

MODELING OF A DEMOCRATIC CITIZENSHIP COMMUNITY TO FACILITATE THE CONSULTATIVE AND DELIBERATIVE PROCESS IN THE WEB

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Abstract: Electronic democracy should facilitate the discussion and participation of citizens as well as electronic voting in governmental issues. Governmental applications available in the Web have not evolved significantly toward real participation of citizens. The implementation of an e-democracy system can benefit from incorporating features from distinct information channels, especially television. This paper discusses an Interactive Government-Citizen Model that allows and stimulates the decision-making process between government and citizens, facilitating citizen participation through a virtual community and through integrated management of information in the Web environment. In this Model we identify the phases of a consultation and deliberative process as carried out through a Democratic Citizenship Community, the discussion of which is structured in a Government-Citizen Interaction Language known as DemIL. The degree of maturity initially proposed is structured in four levels: Immature, Poorly Mature, Mature and Sufficiently Mature. In order to measure the degree of maturity, by levels, we use a set of indicators, for later construction of an evaluation tool.

1 INTRODUCTION

The use of Information and Communication Technologies (ICT's), especially the InterNet, allows citizens access to information, the rendering of services and joint participation in governmental issues. The participation of citizens, in particular, can make democracy feasible, since it generates a continuous flow of information between citizens and the government, assisting both in the decision-making process. However, in order for democracy to really exist, citizens must articulate a speech, outline proposals as well as compare and confront them with others through public dissemination means. Electronic democracy (e-Democracy) can facilitate this articulation, turning ICT's not only a voting tool but also an environment for discussion and substantial citizenship for accomplishment of democratic processes.

Many countries have adopted various methods to promote citizen participation in decision-making, including referendums, public hearings, public opinion surveys, negotiated rule marking, consensus conference, citizens jury or panel, public consultative committee or focus group (Rowe and

Frewer, 2000). Brazilian democracy is essentially representative, since government bodies are defined by way of elections. The existing forms of direct manifestation of popular sovereignty in the Constitution of the Federative Republic of Brazil make mention of referendums, plebiscites and popular initiatives.

The UNPAN annually releases a Worldwide Electronic Government Report – e-Gov (UNPAN, 2005), with Brazil ranking 18th in 2001. In the year 2005, however, Brazil plunged to 33rd position. From 1st in Latin America, Brazil moved to 3rd position, after Chile and Mexico. The information portal of the Brazilian government receives special mention in said report, although the evaluation criteria are not made clear. Brazil stands out worldwide when it comes to electronic services such as Tax Return submission and InterNet purchasing system. Participation has nonetheless not been duly explored. This level deserves attention, and new mechanisms to stimulate participation in the deliberative decision-making process should be made available to the citizens, with consultation and deliberation in the Web environment.

Therefore, what are the requirements, characteristics and limitations of the e-democracy modeling so as to ensure that real needs are met and interaction between users and e-Gov Web-based systems is optimized? How can we ensure and measure the effectiveness and continuation of a consultation and deliberative process, with citizen participation in governmental issues?

In this study we relate a Government-Citizen Interactive Model structured in phases, and we use DemIL (Maciel and Garcia, 2006a), a Government-Citizen Interaction Language, the aim of which is to promote discussion and deliberation. In order to ensure citizen participation we propose the construction of a 'Democratic Citizenship Community' (DCC), with characteristics of this focus of application and adapted to DemIL. An evaluation of the effectiveness of the processes in a community is therefore discussed, ultimately seeking to conceive an environment capable of promoting a better deliberative participation.

With a DCC, an environment with integrated information on the Web, we intend to engage citizens and to investigate whether they develop maturity for the decision-making process. We believe that if the consultative and deliberative processes are integrated within the same communication means (in this case, the Internet) it becomes possible to measure the degree of maturity in decision-making. The degree of maturity initially proposed is structured in four levels: Immature, Poorly Mature, Mature and Sufficiently Mature. In order to measure the degree of maturity using levels, we use a group of metrics and classifications useful for subsequent construction of an evaluation tool.

2 E-DEMOCRACY

In democracy power can be exercised by many, it is the people's expectations that prevail in all political decisions. However, freedom of expression in democracy does not merely involve being able to express an opinion about predefined options. In order for it to be effective, it must allow people to articulate a discourse, outline proposals, discuss them and confront them with other proposals through public communication means. Electronic democracy should facilitate the discussion and participation of citizens as well as electronic voting in governmental issues.

With the exception of deliberative councils and public opinion polls, which are extremely codified, anarchical and creative use of ICT's in the decision-

making process is problematic for political science (Monnoyer-Smith, 2005). Thus, introducing an opinion consultation tool does not imply success through effective user participation. Monnoyer-Smith (2005) points we have a not-identified deliberative object that presents a number of characteristics of a traditional deliberation, but does not correspond to the deliberation in the totality: it is dynamic, with actors entering and leaving, a large use of rhetoric, interpersonal emotions and relations. This apparent complexity is ideal for a deliberative environment that explores these characteristics by a creative way and gives more power to the real deliberation.

The Organization for Economic Co-operation and Development (OECD, 2006), in turn, identified five challenges for e-democracy: scale problem (to become available for all); qualification and construction of the citizenship; guarantee of coherence of the information; the guarantee of continuity of the process and evaluation of the effectiveness of the process. For Scheiderman (2002), the attainment of a national consensus that reflects the opinions of millions of citizens through a mix of representation and direct participation will depend on an ambitious development. Even basic questions such as to establish a programming, to moderate the discussions, to organize the groups and to supply summarization of the discussions will depend on an innovative and state-of-art project by means of tests.

At the international level we point to three e-democracy tools: Webocracy, DEMONS and EURO-CITI. These tools make possible the consultative and the deliberative process, as they focus more on making information available and promoting consultations through, e.g., discussion forum and opinion polls. They do not allow us to guarantee if maturity has been reached in the theme discussions so as to allow measure a conscious decision-making.

Through an evaluation of the current conditions of the Brazilian governmental sites (Garcia *et al.*, 2005) it was verified, among other items, that the investigated federal, state and municipal governments do not dispose in the sites tools that allow to the effective participation of the citizen by an automatic way. These data bump against the position given to Brazil in the UNPAN (2005) ranking of e-Gov. It was investigated the disposition of the following tools of participation in each site: e-mail, chat, discussion forum, voting/pull and workgroup. Significant experiences with regard to consultation and/or deliberative processes in the Brazilian Web are found in the City halls of the

cities of São Paulo/SP and Porto Alegre/RS. In the Federal Government, through the site of the Congressman Chamber, one of the participation options is the discussion forum, which reveals an important space for the discussion of government and citizen, but it makes difficult a decision making, because it is a half-structuralized consultation environment and without deliberative purpose.

In general, we note that applications for consultative and deliberative purposes present problems, since: a) they do not come as a sociability space focusing on the citizen as an individual, b) they must stay on for a certain period and be effectively used, c) they lack structuring mechanisms for the discussions, d) they do not favor information retrieval, e) they do not facilitate deliberation and, consequently, they do not facilitate joint decision-making by the government and the citizens, and e) they do not allow us to verify if maturity has been reached in the theme discussions so as to allow a conscious deliberation. It is standed out that the availability of technological infrastructure is not enough to make possible the e-democracy that is a current effort of many governments.

3 THE GOVERNMENT-CITIZEN INTERACTIVE MODEL

Considering the studies related to the use of ICT's in the consultative and deliberative processes in the Web (Maciel and Garcia, 2006) and the deficiencies presented by some of these tools, as well as the existence of strategies used for the traditional medias to attract the participation of the public, it is proposed the Government-Citizen Interactive Model.

The process starts with some definitions by the government such as type of manifestation and calendar (phase 1). To engage citizens we propose the creation of a virtual community for citizens to interact on governmental issues, one that is structured by geographic and thematic categorization of the participants and election of popular representatives, among other things (phase 2). The debate phase (phase 4), in particular, requires structuring to facilitate discussion of the demands (phase 3) and to facilitate Web integrated information retrieval, with qualitative and statistical analysis of data (phase 5). Thus, the posting of opinions forces the citizen to give an opinion, pro or con, on the relevant topic and to justify his/her vote. Then the final voting takes place. The existence and performance of a moderator are also modeled. This

facilitates a deliberative strategy whereby the prioritized demands (phase 5) are presented for voting (phase 6). In order for citizens, government and moderators to actually engage in discussion, we propose a DemIL(Citizen-Government Interaction Language), which can be useful not only for the application proposed here but also for other methods of direct participation of the citizens in decision-making.

Considering previous studies we structure the participation environment according to phases and activities as shown in Table 1 (Maciel and Garcia, 2006b). We should note that the phases and activities are not exclusionary and may or may not be considered in the development of a Web environment for these purposes.

Table 1: Phases of the Consultative and Deliberative Process in the Web.

Phase	Description of core activities
1. Opening	<ul style="list-style-type: none"> - government provides the calendar - government provides the plain of actions - government asks some methods of participation - citizen receives prior notice - administrator opens the virtual community - administrator register in cadastre of geographic regions and/or thematic - administrator opens the virtual library of information
2. Virtual Community of Citizens	<ul style="list-style-type: none"> - inclusion of the citizen in the virtual community - register in cadastre of the popular representatives - register in cadastre of moderators - register of the government representatives - voting of representatives and/or moderators - deliberation of the voting process - participate in socializing environments - participate in virtual library of information
3. Register of Demands	<ul style="list-style-type: none"> - register in cadastre of the opinions
4. Consultation debate	<ul style="list-style-type: none"> - discussion of opinions - motivation for the discussion
5. Clustering	<ul style="list-style-type: none"> - clustering of opinions/sumarization - prioritization of the opinions - prioritization of the opinions for demand
6. Voting	<ul style="list-style-type: none"> - cadastre of demands to voting - register of votes - counting a votes
7. Deliberation	<ul style="list-style-type: none"> - administrative process report

In the Interactive Model proposed, the modeling of electronic participation takes into account the characteristics of an audiovisual plan, seeking to explore a topic, the existence of a conflict, the definition of personages (citizens organized by community), a structure to engage in discussion, and

a final technical plan, which constitutes the deliberation report. Through discussion we seek a consensus so as to allow informed voting. In this intermediate phase we use some characteristics of techniques for decision-making.

The phase of Consultation Debate (phase 4) requires structuration in the discussions, once that the studies in e-government reflect it structuration lack in others interaction resources (e.g., forum). Through the DemIL it models a forum structured with own characteristics (Maciel and Garcia, 2006a). In figure 1, bellow, the DemIL language is presented, contemplating mainly phases 4 and 6.

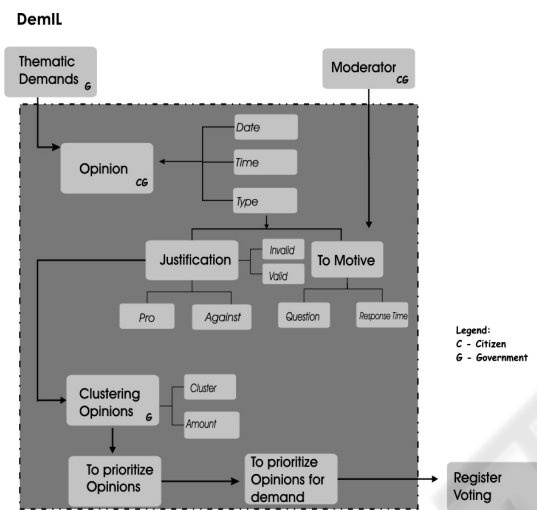


Figure 1: DemIL (Maciel and Garcia, 2006).

In this forum the demands previously registered by thematic and/or geographic region are argued, and consist in opinions (Arguments), which can excite several other opinions (counterargument). An opinion possess the following attributes:

- Date: register of date of the opinion;
- Hour: register of the hour of the opinion;
- Type: an opinion can be a justification for the demand, or either, an argument, or a question for motivation, sent for the moderator.
- Justification: Pro or Against: confrontation between two forms and request of positioning of the opinative, through which it classifies its opinion as being favor or against the registered in cadastre demand. Later each Justification is validated as valid or invalid, for the moderator, in order to make a previous cleanness of data. Compared with one reality show, it consists in the "thick wall" of the demands, and can be adapted for election of popular representatives. It allows a reference to the documents of the Library of Information, that stores multimedia of distinct formats.

- To motivate: to stimulate the use of the environment tasks are created, under the form of questionings, for example, to the participants of the discussion, relative to thematic the envoy for a moderator, which assumes the role of the "presenter" of a televising debate. This can be of the type automatized (through a database of motivations) or an animated agent. Examples of questions that can stimulate the discussion: In your opinion, which are the two people with better organizative capacities in the group (to lead, to co-ordinate, to guide, to manage)? Who would be benefited with demand "x"?

The components "Clusterization Opinions" (phase 5), "To prioritize Opinions" and "To prioritize Opinions for demand" must be considered for implantation of this complex ambient however they are not the focus of this paper.

The proposed space of discussion and deliberation is organized around a Virtual Community - VC's (Phase 2). It must be considered that the existence of the citizen in the virtual world is given by his/her identification through a unique profile and for the consequent link between the members. Therefore, the aspects of the conception of one VC and its structuration to support a democratic process proposed are argued bellow.

4 DEMOCRATIC CITIZENSHIP COMMUNITY

The VC's are an extension of the communities in the real world, however there is not a direct relation with the geographic localization of the involved members, but an union for common interests. A VC must possess four elements that characterize (Hummel and Lechner, 2002):

- a) The clear definition of the group: clear limits (focus), reference to real communities, rules for admission, authorizations for use and access, rules for use and punishment for misconduct.
- b) The interaction between the members: environments of chat rooms and forum, possibility of contribution, selection of contributions, monitoring, internal and external events.
- c) The linking between the members: protection to the privacy, individuality, sub-groups, usability, identification of members and organizers.
- d) The exchange of information in a common place: archives, analysis of the participants (recommendation), voluntary work, culture of use and roles of members.

Several methodologies have been proposed for

studies of the VC's (Preece and Maloney-Krichmar, 2005), focusing the ethnography; the techniques of linguistic analysis and context; visualization techniques; evaluation with interviews, questionnaires and analysis of log registers. Other researchers had tried to adapt the evaluation by using metric systems of Human-Computer Interaction (Preece, 2000) (de Souza and Preece, 2004). Researchers and developers of online communities are most worried in trying to understand the dynamics of the VC's (Hummel and Lechner, 2002). The challenge of virtual environment for the use of virtual communities is that these not always are capable of keeping the same level of collaboration, motivation and involvement of the real communities.

In a preliminary analysis of 47 governmental and no governmental communities available in the Internet, of national and international level, distinct areas of performance had been identified (for example, government, entertainment, relationship and businesses). Such communities make use of resources for interaction with and between the users, making possible a diversification of actions. The deliberation can be possible inside of small communities (above one hundred people) and in bigger communities (above a thousand people) where there be little knowledge and confidence between the members (Schneiderman, 2002). For the author, through the creation of small groups of interest of citizens of similar mentalities, in which there is the understanding and is deposited a highly reliable level, it is possible to develop the necessary influence for campaigns in favor of national questions and the support to candidates for popular representation unto the spheres of government.

The present virtual communities possess many social characteristics, without the focus in the democracy, and they do not stimulate the participation of the citizens in the effective decision making process. A strategy that effectively completes the communication between government and citizens, with the possibility of deliberation of important social matters is the subject for study in this work. An alternative of success in the interaction is seen in the virtual communities through Internet between government and citizens, for being attractive under the social point of view and for supporting a participative project of digital inclusion in the electronic democracy.

The problems that arise owe to the fact that when citizens are asked to participate in public consultations and deliberative processes, they individually receive information from different communication means (television, newspapers,

Internet, among others). This process persists until the moment of voting. Thus, it is not possible to verify whether the individuals reached maturity in the decision-making process so as to ensure they are really exercising their role as citizens in the Web environment.

The study suggested in this work is especially concerned with the phase 2 (virtual community of citizens) of the model previously presented in Table 1, however it integrates almost all the phases. Through the conception of 'Democratic Citizenship Community' (DCC) it is intended to engage the citizens in the consultative and deliberative process and to verify if these, in fact, develop maturity during the process of decision making, in view of fact that he/she will access distinct information and communication integrated to the environment.

The DCC searches to guarantee the effectiveness of the participation of the citizens in the consultation and deliberative processes through the following components: Profile of Citizens, the Register of the Popular Representatives and/or demands, a component for Debate, linked to a Library of Information, Space of Socialization, a component for Voting and another one for Deliberation. Figure 2, below, represents the proposed environment.

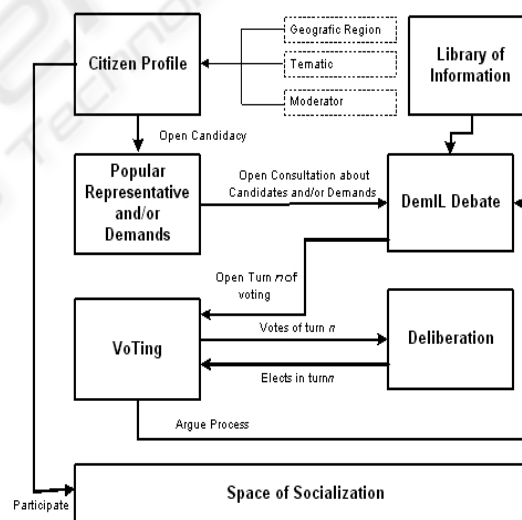


Figure 2: DCC Model.

The Debate is organized as proposed in the DemIL (Maciel and Garcia, 2006a) that separates the opinions in "agree" and "not agree", with the respective justifications. A stated period is settled for the summarized presentation of the final results for Region/Thematic, managed by the Moderator. After this phase the members are stimulated to vote, in determined turns, and the results will be tuned available in the deliberation environment.

The components of the DCC has functionalities as displayed bellow.

- *Citizen Profile*: the initial step is the formation of the Community that is nothing more but the insertion of the individuals in the virtual world, through the registering in cadastre of the profile of these citizens. This profile allows that the demands are worked extensively and distributed, geographically and thematically. This distribution can be compared to the existence of "virtual rooms" in chat rooms, that organize the virtual space, and allows the exchange of information between the components of the group. The geographic and thematic distribution is predefined conforming to the governmental management.

- *Popular Representative and/or Demands*: the individuals must candidate to the popular representation, being able to be, for example, a partisan or advising representative. Each candidacy possess a plan of work, or either, a justification for the candidacy. The demands to be argued also will be registered in cadastre by the operating citizens in the community, as thematic daily predefined.

- *Library of Information*: the citizen needs to have access to the information, in distinct medias, so that he ou she can think and vote conscientiously. Both the government and the citizen can turn available documents and links that are referred to the the discussions.

- *DemIL Debate*: in this component the citizen can exchange information that is one of the basic characteristics of the discussion. It is a structuralized forum with characteristic proposals in DemIL.

- *Space of Socialization*: the inclusion of spaces of socialization, such as chat, mural or coffee-bar, where the members can known better each other, can motivate and integrate the members of the CV.

- *Voting*: a final question is placed in discussion so that people can vote against or in favor of this, through private vote and being optional the justification for the vote (phase 6). The votes are entered, as well as an automatic report of the justifications for question is generated (phase 7). The process can be carried through in n turns, being that in each turn is necessary a time for discussion and choice of vote options. After carried through each election a deliberation is made.

- *Deliberation*: In each turn it is deliberated whom/what/which will go for the next phase of the election or whom/what/which was the one chosen by the community.

Through of this application will be tried the proposed model.

4.1 Evaluation of the Process

The stimulation to a effective participation and a continuous process in the community is a challenge (Kim, 2000). Some strategies to control the problem of motivation in virtual communities proposed in this work are the clear division of the environment for geographic and for thematic region and the insertion of a more operating moderator (or of leaderships). The presence of a more operating moderator could monitor the behaviors in the environment and the use of common-sense to manage the discussion and deliberation in this environment. A system of recommendation of use of the environment can also assist the users to participate more actively.

The effectiveness of the process of transformation of information in the environment will be measured through the analysis of the data remover from the environment. With the use of techniques of observation and statistics of use will be investigated some metrics (see Table 2).

As determinative factors in the effectiveness of the process of transformation of information in consultations and deliberations carried through VC it is determined and investigated if:

- the use of resources of communication made available (profile, coffee-bar, forum, ballot of voting, among others) propitiates the satisfaction of the user, being him ou her capable to indicate some resource that him or her judges to support some activity in the community;

- the communication is continuous, with the establishment of clear objectives and motivated discussions;

- the spaces of personal socialization, as a coffee-bar or a Chat, make possible that the members know and change experiences each other, being able of indirectly to motivate them to participate of the community.

- the existence and use of a structure for management of the knowledge, with information and resources for exchange of information (library).

- the role of the moderator and his/her influence in the process, through the analysis of activities assigned for the monitoring, such as: attendance to the members, stimulation to the discussion, summary of discussions, advices, schedules and guarantee of use of the rules.

- there is the necessity of a common agreement of the processes of the group, a feeling of pertaining (attributions) and an involvement in the planning and management of the community;

- satisfaction and identification with the VC's, correspondent to the expectations of the members;

- there is a relation in the interest for the discussion and consequent deliberation, or either, members that participate of the discussion also vote.

- the members receive information from other medias, that must converge to the V.C. and the V.C. must use other media to notify its actions, aiming to reach a bigger number of citizens.

- there is confidence of the members about the information and processes of the community.

The effectiveness of the decision-making process in the DCC will be measured through the analysis of the data remover from the environment. With the use of techniques of observation and statistics of use will be investigated some metrics to the decision-making. At last, through a questionnaire available in the environment, the satisfaction of the participants will be measured.

The methodology adopted in this study includes both bibliographical and applied research and is applied in four phases, as is generally described in Table 2 below.

Table 2: Study Phases and Method.

Phase	Method
Phase I	Conception of DCC 1. Conceptual Model of a DCC 2. Interface Design 3. Implementation
Phase II	Implementation of a DCC
Phase III	a) Definition of indicators and metrics to evaluate the degree of maturity in decision-making b) Initial Data Analysis: 1. Register Participants Profile 2. Register Moderators 3. Postings for Discussion (pro and againts) by theme/demand 4. Performance of Moderator 5. Resources used by participant 6. Participation in the Voting by theme/demand 7. Use of Socializing Space 8. Use of Library 9. Respect to the DCC rules of use 10. Satisfaction of Participants
Phase IV	Analysis of the degree of maturity in decision-making regarding DCC

In the Phase I, the DCC is desenvolved using the follow techniques: analysis of domain and user/scenarios; WebML diagrams (Ceri *et al.*, 2002); wireframes; prototype evaluation (Garcia *et al.*, 2005)(Preece, 2000) and database project/Web language.

A later implementation of the DCC (Phase II) will include deliberative decision in education as a case study. This system has already been introduced

in Universidade Federal Fluminense (RJ) and your use will be managed.

In the Phase III, before definition of metrics, will be use the DCC application to measure the degree of maturity in decision-making. The data analysis will be accomplished with observation techniques (variables 1 up to 9 of the table 1) and with questionnaire (satisfaction of participants).

Finally the theoretical approach and the practical experiment will be analyzed.

4.2 Decision-making Measure

Decisions are made in response to a problem that needs to be solved, a requirement that needs to be met or an objective that needs to be accomplished. Decision entails a process, in other words, a sequence of steps or phases succeeding each other and known as the decision-making process. Thus, by focusing on the democratic consultative and deliberative process in the Web, as proposed structure in model, we attempt to measure the degree of maturity in decision-making in this domain.

In order to define a degree of maturity in decision-making for consultative and deliberative processes we propose four levels:

1. *Immature*: initial process, unpredictable, conditional on acceptance of an invitation for participation in the DCC. Indirectly, it shows the interest of a given public in a certain theme proposition.

2. *Poorly Mature*: a participatory consultative process that involves an interest in discussion rather than necessarily in voting.

3. *Mature*: a participatory deliberative process that involves an interest in voting rather than in discussion.

4. *Sufficiently Mature*: a participatory process, effective and deliberative, whereby the citizen participates in all activities, with a minimum frequency.

In order to measure each level, we will use some metrics, analyzing some variables of DCC, e.g.: Immature (registration, candidacy as moderator); Poorly Mature (number of postings in the discussion by topic (pro-against), number of justifications posted in the discussion, size of justifications; performance of moderator); Mature (participation in voting); Sufficiently Mature (participation in the entire process, used of other spaces, respect the use rules, trust). The proposed model is being experiment through DCC and the degree of maturity in the decision-making of the citizens will be definitively defined and then classified.

5 CONCLUSIONS

The way public opinion consultation environments (forums, chats, etc) are currently devised do not facilitate the recovery of information and resulting deliberation of the process. Diagnoses of current participation initiatives and real longings of citizens converge to the need for a robust environment for implementation of governmental issues. By researching the existing relationship between televising techniques and virtual interaction strategies as well as the resulting participation of citizens in debate environments, we can conceive the Government-Citizen Interactive Model. The citizens are the "personages" organized in a VC structured to that end. That way it is possible to promote e-participation and e-vote, the decision-making process being a reflection of consultations, voting and deliberations.

The conception of a DCC for citizen interaction with governmental issues allows us to verify the effectiveness and continuation of an consultation and deliberative process in the Web, allowing us to learn and assess citizen behaviour during the process.

Other serious challenges are posed in the search for e-democracy, since the use of such system by millions of citizens (e.g. in a national debate) highly increases the complexity of the model; it can be misused by influential groups or by activist politicians; the existence of ill-intentioned hackers and invisible participants (lurkings) is also reason for concern, and credibility should be ensured regarding the relevant information and voting. The issues trust and security in e-Democracy, data-protection and privacy are essential to e-Government applications and deserve to be investigated afterwards.

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