Learning philosophical thinking through collaborative writing in secondary education

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Abstract: This study investigated students' practice of philosophical thinking through collaborative writing in secondary education. A philosophy course was developed following the rationale of the learning communities in which writing was used as an epistemic tool. 45 students organized into 13 teams participated in the course. In this study, a subsample of six students working in 2 teams during one collaborative argumentative writing activity were analyzed. These groups were selected on the basis of their output (high and medium quality) and because both followed an integrating construction strategy for collaborative writing. Data collected included audio, video and computer screen recordings of both groups' discourse and writing activity during collaborative writing (using Camtasia and Atlas-ti software). Analysis focused on collaborative writing interaction (types of talk; evidence of philosophical competences – problematization, argumentation and conceptualization; regulation of the collaborative writing activity and group dynamics) and the quality of individual and collaborative texts. Results indicate that quality of the interaction was related to text quality. Collaborative writing helped the students: 1) to transform abstract ideas into more concrete and appropriate philosophical concepts using examples related to their experiences, 2) to use these philosophical concepts in their own discourse and 3) to problematize their own ideas and provide arguments to support them. From these results, the importance of a structured context of learning to promote critical thinking through writing is discussed as well as the need to train students to develop efficient peer discussion for learning through collaborative writing.

Keywords: collaborative writing, argumentative writing, writing in the disciplines, philosophy learning, secondary education

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1. Introduction

Philosophy plays a crucial role in improving critical thinking, one of the most important challenges in 21st century education (UNESCO, 2011), but teaching students to think philosophically, and hence critically, is not easy. From a sociocultural approach (Daniels, 2001; Vygostky, 1986; Wertsch, 1991), learning the discipline of philosophy is not only about memorizing concepts but also, and primarily, about participating in cognitive activities related to what has been called *philosophical thinking*. These cognitive activities are linked to problematization, argumentation and conceptualization and have been defined by Tozzi (2012; 2008) as the philosophical core competences. Consequently, from this perspective, the main purpose of teaching philosophy in secondary education is to enable students to formulate questions and problems (problematize), to reflect on philosophical concepts (conceptualize) and to defend their own opinions (argue).

These cognitive competences are also present in writing, especially in argumentative writing, which is one of the main tools used by philosophers to exercise their profession. Moreover, collaborative writing has been shown to be effective for learning (Onrubia & Engel, 2009; Yarrow &Topping, 2001; Vygotsky, 1986). However, few studies have focused on analyzing how students' specific interaction, developed during the construction of a joint text, promotes critical thinking and reflection on the text as an object of learning. This was the aim of this study, which focused on analyzing how collaborative writing enhances students' practice of the philosophical core competences, and thus, their philosophical thinking.

Collaborative writing has been defined as an activity that involves the creation of a joint text by two or more co-authors who share decisions and responsibilities in relation to the processes of planning, textualization and revision of the text (Allen, Atkinson, Morgan, Moore & Snow, 1987). In collaborative writing conditions, relationships between participants are symmetrical in roles and previous knowledge, and they have a high degree of reciprocity and mutuality (Damon y Phelps, 1989; Van Steendam, Rijlaarsdam, Van den Bergh & Sercu, 2014). In contrast to individual writing, collaborative writing allows writers to externalize their ideas regarding what should be included in the text and how to include it, and it requires discussion to reformulate these ideas on a shared basis adapted to the specific communicative writing situation. Therefore, the collaborative writing process could be described as an interdependent, dynamic and recursive process that demands continuous dialogue and cooperation between coauthors to reach agreement, not only on the contents and on the rhetorical and formal aspects of the text, but also on the aspects concerning the roles and responsibilities of all members (Mattunen & Laurinen, 2012; Milian, 1999; Lowey, Curstis & Lowry, 2004; Saunders, 1989). From a post-Vygotskian sociocultural perspective, this dialogic complexity is one of the most interesting elements of collaborative writing, since the resulting dialogue and the resolution of tensions shared

by different voices are the main mechanisms to create new meaning and to promote learning (Daniels, 2001; Wertsch, 1991).

However, achieving cooperation and peer learning in a collaborative writing activity is not always easy. It is well known that, on many occasions, students can develop false cooperation through a *parallel construction strategy*, in which the final document is only a juxtaposition of individual parts (cut and paste, and puzzle strategies) rather than the result of an *integrating construction strategy*, in which the control of the writing process and the responsibility are shared and distributed evenly among the group members who cooperate to achieve a common goal (Onrubia & Engel, 2009).

Studies focused on cooperative learning have identified five essential elements for an effective cooperation (Johnson & Johnson, 2009) that teachers may take into consideration to promote peer learning through collaborative writing: First, *positive interdependence* inside the group – sharing goals is indispensable for the team to achieve success. Secondly, *individual accountability* – division of tasks and roles during writing processes increases motivation and involvement. Thirdly, *promoting interaction* – setting a place and time, in virtual or non-virtual contexts, for group communication and for mutual scaffolding is essential. Fourthly, enhancing the *appropriate use of social skills* – effective cooperation is based on skilled teamwork, it is important to teach how to cooperate inside a group. Finally, promoting *deep processing* within the group – setting time for group reflection is essential to improve their effectiveness.

Research has also indicated that the quality of peer-to-peer conversation is also relevant for learning. As Mercer (1996; 2007) noted, although language is a potential tool for collective thinking, only in some cases will it help students to construct shared knowledge. Based on observational studies of group activities development, he identified three archetypal forms of talk, which involve different ways of thinking: *exploratory talk*, in which the ideas of peers are questioned and argued for a critical construction of knowledge; *cumulative talk,* in which speakers use repetitions, confirmations and elaborations to build new knowledge in an unquestioning way; and, *disputational talk,* which is characterized by disagreement, non-constructive criticism and individual decisions impeding the process of shared construction of knowledge. Only exploratory talk seemed to entail an *integrating construction strategy* – one that required cooperation among participants and had a greater impact on writing to learn results (Onrubia &Engel, 2009).

Regarding collaborative writing, research has addressed different issues. On one hand, some studies focused on showing its effectiveness on individual text-quality (Nixon & Topping, 2001; Olry-Louis & Soidet, 2008;O'Donnell, Dansereau & Rocklin, 1987; Storch, 2005; Yarrow & Topping, 2001). On the other hand, another important group of studies has demonstrated its impact on improving the metalinguistic activity of learning to write (Daiute, 1986; Giroud, 1999; Guitierrrez, 2008; Milian, 1999; Storch, 2005; Wiggleswortth & Storch, 2012). In this area, studies have shown that a high level

of interaction among group members and a collaborative and mutually supportive relationship are frequently related to better text quality (Dale, 1994; Storch, 2002).

Regarding argumentative collaborative writing in virtual contexts, the study of Noroozi, Weinberger, Biemans, Mulder and Chizari, (2012) highlighted the relevance of the scripts that prompt learners to paraphrase, criticize, ask meaningful questions, construct counterarguments and propose arguments for improving knowledge construction in asynchronous discussions. On the other hand, in synchronous discussions, the study of Erkens, Jaspers, Kanselaar and Prangsma, (2005) showed that coordination and planning on a meta-level and on a content level is crucial for better argumentative text quality.

Finally, fewer studies have focused on collaborative writing as a tool for learning a discipline in non-virtual contexts. In science learning, Keys (1994) has shown improvement in students' reasoning and understanding of disciplinary concepts triggered by a collaborative pair writing activity during the academic year. Other studies, also in science learning in secondary education, have revealed that interaction between students only became critical when demand was based on ambiguous and complex tasks, and that critical knowledge construction was enhanced when participants had symmetry in roles, similar previous knowledge and a close personal relationship (Arvaja, Häkkinen, Eteläpelto & Rasku-Puttonen, 2000; Arvaja, Häkkinen, Rasku-Puttonen & Eteläpelto, 2002). Similarly, Marttunen and Laurinen (2012) showed that students had difficulties in producing evaluative comments on their own, others' or the group's activities, and in relating new knowledge to previous experiences writing a collaborative essay in psychology after writing an individual text, and within a group that lacked structured interaction. Therefore, task design and peer interaction structures have proven to be important issues to promote learning through collaborative writing.

However, we have not found any study focused on learning a discipline such as philosophy through collaborative writing, except for Corcelles and Castelló (2013), which focused on students' perceptions regarding collaborative writing as an epistemic tool to learn philosophy. Despite the fact that students perceived their participation in a collaborative writing environment positively, their use and level of *philosophical thinking* through collaborative writing remained unexplored. This is the focus of the present study which has the following two objectives:

1. Analyzing how interaction during collaborative writing contributes to learning *philosophical thinking*. This means evaluating:
   - The types of talk developed during collaborative writing;
   - the practice of the philosophical core competences (problematization, conceptualization and argumentation) during collaborative writing;
   - the regulation of the collaborative writing activity;
   - group dynamics: individual participation, writing turns and teamwork satisfaction.
2. Relating interaction characteristics to the quality of the joint and individual argumentative texts.

2. Learning context and writing activities

The study was carried out within the subject of Philosophy in the first year of post-compulsory secondary school (aimed at sixteen-year-olds). Philosophy is part of the mandatory curriculum in secondary education in Spain, both for Arts and Sciences students. The classroom was organized as a learning community in which stable teams of 3 or 4 students worked together throughout the academic year. Students' abilities and attitudes towards writing, philosophy and teamwork were assessed through an ad-hoc questionnaire at the beginning of the course. Based on these results, heterogeneous teams were formed by the teacher. The content of the curriculum course was organized into four blocks. The first was an introduction to the characteristics of the discipline of philosophy. The second addressed the problem of human evolution and the human mind. The third one was focused on the problems of reality, science and knowledge, and the last one on the tensions between individuals and society.

The teacher was trained by researchers during one year (prior to the intervention) to transform the classroom into a learning community and to implement collaborative writing activities. Researchers collected data from the entire academic course.

Data analyzed in this study belongs to the third block of content – focused on the issues of reality, science and knowledge – since at that point students were already familiar with collaborative writing and other related activities. More specifically, the sequence of activities during each block was the following:

Writing an individual argumentative text related to the block content. This text was used to collect the student's previous knowledge on the content and on the argumentative genre.

Collective classroom activities consisting of analysis of readings, videos and debates on the block content. Group discussion on the features of philosophical argumentative texts, analysis of models, negotiation of a planning guide to write and revise argumentative texts.

Writing a collaborative argumentative text to be published in the school journal. Students were free to select their topic of writing and the only restriction was that it should be clearly related to the course block of content. To help teams to develop their texts, a planning guide was provided (see Appendix A). This activity was developed across seven sessions having different purposes: Planning (2 sessions); Textualization (2 sessions); Co-evaluation (1 session); Peer-Revision and teacher-Revision (1 session); Presentation (1 session). In this last session, each team shared the text with the learning community before publishing it in the school journal. The last 15 minutes of the planning 2 and presentation sessions were devoted to group self-evaluation in order to improve teamwork effectiveness.

At the end of the collaborative writing activity, students rewrote their initial individual argumentative text (without using the planning guide), trying to improve their previous text.

3. Method

The study was developed in a natural classroom environment, and a multiple case analysis design was adopted to understand the interaction during collaborative writing and its relationship with text quality.

3.1. Participants

The secondary school was located in a medium socio-economic status neighborhood in Barcelona. The philosophy teacher and 45 students in the eleventh grade, organized into 13 teams (two classes), participated in the activity. For this study, two teams (6 students) were selected to be analyzed. Both teams had a positive attitude towards philosophy and liked team-work. The age of the students was between 16 and 17 years old. The teams were chosen based on the following criteria:

- Type of collaborative writing strategy: Both teams used an *integrating construction strategy* during the collaborative writing activity in the third block. In-class observations revealed that all team members cooperated in writing, thus their final text was not a juxtaposition of individual contributions.
- Different outputs (medium –high): Teams differed in writing perceptions, writing abilities, previous knowledge, team dynamics and final text quality.

T1 was formed by one boy (A1) and two girls (A2 and A3). A1 and A2 had negative perceptions about writing; they described themselves – in an initial questionnaire – as poor writers. The third member had a positive perception, she described herself as a good writer who likes to write, especially argumentative texts. Regarding their writing ability and previous knowledge, initial individual text scores were 13 (A1), 17 (A2) and 21 (A3) out of 40 and the collaborative text they wrote during the second block obtained 15 out of 40 score. They had some problems in group dynamics during the first and second block due to lack of communication, although at the beginning of the third block they declared they had already overcome these problems. For the second collaborative text, which is our focus of analysis, they chose to write about "bioethics and science" (see Appendix E) and obtained a medium score (25 out 40).

T2 was formed by 2 boys (B1, B2) and 1 girl (B3) who had a more positive perception about writing than T1. Even though B1 and B3 did not perceive themselves as good writers, they enjoyed writing, especially argumentative texts. B2 perceived himself as a good writer and enjoyed writing argumentative texts too. Regarding writing abilities and previous knowledge, their initial individual text scores were 30 (B1), 18 (B2) and 15 (B3) out of 40, higher than T1. Regarding their first collaborative text, they obtained a medium score, 20 out of 40. They were very satisfied with the team's dynamics and organization. They did not have any relational conflicts and all the members enjoyed writing and discussing ideas together. For the second collaborative text, they decided to write about "mind manipulation" (see Appendix E) and obtained a higher score (38 out 40) than in their first text.

3.2. Instruments and data collection procedures

We used the following instruments and data collection procedures:

Group Interviews: Two parallel group interviews were conducted in each team, at the beginning and at the end of the activity, in order to collect information about group dynamics (roles, participation, and involvement), team's satisfaction with the learning context and the writing activities. Interviews lasted between 20' and 45' and were audio registered.

Planning guide (PG): As mentioned, students discussed and agreed on using a PG to help them in collaborative writing (see Appendix A). Students were prompted to identify a controversial issue and the philosophical question that emerged from it, describe its relevance in everyday life situations, and analyze conflicting points of view (first problematization section, questions 2-5). The second section of the PG asked students to identify and define the philosophical concepts related to the problem they had chosen (conceptualization section, questions 6-7). The third section focused on clarifying students' thesis and building arguments, counterarguments and examples. Finally, students had to think about their conclusions and about how to keep readers thinking on the issue (argumentation section, questions 8-13). Moreover, students had to take into account the audience, the attractiveness of the title and to look for a picture illustrating their text (questions 1, 14 and 15). Students were encouraged to reflect on those issues before and during their writing.

Individual and collaborative written texts: The initial and final individual texts of each participant (N= 12), and the collaborative text of each team (N= 2) were also collected.

Individual questionnaire: A final questionnaire (N=6) with three open-ended questions was developed to collect information regarding individual perceptions of teamwork, philosophy learning and levels of satisfaction regarding individual and collaborative writing activities.

Camtasia software: All the screen computer activity and the interaction of participants in audio and video during collaborative writing activity in each team were registered through Camtasia (12 hours in total).

Atlas-ti: This qualitative data-analysis software was used to analyze the interaction and interview transcripts from the audio and video recordings; the open-ended questions of the individual questionnaire and the written texts; and to identify the conversational turns.

One researcher attended every class lesson of the third block (30 hours) to observe the selected teams and to guarantee the appropriateness of data collection.

During collaborative writing, each team was equipped with only one laptop with Internet connection. To promote cooperation between peers, each team member performed a role (coordinator, secretary, spokesperson and supervisor) and during writing they were asked to switch writing turns every 10-20 minutes.

We excluded from the analysis the co-evaluation session since it was focused on peer assessment (not on collaborative writing), and the presentation, which was not a writing session. However, the revision activity that each team performed after receiving the comments of their peers and the teacher was included as it was part of the teams' writing activity.

3.3. Data analysis procedure

Analyses were performed according to different dimensions derived from the study objectives.

Analysis of the quality of peer interaction

Based on the transcripts of team conversations, a four-step analysis was developed to find out about the characteristics of peer interaction.

First, conversational turns in which the teacher intervened (teacher mediation category) were differentiated from those between peers (peer conversations).

Secondly, a qualitative analysis of peer conversations was developed using Mercer's types of talk categories: exploratory, cumulative and disputative (Mercer, 1996; 2012) (Atlas-ti). Two independent judges analyzed 60% of the transcripts (3 sessions) and their level of agreement was 86% (Cohen's Kappa's: 0.74). Because the level of agreement was adequate, the two judges independently rated the remaining transcripts and afterwards they mutually revised each other's categorization. The few doubtful cases were discussed until consensus was reached. Finally, the number of conversational turns for each type of talk was quantified.

Thirdly, a second categorization of peer conversations was performed to find out their aim (Atlas.ti was also used in this second categorization). In this case, categories were related to the three philosophical core competences (Tozzi, 2008; 2012): problematization (conversations aimed to formulate philosophical questions or to analyze a philosophical problem); argumentation (conversations aimed to elaborate their thesis, the arguments or the conclusion), and conceptualization (conversations aimed to define philosophical concepts). Through the analysis, two additional categories emerged: organization, referred to the situations in which students were talking about organizational aspects such as searching for information or team organization, and out of task, which described the turns in which students were talking about other topics not related with the philosophy task. In this case, the level of agreement of the two independent judges was 82% (Cohen's Kappa's: 0.78). Again, after qualitative analysis, the number of conversational turns related to each category was quantified.

Finally, we focused on the content of peer conversations, and its relation to the written text. On one hand, we described the particular problems, arguments and concepts used by each group in oral conversation, and on the other hand, we identified which of these problems, arguments and concepts also appeared in the written text at the end of each session.

The regulation of the collaborative writing activity

After analyzing peer interaction, data categorization regarding team's activity during collaborative writing (transcripts from audio, video and screen recordings) was integrated in a template describing the sequence of activities followed by each team, as well as the text elaborated and the correspondent use of the planning guide in every writing session. The sequence of activities was categorized according to the sections prompted by the Planning Guide referred to the philosophical competences. Besides this qualitative analysis, time spent in each sequence was also recorded for each group.

Group dynamics

Within this dimension, individual contributions to team work were analyzed through the number of conversational turns of each member in each session and the time employed by participants in the writing turn. We also took into consideration the students' teamwork satisfaction based on the content analysis of the group interviews and individual questionnaires (using Atlas-ti software).

Text quality analysis

Individual and collaborative texts were assessed through a rubric (1-to-5 Likert scale) – adapted to the philosophical argumentation – which evaluated, on one hand, the existence and appropriateness of a clear and relevant problem, question, thesis, arguments, counterarguments and conclusions, the use of philosophical concepts and, on the other hand, the coherence and the cohesion of the text (see Appendix B). The two authors analyzed all texts independently. The degree of agreement was 84.3% (Cohen's Kappa's: 0.8). The few doubtful cases were discussed until consensus was reached. The researchers' assessment was compared with the teacher's assessment, which considered the concepts learned and the quality of philosophical reasoning according to criteria of his own. The sequence established by the teacher (high to low quality) correlated with the sequence of researchers in 100% of the cases.

4. Results

4.1 Quality of peer interaction

4.1.1 Types of talk during collaborative writing

Cumulative talk was predominant in both teams (T1 76.1% and T2 61.1%) (see Figure 1). In T2 exploratory talk accounted for 38.9%, and no instance of disputational talk (0%) was observed, whereas in T1 exploratory talk accounted for only 11.6% and disputational talk for 12.3%.

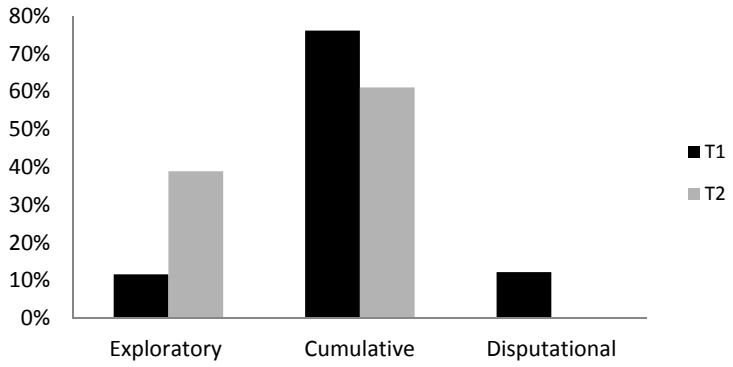

Figure 1. Types of talk by teams (percentages of turns).

Distribution of types of talk during sessions in T1 revealed that cumulative talk was more frequent during planning 2, textualization 2, and revision sessions (see Figure 2).

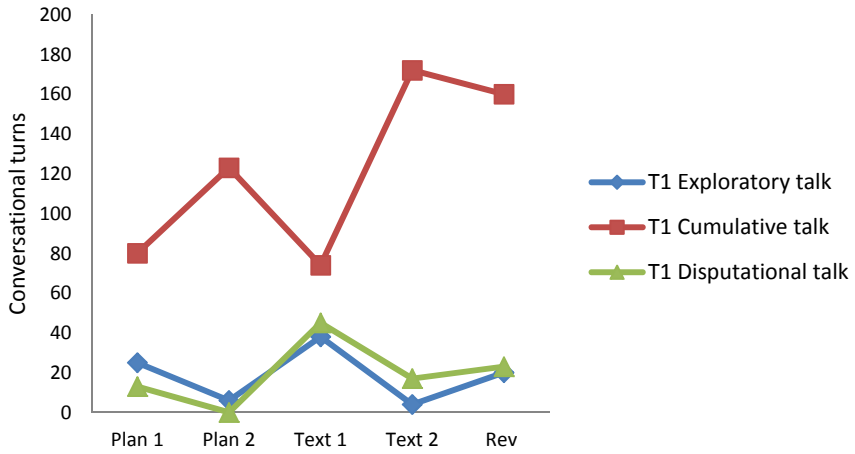

Figure 2. Types of talk in T1 every session.

The following excerpt is an example of cumulative talk during conceptualization in which T1 members were jointly, but not critically, defining the concept of bioethics:

(Textualization 1- T1)
43 A: It's very important...
44 R (Writer Turn): ... ethics or bioethics?
45 Q: Yes, but of course,… ethics is within bioethics ... Nowadays...
46 A: … it's very important for human beings... bioethics?
47 Q: Bioethics is the ethics that apply to science.
48 A: Ok, write bioethics...

Disputative talk in T1 was higher in planning 1, first textualization and in revision sessions (sees Figure 2). Content analysis revealed that it was generated due to conflicts in writing styles. Repetitive criticisms focused only on particular compositional aspects impeded progress in philosophical content, as it can be observed in the two following examples:

(Textualization 1- T1)
66A: This sentence doesn't make sense.
67Q: Of course. That's because it's not inserted in the text above but when it's be….
68 A: No, no ... it's not. It doesn't make sense on its own.
69 Q: Why?
70 A: Because the sentence is strange.
71 Q: No. It's correct.
72 A: It doesn't make sense.
73 Q: Why not?
74A: Because it's strange.

75 R: No, you should put a full stop.
76 Q: OK, because it lacks a full stop and things like that but it's correct...
77 R: Go ahead... you know?
78 Q: Ok.
79 A: But (reading) "in making decisions"?
80 R: … and (reading) "accurate decisions"? No, No ... I don't like it.
81A: It has to be: "What does bioethics have to do with taking decisions such as choosing life or death ...
82 R: …of a person"
83 Q: But is that, they are "accurate decisions"
84A: No.
85 Q: Yes, because they are specific.
86A: But this sentence doesn't make sense!
87 Q: Yes, it makes sense.
88A: No, it doesn't.
89 Q: YES, It does!
90A: NO, it doesn't!
91Q: YES, it does! (Laugh)

(Revision - T1)
113 Q: You are always criticizing my way of expressing things!
114 R: What have you written here?
115 A (writer turn): … because we said that it was not legitimate. How do we write "legitimate"? With a single "l"?
116 R: Yes.
117 Q (writer turn):… because we said that it was not legitimate ... in the case of a person that ...
118 A: This sentence doesn't make sense.
119 Q: Shut up just a moment A! I haven't finished yet! Oh! She's so annoying ... and the teacher says that the text is pretty good. I've written the most, dude! ... (read) "…in the case of a person who was clinically alive" … Is that correct?

Exploratory talk in T1 was higher in planning 1, first textualization and revision sessions (see Figure 2). In the following example, we observed how, using exploratory talk, students formulated a philosophical question (problematization), which, in turn, generated a definition of the concept of paradigm (conceptualization), and finally a reformulation of the first philosophical question (problematization).

(Planning 1- T1)
67 Q (writer turn): Should science break the paradigms of bioethics?
68 R: That's… but the paradigms of science are... what?
69 Q: Paradigm was... like...
70 R: Like standards?
71 Q: No, as a framework ... I know that... When you are arguing about something and then you get a new question that's not from that area but is transferred to another thing. That's breaking a paradigm, you know?
72 A: No, but then the question is the other way around. Should bioethics break the paradigms of science?

Regarding T2, although cumulative talk was the highest, exploratory talk was also developed in every session, especially during the textualization process (see Figure 3). No disputational talk was found in this team. Thus, T2 showed evidence of a more fluid talk (not disputative) in their writing process with a more critical conversation focused on the philosophical content (higher exploratory talk).

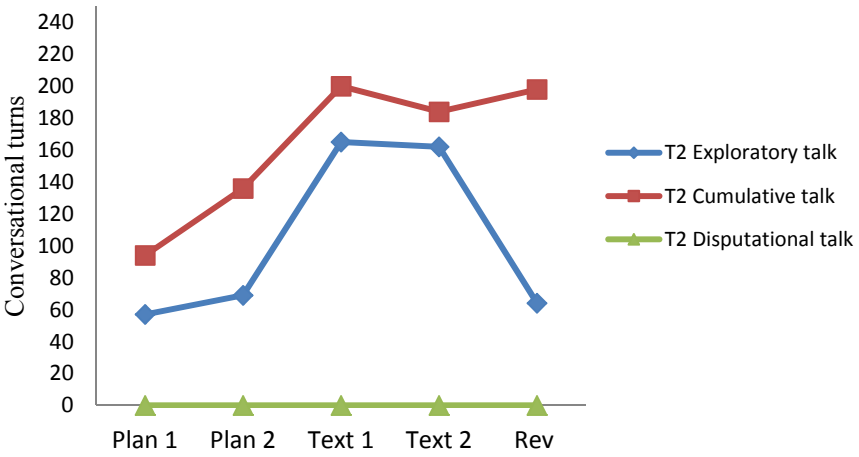

Figure 3. Types of talk in T2 every session.

The following three examples illustrate the practice of *philosophical core competences* for critical knowledge construction through exploratory talk. The first example refers to argumentation and shows how T2 members were discussing and critically arguing different points of view about the philosophical problems of "perception of reality":

(Planning 2- T2)
223 N (Writer turn): We perceive more or less the same …

224 C: No, each one perceives what each one perceives and that's it. We are not going to go into this point.
225 N: No, each one perceives what each one perceives right? because there are some things that people perceive as the same.
226 C: Ah! And how do you know that? Are you inside my head?
227 N: Ok. What do you see over there? I see a stove.
228 C: Ok, but maybe the stove's color that you perceive is not the same I perceive.
229 N: But the color doesn't matter… what we perceive is the same!
230 C: Ah! But if the color isn't the same we don't perceive the same! Maybe for you…
231 M: No, but when we're talking about reality we don't talk about objects, we're talking more about concepts and interpretations...
232 N: Ok, but there're a lot of things that we perceive more or less "the same".
233 C: But that isn't proved!
234 N: But we can't say what really depends on the individual, or on the point of view of each subject…

The second example refers to an exploratory talk in which T2 members struggled with problematization and argumentation. Students were wondering about the meaning of "types of manipulation" and illustrated it with an everyday example:

(Textualization 1- T2)
102 N: We could discuss types of manipulation.
103 M: Yeah? And what are "types of manipulation"?
104 N: For example... "Don't cry! You're not a girl!"

Finally, the third example is about argumentation. Students were discussing an example of the unconsciousness of mind manipulation. Then, they critically reflected on the concept of freedom and they realized that they were also manipulated by society.

(Textualization 2- T2)
316 C: Ok. Then write this: "They don't realize that they are being manipulated", in other words, they can't see that they are being manipulated.
317N: Yeah. They're not conscious.
318 C (Writer turn): "They're not conscious that they are subject to manipulation…"
319 N: They're not aware and they can't decide whether it's correct or not…
320 C: No! But … They can't decide whether it's correct or not because they don't know that they're being manipulated… But… we can't either! We are also being manipulated!
321 N: For this reason! "They're not aware that they're being manipulated and are not capable of judging whether they're acting rightly"

322 M: I would write this here...
323 C: But if you're not aware of something, then you're not aware… you don't know… we don't know!

4.1.2 Practice of the philosophical core competences (problematization, conceptualization and argumentation) in collaborative writing

To present the results of content analyses of peer conversations in relation to the written texts and the philosophical core competences, we will first focus on the concepts used in each team (conceptualization), then on problems defined and discussed (problematization), and finally on the arguments (argumentation) developed during collaborative writing.

Conceptualization

T1 decided to write about *bioethics and science* in a *case of euthanasia*, and content analysis of the oral conversations and written text showed that during the writing process students used and defined philosophical concepts previously discussed in the classroom such as: *philosophical question, bioethics, paradigms, morals, ethics, science, ethical imperative, perspectivism, parameters, moral legitimacy and self-determination* (see Table 1). In their text (see Appendix C) these students included a definition of bioethics as "*the field of philosophy that is concerned with human behavior such as for example the fact of choosing life or death of a person*", and a definition of science as "*stable knowledge that must be approximate to reality*". Most of the concepts discussed orally were included in their collaborative text.

T2 decided to write about the problem of mind manipulation. During writing they used and defined philosophical concepts previously discussed in the classroom such as (see Table 1): *mind, reality, limits of perception, knowledge* and *truth*, but they also introduced other concepts from their previous knowledge, such as: *hierarchical systems of citizen classification, types of social manipulation, freedom, human history, social rules, society, ideology, doctrines and social media*, as observed in the following example extracted from their text: "*From the beginning of human history, there have always been individuals who have manipulated others for their own profit. In ancient times we can find cases in which these circumstances occur, for example the Romans imposed a hierarchical system in which people were classified according to class principles*". Not all the concepts discussed orally were included in their collaborative text.

Problematization

T1 began with a general philosophical problem, *the limits of science*. They reformulated the philosophical question 6 times until they got the definitive version for their text (*Does bioethics have to break the paradigms of science?*). During planning 2, they focused on a more concrete problem related to *life in a vegetative state,* and they

Table 1. Conceptualization during collaborative writing process

	T1 "Bioethics and science"	T2 "Mind manipulation"
Planning 1	Philosophical question Bioethics Paradigm	Manipulation Creative mind
Planning 2	Ethics, bioethics and science Morals Ethical imperative Perspectivism Parameters	Mind Reality Limits of perception Knowledge Reason Manipulation Arbitrariness of language Illusions of rationalism Rationalism and irrationalism
Textualization 1	Bioethics Paradigms of science Parameters of science Science definition	Human history Types of social manipulation Hierarchical systems of citizens classification
Textualization 2	Bioethics definition	Social rules Ideology Doctrines Reality perception Society Manipulation Social media
Revision	Morally legitimate Self-determination	Reality and truth Existence of truth Limits of perceptions Manipulated society Freedom Society permanent manipulation Political and social media Limits of freedom

Underlined text means it appeared in oral conversations and in written text (see Appendix C). The rest consists of conversation extracts.

Table 2. Problematization during collaborative writing process

	T1 "Bioethics and science"	T2 "Mind manipulation"
Planning 1	LIMITS OF SCIENCE Must bioethics or science have limits? Must science have limits? Do we have to break the paradigms of science? How is science related to real life? Does science have to break the paradigms of bioethics? Does bioethics have to break the paradigms of science?	LIMITS OF PERCEPTION OF REALITY Why are there different interpretations of reality? Is what we see reality? Is rational knowledge the only thing that gives us a proper picture of reality? Is the perception of reality equivalent to knowledge? What relationship exists between reality and knowledge? Is what we observe real? Do we exist or are we in a dream? Are the dreams real? What restrictions does reality have? What restrictions does the mind have? What restrictions does the mind have in the perception of reality?
Planning 2	LIFE IN A VEGETATIVE STATE Do people in vegetative states think?	PERCEPTION OF REALITY: One reality or multiple realities?
Textualization 1	RELEVANCE AND FUNCTIONALITY OF BIOETHICS Does bioethics have to break the paradigms of science? What reasonable aspects does bioethics have to contradict the parameters of science? Should bioethics and science go together? Is bioethics an instrument to measure the degree of disability of a person?	PRESENT AND HISTORICAL SOCIAL MANIPULATION OF THE HUMAN MIND Are we free? Can we freely make our own decisions? Are we all being manipulated by society?

	T1 "Bioethics and science"	T2 "Mind manipulation"
Textualization 2	EUTHANASIA: CASE OF ELUANA Pro euthanasia: Eluana's father's position Against euthanasia: the Vatican's position	MANIPULATION BY SOCIETY Who is manipulating us? Can society influence people and affect their perception of reality?
Revision	EUTHANASIA: CASE OF ELUANA Against euthanasia: Vatican's position Pro-euthanasia: Eluana's father'sposition	CONSCIOUSNESS OF MIND MANIPULATION: PROBLEM OF FALSE FREEDOM Does freedom really exist? To what extent are we conditioned by the society's manipulation? "We can make choices but all the options are previously manipulated by society, so we are not free. They make us feel as if we are free but we aren't"

Remark: No underline means it is extracted from conversations.
The underline means it appeared in oral conversations and in written text (see Appendix C).

formulated a new philosophical question derived from this problem (*Do people in vegetative states think?*) (see Table 2). In the first textualization session, they discussed the relevance and the functionality of bioethics (*What reasonable aspects does bioethics have in order to be able to contradict the parameters of science? Should bioethics and science go together? Is bioethics an instrument to measure the degree of disability of a person?*). They included in their text the first question and a reflection about the relevance of bioethics (see Appendix C).

In their second textualization, they decided to reorganize the text and to start describing *a case of euthanasia*, which they had found in a newspaper. During this session and the next one, they focused on describing the two opposite perspectives (pro and against) of this *euthanasia problem*, as we can observe in this excerpt extracted from their text (see Appendix C):

> *"Recently, in "la Vanguardia" newspaper a case was published about an Italian woman called Eluana who was in a persistent vegetative state for 17 years. The controversy arose when her father wanted to disconnect her from the machines that kept her alive. He insisted that the wish of Eluana, in those circumstances, would have been to be disconnected. In contrast, the Vatican, and a large part of the government of Berlusconi, were against the decision of Eluana's father,*

> *they said that it was not morally legitimate since this was a person who was clinically alive."*

T2 began the planning session with a general philosophical problem, *the limits of our perception of reality*. As we can see in Table 2, they had some difficulties in finding a philosophical question because they needed to reformulate it 10 times until they reached a consensus (*What restrictions does the mind have in the perception of reality?*). In session 2, they focused on discussing the problem of *the perception of one or multiple realities,* which lead them to reformulate and precise their topic. When starting to write in session 3, they focused on a more concrete philosophical problem: *present day and historical social manipulation of the mind*. They formulated new philosophical questions, more closely related to their experiences and a new topic (*Are we free? Can we freely make our own decisions? Are we all being manipulated?*). During the second textualization session, they continued analyzing the problem of *social mind manipulation* (*Who is manipulating us?),* reformulated the previous question and included it in their text *(Can society influence people and affect their perception of reality?)*. In the revision session, they formulated more critical questions related to o*ur consciousness of mind manipulation* (*Does freedom really exist?)* and reflections about their experience of *false freedom in the consumer society* ("*We could make choices, but all the options are previously manipulated by society, so we are not free. They make us feel as if we were free, but we aren't")*. They included a second philosophical question at the end of their text *(To what extent are we conditioned by society's manipulation?)*.

Argumentation

During the planning time, in session 2, T1 discussed the relevance of the problem and formulated a first generic thesis: "*We believe that bioethics should be taken into account in some fields of science and biotech research and in the decision to keep someone alive when they have a terminal illness*", which afterwards, in first textualization, was included in their text (see Table 3).

In this second planning session, students cited examples from their experiences related to the generic problem of *the limits of science in contemporary world (transgenic research; abortion; euthanasia; a film on a person in a vegetative state*), two of which were included in their text. In the first textualization, they began with an introduction using *transgenic research* and *persistent vegetative state* as examples to reflect on the role of bioethics in contrast to the role of science. Then, they decided to focus on the specific problems of euthanasia, describing in their text the *Eluana's case* as an example of a person in a *persistent vegetative state*. They reflected on the relevance of a *dignified death letter,* but they did not introduce it in their text. Finally, only at the end of the revision session did students begin to think about their personal opinions about the problem. They reformulated the first thesis and wrote a more concrete one: "*We believe that everyone has to have self-determination over their life*

and death, so we agree with Eulana's father's decision because it respects what his daughter would have wanted, not to continue with these living conditions". T1 had little time to argue their thesis and less to conclude their text.

Table 3. Argumentation during collaborative writing process in T1 "Bioethics and science"

T1	Thesis	Examples	Conclusion
Plan 2	"We believe that bioethics should be taken into account in some fields of science such as the decision to keep someone alive when they are in a persistent vegetative state or transgenic research."	Transgenic research Abortion Euthanasia Vegetative state A film about a person in a vegetative state	
Text 1		Transgenic research Euthanasia Terminal illness Vegetative state Dignified death letter	
Text 2		Eluana Case	
Rev	"We believe that everyone has to have self-determination over their life and death, so we agree with Eulana's father's decision because it respects what his daughter would have wanted, not to continue with these living conditions."	Eluana Case	

Remark: The underline means it appeared in oral conversations and in written text (see Appendix C). No underline means it is extracted from conversations.

In T2 we can observe a different pattern regarding argumentation (see Table 4). They positioned themselves earlier regarding the problem, and they had more reformulations of their thesis (four times during the collaborative composition process). In planning 2, their position was related to an individual approach to the problem of *limits of perception of reality: "The way of seeing reality depends on the condition of the person*". Students' examples were related to this subjective way of perceiving the philosophical problem (*personal experiences, death or depression affects your perception of reality*). In the first textualization session, they developed more examples (*civil war, religious education, slavery, racism, manipulation of the media*) which helped them to reformulate a new thesis more focused in a social way on the problem ("*We argue that manipulating the mind is a conditioned way of seeing reality*"), and built up a first conclusion ("*People may have different viewpoints depending on the type of manipulation to which they are subjected*"). They began to write with an introduction about the problem of social mind manipulation, illustrating it with two examples: *Rome's hierarchical system of citizen classification* and the *discrimination against*

women in history. During textualization 2, they discussed new examples of social manipulation in the contemporary world (*Nazism, the manipulation on TV, press, and the internet)* which helped to redefine their position in their text: "*We believe that there are always a few people who force others to act in a particular way, but they do not realize the manipulation to which they are also subject";* and in the oral conversation: *"We are all being manipulated*". In the revision session, they introduced a new example of *manipulation on TV* regarding the *Iraqi war* and a second thesis: *"Although we think we are free to choose, in reality this is not so",* with an example of the *false freedom in consumer society*. At the end of the revision session students reformulated the previous conclusion to a more assertive position: "*We are all being manipulated by our politicians and society*"; and they wrote in their text: *"In conclusion, and after deep reflection, we believe that we are free, but within a framework in which we can't choose freely. This framework is limited by what our society allows."*

Thus, T2 had a clearer recursive process characterized by more reformulations of the thesis, examples and conclusion, which helped them to defend their opinion with sufficient arguments and to reach a coherent conclusion.

Table 4. Argumentation during collaborative writing process in T2 "Mind manipulation"

T2	Thesis	Examples	Conclusion
Plan 2	"The way of seeing reality depends on the condition of the person".	Personal experiences and feelings influence your perception of reality. Death in the family affects your mind. Depression affects your perception of reality.	
Text 1	"We argue that manipulating the mind is a conditioned way of seeing reality"	Civil war Religious education Social manipulation: slavery, racism. Manipulation in media: TV, press, internet. Rome's hierarchical systems of citizen classification Discrimination against women in history	"People may have different viewpoints depending on the type of manipulation to which they are being subjected"
Text 2	"We believe that there are always a few people who force to others to act in a particular way, but they do not realize the manipulation to which they are being subjected." "We are all being manipulated"	Discrimination against women in history Manipulation in the media: TV, press, the internet. Nazism: Hitler's Children.	
Rev	"Although we think we are free to choose, in reality this is not so"	Manipulation in the media: TV The Iraqi war False freedom in the consumer society	"We are all being manipulated by our politicians and society" "In conclusion and after deep reflection we believe that we are free, but within a framework in which we can't choose freely. This framework is limited by what our society allows."

The underline means it appeared in oral conversations and in written text (see Appendix C). No underline means it is extracted from conversations

Distribution of the conversational turns among each category of philosophical competences

The number of conversational turns related to each category of philosophical competences revealed that 32.7% out of them fell in the category of *argumentation*, 23.5% in *problematization* and 7.7% in *conceptualization* (see Table 5). Moreover, 11% of the turns were categorized as *organization* (searching for information and team organization). Only 2% were categorized as out of task. The percentage of teacher mediation was 23.3% of the total turns.

Table 5. Frequencies and percentage of students' conversational turns by groups (5 sessions)**

Speech turns		Plan 1	Plan 2	Text 1	Text 2	Rev	Total	%	Global	%
Conceptualization									219	7,7
Philosophical concepts	T1	9	45	6	7	10	77	6,9		
	T2	4	91	23	18	6	142	8,2		
									668	23,5
Problematization	T1	27	1	21		11	60	5,3		
Philosophical Question	T2	97		27	86		210	12,2		
Analysis problem	T1	72	28	64	55	65	284	25,3		
	T2	42	11	17	28	16	114	6,6		
Argumentation									930	32,7
Thesis	T1		23	26		47	96	8,5		
	T2		64	3	159		226	13,1		
Arguments	T1		32	14	78		124	11,0		
	T2		39	237	42	93	411	23,9		
Conclusion	T1					2	2	0,2		
	T2			30		41	71	4,1		
Organization*	T1	10		26	53	68	157	14,0	312	11,0
	T2	8		28	13	106	155	9,0		
Off task	T1			3	9		12	1,1	56	2%
	T2	11	23		10		44	2,6		
Teacher mediation *	T1	21	65	28	55	143	312	27,8	662	23,3
	T2	13	142	82	66	47	350	20,3		

* Organization: referred to the turns in which students were talking about organizational aspects such as searching for information or team organization. Off task: turns in which students were talking about other topics not related with the philosophy task. Teacher mediation refers to the turns in which the teacher intervened.

** Intercoder reliability = 82% agreement (Cohen's Kappa's: 0.79).

Regarding *conceptualization* both teams used and defined philosophical concepts related to their topic (T2: 8.2%; T1: 6.9%), especially in the second planning session. Regarding *problematization* most of the turns of T1 were used to describe the two opposite perspectives in front of the problems of euthanasia (25.3%), while T2 used more turns in formulating philosophical questions (12.2%). Finally, in *argumentation*, conversational turns were higher in T2, especially in searching for examples (23.9%)

and in elaborating their thesis (13.1%) (see Table 5). Fewer turns were related to conclusion (4.1%), especially in T1 (0.2%).

4.1.3 Regulation of the collaborative writing activity

Observations during the collaborative process of writing (see Table 6) showed that T1 did not adjust their text to the characteristics of argumentative texts. Students started to write the text without having finished the planning guide, and they scarcely used it during textualization to modify or develop it further and to adjust to the genre characteristics. They finished their activity five minutes early in each session – except for the planning 1 and revision session – and, at the end of the process, they did not have enough time to elaborate their arguments, nor to reach a conclusion and a final philosophical question.

On the other hand, T2 followed the structure prompted by the planning guide and regulated their activity in order to adjust their text to the characteristics of argumentative texts. They used the planning guide during the planning, textualization and revision sessions. This helped them to detect contradictions between previous and new ideas, promoted awareness of topic progression in their discourse and prompted reformulations to specify these new ideas in the written text, as we can see in the following example of T2 interaction:

(Textualization 2 –T2)
381 M: Now, we have to write our thesis.
382 C (writing turn): Ok (she takes the planning guide) I'll read aloud what we wrote in the planning guide: "The way of seeing reality depends on the condition of the person".
383 N: No, but now we have another one, because there is no debate emerging from that question.
384 C: Oh, but listen for a minute! We agreed to write that thesis during the planning…
385 M: Yes, but we have changed our philosophical question and it has changed everything!
386 C: Ah! Ok! Now, do we want to defend that the way to perceive reality depends on the type of manipulation we are being subjected to?
387 N: Yes, because after working with the examples and conclusions, we have changed our previous ideas and we have said: Hey! It's a new paradigm! (He's really excited)
388 M: Yes! (He's really excited) Write this (to C): We believe that there are always a few people who force to others to act in a particular way, but they do not realize the manipulation to which they are being subjected.
389 C: Yes! (She's really excited). We are all being manipulated!

They spent more time than T1 in planning, textualization and revision (exceeding 5 minutes after the end of the class in almost every session).

Table 6. Regulation of the collaborative processes of writing

Session purpose	Min.	Team 1	Min.	Team 2	Written text
Planning 1	00:00 - 00:28	PG*:Problematization	00:00 - 00:28	PG*: Problematization	
Planning 2	00:00 - 00:40	PG: Conceptualization and argumentation (thesis and arguments).	00:00 - 00:40	PG: Conceptualization and argumentation (thesis and arguments)	
Textualization 1	00:00 - 00:40	T*: They started textualization (introduction) without finishing the PG. They use the PG only as a reminder the title, the philosophical question and the relevance of the problem.	00:00 - 00:13 00:13 - 00:50	PG: Argumentation (examples and conclusion) T*: Textualization (introduction). They used recursively the PG to regulate their text.	Appendix C yellow highlight
Textualization 2	00:00 - 00:40	T: Textualization (introduction) without using the PG.	00:00 - 00:50	T: Textualiation (introduction, thesis, arguments) using the PG recursively.	Appendix C green highlight
Co-evaluation	Each team evaluated a draft of another team using a guide in which they had to provide some suggestions for text improvements (the criteria were the same as the ones in the evaluation rubric –see Appendix B-). Teacher revised the texts for the next session.				
Revision	00:00-00:03	R*: They read the suggestions given by peers and the teacher.	00:00-00:09	R*: They read the suggestions given by peers and the teacher.	
	00:03-00:50	T: Textualization (introduction and thesis) without using PG. They didn't have time for arguments, a conclusion nor a picture for their text.	00:09-00:50	T: Textualization (arguments, examples, conclusions and final problematization) using the PG recursively. They finished the text.	Appendix C no highlight

* PG = Planning Guide / T*= Textualization / R*= Revision

4.1.4 Group dynamics: individual participation, writing turns and teamwork satisfaction

Results regarding individual participation, based on the number of individual conversational turns during collaborative writing (see Figure 4), showed that students in T2 produced more turns (1723 turns) than in T1 (1124 turns), which evidenced a higher implication of T2 members. The total number of teacher conversational turns was similar in both teams.

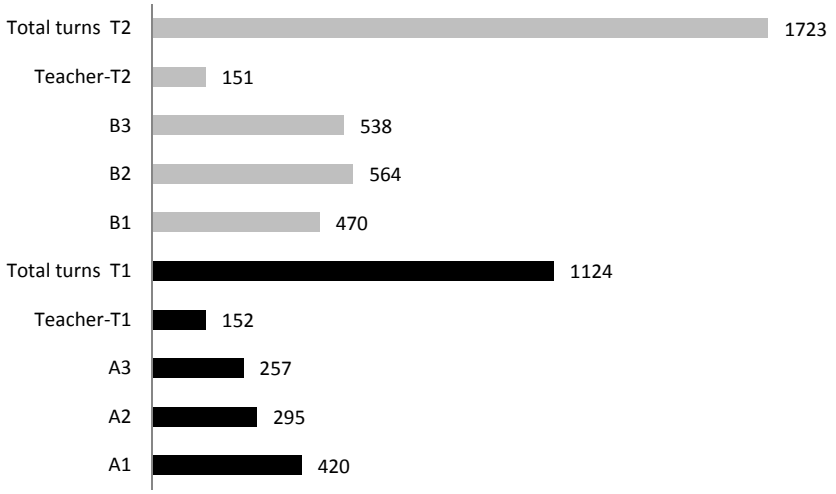

Figure 4.Total Individual conversational turns.

Regarding the writing turns, observations of the writing process during textualization and revision sessions showed that all members collaborated in the writing turns, although they did not follow the 15-20 minutes request for each team member, and some spent more time than others in writing (see Figure 5). In T1, the writing turn was dominated by two members (A1 and A2). The member A3 – who spent the least time in writing – was also the one who participated the least in conversational turns (see Figures 4 & 5). Thus, the interaction in T1 was asymmetrical.

In contrast, in T2 each member employed a similar time in the writing turn (see Figure 5). Member B1 – who participated the least in the conversational turns (see Figure 4) – was the one who spent more time in the writing turn. Thus, the interaction in T2 was more symmetrical.

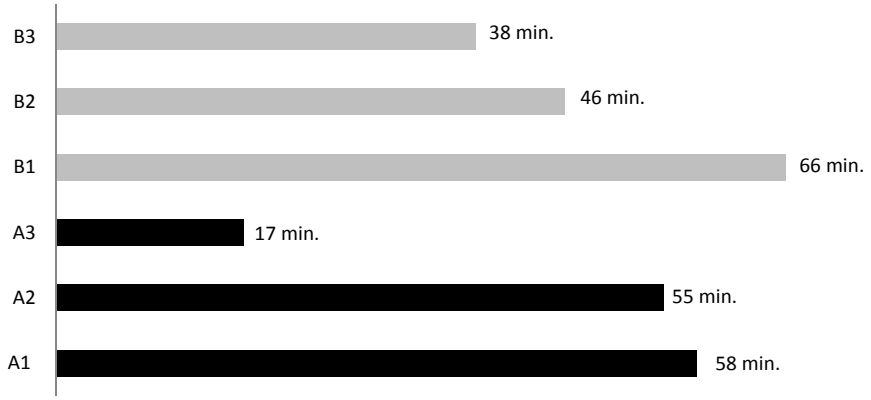

Figure 5. Total time spent (in minutes) of each member in the "writing turn".

Regarding teamwork satisfaction, the answers of T1 in the final group interview evidenced they were satisfied with the group: "*All of the members were involved in the task and we have solved the problems we had before*" (10A1). However, they also recognized some difficulties in achieving deep reflection and developing their personal opinion, as illustrated by this excerpt: *"We have to improve the thesis and conclusions"* (63A3). *"We need more reflection and personal opinion"(*64A2).

Answers to the final individual questionnaire show positive impressions about teamwork: "The team helps you to write a better text. All that you learn you can express in it" (A1); "Learning in a team is easier, it helps you to defend your ideas" (A2) or "You can exchange information and learn from opinions contrary to yours" (A3). Also, focused on the problems in achieving agreement: "The greatest difficulties are coexistence and to achieve agreement" (A1) or "It is not easy to work with all the peers and to achieve 100% of agreement. I felt uneasy with a team member because we had too many arguments" (A2), and a disconformity in the way the teacher formed the teams: "It would be better if students had made the teams, not the teacher" (A3).

Answers of T2 in the final group interview revealed they were also very satisfied with their team's dynamics: "It was a pleasant working environment, all the team members were involved"(14B2); "We like to write and to debate our ideas together" (20B1). As difficulties, they highlighted discussions and time regulation: "We debate too much, it's difficult to keep one's time" (56B3).

In the individual questionnaire we found only positive impressions about their team work, emphasizing that they had learned to argue their opinions in a nice atmosphere: *"In my team I have learned to argue my opinions"* (B2); "*I felt total freedom to express my opinions, I could reflect and debate about interesting topics. I liked to discuss with my peers, it was fun and you could learn different ways of thinking"* (B1*);* and

"Collaborative learning motivated me. I learned to argue conflictive ideas and to defend them in front of my peers, thus, I learned to convince my peers" (B3).

5. Quality of the individual and collaborative writing

Regarding the final quality of the collaborative text both teams obtained the highest score (see Figure 6) in the dimensions of problematization, conceptualization and thesis, but in the dimensions of argumentation, counter argumentation, coherence and cohesion T2 had a higher score. Therefore, T2 had a higher global score (38/40) than T1 (25/40). Comparing the first and second collaborative texts, both teams improved their writing and text score (T1from 15 to 25/40; T2 from 20 to 38 /40).

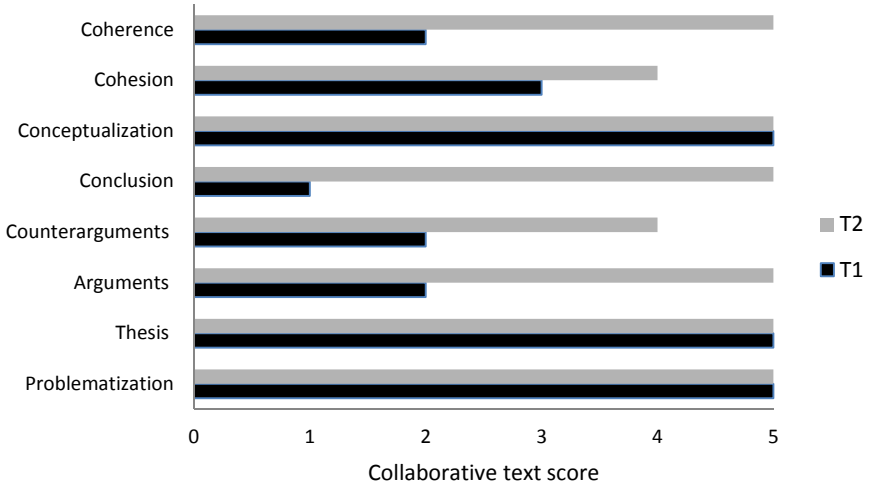

Figure 6. Collaborative text final quality in T1 and T2.

Regarding the quality of individual texts (see Figure 7) all the students obtained higher scores in the final text than in the initial one.

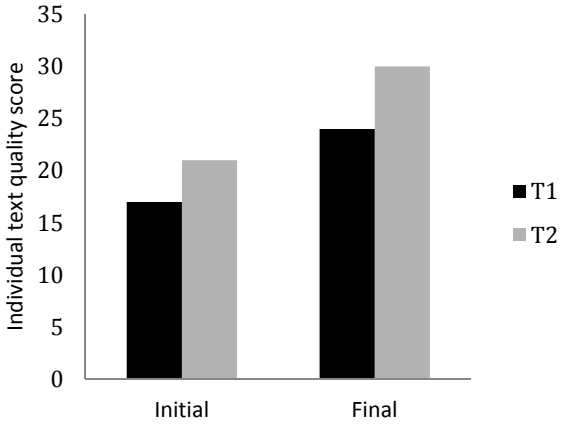

Figure 7. Individual initial and final text quality in T1 and T2 members.

6. Discussion

In this study we looked at how collaborative argumentative writing contributes to the practice of philosophical thinking in a structured learning context in which writing was used to learn philosophy.

Both teams used an *integrating construction strategy* during the collaborative writing activity and results illustrated that students were able to problematize by means of formulating and reformulating complex philosophical questions. There was evidence of a topic progression from an abstract initial problem (*bioethics and science / limits of perception*) into a more specific one, both contextualized and closer to the students' lives (*euthanasia case /social mind's manipulation)*. Results also showed evidence of students' appropriation and use of philosophical concepts in their own discourse. Despite the differences within and across teams, the students tried to argue their point of view with examples related to their everyday lives. Mediation of the teacher was low; they cooperated and were involved in this authentic and highly demanding task. At the end of the block, all the students perceived their learning through the collaborative writing activity as positive and they had improved the quality of the collaborative and individual text, thus providing evidence of learning the philosophical genres and philosophical discourse.

However, as previously mentioned, results also revealed certain differences regarding how interaction was developed during the collaborative writing activity, which may have affected the writing process and the quality of the final collaborative text, an issue that should be confirmed in further studies with more groups and a different research design.

First, we observed differences regarding the regulation of the collaborative writing activity. Students in T1 – which obtained a medium score in the final collaborative text – evidenced problems in adjusting their activity to the demand. They did not have

enough time to elaborate their arguments and conclusions. They started textualization without finishing the planning guide and they scarcely used it during the writing process; therefore, during writing they did not revert back to the initial plans in order to create or maintain an overall representation of the written text. By contrast, students in T2 – who obtained a higher score – developed a complete outline before starting textualization and used it in each session to be aware of their aims, decisions and to regulate their activity adjusting to topic, genre characteristics and communicative situation. This supports the claim regarding the relevance of planning and the use of guides to help students to regulate their writing processes in collaborative contexts (Erkens et al., 2005; Noroozi et al., 2012).

Secondly, results can also be related to the quality of types of talk, use and level of philosophical competences and team's dynamics during collaborative writing.

Students in T2 evidenced a higher and more symmetrical participation during all the writing activity. They created a more positive atmosphere in which all team members enjoyed writing and discussing with peers, and they used more exploratory and non-disputative talk, which resulted in more constructive discussions. As Mercer (1996) noted, although cumulative talk is essential to build new knowledge, only exploratory talk allows critical thinking development. Such positive team dynamics could also account for students' higher involvement in task in terms of participation and time spent. Moreover, students in T2 had a higher use and level of philosophical competences. They reformulated their philosophical question, thesis, arguments and conclusion several times. Not all the ideas discussed orally finally appeared in the written text, which evidenced a rich and non-lineal interaction between oral and writing discourse during collaborative writing. The ideas outlined in the guide could have helped students in T2 to confront the dialogical tensions between their previous and new knowledge, and between attempted and written text (Camps & Milian, 2000).

In contrast, participation in T1 was more asymmetrical (dominated by one or two members) and their team's dynamics were not as positive, proven by their pattern of interaction, which was characterized by a higher cumulative talk – with low controversy and argumentation – higher disputational talk – with disagreement and non-constructive criticism – and less exploratory talk – less constructive criticism. Furthermore, the results of T1 evidenced less use and level of philosophical competences. They had less reformulation of ideas during their writing process, and poorer practice of argumentation. Since most of the ideas discussed in the oral conversation also appeared in their written text, T1 students seemed to have had a more lineal transition between oral and writing discourse.

Previous research on collaborative learning also related symmetrical interactions and a close relationship to critical knowledge construction when students have to confront a complex demand (Arvaja et al. 2000 and 2002; Storch, 2002). We have offered evidences of how reformulations of dialogic tensions between oral and written text promoted critical thinking and reflection on the text as an object of learning, which in turn is related to sociocultural assumptions regarding the benefits of the dialogic

complexity of collaborative writing to create new meaning and to promote learning (Bereiter & Scardamalia, 1987; Vygotsky, 1986; Wertsch, 1991; Daniels, 2001; Wertsch, 1991).

The aforementioned issues seem even more relevant if we take into consideration that T2 members had a more positive attitude towards argumentative writing and their previous knowledge, and their initial writing scores were slightly higher than those of T1. Future studies should look deeper into the relationship between these variables, exploring the relationship between individual prior knowledge and attitudes and the quality of interaction during collaborative writing in order to confirm these results.

We do not want to finish the discussion without acknowledging several limitations of the study. First, although 45 students participated in the activity, only two groups were analyzed. We attempted to understand the dynamics of a highly demanding collaborative writing activity, and expected to develop consistent inferences and deep explanations; this approach requires being cautious, since results could vary in different contexts and with different teams. However, evidence found can act as reasonable assumptions to design future studies, and the analysis of regularities and variability in different contexts can help us to advance in our knowledge of how collaborative writing works and how it impacts learning. Secondly, we developed deep content analysis of each group to explain how the interactions developed during the collaborative writing process could be related to the appropriation of *philosophical thinking*. However, this impeded the microanalysis of collaborative composition processes. Similarly, we did not analyze teacher scaffolding and did not take into account other related aspects of school culture related to writing. Future studies could address, and more precisely explain, how these issues relate to peer interaction and text quality during collaborative writing.

Finally, several educative implications can be derived from these findings. First, the relevance of presenting an authentic, situated and highly demanding task (publishing the student's philosophical reflections in the school journal) in a structured collaborative context of learning which, according to cooperative research (Johnson & Johnson, 2009), implied establishing roles, writing turns, a structured activity, a planning guide, time in class for peer interaction and group self-evaluations. A task with these characteristics has demonstrated it can enhance cooperation in collaborative writing, thus the use of an *integrating construction strategy*. Similarly, promoting the students' use of artifacts such as planning guides during all of the writing process might improve students' regulation of writing and text quality in collaborative writing, as it has been demonstrated in individual writing (Castelló & Monereo, 1996; Nixon & Topping, 2001). Secondly, the study shows that students in both teams cooperate to write collaboratively their text, but our results suggest that it might be important to help students to develop a certain type of discussions, in which exploratory talk is promoted in order to enhance the quality of interactions during collaborative writing and, in turn, learning and text quality. Lastly, teaching how to write and using writing as a tool to practice philosophical thinking (problematization, conceptualization and

argumentation) can be an opportunity to create a more active and participatory learning context (Dysthe, 1996). Students can express their own opinions about contemporary society and connect philosophical theory with their everyday lives using argumentative writing. It also represents a chance to break the classical view of philosophy as an abstract and theoretical material removed from the real-life problems of students in secondary education (Corcelles & Castelló, 2013). The use of planning guides and the development of structured collaborative learning environments can help teachers to use writing in their discipline to create meaningful and active contexts in which students learn to think in and from the discipline.

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Appendix

Appendix A: Collaborative writing - Planning guide

AUDIENCE
- Who will the audience of your text be?

PROBLEMATIZATION
- Identify a problem or a problematic situation related to the contents studied in bloc III.
- Think about everyday life situations related to this problem.
- Analyze the problem:
    - Why is it a problem? Write the different points of view about the problem and how these are in conflict.
    - Nowadays, why is it important to think about this problem? Why is it important for human life?
- What is the philosophical question that emerges from that problem? Is it a deep and meaningful question?

CONCEPTUALIZATION (use of philosophical concepts)
- Which philosophical concepts studied in bloc I, II and III are related to this problem and question? Identify them and make a list.
- From those identified which ones should you define in your text? (write the definition)

ARGUMENTATION
- Thesis: Which idea/opinion do you want to defend in the text?
- Arguments: What are the arguments to defend this idea/opinion? Identify a minimum of two.
- What examples make your arguments stronger?
- Think about counterarguments to convince people who may not agree
- What are your conclusions? (They must emerge from your arguments).

FINAL PROBLEMATIZATION
- Write a final question for the reader to continue thinking about the issue.

TITLE
- What would the title of your text be? (It must be attractive to the reader).

ILLUSTRATION
- Look for an attractive picture to illustrate the philosophical problem of your text.

Appendix B: Quality of argumentative philosophical texts rubrics

	5	4	3	2	1
Problemati-zation	Describe/ formulate a relevant and very clear philosophical problem and question	Describe /formulate a relevant and clear philosophical problem and question	Describe/ formulate a relevant but confusing philosophical problem and question	Identify/ formulate a non-relevant philosophical problem and question.	No philosophical problem No philosophical question
Thesis	The author's point of view is very clear, elaborated and well explained.	The author's point of view is clear, elaborated but could be better explained.	The author's point of view is quite confusing or quite elaborated. It could be better explained.	The author's point of view is very confusing or very poor.	There is no thesis.
Arguments	Arguments are: Sufficient Clear Elaborated Relevant Coherent with thesis. Strengthen the thesis Very well explained	Arguments are: Sufficient Clear Elaborated Relevant Coherent with thesis. Strengthen the thesis Could be better explained.	Arguments are: Sufficient Quite confusing Could be better elaborated Relevant Coherent with the thesis Could be better explained to strengthen the thesis.	Arguments are: Not sufficient Very confusing Poor Not Relevant Non-coherent with thesis	No arguments
Counter-arguments	There is a recognizable alternative perspective different from that of the author. The author provides strong and multiple counterarguments for this alternative perspective.	There is a recognizable alternative perspective different from that of the author. The author provides a strong counterargument for this alternative perspective.	There is a recognizable alternative perspective different from that of the author. The author provides a weak counterarguments for this alternative perspective	There is a recognizable alternative perspective different from that of the author. The author doesn't provides any counteraguments	There isn't a recognizable alternative perspective different from that of the author.

	5	4	3	2	1
Conclusions	The conclusions: Include the main ideas of the text. Is very clear and well explained. Coherent with the thesis and arguments. Promotes reflection in the reader	The conclusions: Include the main ideas of the text. Is clear but could be better explained. Coherent with the thesis and arguments. Promotes reflection in the reader	The conclusions: Does not include all the main ideas of the text Is quite confusing (it's necessary to infer how the author reached the conclusion). Coherent with the thesis and arguments. Promotes reflection in the reader	The conclusions: Does not include all the mail ideas of the text. Is quite confusing (it's necessary to infer how the author reached the conclusion). No coherent with the thesis and arguments	No conclusions.
Conceptuali-zation	There aren't any conceptual mistakes. Uses and relates appropriately many philosophical concepts to analyze the problem and defend their position.	There aren't any conceptual mistakes Uses and relates appropriately philosophical concepts to analyze the problem and defend their position.	There are few conceptual mistakes Use but doesn't relate appropriately the philosophical concepts to analyze the problem and defend their position.	There are a lot conceptual mistakes. Poor use of philosophical concepts.	Do not use philosophical concepts.
Cohesion	Contains a variety of appropriate connectors which facilitate links between paragraphs	Contains a variety of connectors which facilitate links between paragraphs but some are not appropriate.	Contains few or repetitive connectors which facilitate links between paragraphs.	Contains very few connectors which don't facilitate links between paragraphs.	No connectors between the paragraphs.
Coherence	All the ideas are organized in a logical sequence. Evidence of organized axis of information.	The majority of the ideas are organized in a logical sequence. Evidence of organized axis of information.	Some ideas are organized in a logical sequence. Evidence of organized axis of information.	Very few ideas are organized in a logical sequence. No evidence of organized axis of information.	No logical sequence of ideas. No evidence of organized axis of information.

Total score max 40

Appendix C: Collaborative texts

	Textualization 1
	Textualization 2
	Revision

Team 1

La bioètica ha de trencar els paradigmes de la ciència?

Quins aspectes raonables té la bioètica per contradir els paràmetres de la ciencia?

Fa poc, en una notícia de la Vanguardia va sortir el cas d'una dona Italiana que es deia Eluana i estava en estat vegetatiu des de feia 17 anys. La polèmica va sorgir quan el seu pare va voler desconnectar-la de les màquines que la mantenien en vida. Ell insistia que la voluntat de Eluana, arribats a aquells extrems, hagués estat ser desconnectada.

En canvi el Vaticà, i gran part del govern de Berlusconi, estava en contra de la decisió del pare d'Eluana, ja que deien que no era moralment lícit ja que es tractava d'una persona que clínicament estava viva.

(La notícia la trobareu explicada més detalladament a la pàgina web: http://www.lavanguardia.es/ciudadanos/noticias/20090209/53636694798/fallece-eluana-englaro-despues-de-tres-dias-sin-ser-alimentada.html)

Aquest tema ens sembla d'actualitat ja que ens ajuda a reflexionar sobre la importància que té la bioètica (àmbit de la filosofia que té a veure amb el comportament humà), com per exemple el fet d'escollir la vida o la mort d'una persona. Hem de tenir en compte les circumstàncies en que es troba la persona en qüestió, és a dir mesurar el grau d'incapacitat d'aquesta persona.

Nosaltres creiem que cada persona ha de tenir autodeterminació sobre la seva vida i mort, per això estem d'acord amb la decisió que va prendre el pare d'Eluana ja que va respectar el que la seva filla hagués volgut (no continuar amb aquelles condicions de vida).

La bioètica hauria de tenir en compte en alguns camps de la ciència com podria ser la decisió de mantenir algú en vida quan està en estat vegetatiu o la investigació en transgènics.

En altres camps, la ciència podria investigar fins que afectés o alterés la realitat o la vida de l'ésser humà ja que la ciència ha de ser un coneixement estable que s'ha d'aproximar a la realitat.

Team 1 (English translation)

Does Bioethics have to break the paradigms of science?

What reasonable aspects does bioethics have to contradict the parameters of science?

Recently, in "la Vanguardia" newspaper a case was published of an Italian woman called Eluana who was in a persistent vegetative state for 17 years. The controversy arose when her father wanted to disconnect her from the machines that kept her alive. He insisted that the wish of Eluana, in those circumstances, would have been to be disconnected.

In contrast, the Vatican, and a large part of the government of Berlusconi, was against the decision of Eluana's father, they said that it was not morally legitimate since this was a person who was clinically alive.

(You can find a detailed explanation on this web page: http://www.lavanguardia.es/ciudadanos/noticias/20090209/53636694798/fallece-eluana-englaro-despues-de-tres-dias-sin-ser-alimentada.html)

This subject seems to be topical because it helps us to reflect on the importance of bioethics (field of philosophy that is concerned with human behavior), as for example the fact of choosing life or death of a person. We have to take into account the circumstances in which the person in question is located, that is, to measure the degree of disability of that person.

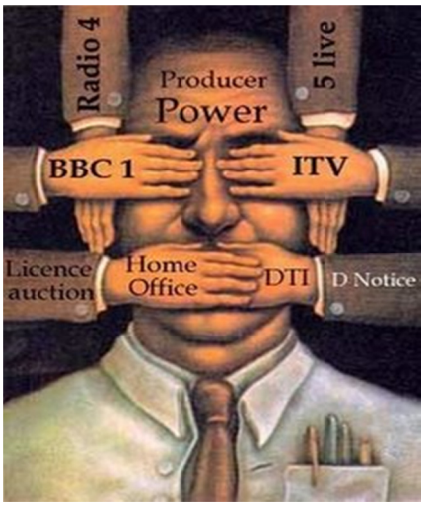
We believe that each person should have self-determination over their life and death, which is why we agree with the decision that Eluana's father took, since he respected what his daughter would have wanted (not to continue with those living conditions).

Bioethics should be taken into account in some fields of science such as the decision to keep someone alive when they are in a persistent vegetative state or transgenic research.

In other fields, science could investigate until affects or disturbs reality or human life because science must be a stable knowledge that must be approximated to reality.

Team 2
UNA SOCIETAT MANIPULADA

Des del principi de la història humana, sempre hi ha hagut individus que han manipulat a uns altres per obtenir un benefici propi. A l'edat antiga ja podem trobar casos en els quals es donaven aquestes circumstàncies, per exemple els romans varen imposar un sistema jeràrquic on es classificaven les persones segons els principis clàssics. Però no cal anar tant lluny la dona fa cinquanta anys a Espanya era discriminada per la societat i estipulava que devia complir les tasques domèstiques, educar els fills, cuidar el marit, etc. Per això ens hem fet la següent pregunta filosòfica: Pot una societat influir en les persones i condicionar així la seva percepció de la realitat?



Nosaltres creiem que sí, aquests casos es compleixen, ja que sempre hi ha uns pocs que sotmeten a uns altres a actuar d'una manera en concret, encara que aquests no s'adonen de la manipulació a la qual estan lligats. Per exemple tots nosaltres estem molt influenciats i manipulats pels mitjans de comunicació com ara la televisió, la radio, la premsa i amb menys quantitat l'internet. Concretament, quan ens transmeten les notícies a la televisió ens informen sobre els esdeveniments que ells consideren que poden tenir més audiència i això comporta una manipulació permanent. Va ocórrer el mateix als EEUU quan el govern de Bush no va permetre mostrar a la població les imatges dels soldats morts a la guerra d'Iraq, ja que li era més profitós que la gent desconeixes el que estava passant.

També creiem que, encara que pensem que nosaltres som lliures d'escollir, en realitat això no és així. Per exemple, si una persona entra a una botiga d'electrodomèstics i li diuen que agafi tots els aparells que funcionin amb una bateria,

ell sent la capacitat d'escollir, però en realitat està agafant allò que els propietaris de la tenda han volgut.

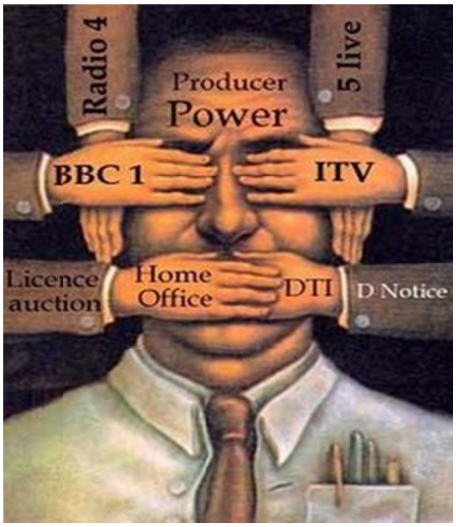
En conclusió i després d'haver realitzat una profunda reflexió pensem que nosaltres som lliures, però dins d'un marc en el qual no podem escollir amb total llibertat. Aquest marc esta limitat per el que ens marca la nostra societat.

Per aquest motiu us plantegem la següent pregunta: Fins a quins límits estem condicionats per aquesta manipulació de la societat?

Team 2 (English translation)

A MANIPULATED SOCIETY

From the beginning of human history, there have always been individuals who have manipulated others for their own profit. In ancient times we can find cases in which are given these circumstances, for example the romans imposed a hierarchical system where people were classified according to classical principles. But we don't need to go so far back, fifty years ago in Spain women were discriminated against by society which stipulated that she must do the household chores, raise children, care for husband, etc. That is why we have made the following philosophical question: Can society influence people and affect their perception of reality?



We believe yes, that these cases are true, since there are always a few who force others to act in a particular way, although these do not realize the manipulation to which they are linked. For example, all of us are very influenced and manipulated by mass media such as television, radio, press, and to a lesser extent internet. Specifically, the news on television informs us about the events that somebody considers will have more audience, and this entails a permanent manipulation. The same thing happened in the USA when the Bush administration did not allow the population to see images of dead soldiers in the Iraq war because it was more profitable for them that people did not know what was going on.

We also believe that, although we think we are free to choose, in reality this is not so. For example, if a person goes into an appliance store and somebody tell him/her to choose from all the devices that work with a battery, that person thinks that they are free to choose, but he/she is actually getting what the owners of the shop have wanted them to.

In conclusion and after deep reflection we believe that we are free, but within a framework in which we can't choose freely. This framework is limited by what our society permits.

For this reason, we ask the following question: To what extent are we conditioned by society's manipulation?