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Chapter Title	Co-laboratories of Democracy: Best Choices for Designing Sustainable Futures	
Copyright Year	2014	
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Abstract	This chapter frames one of the greatest challenges of our time: the invention of methods and technologies that harness the collective intelligence and wisdom of thousands of stakeholders working together on a complex societal systemic problem. The worldwide failures of democracy to respond to global challenges, especially in the domain of governance, call for such massive but still authentic and democratic participatory systems. The authors assert that the need to reinvent democracy is urgent and that it can be done using co-laboratories of democracy. It concludes with a presentation of key findings of co-laboratories that aim to reinvent democracy using structured dialogic	

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Keywords (separated by “-”)	Digital democracy - Reinventing democracy - Stakeholders - Structured dialogic design

Co-laboratories of Democracy: Best Choices for Designing Sustainable Futures

Yiannis Laouris, Kevin M.C. Dye, Marios Michaelides, and Alexander N. Christakis

Abstract This chapter frames one of the greatest challenges of our time: the invention of methods and technologies that harness the collective intelligence and wisdom of thousands of stakeholders working together on a complex societal systemic problem. The worldwide failures of democracy to respond to global challenges, especially in the domain of governance, call for such massive but still authentic and democratic participatory systems. The authors assert that the need to reinvent democracy is urgent and that it can be done using co-laboratories of democracy. It concludes with a presentation of key findings of co-laboratories that aim to reinvent democracy using structured dialogic design methodology applied in small group settings and an introduction into the challenges of scaling up this process to engage thousands.

Keywords Digital democracy • Reinventing democracy • Stakeholders • Structured dialogic design

Introducing the Greatest Challenge of Our Time

Humans continue to survive because we are able to solve problems. Every problem we encounter is a new challenge to which we apply our brains until we discover a reasonable resolution. When we cannot do it alone, we compromise: we give ourselves more time allowing nature to solve it for us, call others for help, or team up to tackle problems collectively. Humans are fairly adept at working together, especially when we face a common threat. We have survived so far on this planet

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G.S. Metcalf (ed.), *Social Systems and Design*, Translational Systems Sciences 1,
DOI 10.1007/978-4-431-54478-4_7, © Springer Japan 2014

because, no matter how complicated the problems we may face, we have always managed to solve them and triumph.

However, the dawn of the twenty-first century has marked an unprecedented paradigm shift. The challenges we face are far too complex for any single human to tackle them alone. At the same time, we have discovered that the methods and tools we have used in the past seem to be failing when applied on today's highly convoluted wicked problems. We have come to realize that we lack scientifically or empirically validated tools or methodologies to help us manage results-oriented collaboration that is at the same time also authentic and democratic. In an attempt to address the complexity of this challenge, we have begun to rely enormously on computers to collect, analyze and present data in forms that help us make sense of the world. In order to begin harnessing our collective intelligence and wisdom, we have discovered and have started to experiment with new approaches such as parallel processing, distributed research and crowd sourcing.

Nevertheless, despite all technological progress, no one has yet found a way to combine or to sum up the brainpower of even two individuals and use the resulting intelligence to tackle a problem. The fundamental obstacle is that when more than two people engage in some form of communication, their combined intelligence is far less than the sum of their individual intelligences (Malone, 2006). The same holds true for their collective wisdom. On a larger scale, a group of people can reach solutions that are often inferior to those that any single individual in the same group would have discovered by himself or herself (Albrecht, 2003). To make things even more complicated, we do not have generally accepted definitions of either collective intelligence or collective wisdom, to say nothing about the debate regarding definitions for individual intelligence or wisdom. Since collective intelligence is usually defined as "the ability of a group to solve more problems than its individual members" (Heylighen, 1999), and because we lack a way to exploit the total intelligence of a group of individuals, we can deduce that there are certain obstacles that make it hard for members of a team to coordinate, align and/or process their thoughts. Group deliberations, for example, usually suffer from certain pathologies such as Groupthink (Whyte, 1952), Spreadthink (Warfield, 1995) and Clanthink (Warfield & Teigen, 1993). Other barriers include individual cognitive limitations and the lack of functional connections and communication among collaborators. Evidently, we need to devise new strategies and approaches to collaboration in order to overcome these limitations.

Crowdsourcing has generated some impressive and successful applications that harness the collective abilities of the crowd. Amid concerns and disputes, Wikipedia™ has won its place as the first collective mind, or at least as the memory and reference module of a *world brain*. The model of crowd sourcing applied by the creators of Wikipedia™ proved useful for facilitating system evolution, resolving disputes, and reaching equilibrium. But can anyone imagine using crowdsourcing to make decisions at national or international levels? That would be analogous to applying a model of direct democracy to governance. Most would agree that substituting the council of the captain of a ship with the collective opinion of his passengers would probably not be the wisest course of action. If this decision-making model were applied to the governance of a country, the results could be devastating.

The ensuing chaos might be analogous to that of the Tower of Babel, as described in the Book of Genesis, in which God supposedly stated "that as one people with one language, nothing that they sought would be out of their reach," (Genesis) underlying the importance of developing a *shared language* as a major step towards solving complex problems. According to Genesis, if we were to invent ways that allow us to put our minds to work together on a single problem, "nothing would be out of reach!"

Most of the crowdsourcing models we have seen so far focus on addressing the quantitative rather than qualitative aspects of problems. For example, MediaWiki™ (the engine behind Wikipedia and thousands of other similar applications) or CAPTCHAs (Completely Automated Public Turing test to tell Computers and Humans Apart; used to prevent unwanted internet bots from accessing websites) are effective at distributing modest tasks to millions of people, but are less effective at addressing and solving complex problems. Therefore, the difficulty in harnessing collective intelligence and wisdom might owe less to our limited cognitive abilities and more to a lack of methodologies and tools necessary to consolidate these collective resources efficiently in order to solve irreducibly complex problems.

For example, when IBM's super computer Deep Blue beat world chess champion Garry Kasparov in 1997, many philosophers were convinced that we had reached the tipping point at which machines would become more powerful than humans (King, 1997). Then, in 2005, two amateurs, Steven Cramton and Zackary Stephen, shocked the world during the first Freestyle Chess Tournament by defeating teams of strong grandmasters using three ordinary computers. How did that happen? As Sankar (2012) noted during his 2012 TED presentation, "The Rise Of Human-Computer Cooperation:" "Their skill at manipulating and coaching their computers to look very deeply into positions effectively counteracted the superior chess understanding of their grandmaster opponents and the greater computational power of other participants." In other words:

> Weak Human(s) + Week Machine(s) + Better Process(es)
> Is SUPERIOR TO
> Super Computer + World's Grandmasters

What can we learn from this? It is unlikely we will manage to increase our biological intellectual capacity significantly in the foreseeable future. Therefore, we should focus on improving methodologies and tools to enable more efficient human–human and human–machine interactions.

The science of dialogic design (SDD), as originally proposed in the legendary Predicament of Mankind within the context of the Club of Rome by early pioneers such as Warfield, Christakis and Özbekhan (Özbekhan, Jantsch, & Christakis, 1970) and further developed by the Agoras Group (Christakis & Bausch, 2006; Flanagan & Christakis, 2009; Laouris & Christakis, 2007), has managed to address sufficiently most challenges of implementing efficient dialogues in small-to-medium human-to-human communication groups through technology (e.g., ISM Software or Cogniscope™) to facilitate interactions and processes. For example, the Structured Democratic Dialogue Process (SDDP) manages to counteract

phenomena such as Groupthink (Whyte, 1952) and the Erroneous Priorities Effect (Dye & Conaway, 1999). The implementation of a successful SDDP is not mired in obscure science. Indeed, its key fundamentals have been re-discovered and underscored in repeated two- to three-hour co-laboratories in which participants were asked to identify the basic obstacles to harnessing collective wisdom during a dialogue (Christakis & Laouris, 2010; Laouris, 2012a). The basic principles of a good dialogue and their formulation into scientific axioms and laws are exemplified in "The ABCs Of The Science Of Dialogic Design" (Laouris, 2012b).

While the science of dialogic design was established almost four decades ago, the number and spread of SDDP applications has not yet reached the necessary threshold to make it into the mainstream. The authors assert that this partially explains why political systems of governance fail to respond to people's expectations and contemporary societal, environmental, and philosophical challenges, because harnessing the collective wisdom of people demands strict adherence to the laws and processes of the science of dialogic design.

Europe at the Crossroads

The European Union currently faces what are likely to be the most difficult challenges since its formation. Several countries in the south of the Union are close to financial default, Euro-skepticism is rising, and unemployment has reached a seven-year high. Croatia is joining the Union, Latvia is entering the Eurozone, and pro-Europeans support further *deepening* of European integration. George Papandreou, ex-prime minister of Greece, argued in his recent TED Talk that, "while Europeans have to live with the benefits and challenges of a global economy, our territory itself has not been globalized: our democracies are weakened by players who can evade laws, taxes, and environmental and labor standards" (Papandreou, 2013). He argues that, while our markets have been globalized, our democratic institutions have not; therefore, politicians' power is limited to local borders, while citizens are prey to forces far beyond their control. Papandreou suggests experimenting with new kinds of democracy that respond to these global challenges.

More significantly, the European Commission has launched *Digital Futures* (Digital Futures Task Force, 2012a), a foresight project that taps into the collective wisdom and creativity of stakeholders to co-develop long-term positive visions (*futures* is their term for positive visions) and policy ideas far beyond the Digital Agenda and Europe 2020 (European Commission, 2010). During the first participatory "Core Foresight 2050" workshop that the Digital Futures Task Force organized in March 2012 (Digital Futures Task Force, 2012b), 60 experts from across Europe proposed over 100 *futures* for the world they envision in 2050. The Task Force aims to *create* rather than *anticipate* the future, to envision and to design rather than react to potentially negative future outcomes. In this sense, the initiative of the Digital Futures Task Force is probably the first open recognition of the underlying philosophy of SDD. The initiative is also likely to be one of the most significant

implementations of SDD, even though some important aspects of the methodology have not yet been realized, and others have deviated from historically validated standards. For example, after the generation of *futures*, participants in the Digital Futures participatory workshop were asked to score ideas not according to importance, but according to three other characteristics: societal impact, desirability, and the probability that the vision would come to fruition without political or financial intervention. This novel scoring approach, which has roots in the DELPHI Method, was applied in the context of experimenting with new features, and in collaboration with members of the Institute for 21st Century Agoras to identify research and technological priorities that are important for positive societal change, but would require policies and research grants to support them. The same scoring system has also been used in one of the largest structured dialogues in Europe, which aimed to highlight research priorities for consideration by the European Commission when developing calls for proposals (CARDIAC Consortium, 2012). In the Core Foresight 2050 workshop, the *future* with the greatest gap between *impact as well as desirability versus probability of happening without intervention* was the idea of structured democratic participatory democracy as proposed by the science of dialogic design (Digital Futures Task Force, 2012b). The formulation of the accompanying envisioned technology was:

> By 2050 there will be new network technologies that will allow ideas of people to be connected and therefore ideas will be able to interact, fight with one another for survival in a way that will help us converge to some consensus, harnessing the collective wisdom of the people (Digital Futures Task Force, 2012b).

In other words, 60 experts agreed that a new system of democratic governance that harnesses the collective wisdom of the people will have a significant positive impact in creating a sustainable, humane future, and is therefore very desirable. Sadly, they have also agreed that such a system is not going to emerge by itself. The questions we ask in this chapter are first, "Why not?" and second, "What would it take to make it happen?" The next section presents some of the underlying reasons responsible for the failure of contemporary systems of governance. Corporate control of the means of democracy, absence of participatory systems and the non-development of the political system, along with corruption and lack of accountability are among the key root causes.

The authors of this chapter assert that the next evolution of the science of dialogic design, which is expected to address the challenge of scalability (i.e., engage thousands in meaningful authentic structured democratic deliberations), in connection with the recognition that the global demand for new models of democratic governance will underscore that mass-scale Co-laboratories of Democracy are not only the best choices for designing sustainable futures, but they are probably the only choice available.

In the following sections we present and discuss the key findings from five Co-laboratories of Democracy that aimed to identify shortcomings of current models of governance and explore characteristics of future ideal systems.

Reinventing Democracy

Over the past few years, the organizations of the authors have been facilitating Co-laboratories of Democracy with intention to identify the greatest shortcomings of current models of governance, and to encourage different groups of stakeholders to envision future ideal systems.

The first Co-Laboratory has been implemented completely virtually, i.e., without any face-to-face interaction between the participants. It was organized in cyber-space, in 2008, shortly after Barack Obama had first been elected president of the US. The goal was to identify possible roadblocks he would be facing in realizing his vision for open government and public engagement implementing a bottom-up model of democracy (Global Agoras, 2008). The next four examples summarize findings from a series of Co-Laboratories, which aspire to reinvent democracy. The latter two were conducted face-to-face, but they were implemented by testing adapted- and/or new technologies and methodologies which lay the groundwork for the next step in the evolution of the science: scaling up such dialogues to engage hundreds or even thousands of participants simultaneously. The last case had a particular focus on reinventing democracy by harnessing the power of the digital era.

The following two tables summarize the factors that following the SDDP methodology emerged as the most influential. Table 1 documents Obstacles, and Table 2 documents Actions.

Barack Obama's Vision for Open Government and Public Engagement

In 2008, when Barack Obama was elected President of the US, members of the Institute of 21st Century Agoras from across the world engaged in one of the first ever virtual structured democratic dialogues (Global Agoras, 2008). They used the

Table 1 Shortcomings and/or obstacles that emerged at the root of the influence trees in three SDDPs

SDDP	Factor	Shortcomings/obstacles
BOOG	22	Corporate control of the means of democracy
	14	Insufficient attention given to facilitator capacitation
GCRD	32	The repletion of the Paleolithic system
	40	The non-development of the political system
YEIF	84	Lack of accountability
	31	Conflict between personal job and parliamentary duties
	9	Personal relations
	13	Lack of participatory democracy

BOOG Barack Obama's vision for Open Government and Public Engagement, *GCRD* Greek Cypriots Reinventing Democracy, *YEIF* Youth Envisage their Ideal Future

t2.1 **Table 2** Ideal characteristics and/or actions that emerged as the most influential root drivers in
t2.2 three SDDPs

t2.3 SDDP	Factor	Ideal characteristics/actions
t2.4 GCRD	34	The laws are voted directly by people
t2.5	19	Inclusiveness, dialogue, co-decision in local communities and their representation
t2.6		in decision-making
t2.7	15	Direct democracy
t2.8	8	An ataxic–progressive society
t2.9	6	Inclusive system that revises the current understanding of "success"
t2.10	35	"Collectives"
t2.11 RDDE	89	End of political parties as institutions
t2.12	105	Technology for time management for active participation
t2.13	93	Redefining the Universal Declaration of Human Rights in the digital Era
t2.14	13	Continuous passive and active participation in the political process via an
t2.15		online platform
t2.16 ECRD	26	Independent interactive media created by citizens for citizens

t2.17 *BOOG* Barack Obama's vision for Open Government and Public Engagement, *GCRD* Greek
t2.18 Cypriots Reinventing Democracy, *YEIF* Youth Envisage their Ideal Future

following "Triggering Question[1]" to stimulate and collect potential inhibitors to the actualization of his vision:

> In the context of Obama's vision for engaging stakeholders from all walks of life in a bottom-up democracy employing Internet technology, what factors do we anticipate, on the basis of our experiences with SDDP, will emerge as inhibitors to the actualization of his vision?

The two factors that emerged as the most influential were Inhibitor #22: Corporate Control of the Means of Democracy and Inhibitor #14: Insufficient attention given to facilitator capacitation (Christakis & Underwood, 2008).

Greeks and Cypriots Reinventing Democracy in the Twenty-First Century

The "Greeks and Cypriots Reinventing Democracy in the twenty-first century" (GCRD) SDDP (Future Worlds Center, 2012a) was organized by a number of Cypriot and Greek NGOs in the context of a nine-month (3rd January to 30th October 2012) Youth in Action, European-Commission-funded project (Future

[1] The term Triggering Question is used by practitioners of the SDDP methodology to describe a question formulated by the Knowledge Management Team of a particular dialogue with the aim to trigger short and concise responses by the participants.

Worlds Center, 2011). The idea was to take apart and reconstruct the concept of democracy—an EU founding principle. The seven-day SDDP took place in Pafos, Cyprus, between 28 June and 3 July 2012. The participants invested more than 1,450 person hours in identifying the root causes of the failure of current political systems and in coming up with the most influential options to achieve positive change. They worked with the following Triggering Questions:

> What are the failings of our current political system?
>
> How could we re-design modern society by envisioning a New Democracy?

They identified "Shortcoming #32: Repletion of the Paleolithic system" and "Shortcoming #40: The non-development of the political system" as the most influential root causes of failure in modern political systems. In their dialogue, which focused on actions, the factors that emerged as the deep drivers were: "Characteristic #34: Laws are voted for directly by people," and "Characteristic #19: Inclusiveness, dialogue, co-decision in local communities and their representation in decision-making."

Youth Envisage Their Ideal Future

The Youth Envisage their Ideal Future (YEIF) co-Laboratory was organized in the context of a Youth in Action, European-Commission-funded project (1 March 2012–31 August 2012). Two SDDPs took place in Pafos, Cyprus (18–22 July 2012), one focusing on the diagnosis of obstacles and one on the exploration of characteristics of ideal future systems of governance.

The respective Triggering Questions were:

> Which are the disadvantages or obstacles of the current socio-political system that discourage youth participation?
>
> What are the characteristics of the ideal socio-political system that would encourage active youth participation?

Following a time investment of more than 750 person hours, the participants concluded that the root obstacles of the current socio-economic-political system that discourage youth participation are: "Obstacle #84: Lack of accountability of those in power; Obstacle #31 Conflict between private profession and parliamentary duties of people elected for office; Obstacle #9: Personal relations between those in power; and Obstacle #13: Lack of participatory democracy." In other words, three out of four deep drivers are related to conflicts of interest and corruption among those who serve as peoples' representatives, while the fourth obstacle can be seen as a demand for participatory systems, probably in the hope that that such systems might serve as better controls against corruption.

Another 750 person hours were invested in the second Triggering Question, aimed at envisioning an ideal socio-economic-political system that would encourage active

youth participation. The most influential factors were: "Characteristic #15: Direct Democracy; Characteristic #8: An Ataxic—progressive society; Characteristic #6: Inclusive system that revises the current understanding of "success"; and Characteristic #35: Collectives." Again three out of the four most influential descriptors envisage participatory, direct democratic, even ataxic societies based on a revised formulation of the early twentieth century collectives. This probably underscores the disappointment of the younger generations, which is a result of the failure of current models of representative democracy. The fourth factor calls for re-considering our values and particularly revisiting our definition and understanding of success.

Reinventing Democracy in the Digital Era

Reinventing Democracy in the Digital Era (RDDE) (Future Worlds Center, 2012b) was a highlight in the above series of SDDPs aimed at exploring ideas for reinventing democracy. It formed part of the activities carried out under the auspices of the Cyprus Presidency, and it was co-organized with the Digital Futures Task Force of the European Commission (Digital Futures Task Force, 2012a). The co-laboratory took place in Lefkosia on the 14th and 15th of September, 2012 (full days) at the Cyprus Community Media Center (Cyprus Civil Society, 2009), in the Buffer Zone next to the Ledra Palace Hotel. The participants were asked to respond to the following Triggering Question:

> What are the features of an ideal future system of governance that fully utilizes innovative emerging technologies?

Probably not surprisingly given the global international crisis, one most provocative factor made it to the root of the tree: "Characteristic #89: End of political parties as institutions" (Petridou, Michail, Georgiou, & Psilla, 2012). Two factors pointed towards the urgency of developing technologies that would enable massive and active participation as well as respect for and support of our cognitive limitations: "Characteristic #13: Continuous passive and active participation in the political process via an online platform; and Characteristic #105: Technology for time management for active participation." Finally, one factor highlighted the need for re-engineering human rights: "Characteristic #93: Redefining the Universal Declaration of Human Rights in the digital Era."

Engaging Citizens to Reinvent Democracy

In this single-day SDDP, taking place on September 19, 2012 in Nicosia (Future Worlds Center, 2012c), participants representing a wide spectrum of stakeholders ranging from unemployed youth to top-level government executives explored the characteristics of an ideal future system of governance.

Out of a total of 54 characteristics submitted, "Characteristic #26: Independent interactive media created by citizens for citizens," stood out as the most influential in terms of its capability to leverage change.

Reflecting on the Findings from the Four Co-laboratories

Out of hundreds of ideas submitted by the participants of the above four co-laboratories, the SDD process supported them to consensually agree on those that are root causes and/or are deep drivers in their potential to achieve change. Even without any deeper analysis, the root problems of the current systems of governance as they surfaced using SDDP with about 80 participants who have invested more than 4,000 person hours in their deliberations can be reworded from Table 1 as just a few guidelines:

1. Address issues of corruption, conflict of interest and accountability
2. Take measures to ensure that the system of governance evolves and meets the standards of today's citizens exploiting and taking advantage of emerging technologies just like in all other aspects of life
3. Promote proper and practical policies to control and regulate the power of companies on defining and determining developments, lifestyles etc.

It is therefore evident that the application of SDDP in co-laboratories of democracy can equip citizens across the globe discuss and reach consensus as to the most influential leverages that need to be addressed in our endeavors to reinvent democracy.

Discussion

We have been analyzing and trying to make sense of the world for centuries. The time has come for us to dare to design the world in which we would like to live. While the past has passed, the future is open for us to make a difference. Globalization, in connection with global access to information, goods, and knowledge, shapes a new world in which billions could, at least in theory, live in prosperity. However, for our increasing population to be able to benefit from every new opportunity we as humans have managed to create, we must also learn to live in harmony with one another and with our environment. The greatest challenge we face is how to reconcile our wishes, our desires and our demands, with those of others around us and with those of the animate and inanimate world in which we live.

The emergence of the digital era has also signaled a paradigm shift in how we manage information, money, and goods, but also ourselves. Maybe the day is not that far off when we will learn how to live together in harmony without relying on talented leaders, laws made by representatives and states managing our lives. "In fifty years, our grandchildren may look at us as the last of the historical, State-run generations, not so differently from the way we look at the Amazonian tribes, as the last of the pre-historical, stateless societies" (Floridi, 2012).

Barack Obama (Obama, 2006) wrote in "The Audacity of Hope: Thoughts on Reclaiming the American Dream":

> What the framework of our constitution can do is organize the way in which we argue about our future. …, a "deliberative democracy" in which all citizens are required to engage in a process of testing their ideas against an external reality, persuading others of their point of view, and building shifting alliances of consent (p. 92).

Barack Obama, just like George Papandreou, shares the dream of change and encourages bottom-up democracy. They both also recognize the dynamic character of the underlying processes and the requirement that alliances of consent might be continuously shifting. However, while both men appreciate how important it is to put a proper system of dialogue management in place, they both underestimate the fact that such a system is not straightforward, not to mention that it also does not exist yet. The Core Foresight 2050 workshop has exposed that although a new system of democratic governance that harnesses the collective wisdom of the people is imperative for creating a sustainable, humane future, such a system is not going to emerge by itself (Digital Futures Task Force, 2012b). In the spirit of our conscious evolution, we humans have to invent such systems. As the Obama vision SDDP has revealed, properly qualified and trained facilitators to lead discussion process are a fundamental requirement of such dialogue management processes. But, also, as Tom Flanagan, President of the Institute for 21st Century Agoras, stated after the Obama Vision SDDP,

> It is perhaps no great surprise that when a panel of systems scientists from across the globe pull their heads together around challenges that President Elect Obama is likely to face … the most influential factor underlying the success of such an outcome was judged to be the commitment that government leaders and agencies actually hold in supporting a grassroots effort.

What if governments and leaders do not have this commitment? The participants of the other four co-Laboratories of democracy provided the answer in a number of distinctive ways. The deep drivers of all dialogues reveal that the current system of representative democracy is obsolete and that sooner or later it will give its place to more participatory and more direct systems of governance.

Co-laboratories of Democracy Make Better Citizens

Epistemic democrats believe that the aim of democracy is to track the truth (Estlund, 1997). In contrast, procedural democrats claim that the aim of democracy is instead to embody certain procedural virtues. Even though they might express different opinions as to what those virtues might be, and which procedures best embody them, procedural democrats agree that democracy is not about tracking any "independent truth of the matter"; but instead, the goodness or rightness of an outcome is wholly constituted by the fact of its having emerged in some procedurally correct manner (Coleman & Ferejohn, 1986).

Within this taxonomy, the SDD process supports procedural democracy, because it is grounded on the premise that "the capacity of a community of stakeholders to

implement a plan of action effectively depends strongly on the true engagement of the stakeholders in designing it. Disregarding the participation of the stakeholders the plans are bound to fail" (Laouris, Laouri, & Christakis, 2008, p. 341). Christakis has further proposed the expansion of the "Tree of Meaning" to incorporate this law as well as the "Engagement Axiom", attributed to Özbekhan: "Designing action plans for complex social systems requires the engagement of the community of stakeholders in dialogue. Disregarding the participation of the stakeholders is unethical" (Christakis, 2010).

The type of co-laboratories described here require strict adherence to the engagement process. Furthermore, in all co-laboratories of democracy we have facilitated, the learning that took place among the participants [see also (Fung, 2003)], the sharpening and deepening of their understanding of the problématique as well as their evolving views regarding the prioritization of their ideas using relative influence rather than subjective importance has been remarkable. In this sense we claim that the SDD process contributes not only towards exploring, designing and implementing ideal future worlds, but moreover it creates better citizens. We furthermore assert, like other authors (Luskin & Fishkin, 2003), that if the SDD process were embedded within public structures that take decisions engaging technocrats, politicians, citizens and in general all relevant stakeholders, a new type of deliberative democracy could emerge; one that would be *talk- and argument-centric*, and not *vote-centric* (Chambers, 2003); on that would give citizens a *voice* rather than just the power to vote once every four or five years.

In an excellent review about citizenship and democratic deficits in which Nabatchi (2010) explores the potentials of deliberative democracy for public administrations she underscores the need to refocus our attention on the role of citizens in the work of governments. After all, we also know that participation is a circular causal process (Finkel, 1985) in the sense that "the more individuals participate, the better able they become to do so" (Pateman, 1970, pp. 42–43). However, what makes the SDD process unique when compared with any other participatory process is that it is grounded on laws repetitively validated empirically and scientifically in the arena of practice.

A powerful example is the requirement for engagement of all relevant stakeholders and diversity of points of view, which is grounded on Ashby's Law of Requisite Variety (Ashby, 1958). The protection of every author's contribution with redistribution of power is imperative, because as Arnstein (1969) notes, participation without redistribution of power is an empty and frustrating process that simply maintains the status quo (captured by Tsivacou's (1997) Law of Requisite Autonomy in Decision). The recognition of our human limitations (i.e., Miller's (1956) Law of Requisite Parsimony) by focusing on one simple question at a time and using technology to support the process is another great example that is repetitively empirically validated in the arena.

Avoiding premature conclusions that are almost always grounded on *erroneous priorities* [i.e., Dye's Law of the Requisite Evolution of Observations (in Dye & Conaway, 1999)] surprises participants of SDD co-Laboratories every time. Moreover, participants are astonished to discover at the end of the process that

meaning and wisdom are produced in their dialogue only *after* they search for relationships of similarity, priority, influence, etc., within a set of observations and not simply choose using popular voting [i.e., Boulding's Law of Requisite Saliency (Boulding, 1966) and Peirce's Law of Requisite Meaning (Turrisi, 1997)]. It is through the strict adherence to the laws of structured dialogic design that we set up the stage to compel parsimony, autonomy, evolutionary learning and assist participants to achieve meaning and wisdom. Out of these, largely cognitive processes, action emerges as a natural consequence [i.e., Laouris's Law of Requisite Action (Laouris et al., 2008)].

Is Democracy the Path to Freedom?

Democracy is not same as freedom. Democracy does not even guarantee freedom. Characteristically, the word "democracy" does not appear in the *liberté, égalité, fraternité* (French for liberty, equality, fraternity-brotherhood) slogan of the French Revolution (Laouris, 2014). Indeed, democracy and freedom are not only two independent things, but they can even work against each other. Fareed Zakaria warned that equating the two concepts is dangerous and provided examples how democracy can lead to erosion of freedom even unintentionally (Zakaria, 2007). In the US constitution, the Founding Fathers have set limits in which democracy can operate in order to protect peoples' freedoms from democracy. Why is this so? The reason is that we always struggle for more, for growth, for better lives. But, naturally, as soon as our standard of living reaches a certain level, we become anxious to lose it and make laws to protect it, which often means voting freedoms away. Ultimately, though, we still want our freedoms. For that reason, if we wish to retain democracy we must become aware of the negative aspects of the current model of democracy and dare re-invent it.

The Challenge of Scalability

The problem we describe here, i.e., the vision to reinvent democracy, is one of a very large scale; even that of a single nation state. However, the science of dialogic design in its contemporary form has been applied only in small groups of typically much less than 100 people and in most cases less than 30. We are therefore in urgent need of technologies that would enable massive collaboration (Laouris, 2014), if we wish to accelerate decision making and, consequently, positive social change. While there are some examples of mass collaboration (mainly based on crowd sourcing), we need to build bridges between the scales as well as to introduce the laws of structured democratic dialogue in the large-scale cyber spaces. There is emerging evidence about the quality of online deliberation, which indicates that this challenge would be easy to address. Our struggle to extend public spaces, in which humans

interact and increase affordances and freedoms, must be accompanied by parallel developments in methodologies and technologies that can effectively guarantee that wisdom will always prevail in our choices and actions.

Our group has begun to address the challenge since 2005, by introducing for the first time the concepts of synchronous vs. asynchronous and of face-to-face vs. virtual SDDP (Laouris & Christakis, 2007). In the context of the COST 219ter project (COST Action-219ter, 2010) we have collected ideas from the participants using email communication ahead of the co-laboratory. The process, which engaged 26 experts from 15 countries, was spread both chronologically (2005–2006) and geographically (Ayia Napa, Cyprus, Seville, Spain) (Laouris & Michaelides, 2007). The synchronous meetings lasted 570 min, while the asynchronous reached 100 min. In the next experiment, which took place in the context of another European Commission COST Action (COST Action-298, 2007), we decreased the total duration keeping the relation between synchronous and asynchronous phases more or less the same (429 min vs. 80 min) (Laouris, Michaelides, & Sapio, 2007).

In this co-laboratory we performed the voting process in an asynchronous mode. Next, in a philosophical dialogue with experts across the globe, we attempted a further reduction in the proportion of synchronous interactions (180 synchronous vs. 120 min asynchronous) and implementation of the clarifications fully through email communications (Schreibman, 2007). Finally, we attempted to introduce these concepts in a politically sensitive set-up, that of the Cyprus problem (Laouris et al., 2008). The collection of ideas, clarifications, clustering and voting were performed asynchronously and virtually with the exception that a few synchronous hours were devoted to an extensive discussion and revision of all ideas and clarifications to ensure that all participants understood and agreed on the meaning of every contribution. This led also to addition and deletion of factors.

In all trials described above, we have experimented with the reduction of the total time required for a co-laboratory and with the replacement of selected (non-sensitive) phases of the process with asynchronous or virtual meetings. Nevertheless, a number of shortcomings still came up, which are briefly discussed in a 2007 publication (Laouris & Christakis, 2007). The most significant are: (1) the fact that virtual SDDP deprives participants the option to listen directly to the author clarifying his or her idea and (2) clustering in smaller groups or using virtual communication technologies affects the quality of the outcome because participants do not cluster the factors truly consensually as in the case of face-to-face meetings. Finally, (3) the structuring of the influence map can be done quite effectively, but it is more the result of a cognitive exercise than a process of debating. In the latter case, a good argumentation might not only change the voting outcome, but it also contributes significantly to the learning process as well as to change of beliefs and abortion of stereotypes.

More recently, we have launched a web-based (Laouris, Christakis, Dye et al., 2012) system to enable the participation of people from across the world, enabling the whole process to be implemented on line, with asynchronous and synchronous events taking place on the same platform. The system provides functionalities such as video recording of the clarification, sending of requests for further clarification,

various ways of evaluating statements (ranging from "likeness", to "nominating for deletion as irrelevant to the Triggering Question," etc.), a sophisticated notification system, and others. It is however still very early to discuss the cons and pros of such an approach.

In closing, we suggest that the challenge of scalability should be accompanied with more research to explore not only the scientific implications of making it possible to harness massively collective intelligence and wisdom. More importantly, what is needed is to investigate whether such participatory systems could affect an individual's understanding of his or her own roles in governance, change his or her perceptions regarding the concept of governance, and ultimately *make* better citizens who would support their governments take better decisions.

Acknowledgments The authors acknowledge the facilitators, participants and supporters of the co-Laboratories of Democracy cited here with special mention to the President of the 21st Century Agoras Tom Flanagan and the young people who initiated and kindled some of them with special mentioning of Mrs. Elia Petridou, Mrs. Eleni Michail, Mrs. Maria Fotiou, and Mrs. Zoe Apostolidou. Special thanks go to Mrs. Maria Georgiou for investing countless hours in the analysis and preparation and publishing of the reports. Two dialogues have been supported by the Youth in Action program of the European Commission (Contracts: CY-13-03-2011-R5; CY-51-06-2011-R5).

References

Albrecht, K. (2003). Albrect's law. In *The power of minds at work: Organizational intelligence in action* (pp. 3–16). New York: AMACOM

Arnstein, S. R. (1969). A ladder of citizen participatio. *Journal of the American Institute of Planners, 35*, 216–224.

Ashby, R. (1958). Requisite variety and its implications for the control of complex systems. *Cybernetica, 1*, 1–17.

Boulding, K. (1966). *The impact of social sciences*. New Brunswick: Rutgers University Press.

CARDIAC Consortium. (2012). Questionnaire: CARDIAC – Advancing research & development in the area of accessible & assistive

Chambers, S. (2003). Deliberative democratic theory. *Annual Review of Political Science, 6*, 307–326. doi:10.1146/annurev.polisci.6.121901.085538.

Christakis, A. N. (2010). Laws and axioms of the science of dialogic design. http://dialogicdesignscience.wikispaces.com/Laws+%287%29. Accessed 20 Aug 2013

Christakis, A. N., & Bausch, K. (2006). *How people harness their collective wisdom and power*. Greenwich: Information Age Publishing.

Christakis, A. N., & Laouris, Y. (2010). *CSAP seminar in structured dialogic design.* Pireaus

Christakis, A. N., & Underwood, G. (2008). SDDP report: Anticipating the challenges to the Obama vision of bottom-up democracy

Coleman, J., & Ferejohn, J. (1986). Democracy and social choice. *Ethics, 97*, 6–25.

COST Action-219ter. (2010). Accessibility for all to services and terminals for next generation mobile networks. In *European Commission: COST Office*. http://www.tiresias.org/cost219ter/. Accessed 30 Jan 2013

COST Action-298. (2007). Participation in the broadband society! In *European Commission: COST Office*. http://www.cost298.org. Accessed 30 Jun 2013

Cyprus Civil Society. (2009). Cyprus Community Media Center. www.cypruscommunitymedia.org. Accessed 30 Jun 2013

Digital Futures Task Force. (2012a). Digital futures: A foresight project

Digital Futures Task Force. (2012b). Digital futures first core foresight workshop – Future and present snapshots. In *European Commission*. http://ec.europa.eu/digital-agenda/futurium/en/content/digital-futures-first-core-foresight-workshop-future-and-present-snapshots. Accessed 30 Jun 2013

Dye, K. M., & Conaway, D. S. (1999). *Lessons learned from five years of application of the CogniScope™ approach to the food and drug administration*. Pennsylvania: Paoli.

Estlund, D. (1997). Beyond fairness and deliberation: the epistemic dimension of democratic authority. In B. James & W. Rehg (Eds.), *Deliberative democracy* (pp. 173–204). Cambridge: MIT.

European Commission. (2010). Europe 2020 growth strategy. http://ec.europa.eu/europe2020/index_en.htm

Finkel, S. E. (1985). Reciprocal effects of participation and political efficacy: A panel analysis. *American Journal of the Political Science, 29*, 891–913.

Flanagan, T. R., & Christakis, A. N. (2009). *The talking point: Creating an Environment for exploring complex meaning*. Charlotte: Information Age Publishing.

Floridi, L. (2012). Hyperhistory and the philosophy of information policies. *Philosophy & Technology, 25*, 129–131. doi:10.1007/s13347-012-0077-4.

Fung, A. (2003). Survey article: Recipes for public spheres: eight institutional design choices and their consequences. *Journal of Political Philosophy, 11*, 338–367.

Future Worlds Center. (2011). Using democratic dialogue to reinvent democracy. http://www.futureworlds.eu/wiki/Using_democratic_dialogue_to_reinvent_democracy. Accessed 30 Jun 2013

Future Worlds Center. (2012a). Reinvent democracy (YiA 1.3). http://www.futureworlds.eu/wiki/Reinvent_democracy_(YiA_1.3). Accessed 30 June 2013

Future Worlds Center. (2012b). Reinventing democracy in the digital era. http://www.futureworlds.eu/wiki/Reinventing_Democracy_in_the_Digital_Era. Accessed 30 Jun 2013

Future Worlds Center. (2012c). Engaging citizens to reinvent democracy. http://www.futureworlds.eu/wiki/Engaging_citizens_to_reinvent_democracy. Accessed 30 Jun 2013

Genesis. *The tower of babel* (Vol. 11, pp. 1–9). [AU2]

Global Agoras. (2008). Anticipating the challenges to the Obama vision of bottom-up democracy. In *Institute for 21st Century Agoras*. http://obamavision.wikispaces.com

Heylighen, F. (1999). Collective intelligence and its implementation on the web: Algorithms to develop a collective mental map. *Computational & Mathematical Organization Theory, 5*, 253–280.

King, D. (1997). *Kasparov v deeper blue: The ultimate man v machine challenge*. London: Batsford.

Laouris, Y. (2012a). *CSAP workshop using structured dialogic design to re-discover SDD*. Pireaus

Laouris, Y. (2012b). The ABCs of the science of structured dialogic design. *International Journal of Applied Systemic Studies, 4*, 239–257. doi:10.1504/IJASS.2012.052235.

Laouris, Y. (2014). *Reengineering and reinventing both democracy and the concept of life in the digital era*. The Onlife Manifesto [AU3]

Laouris, Y., & Christakis, A. N. (2007). Harnessing collective wisdom at a fraction of the time using structured dialogic design process in a virtual communication context. *International Journal of Applied Systemic Studies, 1*, 131–153.

Laouris, Y., Christakis, A. N., Dye, K. M., et al. (2012). Webscope [AU4]

Laouris, Y., Laouri, R., & Christakis, A. N. (2008). Communication praxis for ethical accountability: the ethics of the tree of action: dialogue and breaking down the wall in Cyprus. *Systems Research and Behavioral Science, 25*, 331–348. doi:10.1002/sres.890.

Laouris, Y., & Michaelides, M. (2007). What obstacles prevent practical broadband applications from being produced and exploited? In R. Patrick (Ed.), *Towards an inclusive future: Impact and wider potential of information and communication technologies* (pp. 281–299). Brussels: COST.

Laouris, Y., Michaelides, M., Damdelen, M., Erel, A., Taraszow, T., Dagli, I., et al. (2008). A systemic evaluation of the state of affairs following the negative outcome of the referendum in cyprus using the structured dialogic design process. *Systemic Practice and Action Research, 22*, 45–75. doi:10.1007/s11213-008-9111-y.

Laouris, Y., Michaelides, M., & Sapio, B. (2007). What are the obstacles that prevent the wide public from benefiting and participating in the broadband society? In J. Ierson, E. Mante-Meijer, E. Loos, & B. Sapio (Eds.), *Innovating for and by users, COST Actio* (pp. 171–180). Brussels: COST Office.

[AU5] Luskin, R. C., & Fishkin, J. S. (2003). Deliberation and "better citizens"

Malone, T. (2006). The MIT Center of Collective Intelligence. http://cci.mit.edu

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limitations on our capacity for processing information. *Psychology Review, 63*, 81–97.

Nabatchi, T. (2010). Addressing the citizenship and democratic deficits: The potential of deliberative democracy for public administration. *The American Review of Public Administration, 40*, 376–399. doi:10.1177/0275074009356467.

Obama, B. (2006). *The audacity of hope: Thoughts on reclaiming the American dream* (Vol. 92). New York: Crown Publishers.

Özbekhan, H., Jantsch, E., & Christakis, A. N. (1970). *The Predicament of mankind: Quest for structured responses to growing world-wide complexities and uncertainties*, Rome

Papandreou, G. (2013). Imagine a European democracy without borders. http://www.ted.com/talks/george_papandreou_imagine_a_european_democracy_without_borders.html. Accessed 30 June 2013

Pateman, C. (1970). *Participation and democratic theory*. Cambridge: Cambridge University Press.

[AU6] Petridou, E., Michail, E., Georgiou, M., & Psilla, D. (2012). *Reinventing democracy in the digital era*, Nicosia

Sankar, S. (2012). The rise of human-computer cooperation. In *TED*. http://www.ted.com/talks/shyam_sankar_the_rise_of_human_computer_cooperation.html. Accessed 30 June 2013

Schreibman, V. (2007). *World premiere webscope email dialogue: "Root cause map" points of mFailures of democracy.* Berlin

Tsivacou, I. (1997). The rationality of distinctions and the emergence of power: A critical systems perspective of power in organizations. *Systems Research and Behavioral Science, 14*, 21–34.

Turrisi, P. (1997). *Pragmatism as a principle and method of right thinking*. New York: State University of New York Press.

Warfield, J. N. (1995). Spreadthink: Explaining ineffective groups'. *Systems Research, 1*, 5–14.

[AU7] Warfield, J. N., & Teigen, C. (1993). Groupthink, Clanthink, Spreadthink, and Linkthink: Decision-making on complex issues in organizations. *4–5,* 31

Whyte, W. H. J. (1952). Group think. *Fortune, 45*, 145–146.

Zakaria, F. (2007). The future of freedom: Illiberal democracy at home and abroad (Revised ed.) New York: WW Norton & Company

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