Political, Dialectical and Conative Aspects of a Collaborative Decision Making Tool for CoPs

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Abstract. Designed for and evaluated by computer science researchers, medical doctors and civil and mechanical engineers, the Collaborative Decision Making (CDM) tool HERMES (Karacapilidis and Papadias, 1998, 2001) is about to be adapted for another kind of audience, i.e. the communities of practices (CoPs) under the name "COPE_IT!" (http://copeit.cti.gr/) and currently developed in the framework of the project PALETTE (Pedagogically sustained Adaptive Learning Through the exploitation of Tacit and Explicit knowledge). The aim of this paper is to suggest three directions of development that would provide new functionalities to this CDM tool having to take into account some essential characteristics of CoPs and that, like HERMES did, intend to "augment classical decision making approaches by supporting argumentative discourse among decision makers" (Karacapilidis and Papadias, 2001: 1-2).

Keywords: CoP; Collaborative Decision Making; Argumentation.

1 Introduction

Depending of its nature (its level of development), its field of interest, its size and its organizational mode, a CoP will use a CDM tool for different purposes related either to the life of the CoP (operational decisions) or to members' practice outside the CoP ("domain" decisions) (Künzel, 2006). So, we can at first sight identify at least four possibly essential differences with the situations for which HERMES has been developed:

1. the type of subjects to submit to a decision making process (technical and accurate vs pragmatical and large),
2. the type of arguments supporting decisions (scientific proofs vs probable opinions),
3. the recognized reliability of participants (experts vs more or less experts),
4. the number of participants (few vs numerous).

These four possibly essential differences are, in my view, sufficient to suggest that some aspects should specifically be taken into account when developing a comprehensive tool for CoPs. These aspects are, at least, three a) political (about the quality and quantity of participants), b) dialectical (about the quality of arguments and proofs) and c) conative (about the motivations and emotions of participants), and could lead to create some new functionalities for COPE_IT!.

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I will argue in favour of the addition of new functionalities using a very short and simple discussion taken and freely implemented adapted from the COPE_IT!'s testing Web site where the issue is "Where to build a factory?".

2 COPE_IT!'s Basic Principles

Once an issue is proposed, each participant (the list of which is accessible to users and not closed) is invited to add alternatives or potential choices to solve the issue as well as positions in favour or against these alternative solutions during the predefined time allowed for discussion.

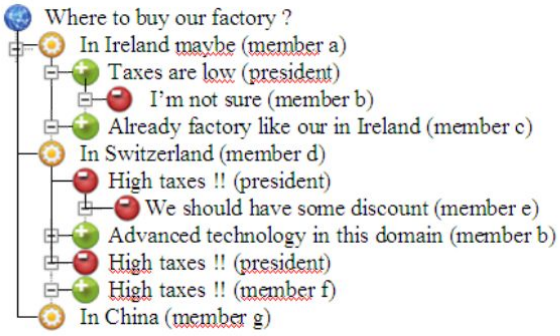

Fig. 1. An example of discussion.

Participants are invited but not obliged to comment or justify their interventions.

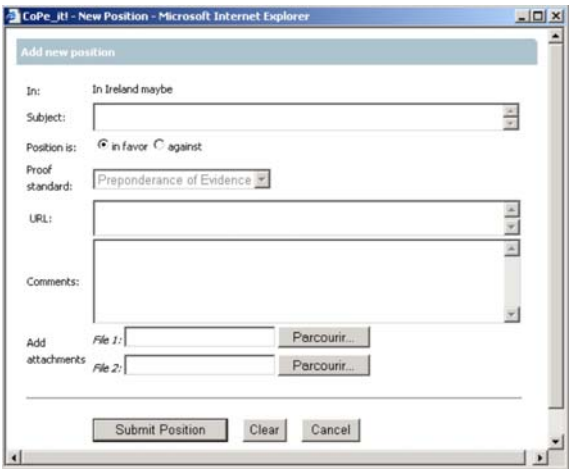

Fig.2: Complementary information about a position

Even if COPE_IT! is not conceived as an automatic decision maker (it is "only" a support for CoPs to make a decision), the arguments or reasons are weighted so that

"recommended" choices can appear. This supposes that the tool is equipped which algorithms that allow calculating which the strongest or most "recommended" alternative is.

In HERMES, the weight of alternatives and positions was calculated according to their level of activity: "an active position is considered as "accepted" due to the discussion underneath (e.g. strong supporting arguments, no counter-arguments), while an inactive position is (temporarily) considered as "discarded" or "rejected". So, according to the adopted proof standard, a position *p* is active if a) at least one active position argues in favour of it (Scintilla of Evidence), b) if there are not any active positions that speak against it (Beyond Reasonable Doubt), c) when active positions that support it outweigh those that speak against it (Preponderance of Evidence)" (Karacapilidis and Papadias, 2001: 7-8).

As it can happen that two alternatives receive the same score, HERMES offered the possibility to introduce constraints (also subject to discussion), i.e. preference relations of the type *x is more (less) important than y* or *x is of equal importance to y*. This functionality is not yet accessible in COPE_IT!, but there are good reasons to make it part of our tool.

In both figures above, we observe that all positions have the same weight, that all alternatives and positions can be supported by only one participant unless it is repeated, that one participant repeats one of his positions so that it is active again, that a very subjective position ("I am not sure") is opposed to a rather objective one ("High taxes"), that a same position is "against" for the president while it is "in favour" for member f, that none of the participants has commented nor justified his positions and, finally, that both alternatives received the same score.

Each of this observation raises a question about the efficiency of the CDM tool. Indeed, is it enough to propose a patchwork of opinions to make the decision making collaborative? Does the result really reflect the position of every participant? Does it really help to make a decision? The functionalities exposed below should help to ameliorate the way to calculate positions' activity as well as the quality of arguments and proofs. Some of them would probably require some short preliminary training on argumentation or lead to the creation of an Argument Builder Tool as the one proposed by Karacapilidis and al. (1997).

3 Some New Functionalities for COPE_IT!

3.1 The Political System of a CoP

Because most of the CoPs function as a democracy, the political system of COPE_IT! by default could be democracy. But perhaps some participants, if there are more expert (for a domain decision) or are more responsible (for an operational decision) should be sometimes enabled to enjoy an aristocratic status. COPE_IT! could then

have a functionality allowing a preliminary choice between several political systems that would determine the weight of some participants.

- Democracy (one person = one vote)
- Aristocracy (some persons have more than one vote)

Username	Number of votes
Username	Number of votes
Username	Number of votes

Add another username

3.2 A Support Function for Positions

Even if most of the CoPs function as a democracy, it is not enough to calculate the activity of an alternative only on the base of the number of positions in favour or against it. The number of participants supporting it is also important. So, each position could be followed by a button "Support" as well as by an indication of the number of votes in favour of this position. Of course, one and the same participant could only once support a position.

Other advantages of this functionality are that it would encourage participants to be more active in the discussion and that it will not be necessary to repeat a position to make it active again or to make it more.


Advanced technology in this domain Support x votes


High taxes Support x votes

3.3 Obligatory "Comment" Field or "Justification" Field

Depending on the argumentative culture of the CoP and on the argumentative skills of its member, positions will be argued or not, well-argued or not. It could be then useful to make the "Comment" field obligatory. The immediate effect of such a constraint is that it will be impossible to pitch a position without any justification and this will of course contribute to guarantee a minimal seriousness (and perhaps also the well fairness) of the discussion.

Making the "Comment" field obligatory is interesting for operational decisions; bur is not enough to evaluate the quality of an argument in the case of domain decisions. Indeed, in such a case, positions in favour or against an alternative could be either scientific proofs or probable opinions, subjective or objective. In the example above, it is clear that the position "I am not sure" is a very subjective position, but the position "High taxes" could also be very subjective (depending on the level of information of the participant that proposes it).

To give participants information about the kind of justification that is given to a position so that they can better evaluate it, it would be useful to replace the comment

field by an obligatory justification field where the proposer could choose between the following justifications (not exhaustive list):

- Scientifically proved and unquestionable fact
- Scientifically proved but questionable or questioned fact
- (Widely) recognized fact
- Observed fact by myself
- Observed fact by several people
- Common belief
- Individual belief
- Other

Of course, it is not enough to assert that a position is scientifically proved and unquestionable so that participants adhere to it immediately. The proposer keeps always the opportunity to refer to an URL or to attach a document to support his claim.

The option "Other" allows the proposer to write anything (s)he likes in support of his/her position, e.g. justification that are not at all intellectual but rather emotional (conative aspect).

Other advantages of this functionality are the following: first, it could favour the collaboration between participants, e.g. if I propose a position that I justify saying that it is a (individual or common) belief and that someone bring new information about it, saying that it has been scientifically proved or saying that it is a fact that I observed and that other people comment saying that they also observed this. Second, it would explain why a same position can be "against" for a participant and "in favour" for another one (i.e. because the justification or the point of view is different).

Should this distinction of justifications between domain decisions and operational decisions be adopted, it would be necessary to add a preliminary function determining the screen that will appear when a participant wants to add a position.

3.4 A Self-Weighting Function for Positions

For positions relying on probable opinions, probably the most frequent in a CoPs, as scientific theories are generally not their specific subjects of interest, it could be useful to create a function through which a participant could self-weight his own position by mentioning its degree of conviction on a scale from 1 to 5, for example.

This would not ensure that a position is truer nor more reliable, but it would give participants a better idea of what others believe and to what point they are ready to change their mind or not (conative aspect). Other participants could then, if the support function is developed, indicate if their share this position and at the same degree of conviction.

 Advanced technology in this domain Support

x votes degree 1

x votes degree 3

4 Conclusions

The above proposed functionalities, some of which are to be placed before the discussion begins (choice of a political system, choice between domain and operational decisions), are all related to political, dialectical and conative aspects of a collaborative decision making process and quite simple to introduce. They are all about the way to better evaluate the weight of alternatives and positions so that it can really help CoPs' members to better evaluate the positions held by participants and to make a decision that reflects the positions as near as possible.

But it is clear that they should completed by other useful functionalities, perhaps more complex to develop, aiming at

- making the discussion more dynamic: e.g. allowing a participant to modify his (and only his) interventions while keeping a review of all the changes made so that one can later analyze how the discussion evolved;
- making the discussion more ethical: e.g. determining the role and the prerogatives of a moderator towards disruptive or disrespectful participants), etc.;
- targeting the scope of the discussion. Indeed, anyone who gets into a decision making process (individual or collaborative) aims at making the best choice, but the best is relative to several aspects: the best for whom? In terms of what (truth, pleasure, usefulness, beauty, efficiency, time saving, costs, etc.)? If this objective is not clear and explicit at the very beginning, discussions can become very long, misleading or upset - of course a lack of accuracy of the issue would lead to the same effects. It would be then useful to develop functionalities such that both the issue and its "orientation" are or can be negotiated before getting into the discussion as such. Unless this should be the occasion of a discussion in itself, this could be done either through, like in HERMES, the possibility to introduce constraints in the course of the discussion or through a preliminary function giving the choice between the several options of the best solution sought-after;
- keeping tracks of the previous discussions and decisions so that the CoPs' members (especially for CoPs where there is a high turn-over) can refer to it in the future (Knowledge Management functionalities).

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