

Evaluating the Efficacy of E-Participation Experiences

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Abstract. In the last decade, a number of e-participation experiences have been collected based on the use of information and communication technologies (ICT). These projects have made a contribution to the revitalisation of democracy by increasing transparency in governance and creating new political spaces for communication and participation. Whilst different studies have evaluated the overall success of e-participation experiences, few studies have analysed their impact and added value. The authors of this paper stress the importance of evaluating e-participation experiences along three factors: Efficiency (doing things correctly); Efficacy (achieving goals) and Effectiveness (doing what is right). A framework for evaluating these three impact values is currently being developed. The paper at hand digs into efficacy and presents a set of attributes and indicators for the evaluation of the efficacy of e-participation. These indicators – as part of the overall evaluation framework for efficiency, efficacy and effectiveness – have been applied to a real-life e-participation project that utilised the cognitive democracy experience known as e-Cognocracy. This project was implemented in the municipality of Cadrete (Zaragoza), Spain.

Keywords: E-Participation, Evaluation, Effectiveness, Efficacy, Efficiency, E-Cognocracy

1 Introduction

Day by day, traditional democracy finds it increasingly difficult to efficaciously react to an environment that is more and more complex, uncertain and dynamic. The complexity of the societal problems that arise requires more participative public management that is able to make use of the creative potential and talent of the citizenry. Unfortunately, it seems that the citizenry often ignores their rights and responsibilities concerning the real values and outcomes of democracy and collective decision-making. If the accepted representative democratic system (the foundation of western society) is to be rescued, the starting point must be the recognition of its importance.

As Barber argued in 1984, the excesses of neo-liberalism have undermined modern democratic institutions, brought about societal crises and generated reticence among citizens with regards to voting and civic engagement [Ba84]. If we add privatisation, outsourcing and the continuing downsizing of public institutions, it is not difficult to

understand the high degree of alienation felt by the general public. E-participation may be one of the possible solutions to counteract this increasing antipathy to formal politics.

Macintosh defined e-participation as “*the use of ICTs to broaden and deepen the political participation of citizens, so they can connect with each other and with their elected representatives*” [Ma04]. This concept includes the citizens and all the actors involved in the processes of public decision-making and policy modelling; e-participation can therefore be seen as part of electronic democracy [CI03].

In the last decade, a number of e-participation experiences have taken place and many of them have made extensive use of ICTs (some examples and descriptions of e-participation experiences can be found in [PK08] [PTK10] [Ro03]). Many of these projects have made a contribution to the revitalisation of democracy by increasing transparency in governance and creating new political spaces for communication and participation.

New models of participation are now required and they must be able to use the potential of the Knowledge Society and respond to the new challenges (transparency, participation, control etc.) and needs that it generates [Mo06] by utilising the potential of citizens to resolve highly complex problems. The evaluation of e-participation experiences should consider the three factors contemplated by systems analysis [Mo03]: Efficiency (doing things correctly); Efficacy (achieving goals) and Effectiveness (doing what is right). This article deals with Efficacy - the achievement of goals for the criteria used in the resolution of the problem. It presents a set of attributes and indicators for evaluating efficacy in e-participation projects. The concept is applied to a real-life experience of e-participation, based on the cognitive democracy known as e-Cognocracy [Mo03] [Mo06], implemented in the municipality of Cadrete (Zaragoza), Spain. The structure of the paper is as follows: Section 2 describes the background to the evaluation of e-participation experiences; Section 3 introduces indicators and attributes for evaluating the efficacy of these projects as part of the overall framework; Section 4 details the evaluation of efficacy in a real-life experience of e-participation, based on e-Cognocracy; Section 5 presents the conclusions of the work and offers some possibilities for future research.

2 Background

The term e-participation comprises two components: the ‘e’ refers to the electronic nature of the concept, that is to say, the use of ICTs as a communication tool. ‘Participation’, in this context, refers to the actions of citizens taking part in political decision making and dialogue. The appellation further encompasses the fact that e-participation experiences are aimed at achieving goals, i.e. having an impact on political decision-making and democracy. Therefore, the evaluation of an e-participation project must consider the three aforementioned elements or criteria: 1) ICTs (the ‘e’); 2) the engagement associated with ‘participation’ and 3) The mission or goal of the process of e-participation.

With regards to ICTs (the ‘e’), many published articles deal with the evaluation of information systems (information technology), which all look into user acceptance of technology (TAM) [CK06], perceived ease of use, perceived usefulness of technology (TAUT and UTAUT, e.g. [CK06], [DM92], [DM03], [VMD03]) or the diffusion of technology [Ro03]. Only a few articles have so far considered the evaluation of models of citizen participation through ICTs (e.g. [PTK10], [Ro03], [YP10]). Since the 2006 European Commission launch, a number of evaluation methods have been proposed ([MW08], [AW09], [WB13]) for the evaluation of efficiency, effectiveness, transparency and participation; most of them are aimed at the evaluation of the tools and technologies of the e-participation experiences and only a few have analysed policy making and policy support.

There are still no specific theoretical models or indicators that allow the analysis and measurement of the integral evaluation of systems of citizen participation whilst simultaneously considering effectiveness, efficacy and efficiency.

The academic literature on e-participation is growing and includes a number of papers that discuss methodological frameworks for evaluation as tools for improving the systems and their accountability ([AW09], [PK08], [PTK10]). When an experience or project is financed by public funds, evaluation should be obligatory. Nevertheless, although the importance of rigorous evaluation of e-participation projects is recognized, there is little evidence of the use of evaluation methodologies in practice. In 2003, the OECD team responsible for citizen engagement commissioned a study into the potential of ICTs to support citizen engagement in policy-making. The report stated that a major challenge was: “*Evaluating e-Participation: making sense of what has, or has not, been achieved; understanding how to assess the benefits and the impacts of applying technology to the democratic decision-making processes*” [Ma04].

Some researchers have discussed the need for a multi-method approach to e-government research, arguing that e-government is a complex social phenomenon that can greatly benefit from the use of multiple disciplines [GP06]. The case for such an approach to e-participation evaluation is even stronger. Based on previous work [WM03], the authors of this paper believe that in order to evaluate the effectiveness of e-participation in engaging a wide audience and in informing and influencing the policy process, an analytical framework has to be developed that takes into account three dimensions: the evaluation criteria; the analysis methods available; and the actors involved.

In current research, we are building up an evaluation framework that embarks on these three dimensions for evaluating effectiveness, efficacy and effectiveness of e-participation endeavors. As the evaluation of any system should consider three areas commonly used in business planning (strategic, tactical and operational), Moreno-Jiménez developed his EF³ approach which contemplates [Mo97], [Mo06]:

- (i) the *Effectiveness* associated with strategic planning or long-term behaviour. It is understood as the identification of the criteria relevant to the resolution of a problem (doing what is right).

- (ii) the *Efficacy* associated with tactical planning or medium-term behaviour. It is defined as achieving the goals that are fixed by means of setting the objectives.
- (iii) the *Efficiency* associated with operational planning or short-term behaviour. It is achieved through the best possible assignation of public resources (doing things correctly)

This approach is utilised for the evaluation of citizen participation experiences and projects, particularly those that involve the e-cognocracy model. A framework for analysing the effectiveness of e-governance in the knowledge society has already been developed and published [reference omitted for anonymity purposes] and the logical next step is to focus on Efficacy: the achievement of goals set for the criteria selected for achieving the objectives of the e-participation projects. In the subsequent sections, we will therefore focus on the evaluation of efficacy.

3 The evaluation of Efficacy

There have been many studies on the evaluation of e-participation experiences, but most of them are based on the analysis of Effectiveness or Efficiency (e.g. [AW09], [FR05], [MW08], [Oe05], [Ro03], [WM03]). In these cases, the notion of 'effectiveness' represents the same ideas as the concept of 'efficacy', as defined by the authors of this current work; the previously published literature regards 'effectiveness' as the achievement of goals (the definition of efficacy, as employed in this paper).

The evaluation of the efficacy of e-participation experiences uses an original framework composed of a group of attributes (Table 1) which evaluate the three elements or criteria of e-participation: i) ICTs (the 'e'); ii) Engagement ('participation'); iii) The mission (the main goal). The attributes that measure the first component ('e') are those used by Delone & MacLean in their 'Information System Success' model as a conceptual framework for measuring the complex dependent variable in research on information technology systems. These authors contemplate three dimensions of quality that must be separately measured [DM03]: i) Information Quality; ii) System Quality; iii) Service Quality.

The following attributes are proposed for the measurement of 'participation' (engagement): i) Motivation; ii) Information; iii) Communication; iv) Transparency – with regards to the platform, the information and the global process; and v) Quality or satisfaction.

The individual study of the efficacy of the ICTs or the analysis of participation alone would offer a limited viewpoint of the efficacy of e-participation processes. In this proposal, both aforementioned concepts are measured in relation to achieving the goal: the *mission* of the e-participation experience. The efficacy of the mission should be explicitly evaluated in consideration of the aims of each project.

Table 1. Criteria and attributes for the evaluation of efficacy

EVALUATION OF EFFICACY		
CRITERIA & ATTRIBUTES		
E- (ICTs used):	PARTICIPATION (Engagement):	MISSION
Information Quality System Quality Service Quality	Motivation Information Communication Transparency Quality	It depends on each experience of e-participation

4 Case Study: the Evaluation of Efficacy

The framework described in Section 3 was applied to a real-life experience of e-participation, based on the cognitive democracy known as e-Cognocracy [Mo03] [Mo06] and implemented in the municipality of Cadrete (Zaragoza). In April 2010, the Cadrete Municipal Council, in collaboration with the Zaragoza University Multicriteria Decision Making Research Group, agreed on a citizen participation project aimed at giving the residents of the municipality a voice in public policy decisions. The issue in question was the design of cultural and sporting policies. There was one main objective for the research group (the validation of the methodological and technological tools) and three objectives for the City Council: (i) that decisions on the budget assigned to the aforementioned policies would be conjointly made by the politicians and the citizenry; (ii) that citizens would be encouraged to involve themselves in the debate and take part in the decision making process; and iii) that the arguments that supported the decisions would be publicly disseminated.

In order to avoid confrontation between the political parties and allegations that the project was being used by the council leaders for electoral purposes, a rather non-controversial, somewhat uninspiring issue was selected. The main mission of the experience was to validate the tools and technologies used and the learning process of the citizens and politicians (the University research group objective), the three City Council objectives were considered as secondary.

Before an evaluation takes place, the main mission must be defined. The attributes used for the evaluation of the Cadrete mission were: the voting system; the discussion system; surfing; anonymity; and learning (see Table 2). The indicators were not available when the Cadrete experience was undertaken in April 2010. At the conclusion of the experience, participants were asked to complete a questionnaire and, based on the proposed framework an attempt has been made to evaluate the attributes from the items used in the questionnaire. The measurement scale of the questionnaire was from 0 to 10 (0 = total disagreement, 10 = total agreement). There were 51 questions grouped in 7 sections: (i) The System of Citizen Participation; (ii) The Creation of a Better Society; (iii) Motivation; (iv) Evaluation of the Technological Support and Applications; (v) Evaluation of the Information; (vi) Evaluation of the Support Personnel and (vii) Overall Evaluation.

The indicators that measure the attributes of the first component ('e') are: Information Quality valued according to whether the citizens felt that the provided information was appropriate. System Quality was assessed with satisfaction of the citizens in the design of informatics application and finally, Service Quality also was measured with the satisfaction, but in this case in the informatics application used (see table 2).

For the measurement of 'participation' (engagement), the indicators proposed have been: in the case of Motivation is taking into account the opportunity to manifest the citizens' opinions. In Information if it was easy to understand, in Communication the percentage of people who participated in the Forum, and finally, Transparency and Quality were measured with the satisfaction of the citizens who participated in the real experience (see table 2).

As previously mentioned, it is necessary to set a goal to be achieved. In this case study, the goal was to achieve 5 points in all indicators except 'communication' where the goal was that at least 5% of those implicated in the experience (the voters) would contribute to the discussion stage by making a message and that at least 10% would make a comment in relation to the messages. With regards to non-voting participants (people not registered to vote) the goal was set at 10%.

Table 2. Criteria, attributes and indicators for the evaluation of efficacy, as applied to the e-participation experience in Cadrete, Zaragoza (Spain)

EVALUATION OF EFFICACY				
ATTRIBUTES	INDICATORS	CADRETE'S VALUE	GOAL TO ACHIEVE	ACHIEVED SCORE
E- (ICTs used):				
Information Quality	It has been appropriated	Score in the survey	5 points	6,77 points
System Quality	In general, I am satisfied with the design of informatics application	Score in the survey	5 points	5,95 points
Service Quality	In general, I am satisfied with the informatics application used	Score in the survey	5 points	6,05 points
PARTICIPATION (Engagement):				
Motivation	I consider it is a good opportunity to manifest my opinion	Score in the survey	5 points	8,05 points
Information	It has been easy to understand	Score in the survey	5 points	6,82 points
Communication	Percentage of people who participated in the Discussion Forum	Discussion Forum	5%	9% (20 messages)
			10%	12 % (131 comments)
			10%	18% (24 messages)
Transparency	In general, I am satisfied with the proportionate information	Score in the survey	5 points	6,91 points
Quality	I feel satisfied with my participation in this experience	Score in the survey	5 points	8,59 points
MISSION				
System Votation	It has been ease to use	Score in the survey	5 points	5,82 points
System Discussion	It has been appropriated	Score in the survey	5 points	5,14 points
Surfing	It has been easy to surf the Internet	Score in the survey	5 points	5,68 points
Anonymity	I consider that the process was anonymous	Score in the survey	5 points	6,55 points
Learning	I have learnt a lot from this experience	Score in the survey	5 points	7,14 points

The Cadrete e-participation project can be classified as efficacious as all items achieved the goal of 5 points and in the case of the attribute 'Communication', 9% of the voters emitted a message, 12% made comments and 18% of non-voters participated in the discussion.

5 Conclusions and future research

The traditional democratic system finds it difficult to appropriately react in the context of a dynamic, complex and uncertain environment. There have been many e-participation projects that have taken place in the recent past and a number of them

have taken advantage of the potential of information technology and communications (ICT). Citizens are demanding more open and receptive governments that are prepared to listen, to share and to co-decide. The e-participation experiences have contributed to the creation of new political spaces for communication and participation and to the revitalization of democracy.

In the search for an appropriate response to the needs of democracy in the epoch of the Knowledge Society, new models of participation are being advanced; the evaluation of these models needs to be analyzed by taking into account their effectiveness, efficacy and efficiency (EF³).

When a project is financed by public funds, the evaluation should be obligatory. However, although the importance of rigorous evaluation of e-participation projects is recognised, there is little evidence of such evaluation approaches being used in practice.

The evaluation of the efficacy of e-participation experiences can be undertaken by means of a framework composed of a group of attributes, which evaluate the three elements or criteria of e-participation: i) ICTs ('e'); ii) Engagement ('participation'); iii) The mission (main goal). This framework was applied to a real-life experience of e-participation in the municipality of Cadrete (Zaragoza). The results showed that the project was efficacious as all items achieved the goal of scoring 5 points and in the case of 'Communication', 9% of the voters emitted a message, 12% made comments and 18% of non-voters participated in the discussion (all of them achieved the goal of 5%, 10% and 10% respectively).

In the near future, the authors aim to develop the attributes and indicators for the evaluation of efficiency in order to complete the overall evaluation framework along the three concepts contemplated in the analysis of systems behaviour (efficiency, efficacy and effectiveness). This Analytic Network Process will allow the incorporation of their interdependencies from the perspective of a holistic vision of reality. Moreover, in next works, it will be compared the results of this project (Cadrete, Spain) with other e-participation projects.

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