamental norms are hardly ever rendered explicit as a general principle. They rather tend to be inferred from value judgments about general laws, or from the preferred use of some procedural norms.

We can follow the students' discursive work when they co-construct and counter-argue different argumentative uses of norms and laws in order to present the option that they defend as more or less desirable and pleasant (option A in tables 5 and 6 and option C in tables 5bis and 6 bis). We begin by identifying in chronological order the general laws (l1, l2) used by students all along their discourse. Studying the way that these laws are evaluated by the interactants allows us to infer the underlying fundamental norms (f1, f2). Other fundamental norms are employed independently from general laws (f3, f4, f5). Procedural norms (p1, p2, p3) are also used. By convention, when a norm or law is used to counter-argue an argument based on another general principle, it is noted with the same number, followed by ', and '' when it corresponds to a response to a response. When a speaker defending the same option reuses a principle, it is noted the same way, adding a +, to make the associated gradation effect visible. Colours are added to the tables in order to represent the argumentative orientation of the use of the principles. Light-gray is used when argumentation aims at presenting the option as a pleasant one, in conformity with the

principles used, and dark gray when, on the contrary, the option is considered as unpleasant and not conforming to the principles.

INSERT TABLES 6a and 6b HERE

5a. Construction of phasic emotions along the valency axis: option C depicted by supporters as conforming with norms and laws.

5b. Construction of phasic emotions along the valency axis: option C depicted by opposants as not conforming with norms and laws.

When a proposition is judged as not conforming to a general principle, the students may counter-argue and reject the associated negative emotional effect using four strategies. They can (1) agree on the general principle, but reverse its' argumentative function, showing that, in fact, the proposition is coherent; (2) agree on the principle, but discuss its local relevancy, the fact that it actually applies in this case ; (3) disagree with the principle and criticize its validity ; (4) reject the principle by using another principle considered of higher value. Strategies 1 and 3 occur at the discursive level, while strategies 2 and 4 imply a metadiscursive perspective.

In this debate, some principles used by students from one side are not shared by the students belonging to the other side, who rather base their argumentation on other principles. Pro-C students, defending the idea that access to water will depend on efforts made today, tend to introduce fundamental norms (4/5 over the two tables), while pro-A students, defending that access to water would depend on how rich a person is, rather discuss concrete aspects of the issue. For instance, Oana presents option A as a general law, an uncontroversial fact, even if the students are explicitly dealing with an 'opinion question', to which no right-or-wrong answer is expected. Alejandro does not only defend a rival option. After the introduction of the fundamental norms of duty to intervene on the world (f4) and of the right to the satisfaction of vital needs (f5), he also refuses to align, at the metadiscursive level, with this moral strategy of argumentation. Instead, he counter-argues against option C only on the technical level, emphasizing the difficulty of preserving water that has been economized (l2). Gaspar's contribution to the debate, at turn 45, is emblematic of this disagreement between the two sides about an essential procedural norm, which is extended all along the conversation: can we argue about how things should

be or only about how things are likely to be (p1)? When Maria, at turn 42, gives a negative emotional tonality to option A and its defenders, Gaspar counter-attacks with a dissociation between ‘tomar en cuenta’ (take into account) and ‘ver’ (see), which typically exemplify this should be/are likely to be opposition:

45 GAS lo que yo tomé en cuenta es la situación (what i took into account is the situation)

He considers that he is taking into account a fact, and has no choice to see things from a different perspective. Obviously, the disagreement about this procedural norm (p1) is not only a formal conflict. It is strongly related to a disagreement on the fundamental norm concerning whether or not it is possible to impact how things will evolve (f4), which is related to the degree of control analyzed in 4.2.2. Here, the view on the f4 norm not only corresponds to a specific judgement about some objects under discussion, but also impacts the way to argue, engaging to either a use fundamental norms or a use of general laws.

Still, all the students do agree on a few key principles, which make it possible for them to debate together. When such principles are used to reject a proposition, the counter-argumentation tends to focus on strategy 1, reframing the proposition to show that it actually conforms to the concerned principle.

For instance, everybody accepts the procedural norm that a form of reasoning is valid only if it can be generalized, and is not limited to the interests of the person who produces it (p2). This norm emerges through a co-construction involving Arturo and Raúl. Gaspar then tries to demonstrate that he is actually respecting this principle.

At the same turn, Gaspar introduces the fundamental norm of merit (f3). Then his adversaries use two different strategies to counter-argue, and defend option C. Oana, at turn 62, creates a pivotal moment when she makes explicit that she has changed her view and passes from the pro-A side to the pro-C side, by opposing another fundamental norm supposed to be of higher value to the merit one (f3). She then argues on the basis of equality among all human beings to the right to satisfy vital needs (f5), using a type-4 strategy. Emilia reacts by supporting Gaspar’s argument and establishes a relation between those who use water correctly and those who have easy access to water, basing acceptance of inequality on a merit-based criterion.

Adriana, Raúl and Maria then use a type 1 strategy to counter-argue, accepting the merit norm (f3) but reversing its argumentative *orientation*. They present option A as not conform to f3, not option C. At turn 68, Raúl finally reuses these two strategies:

he recalls that merit is not necessarily related to how rich a person is, and he insists on how important it is to consider vital needs (f5).

4.2.4 The 'Argument of Sadness': from normative to emotional conflict. In this subsection, we would like to pay special attention to a particular procedural norm that seems to be shared by all students: emotions can be used to argue. Option A is explicitly and several times qualified as 'sad', from turn 17 and onwards, by pro-C students. What is especially interesting is that Oana, when she changes her mind, and publicly passes from the pro-A side to the pro-C side, at turn 62, reuses this 'argument of sadness':

> 62 OAN sí podría ser triste (...) los ricos tendrán el agua que quieran y los pobres no\ si tiene razón hay que ahorrar agua para no llegar a estos extremos[12]

Even if this procedural norm is never thematized, and remains implicit, pro-A students never really question it. They rather react at the discursive level, doing extensive discursive work to suggest another *schematization* of their option, with no negative emotional tonality. Their attempt to present option A as realistic rather than pessimistic is not only a normative conflict, but a result of the underlying emotional conflict.

5. Conclusions

During this exercise, the students frame the problematic situation in a way that constrains potential solutions. *Emotionally schematizating* discourse objects, they build and defend an argumentative claim. A large part of this framing is based on the construction and use of emotions associated to the situation and to the competing alternatives under discussion. Students' emotional positioning works as a resource to direct the debate toward the corresponding argumentative conclusion.

A very high thymical tonality characterizes the whole debate, presenting the problem as a matter of life or death. But the students suggest local emotional variations attached to the different options chosen as an answer to the question (fig. 1), in order to present them as more or less pleasant and acceptable. Comparing the emotional positioning of students defending different options, we can specify each side's emotional framing of the issue along several 'emotioning parameters'. For instance, the use of 'we' by pro-C students both refers to certain identification with the concerned people, to the mention of a potential entity controlling the situation, and to the introduction of a causal agent responsible for the current situation. On the

contrary, pro-A students show less identification with the concerned people, and rather tend to present the problem as independent from human action, a spontaneous phenomenon that nobody can control.

Still, the focus on *emotional schematization* must not be considered separately from the overall *schematization*. The emotional positioning takes part to the global cognitive process of defining discourse objects, and must be understood in relation with the argumentative conclusion being defended. Whereas in common conversation, 'building an argumentative conclusion is building an emotional position' (Plantin, 2011: 5), in this setting, building an emotional position is choosing an argumentative conclusion.

At the methodological level, following this discursive contruction of emotions has proved to be a useful tool for understanding what occurs in such debates. Moreover, this case study provides an emblematic example of the impossibility, in authentic discourse, to separate emotion from reason. The use of emotions contributes to the coherent argumentative framing of the issue and is based on norms, knowledge and skills, either explicitly justified or culturally shared and considered 'reasonable'.

In terms of pedagogical design, such results constitute key lessons and convey a set of questions. First, they show that the students adapt and respond to the rival side's emotional framing when they argue. But, how do they understand such an implicit process of arguing emotions and can they use it consciously to design their own strategy? To what extent are the students aware of their own activity of emotional framing?

Second, emotions must be considered as resources for the cognitive process of argumentation, not as external factors influencing this process. They cannot be said to be either beneficial or detrimental for the argumentation activity in themselves. This perspective questions emotional regulation approaches, which state that conscious emotion balance fosters collaborative learning activities (e. g. Järvenoja & Järvelä, 2013). Actually, a large part of the spontaneous argumentative use of emotions is implicit, which may respond to other key interactional needs, as the respect rituals necessary to keep on debating (Goffman, 1967).

This case study shows that even when participants to a debate may claim to adopt a realistic and 'neutral' emotional tonality, such framing, in fact, results from an active

[12] yes, that could be sad (...) that the rich have all the water they want and not the poor \ (…) yes she's right we must save water to avoid reaching these extremities

discursive work and does constitute an actual specific emotional positioning. This observation leads us to be cautious with some emotion regulation interventions. How could the analyst, the teacher, the facilitator or a computer drive students' attention on the emotional intensity of arguments without taking a side? Can such information be brought from an external perspective or should this type of attempt inevitably end up arguing in favour of a specific claim? It would be ethically problematic to develop and legitimize interventions that would actually be emotionally marked (even by 'neutrality'), and therefore giving advantage to one party over another.

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