Online Critical Debate Model: Deliberation for the Digital Age

Claudio Fuentes Bravo, Julián Goñi Jerez

1. Introduction

To argue is to build democracy (Fuentes 2019). The capacity to reach agreements among a diverse set of social and political actors is one of the key dimensions in the governability of complex societies (Gerring and Thacker 2008). Argumentation is precisely the origin of legitimacy and stability of national democracies. However, the nature and extension of argumentation in society is rapidly changing. Political scientists and public participation activists have systematically pushed for a greater empowerment and citizen control over political decisions. This is what is commonly known as the «deliberative turn». As Dryzek states:

> The essence of democracy itself is now widely taken to be deliberation, as opposed to voting, interest aggregation, constitutional rights, or even self-government. The deliberative turn represents a renewed concern with the authenticity of democracy: the degree to which democratic control is substantive rather than symbolic, and engaged by competent citizens (Dryzek 2002, 1).

The achievement of citizen control is not an easy task. It requires addressing major practical and conceptual challenges regarding the nature, objectives and methods of deliberation.

Claudio Fuentes Bravo, University of Chile, Chile, claudiofuentesbravo@gmail.com
Julián Goñi Jerez, Pontifical Catholic University of Chile, Chile, alfredo.nogueira@uniupo.it

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Regarding the nature of deliberation, Chambers (2003) asserts that the essence of democratic deliberation is talk-centric. Deliberation implies a series of communicative and linguistic procedures that allow for a certain *deliberative attitude* in which different actors are able to engage as peers in an exchange of reasons with the aim of reaching a shared practical judgement (Curato et al. 2017). According to Chilvers (2008), exercising deliberative democracy requires the development of *deliberative competencies* that allows for the orchestration of diversity, difference, antagonism and uncertainty. The emergence of dissent is a key dimension for a pluralist view of deliberation, as dissent is view as a marker of different voices being heard (Martí 2017). On the other hand, quality evidence and quality reasoning are nonetheless fundamental in order to assure that biased or factually wrong opinions may be discarded through the deliberation process (Landemore 2017).

Regarding the objectives of deliberation, Dryzek and Niemeyer (2006) argue that probably more important than reaching consensus in the results, it is reaching meta-consensus. A meta-consensus means that positions are not necessarily shared, but there is consensus regarding how a decision is made and what is the spectrum of legitimate options and evidence. Meta-consensus may be normative, epistemic or of preferences (Dryzek and Niemeyer 2007). Normative meta-consensus means that all involved values are considered legitimate. Epistemic meta-consensus means that all involved evidences and beliefs are considered trustworthy. Finally, preference meta-consensus means that there is agreement regarding the spectrum of legitimate outcomes and preferences of deliberation. For participants, reaching a meta-consensus means not only that they know what the other's positions are, but also that they know why they prefer them (Niemeyer 2011).

Regarding the methods of deliberation, and given the complexities of broadening deliberation in democracy, new ways of designing participation have arisen. The redesign initiatives are often referred to as «democratic innovations». According to Elstub and Escobar (2019), democratic innovations are defined as processes or institutions that are new to a particular governance or policy matter and that aim to re-imagine or deepen the role of citizens in governing through an extension of the opportunities of participation, deliberation and influence.

Most of these innovations are meant for competent adult citizens that are deemed ready for political engagement. However, there is a need to consider new innovations aimed at developing the necessary deliberative competencies (Curato et al. 2017) and attitudes (Chilvers 2008) that are required for this to happen. This educational democratic innovation should gain a bigger role, especially when considering the urgency of preparing the new generations for public engagement. Furthermore, there is a need to consider new innovations aimed at developing new analysis strategies that add representativeness (Schecter and Sullivan 2018) and meaningful discourse analysis and regulation (Niemeyer and Jennstal 2018) to existing deliberative initiatives.

This chapter presents our experience designing and analyzing deliberation initiatives during 2020. In particular, we seek to present how our experience

with a large-scale online citizen engagement exercise called Tenemos Que Hablar de Chile [We have to talk about Chile] helped us to re-design and expand the Critical Debate Model (Fuentes 2011) for the context of online learning. In the first section, we will present a brief historical overview of the Critical Debate Model. In the second section, we will describe our experience with Tenemos Que Hablar de Chile highlighting our learnings. In the third section, we will describe our proposal for an online version of the Critical Debate Model. With our experience, we aim at illuminating new possibilities for the design and analyzing of deliberation in an online environment.

2. The Critical Debate Model

The traditional format of academic or school debate, especially the competitive version of debate is a widely popularized educational practice (Freeley and Steinberg 2009). However, the articulation of debate as an educational practice and debate as described by argumentation theory is still underdeveloped (Fuentes 2011).

A debate is an interrogation and defense process that aims at developing reasoned judgment about a proposition (Freeley and Steinberg 2009). Debate is also perceived as a practice that accentuates antagonism and force competition (Fuentes and Santibañez 2011). Finally, as participants of school debates are often forced to accept a fixed policy position without a possibility to change during the deliberation process, it can also lead to a lack of genuine epistemic commitment that should characterize democratic deliberations.

The Critical Debate Model (CDM) seeks to address these challenges by emphasizing the dialectical nature of debate over its competitive antagonism, while also allowing participants to change their initial point of view utilizing arguments presented by their counterparts. The CDM was created by Claudio Fuentes in 2008 based on his experience organizing the Chilean national debate tournament from 2002 to 2005. This tournament utilized the British Parliamentary Debate format. Because of the previously described challenges of this format, stakeholders expressed dissatisfaction. That lead to a re-interpretation of the tournament through the application of argumentation theory and emphasizing the educational dimension in 2008. Thus, the Critical Debate Model was created.

This format integrates the idea of two opposing teams (given from the traditional debate format) and adds a third team in charge of research. It is structured in three rounds of argumentation. In the last round, students are allowed to change their initial point of view and utilize evidence and arguments presented by the opposing team. Additionally, its evaluation and assessment methods are grounded in more contemporary approaches to argumentation as a dialogical process. The specific details of this model will be detailed later in this chapter.

Since its creation, the Critical Debate Model has been implemented as the basis for the Chilean national debate tournament from 2015 to 2018. Since 2011, it has also been implemented as part of the base curricula from the undergraduate program of psychology in the Universidade Federal de Pernambuco, Brazil

and since 2019 in the Università di Padova, Italy as part of the Debate Tournaments for medical students.

Despite the fact that the Critical Debate Model addresses some of the major concerns raised about the traditional competitive debate formats, there are still some challenges left to face. On the one hand, this new format emphasizes the dialogical component of debate, but is still centered around competition. It is relevant to explore non-competitive deliberation designs to compare and define trade-offs between the two approaches. On the other hand, this new format emphasizes the educational dimension of debate, but the forms of assessment and feedback that is produced as part of this format is still underdeveloped. More audacious or comprehensive processing strategies can be explored, especially considering the recent advances in data sciences, particularly in the sub-field of natural language processing.

Finally, this format is designed for co-located interaction and thus is not necessarily suited for an online environment. An online version of the Critical Debate Model would allow for greater flexibility and more importantly, the utilization of distributed teams across countries and continents. This has become a much greater issue because of the COVID-19 crisis that has impossibilities all co-located team activities. In this context, and drawing from our experience designing and processing a massive citizen deliberation exercise (Tenemos Que Hablar de Chile) we seek to present an adjusted and improved version of the CDM for an online age.

3. Analyzing Tenemos Que Hablar de Chile [We have to talk about Chile]

In 2020, our team was invited to participate in a large-scale public engagement exercise to talk about the future of Chile in the aftermath of the social crisis of October, 2019 that shook up the political climate of the country. The Tenemos Que Hablar de Chile project was developed through a partnership between the two most prestigious universities in Chile (*Pontificia Universidad Católica de Chile* and *Universidad de Chile*) with the funding of private citizens. The project aims at addressing the citizen's demands for a bigger, more inclusive and more transparent democratic space, in which it is possible to collaboratively construct a vision for the future of Chile. In particular, the project seeks to develop a citizen platform for public engagement. According to the organizers, the objectives of this initiative are threefold: (1) To impulse a massive social conversation about the challenges of the country. (2) To promote a way of dialoguing that showcases our differences and allows for our reunion around them. (3) To systematize, represent and respond to the vision of the future by the Chilean society in a rigorous manner.

Paralleling many of the concerns that have given form the «deliberative turn» in political science, Tenemos Que Hablar de Chile (TQHDC) defines its mission in terms of the following principles of citizen dialogues:

- Empathy
- Active listening

- Respect
- Plurality
- Transparency and symmetry
- Tolerance
- Collaboration
- Co-responsibility
- Value of divergence
- Convergence as possibility.

Of course, it is perhaps simpler to list a series of principles than to design an effective way to put them in practice. TQHDC canalizes all these attributes in three sub-initiatives. The «Citizen's consultations'» initiative coordinates individual responses through open-ended surveys into a series of predefined social topics, ranging from the environment, politics, science and technology to democracy and decentralization. The «Digital conversations» initiative organizes digital dialogue events (similarly to mini-publics actions) with purposely selected participants to ensure gender, regional, educational and age representativeness of the sample. The «Chile at scale» initiative is charged with the sampling process that will assure representativeness for the digital dialogues.

The digital conversations were designed by the Public Innovation Lab of the Pontificia Universidad Católica de Chile (LIPUC) and the Institute of Argumentation of the Universidad de Chile, represented by Claudio Fuentes. Each conversation was designed to follow a series of activities. These activities are:

- Affective states: All conversations start by participant's expressing how they are currently feeling.
- Changing Chile: Participants answer what should Chile change, maintain or improve
- Priorities: Participants had to prioritize among themes that emerged during the previous section and decide on a topic to continue the conversation.
- How to bring about change: Participant's offer their point of view regarding how should the changes or improvements be conducted.
- Personal commitment: Lastly, all participants had to share a personal commitment regarding their role in the transformation processes in Chile.

4. A plan to analyze natural speech

As an interdisciplinary team, we were charged with the task to create a strategy for the systematization and analysis of the data produced as part of what is likely the largest private citizen dialogue initiative in the history of Chile. This is not an easy task, especially considering that it involved massive amounts of qualitative text expressed as natural speech (thus, not formalized or coded for analysis).

The strategy employed for the data analysis is based in Natural Language Processing (NLP). NLP is a sub-field of computer and data science that addresses the automatic processing and analysis of natural language (unstructured and spontaneous expressions of language). The analysis was carried out in the pro-

gramming languages Python and R. Through a vast variety of techniques, such as tokenization, stemming, lemmatization, labeling, semantic analysis and dictionary analysis.

We assert that the application of NLP allows for a scalable and efficient analysis of qualitative data (compared to 'manual' qualitative inquiry) that maintains the naturalism of dialogue events (compared to surveys). In this sense we observe that recent advances in data science offer a new opportunity for an automatic, replicable and accountable analysis and systematization strategy in massive online deliberative initiatives. However, it must be stated that data science tools can only support and enable analysis decisions, but for an analysis plan to produce meaningful and substantive results, it must be founded on meaningful and substantive conceptual frameworks. In our case, we based our analysis in theoretical integration of argumentation studies, cognitive psychology and future studies.

Overall, our analysis plan was structured in three dimensions:

- Descriptive analysis: Through readily available data science resources, we can describe results in terms of salient themes, key concept's count and exploratory visualizations in each stage of the dialogue.
- Futurization analysis: Through the syntactic operationalization of conceptual dimensions used in the description of images of the future, we can characterize collective imaginations of the Chilean future.
- Argumentative analysis: Based on contemporary argumentation theory, we can analyze the type of reasoning and arguments employed during the conversations and infer their effects in the preferences and positions about what to do about Chile.

Overall, our strategy aimed at developing a series of automated analysis indicators that were the results of an operationalization of concepts deriving from cognitive psychology, argumentation theory and future studies. For instance, through verbal markers we were able to describe the degree of agency and perceived influence in the citizen's images of the future (Polak 1971; Taboli and Kapio 2018). We were able to develop indicators of semiotic distance (Zittoun and Gillespie 2018) through the analysis of syntactic complements and modal attitudes (Ballarin 2010) through verbal construction markers. The methods and results of this strategy plan will be published in detail once the project concludes. Beyond the potential discussions around the pertinence and reliability of each particular indicator, as a team we have already succeeded in the task of proving the feasibility of integrating different disciplinary traditions into natural language processing. We have observed during this process that there is much more that can be done when reporting deliberation results than just describing the expressed conclusions.

5. Learning from Tenemos Que Hablar de Chile

There were three main elements of the Critical Debate Model that we sought to reconsider based on our experience with Tenemos Que Hablar de Chile. These are: competition-driven format, analysis and processing strategies and the possibilities opened up by online deliberation.

TQHDC is a non-competitive and expressive instance of public engagement. These sort of approaches enable citizens to express their ideas, opinions and feelings regarding policy issues. In contrast to other democratic innovations, such as participatory budgeting (Elstub and Escobar 2019), TQHDC is not consequential in nature. This means that it doesn't produce a material result that is trazable and accountable. Beyond consequentiality, we observe that this experience lacked the form of controversiality and opposition that is required for people to change their minds (Leitão 2008). The lack of opposition or contrasting evidence that could be presented by policy makers or other actors can remove the epistemic conflict element that is present in the competitive debate models. In this sense, and contrasting to popular opinion, we concluded that the competitive element is a positive aspect that should be kept in an online CDM.

TQHDC was designed with the analysis plan in mind. This is one of the major victories of the project. The project involved trained facilitators that registered all key information that would later be used for automatic processing. In practice, this meant utilizing a SPOCA (Subject – Predicator – Object – Complement – Adverbial) grammatical structure. Ensuring a complete syntactic unit proved key for exploring non-traditional analysis ideas with Natural Language Processing. The CDM does not involve a strong registration process and does not require full SPOCA annotation. This is something that should be incorporated in order to open up new possibilities for analysis. The analytical ideas themselves could also be adapted from our TQHDC strategy and involve argumentative level and futurization level markers.

Finally, the TQHDC project was designed as an online experience. This decision was purely based on the health contingency of the COVID pandemic. However, we have been able to see how an online format allows for a level of social integration that could otherwise not be achieved. In particular, it allowed organizers to set quotas regarding gender, age, schooling experience and geographical location. Each participant could take part in the event without ever leaving their house and zone of comfort. In the context of CDM, it made us realize that digitalization is more of an opportunity than a challenge. We also learnt that the optimal setting for an inclusive online experience is using the least possible amount of external software. Just as face-to-face experiences can be innovatively arranged just through rules and structured actions, video call software is sufficient to support most of the debate experience. Requiring a single software makes the experience more accessible for more people and mitigates the effect of internet bandwidth issues. Additional software can be for information registration purposes, as used in TQHDC

In consideration of our experience with TQHDC we were able to question design decisions and propose an alternative to adjust and digitalize the Critical Debate Model. In the next section we present this proposal.

6. Designing the Online Critical Debate Model

This proposal is based on argumentation learning studies and research on argumentation skills, development of thought and knowledge construction (Leitão 2000; Kuhn 1991; Billig 1996). In particular, it is based on the works of Selma Leitão (2000, 2008).

Leitão's (2008) analytical procedure was designed to capture beliefs revision processes during argumentation. Its analysis unit consists of three main components (1) the argument, (2) the counter-argument and (3) the response. Both general and specific cognitive operations depend on each of these components;

Firstly, *the argument* allows for the identification of a point of view that will frame the argumentation process and the ideas that ground the decision over the point of view selection. Cognitively speaking, *the argument* creates a point of reference in relation to which an evaluation (and potential transformation) of reasoned perspectives may, or may not, be installed in later phases of argumentation. Epistemically, *the argument* captures the momentary organization of knowledge by an individual in a particular topic, as well as his/her doxastic attitudes towards that knowledge.

Secondly, *the counter-argument* captures the existence of opposition voices in a knowledge discourse. This, in turn, introduces dialecticism that is inherent to argumentation. Cognitively, *the counter-argument* represents a discourse of alterity that allows the individual to evaluate his/her initial position in light of contraposition. Epistemically, *the counter-argument* unleashes the process of beliefs revisions.

Finally, *the response* is defined as the reaction –immediate or remote– to the opposition substantiated in the counter-argument. Cognitively, its presence in argumentation marks the metacognitive awareness by the individual of the contraposing positions and forces the individual to find ways of refuting them or to (partially or completely) accommodate his/her previous knowledge structures to fit the new evidence. Epistemically, it's the final deliberation instance in which all available evidence is laid out and the epistemic judgment is settled.

Based on these three dialectical components of argumentation, the Critical Debate Model encompasses three distinct rounds or moments:

1. Presentation: The first round is based on the presentation of arguments. It promotes the discursive operation of point of view exposition that is then used as the frame of reference for the evaluation of learning and epistemic transformation.
2. Construction and counter-arguing: The second round is based on the reception of counter-arguments and the construction of the other's point of view. During this stage, it is critical to utilize learning scaffolding that promotes the emergence of cognitive conflict and the examination of our own thought (i.e. metacognition).

3. Integration: The third round is based on the incorporation, construction, and argumentative collaboration. This process supports the epistemic function of argumentation, that is, the changing of participant's knowledge structures. During this stage, initial beliefs should be contrasted with the final remarks in order to find indications of change.

I must be noted that Leitão's (2008) analytical procedure was intended to mark the cognitive stages of knowledge transformation. The Critical Debate Model seeks, in turn, to transform those descriptive remarks into normative criteria to design successful argumentation learning experiences.

7. Overview of the Online Critical Debate Model

Participants

- 2 debate teams composed by 3 participants each
- 1 judge's team composed by 3 participants

Note: All participants are students in case of a school debate. One member of the judge's team is designated as the president of the jury and has an active role as a debate presenter.

Team roles

- One team for the proposition
- One team CONTRA the proposition
- One team of judges

Note: The team of judges is in charge of evaluating the debate, presenting and giving a verdict. Presenting involves framing the deliberation experience, explaining the format and participants, while also stating the relevance of the topic. Only in rounds 1 and 2 do teams have to comply with their role. After ending stage 2 and before the closing statements, teams have freedom to choose a role CONTRA or PRO the proposition. This means they can change their mind given the merit of the presented arguments.

Team member roles

- Arguer 1(PRO): This arguer presents a brief selection of arguments that support his/her point of view.
- Arguer 2 (PRO): This arguer defends Arguer 1 (PRO)'s case if it has been weakened or refuted by the opposing team. If it has not, this arguer incorporates new arguments or consolidates the previously stated ones.

- Arguer 1 (CONTRA): This arguer seeks to refute or weaken the case presented by the opposing Arguer 1. This arguer doesn't add any new arguments, because they are added in the second round.
- Arguer 2 (CONTRA): This arguer defends the case presented by Arguer 1 (CONTRA) in case they have been addressed. If they haven't been sufficiently addressed by the opposing team, this arguer has the chance to consolidate the position made by his/her team member.
- Annotators: One member of each team registers the interventions made by his/her teammates and the responses made by the opposing team. At the end of each round, they can ask questions, make comments or ask for clarifications in case some aspects of the opposing team's arguments were not sufficiently clear.
- President of the jury: He/She is the presenter of the debate. He/She explains the relevance of the debate to the public and presents the debating parties. He/She afterwards helps with the flow of the debate given his/her knowledge on the mechanics and rules of the debate.
- Judges: They fill out the evaluation form. This form is available online for everybody attending the debate and is then sent out to the schools (in the case of school debates) for further pedagogical analysis.

Note: The roles or arguers 1 and 2 are inverted in round two. We also emphasize the importance of having two separate judges for issues of legitimacy and reliability of the results.

Argumentation rounds

- First round: Arguer 1 (PRO) → Arguer 1 (CONTRA) → Arguer 2 (PRO) → Arguer 2 (CONTRA)
- Second round: Arguer 1 (CONTRA) → Arguer 1 (PRO) → Arguer 2 (CONTRA) → Arguer 2 (PRO)
- Third round: Closing statement PRO → Closing statement CONTRA.

Time usage

- Presentation by the president of the jury: 10 minutes.
- First round: 5 minutes per argumentation.
- Timeout: 10 minutes (this includes questions, comments and clarifications questions).
- Second round: 5 minutes per argumentation.
- Timeout: 10 minutes (this includes questions, comments and clarifications questions).
- Closing statements: 5 minute per team.
- Evaluation and verdict: 10 minutes.

Main rules

- Argumentative structure: All valid arguments are comprised by a point of view (e.g. «we believe/assert/propose that the Chilean healthcare system must be replaced») plus a justification (e.g. «because it is unfair by nature») plus evidence (e.g. «as supported by the newly published study of X foundation that states that…»).
- Reference: All new arguments must refer to a previous argument. Defending arguments must refer to the base proposition and attacking arguments must refer to the defending argument.
- Role restriction: During the first and second round, teams are forced to defend the point of view that was assigned to them one week before the event.
- Role liberation: Once the second round is over, teams have the liberty to choose any point of view, including the opposing side or one different to the ones exposed during the debate. Any change in point of view should be based on the presented evidence and arguments presented beforehand.
- Strength of an individual argument: Judges will evaluate the strength of the individual argument presented by each arguer. This evaluation is made through an examination of soundness of the premises and conclusions made from the premises.
- Strength of collective argumentation: Judges will evaluate the strength of the overall chain of arguments. For every pair of arguments (for and CONTRA the proposition), a winner will be determined.

Debate proposition or theme

A debate proposition or theme is an open-ended problem that allows for both moral and technical examination (e.g. the Chilean healthcare system). Both teams are given the theme one week before the event. They are also notified about their role (CONTRA or for a proposition regarding the topic). For instance:

- PRO: «Our team asserts that the Chilean healthcare system must be replaced».
- CONTRA: «Our team asserts that the Chilean healthcare system must not be replaced but rather improved».

Closing statements

In this stage, participants are free to choose whether to maintain or change their initial point of view. In any case, it is expected that this decision is made in consideration of meaningful reasons. A team may legitimately conclude that the opposing position is (fully or partially) right. However, this does not mean that the conceding team should not provide robust arguments for this decision. This is necessary for the judges to evaluate critical thinking and intellectual honesty.

Note: All information produced during the event will be registered and analyzed. In case of school debates, this report is sent to the institutions for learning purposes.

Online platform

There are multiple channels fit to sustain an Online Critical Debate Model. We recommend the utilization of two separate channels for two different purposes. A video-call software (such as Zoom or Google Meet) allows for the open deliberation processes that occur in the first, second and third round (the latter being closing statements). A platform such as Zoom is ideal considering that the breakout rooms function allows students to meet privately while preparing during the timeout periods and judges to meet during the final evaluation period.

On the other hand, judges could work live on the material in a variety of platforms. Google Documents and Spreadsheet offers a more minimalist option, while other platforms such as Stormboard or Miró allows for a more designed and stylistic template to do all the registration, evaluation and preparation of the final documents. Such a platform could also be utilized by the team's Annotators. Figure 1 shows an example of a registration system that can be translated into a digital platform.

Round 1	Argument (pro)	Argument (contra)	Counter (pro)	Counter (contra)
Point of view	The Chilean Healthcare system must be replaced	The Chilean Healthcare system must be perfected but not replaced	The regular changes made to the healthcare system are proof that it must be replaced	The regular changes made to the system indicate that it can be perfected
Justification	Because it is unfair by nature	Because it has already improved since its inception	Because it means that it is structurally broken	Because with each change in the law the services get better
Evidence	United Nations report on the most unequal healthcare systems in the world	According to Congress latest report it has been changed more than 20 times	A recent poll shows that 70% of the population feels dissatisfied with the system	An article shows that the quality of the health services has systematically improved since the last 10 years

Figure 1. Example of a registration template.

The importance of annotators

Annotators take note of the counterpart's arguments in the format determined by the rules of critical debate (point of view, justification, evidence). Annotation involves registering statements considering a SPOCA (Subject – Predicator – Object – Complement – Adverbial) grammatical structure that will facilitate processing with NLP tools. Furthermore, the annotators, taking advantage of the opportunity provided by online registration, can obtain the arguer's approval of the annotation and immediately validate the registration. This avoids having to carry out extra validation procedures.

The methodology used for the annotation of the arguments is based on an interactive visualization (that is, writing and grouping in a digital tool) of elements of the process and elements of the debate. This visualization is done through a registration software (such as Stormboard). Interactive visualization is a powerful tool for documenting options or agreements, and keeping jointly prepared or individual opinions tracked visibly, without 'losing' them in the dialogue (Ropers 2017). Additionally, applications such as Stormboard allow the use of templates to implement a «one idea, one card» display. This would permit a visual record of all opinions and keeps them visible throughout the argumentative interaction. Having visible information throughout the debate promotes conscious communication towards shared meaning within a group, and with the goal of understanding and solving problems.

8. Argument strength evaluation

As stated in the rules section, during a Critical Debate Model, two different forms of argument evaluation take place; at the individual level and at a group level. A group level evaluation is a comparison between the quality of a pair of arguments at the individual level. Through this evaluation, we declare if a particular argument is stronger or weaker (< or >) than another. To conduct this evaluation, a matrix with 7 columns must be prepared beforehand. Figure 2 represents an example Matrix in which the comparison is expressed by columns A, B and C.

R	Argument	A	Argument	B	Counter-argument	C	Counter-argument
1	Argument 1 (PRO)	>	Argument 1 (CONTRA)	<	Counter 1 (PRO)	<	Counter 1 (CONTRA)
2	Argument 2 (CONTRA)	<	Argument 2 (PRO)	>	Counter 2 (CONTRA)	<	Counter 1 (PRO)

Figure 2. Example of evaluation Matrix.

Argument evaluation criteria

All judges compare a pair of arguments based on three criteria: (1) Argumentative structure, (2) logical coherence and (3) evidential weight.

The first criteria examined is argumentative structure. To be evaluated, all arguments must first demonstrate a point of view, justification and evidence (see «argumentative structure» in the rules section). If one of the arguments does meet any of these elements, it is automatically deemed weaker.

The second criteria examined is logical coherence. Logical coherence means that the point of view, justification and evidence must be meaningfully related amongst each other. Each justification must remain within the same thematic

scope as the point of view and each evidence presented must directly support the interpretations made in the justification. If an argument is less coherent than another, then it is deemed weaker.

Finally, if all previous criteria are equally met, judges will evaluate the evidential weight of each argument. The argument that displays the more systematic, valid and reliable evidence is deemed stronger. Judges are encouraged to show how the evidential weight will be analyzing (using which markers) beforehand. Some examples or markers are the use of peer-reviewed articles, recent findings, findings made with larger populations or during large periods of time or so on.

In the example shown in Figure 1, we can observe that all arguments meet the argumentative structure criteria. However, if we consider the first argument pair, we observe that the evidence used in Argument (CONTRA) doesn't directly support the justification as it doesn't prove that the changes have made the healthcare system better. Because of this lack of logical coherence, the first argument is considered stronger. On the other hand, if we examine the last argument pair judges may conclude that the key difference lies in the evidential weight (if they predetermine that perception-based evidence is weaker than academically published external evaluations).

Closing statements

Each team's closing statements are assessed in consideration of 4 requirements:

- Synthesis: It is expected that participants summarize the most important arguments and exchanges of the debate, considering both their own arguments as well as the opposing team's ones.
- Reflection: It is expected that participants reflect on the overall debate and on the arguments that were essential when deciding which point of view was preferred. Judges will evaluate whether the key arguments match their own perception of the debate.
- Meta-consensus: It is expected that participants can identify one form of meta-consensus (normative, epistemic or preference) as part of the metacognitive process of deliberation.
- Proposal: It is expected that teams are able to find a solution to the discussed conflict. If no solution is foreseen, it is expected that at least some conciliatory idea is identified.

If teams meet all four requirements, they keep all accumulated points. If they only meet some of them, 25% are discounted, and if they don't meet any of them, they lose 50% of their accumulated points.

Note: It is important to keep in mind that students are allowed to change their initial position during the closing statements. However, it is still expected that all these elements are observable.

Final verdict

Debate organizers may decide to weigh each component of the debate differently. We recommend that the final decision is made considering each round independently. Each argument round can be decided in terms of the team that won the most arguments out of the three argument pairs (each winning argument is a point). Finally, the closing statement is decided based on the criteria mentioned in the previous section. Figure 3 shows a final verdict template.

	Team A	Team B
Round 1	2	1
Round 2	1	2
Round 3	-25%	✓
Winner		✓

Figure 3. Example of final verdict template.

Ideas for the analysis of results

As showcased from our experience with TQHDC, having a structured and complete registration system allows for automatic analysis to take place. In turn, it permits the exploration of more audacious and creative forms of analysis through the operationalization of concepts from cognitive psychology and argumentation theory.

Some of the analysis ideas we are currently exploring are:

1. Markers of agency: A determination of the degree of perceived influence/agency in the policy issue discussed.
2. Markers of semiotic distance: A determination of the degree of abstractness of the arguments utilized.
3. Markers of dimensionality: A determination of the variety of dimensions (cultural, economic, ethical, political, etc) involved in the arguments.
4. Classification of controversies: A classification among epistemic, normative and evaluative framings of the controversies.
5. Classification of argument orientation: A classification among co-oriented (convergent), divergent, coordinated or subordinated arguments in consideration of how each argument is logically connected with another.
6. Classification of points of view: A classification among modal attitudes in points of view, separating factic, axiological and political points of view.
7. Forms of meta-consensus reached: A description of the forms of meta-consensus reached (or not) during the end of the debate, through the identification of normative, epistemic and preference meta-consensus markers.

9. Discussion

Throughout this chapter, we have presented our experience designing and analysing online deliberation instances. We have presented our recent work with

Tenemos Que Hablar de Chile (TQHDC) in order to extract insights that helped us re-design the Critical Debate Model for an online age. In particular, we reaffirmed the need for opposition in deliberation experiences and noticed how the lack of consequentiality hindered the impact of TQHDC. However, we did recognize how this project innovated regarding the role of annotation (anticipating automatic processing) and the exploration of new analysis options through the operationalization of argumentation theory and cognitive psychology. These learnings helped us to improve the Critical Debate Model and transform it to an online experience. Furthermore, we noticed how an online format allowed for more social integration and could possibilitate the use of distributed teams using participants from different cultural backgrounds and continental locations. This chapter then summarizes how an Online Critical Debate Model can be implemented in practice.

In Chile, debate events started out with a politically naive pedagogical pretension. However, as relevant stakeholders noticed how mobilizing debate is for adolescents' social consciousness and desires for a more open democracy, debate could no longer be perceived as just a traditional 'content' learning strategy. Debate and deliberation, especially when integrated into the curricula, can be a powerful tool to deepen political participation and to renew our compromise with democracy. In this context, having a more comprehensive and well-designed debate model was considered critical for following up on that promise. The Critical Debate Model seeks to do just that, through a thorough conceptualization based on critical and dialogical developments both in psychology and philosophy.

On the other hand, the consolidation of globalization and the unexpected digitalization produced by the 2020 pandemic, forced our team to think of ways to translate our advances into a digital format and new technologies. We have now started to grasp the new possibilities that emergent technologies open, both for design and analysis of deliberation experiences. The internet and new communication technologies allow students to interact with people they may otherwise never have met, through stylistic and pre-structured softwares that make the information registration process, time keeping, instant broadcasting and recording and many other aspects of a debate event much more user-friendly. Additionally, new advances in data science, particularly regarding natural language processing now allow debate organisers to create automated reports and to explore complex new ideas for analysis that are easily scalable, transparent and reliable. As we have asserted, we do believe that this is possible only if the analysis ideas are based on meaningful theoretical models.

Especially now, it seems vital to come up with new ways to promote online critical debates. Learning how to debate is learning how to argue, deliberate, reach agreements or at least to map our disagreements (meta-consensus). This ability is critical for a post-pandemic world that has already seen how western democracies and social cohesion are becoming weaker each year. Developing online debate models in developing regions is also crucial to bring about a more inclusive and critical globalization process.

Despite the relevance of designing an online critical debate experience, there are many challenges left to address. The CDM has to find better ways to increase

the traceability of the arguments, that is, to register individual arguments and not only the overall conclusion of the debate. Individual arguments can be considered as the raw material of deliberation and the ultimate reference point to determine the presence of knowledge construction. We have made some advances in this line by including annotators, but there is still much to advance.

In terms of pedagogical design, we still need to find ways to promote better argumentative processes by allowing students to metacognitively pre-assess each contribution and by mitigating the incidence of ill-structured, imprecise, factically incorrect and disingenuous opinions. NLP could allow for the development of automated markers of poor quality arguments to let students train and become more aware of their own process. In this sense, the current design does not incorporate the sort of automated feedback and scaffolding needed for students to self-regulate and co-regulate their own argumentative practices and beliefs.

In terms of analysis and processing, we have to still look for better ways to validate registered information to assure a more reliable analysis. We propose that applications such as Stormboard could help in this direction to create interactive visualizations of the annotation process. Having immediate validation helps to increase trust in the process and to mitigate the impact of the annotator and judges bias. The current analysis plan also needs to be consolidated and empirically tested to determine which indicators help institutions to make better educational decisions after the event.

In terms of event organizing, we should find trustworthy and transparent mechanisms that help participants and judges to determine what are valid sources of information and how to avoid fake or unreliable news. This will likely become a sensitive topic considering how the notion of valid news is under political analysis and traditional sources of information lacking the legitimacy that they used to have. Regarding distributed teams, we still need to test the best way to cope with language barriers and time zone differences in order to make a fair and inclusive event in everyone's minds. Cultural and geographical differences can also problematize the idea of trustworthy information sources, as some participants and judges may attribute more epistemic or less confidence to certain social identities, leading up to epistemic injustice (Fricker 2008). In this sense, we notice that there is still a great challenge regarding how to promote epistemic justice during debates and what does that mean in this particular context.

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