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Two modes of participation: A conceptual analysis of 102 cases of Internet and social media participation from 2005–2015

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ABSTRACT

In this article we analyze 102 case studies of Internet or social media-enabled participatory projects, technologies, platforms and companies in operation between roughly 2005–2015. We assign each case a “signature” representing the degree of presence/absence of seven dimensions of participation and then cluster these signatures to look for patterns of the most common ways of “doing participation” today. Two main clusters become apparent: 1) a “radical-direct” mode that emphasizes direct individual autonomy and influence, commitment to having a voice and setting goals, and individual or collective control over resources thereby produced; and 2) an “experiential-affective” mode that emphasizes the experience of being or becoming part of a collective, and the affective, communicational, and educational features of that experience.

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Introduction

What kinds of participation have been enabled or enhanced by the Internet, social and mobile media? What are the dimensions of such new forms of participation, and do they differ from older forms? Over the past 15 years the concept of participation has been central to our understanding of the transformations in different realms of society—politics, technological innovation, fund raising, peer production, surveillance, privacy, and so on (Benkler 2006; Tapscott and Williams 2008; Shirky 2011; Howe 2008; Petersen 2008; Terranova 2004; Morozov 2013; Barney and Coleman 2016).

But participation is also a problem and a mystery. Its meaning and its effects are defined differently by different actors—whether they be large market actors like Facebook, social movement groups like Occupy, or government agencies interested in increased citizen engagement. In this article, we seek to explore participation not by defining it theoretically in advance, but by examining what people have done in its name. The concept of participation is a vague, aspirational, and often confusing one; it is difficult to answer the question “how has participation changed in the age of the Internet, social and mobile media?” without first knowing what participation means to the widely-varied actors in the world who are naming it, enabling it, measuring it, promoting it, benefiting from it or critiquing it.

To accomplish this, we devised a study of 102 cases of “Internet-enabled” participation between 2005 and 2015 and we evaluated them according to seven different dimensions of participation derived from as extensive a range of definitions as possible. Our study seeks to address the following questions: What are the different dimensions of participation? Can co-occurrences of these dimensions in different combinations and in different contexts provide insights into different modes of participation?

Each of these terms bears explaining: “Internet-enabled” is intended to be as inclusive as possible: we considered any project using either Internet and web-based forms of communication and practice or social and networked media (including so-called “web 2.0”) applications or any mobile-based versions of the same. The time period roughly 2005–2015 is arbitrary, but it is taken to represent a moment of both enthusiasm and suspicion of the technological changes ushered in by new Internet, social and mobile media technologies. Our cases are thinly described collections of material including publicly available documents, journalistic and media reports and occasional interviews that answer a set of structured questions. The dimensions of participation are described briefly below and in more detail in previous work (Kelty et al. 2014; Fish et al. 2011; Kelty and

Panofsky 2014). Here we identify the most common co-appearances of these dimensions to develop insights into different modes of participation.¹

“Participation” is a term that is very rarely defined precisely by its users, even though it has significant and quite varied traditions of investigation and practical action (Literat 2016). There are no established theoretical or conceptual standards for what participation is—neither in a practical sense (laws, regulations, best practices), nor in a theoretical or philosophical sense (unlike, for instance, concepts like justice, freedom or equality).

Even in the fields of information studies, communication, media studies, science and technology studies, and cultural studies, there is a very wide range of approaches. There is a long-standing tradition of “participatory design” stretching back to the early 1970s in Scandinavia (e.g. Asaro 2000; Schuler and Namioka 1993; DiSalvo 2012); here participation usually refers to inclusion of non-engineers or non-designers in the technical and conceptual process of design. There is a robust debate in cultural studies about “participatory culture,” user-generated content, and fan cultures (e.g. Carpentier, Dahlgren, and Pasquali 2013; Jenkins, Purushotma, Weigel, and Robison 2007); here participation refers to forms of co-production of media content (e.g. fan fiction, interactive media, co-production between professionals and amateurs). There is a specific focus on the “participation divide” and the related questions: Are people using new technologies for digital media content creation? Is there active non-participation in such activities? Has online participation increased over the last few decades? (e.g. Hargittai and Walejko 2008; Lutz and Hoffmann 2017a). Here participation largely refers to participation in creation or sharing of new digital media content. In studies on political participation online and offline (e.g. Earl and Kimport 2011; Vissers and Stolle 2014; Bakker and de Vreese 2011), which employ various approaches, participation generally means political participation, especially speaking, assembling, petitioning and deliberating. There is also a long tradition of measuring social capital and the use of new technologies (e.g. Ellison, Steinfield, and Lampe 2007; Wellman et al. 2001), here participation usually only means being part of a group of some kind, usually a community or social organization.

Taking only these few examples, we see that participation can mean: 1) renegotiation of authority between experts and non-experts; 2) user involvement in the creation of media content and its meanings; 3) citizens’ expressions and actions with regard to the political process; 4) social activity that changes the individuals’ social capital. If one extends one’s gaze beyond these fields, the range of different definitions and uses of participation also extends dramatically. For our purposes, such

definitions constitute the set of *extensive* definitions of participation.

Conversely, we have the set of *intensive* definitions of participation, as illustrated by the following two examples. Carpentier (2011) distinguishes minimalist and maximalist forms of participation, and separates out *access* and *interaction* in order to parse out different dimensions of participation (access to content as opposed to interaction with either content or creators of content). Fortunati and Manganelli (2011, 274) define social media-based participation as being either strong—an “intervention of an individual or group on the governance of a community”—or weak—“taking part to a greater or lesser degree in the activities of voluntary associations, groups of interest or religious groups.” In the case of Carpentier, participation is examined along two dimensions: access to content and ability to interact with it. In the case of Fortunati and Manganelli, participation is examined along one dimension—“taking part” in a group—and not about the particular activities engaged in. There are many such intensive definitions of participation.

Taken together, extensive and intensive definitions of participation allow for theorization of the *significance* of participation, i.e. whether participation in a particular domain enhances or improves participation in society, or is related to a generalized *democratization* of society. There is warrant for this in the domain of political theory. In the 1970s Carole Pateman argued that a democracy will only be as participatory as the social contexts upon which it rests (Pateman 1976). If home, work, and play are participatory, the body politic is also likely to be participatory. Conversely, if home, work, and play are not participatory, there is little reason to expect the body politic to be participatory.

Although vague, the concept—participation—comes with enormous normative weight. Participation is central to democracy in multiple ways: public sphere, electoral process, and governance. While participation is rarely singled out as a key concept in political theory, it is implicitly central in most theories of democracy, and even a normative expectation in many non-governmental domains—the workplace, the school, the community (Fung and Wright 2003). The relation is arguably reversible—a more participatory government might have demonstration effects for the sub-groups that make up its citizenry. Such was the case in the late 19th century when “industrial democracy” proponents demanded an extension of representative democracy to the workplace (Lichtenstein 1993; Derber 1970; McCartin 1997).

However, participation also regularly comes in for criticism; in particular, it is criticized as a form of *coöptation*. According to some critics, participation (at

work, for instance) is used to produce the *experience* of participation without creating access to political power (Boltanski and Chiapello 2005). This critique is usually identified with neo-liberalism (Guarneros-meza and Geddes 2010; Rose and Miller 2008; Shamir 2008). Darin Barney, similarly, argues that participation can function to de-politicize actions, forcing citizens to choose between an authentic participation in politics and a proceduralized participation (Barney 2010; Barney and Coleman 2016). A further critique is articulated by Caroline Lee; she chronicles the work of “public engagement experts” who craft large-scale participatory experiences for citizens that can end up being, in Lee’s words, “authentically real and disempowering at the same time.” (Lee 2014, 29).

The rest of this paper reports on our analysis of 102 cases of Internet-enabled participation. By giving each case a “signature” and analyzing how the cases cluster with respect to each other, we identify two main *modes* of participation: “radical-direct” (direct individual autonomy and influence, commitment to having a voice and setting goals, and individual or collective control over resources thereby produced) and “experiential-affective” (experience of being or becoming part of a collective, and the affective, communicational or educational features of that experience).

The paper proceeds as follows. In the following section we describe our methodology, detailing how the cases were constructed, how they were evaluated vis-a-vis dimensions derived from the literature to produce a numerical signature for each case, and how those signatures were clustered and analyzed. In next section, we discuss dimensions of participation in greater detail and explore a couple of cases to explain our approach. In the subsequent section, we detail the cluster analysis of the signatures (hierarchical agglomeration and principal component analysis) and the results obtained. In the penultimate section, we interpret the results and discuss how we arrived at the two modes and their significance. In the last section, we offer our concluding thoughts.

Methodology

We examined 102 cases, which is too many for interpretive research and too few for a quantitative analysis. An interpretive approach would counsel deeper analysis of a few well-selected cases. But such an approach suffers from a selection bias, especially towards a few well-known cases (e.g. Wikipedia, Linux, Amazon Mechanical Turk). By contrast, a statistical analysis is inappropriate because there is no well-defined ‘population’ of

participatory things from which to sample or to make claims about the frequency of participation, or its modes.

In this context, there was no simple “criteria” by which all 102 cases could be selected at one time. Given the sometimes-rapid appearance and disappearance of companies and projects (relative to the slower time-frame of scholarly research), we continuously re-evaluated cases that could be added to the database, and also reviewed cases that seemed to have become “extinct” in some way. For the selection of each case, there was an iterative process by which research team-members proposed cases, they were discussed in light of the present understanding of the dimensions, and a determination was made based on researchers’ intuitions about participation, as well as the extent to which the case differed from others already in the set.

To maximize the diversity of cases, the research team maintained a long list ($n > 200$) of possible candidates (discovered through journalistic and mass media accounts, researcher experience, scholarly literature, and other sources), and settled on a range of cases from multiple domains intended to cover significant differences in the structure and function of participation.² These choices include different kinds of organizations (from hierarchically organized corporations to acephalous movements); different technologies (Internet, web-based, mobile media, gaming); different project ages, from over 20 years old to under 2 years old; and different modes of participation including direct/indirect, formal/informal, paid/unpaid, voluntary/involuntary, etc. The domains include: Free/Open Source Software (FOSS) (19); social networking (14); science/engineering (13); culture industry/other (13); activist (10); education (7); citizen journalism (7); social entrepreneurialism (6); craft/DIY/consumer goods (5); games/persistent worlds (4); and forum/ mailing list (4).

Discussion of each case focused on issues such as: what use was made of the Internet, new media or mobile technologies? Was there a self-designation or designation by another public observer as “participatory” (including terms like ‘user-generated’, ‘crowdsourcing’, ‘collaboration’, ‘public engagement’)? Might the case add to the diversity of the set in some way (rather than simply being a close copy of another case in the set)? The resulting set of cases is unique both in its size and its breadth. Other projects have collected cases more narrowly defined issues such as citizen science, (Wiggins and Crowston 2011), environmental regulation (Beierle and Cayford 2002); collaborative governance (Ansell and Gash 2007) or commons-based peer production (Bauwens, Mendoza, and Iacomella 2012).

The research team comprised of between seven and twelve members over the course of the 3-year project, all of whom, save the two principal investigators, were

graduate students in the fields of information studies, sociology, anthropology and science studies. All the graduate students were working on topics in their dissertation projects that related to participation, and as such were self-selected. There was generally a gender, racial, and socio-cultural balance (4 women, 8 men; white, Hispanic, and African-American) in the team. The research team met regularly (2–4 times per month) to discuss the cases, and also to evaluate many of the case studies that were developed by the team (described below). Some team members contributed to only a single case, while others contributed to as many as twenty. Some cases were also constructed collaboratively as part of a graduate class in Information Studies, involving some of the research team members, and some students not involved in subsequent evaluations.

After collaboratively and interpretively evaluating the cases, the research team used standard clustering tools to map and analyze the resulting distribution of signatures—systematic interpretations of case material that capture the variation in definitions and practices of participation. A traditional approach would seek to eliminate any variation in the analysts’ evaluation (or interpretation); i.e. ensure inter-rater reliability. But because our interest is in capturing the diversity in definitions and practices of participation, we adopted an approach that emphasizes discussion, consensus and collaborative case evaluation. There are obvious limitations to this approach; if one assumes that “participation” is an independently existing feature of the experience of individuals or organizations, then these results will appear inconclusive.

Our evaluations were based on the material collected in the case studies, and occasionally on additional research or follow-up questions. For each evaluation, an individual researcher would get familiarized with a case, and for each of seven dimensions, independently determine whether or not that dimension was present in the case – without knowledge of evaluations by other researchers. Subsequently, each case was discussed at team meetings, where researchers were able to change their evaluations. Multiple researchers evaluated each case (always 3 or 4) and the evaluations were then coded as either +1 (the dimension was present), –1 (the dimension was not present) or 0 (the dimension was somehow not applicable). The resulting scores were aggregated and divided by the number of responses to produce a single value for each dimension of participation in each case. The score thus represents both a measure of the presence/absence of a dimension, as well as the strength of our collective consensus about that measure.

Evaluation of cases in this way produced a matrix of 102 cases with 3–4 evaluation scores for each of the 7 dimensions. For each case, therefore, it is possible to establish a single numerical “signature” that allows us to

measure its “distance” from all others in the set. This signature can be treated as a coordinate locating the case within the conceptual space generated by the dimensions of participation.

This approach is useful because it makes available a host of quantitative techniques that use proximity as a measure for similarity and distance as a measure for dissimilarity. We used standard multivariate cluster analysis to find groups of similar entities within the data set (Bartholomew 2008; Aldenderfer and Blashfield 1984; Ragin 1987; Ragin and Becker 1992). We also used factor analysis, correspondence analysis, and principal component analysis to decompose a set of observations into different factors or components, describing variability in the observations (Bartholomew 2008). Together, these techniques enabled us to identify modes of participation in our set of 102 cases. Specifically, we use them to visualize clusters of signatures. The clusters themselves are not meaningful without an additional round of interpretation, described in the next section. It should also be noted that although some cases were evaluated by three researchers and some by four, this did not significantly alter the distances between cases, or the clusters that result.

Cases, dimensions, and participation signatures

As data was collected on the first cases, we simultaneously began to investigate the different meanings of participation. In a previous work (Kelty et al. 2014) we catalogued and exemplified seven of the most common dimensions, which are briefly described here and summarized in Table 1 (shorthand labels for these dimensions are noted in brackets):

- 1) *Educative Dividend* [**education**]: participation is said to be beneficial because it confers an educational benefit on the participant; illuminating, for instance, the workings of government or the interests of an organization, or the shared problems of a community. “Civic virtue” in political theory, is acquired only through active participation in government.
- 2) *Access to decision-making and goal setting* [**goals**]: participation understood as direct, individual involvement in the setting of goals and agendas, rather than merely in the carrying out of assigned tasks decided elsewhere; “direct” democracy, in the Athenian sense, is often implied by this dimension.
- 3) *Control or ownership of resources produced by participation* [**resources**]: Active participation often results in the production of a “resource” (a transferable good in many cases, or an intangible thing such as reputation, knowledge or a decision). An aspect of this dimension is whether participants

Table 1. Seven dimensions of participation.

Dimensions	Description	Illustrative Cases	
		Strong	Weak
1. Education	Learning something valuable, esp. learning how to participate effectively.	Zooniverse, a citizen science platform where contributors can learn about science while helping classify data.	Dating and hook-up sites/apps which do not sustain long term use (e.g. Match.com).
2. Goals	Participants not only undertake tasks but also help set goals.	Linux or Wikipedia, where contributors can rise up a hierarchy to become decision-makers.	Most social media sites, where contributions are about consumption decisions (e.g. Pinterest, Amazon) or where size prohibits such involvement (e.g. Twitter, Facebook).
3. Resources	Participants get to control (own or use) resources, not merely produce them.	Second Life (control of in-game intellectual property); Mukurtu (strong focus on community property).	PatientsLikeMe (data sold to third parties without individual control or consultation).
4. Exit	Capacity to leave without penalty and with resources.	General news sites and blogs that do not track readers (e.g. Global Voices, IndyMedia).	Social Media sites that are extensively connected to other sites or uses (e.g. Facebook, Twitter).
5. Voice	Opportunities to “speak back” in order to influence outcomes.	Sites/projects with extensive systems for interaction at all levels (e.g. Wikipedia; Apache).	Projects that have “feedback” or comment forms, but no real engagement (e.g. OK Cupid, Revision3, Amazon).
6. Metrics	Empirical demonstrations of the connection between participation and outcomes.	Gamified projects (e.g. Fold-it), sites/apps with badges, levels; data-centric practices (e.g. Quantified Self).	Projects with no measure of user-contribution (e.g. Revision3, IMDb).
7. Communication	Collective effervescence and the experience of being part of an audience; communication within a collective, affect, affiliation, and sociability.	Projects that build in a sense of belonging or intense communicative affordances (e.g. Instagram, Facebook, most social media).	Projects that resist or downplay community (e.g. Bitcoin emphasizes anonymity and individuality).

control the distribution or circulation of resource, not only its production. Such an issue is particularly true of “digital” resources today—software, data, files, etc.

- 4) *The voluntary character and the capacity for exit* [**exit**]: Participation is often defined as a voluntary action, both in terms of the decision to initiate it, and equally in terms of the ability to stop participating in something—and especially to exit without a penalty, such as loss of resources, reputation or ability to return to a collective.
- 5) *The effectiveness of voice* [**voice**]: Participation is sometimes discussed in terms of the ability to have one’s voice heard; debate in the public sphere, dissent, critique, and influence are all considered part of participation when they are deemed effective (and not merely a therapeutic expression of discontent).
- 6) *Metrics for understanding or evaluating participation* [**metrics**]: The ability to see and understand the results of participation are often also central to the experience of participation: to see the outcome of an election or a vote; to witness the results of collective effort to create or disseminate something; or to more closely monitor one’s contributions compared to other participants, as in the case of gaming.
- 7) *“Collective Effervescence,” or affective, subjective communication* [**communication**]: Lastly, a very common explanation of participation is that it is an experience in which people feel a subjective,

affective connection to a collective. Often this experience is defined as convivial, sometimes face-to-face (as part of a crowd for instance), sometimes not (Facebook friends of friends), and it often depends on the ability of people to communicate with each other on a plane separate from whom-ever is enabling that participation.

Over the decades a wealth of work in different disciplines has confirmed the multi-dimensionality of participation (Arnstein 1969b; Dachler and Wilpert 1978; Cohen and Uphoff 1980; Carpentier 2011). The above listed dimensions represent “least common denominators” of these different scholarly understandings and also of those engaged in the world of practice.

We reduce the dimensions identified in each case to a deliberately artificial *signature* of participation. Consider the case of Couchsurfing (Figure 1), which started in 2003 as a non-profit, was liquidated in 2011, and was reconstituted as a for-profit in 2013. It is an emblematic case of a participatory social network where members open their homes (couches, an extra room) to travelers. It has been eclipsed by the “sharing economy” (e.g. Airbn), since about 2012.

At the time of our initial case analysis (2011), Couchsurfing had a reputation as strongly participatory in terms of its educative potential (Its original mission was “increasing understanding through travel” and the participants were encouraged to learn from each other how to most effectively use and/or improve the service.). It was also a clearly voluntary project (what we



Figure 1. Signatures for Current TV (not discussed here) and Couchsurfing. Green (light grey): Presence of a dimension. Orange (dark grey): Absence of a dimension. The number in the center represents the number of evaluators involved in the discussion. A black outline represents a comment left by an evaluator.

label “capacity for exit without penalty”—participants could enter or leave the community without penalty). It generated “collective effervescence” (the capacity to produce an affective and communicative bond amongst members is evident in testimonies and descriptions of users, especially of the early site). By contrast it was less participatory in terms of decision-making or goal setting (this has always been the purview of the staff of Couchsurfing, not its users) and resource control (Couchsurfing currently owns and controls data produced by the users, as laid out in the Terms of Service. With regard to past data, it was likely absorbed into the reconstituted entity.). As should be clear from the signature, there was no consensus among members of the research team on “effective voice” as an attribute (two members suggested it was effective, and one not). Although there is much more depth to the case of Couchsurfing, which is continually changing (and therefore difficult to capture in a single signature), it stands out as an example of how a “participatory” project is participatory only along some dimensions—neither fully participatory nor fully lacking in participation.

Other cases show considerable variation. In case of free/open source software cases—Linux, Mozilla, and Blender (Figure 2), we unanimously evaluated them as participatory across all the dimensions. In the case of general social media and user interaction services—Grindr, Amazon, Twitter, and Facebook—we found

them to be participatory along only a few dimensions (Figure 3). By definition, none of our cases were rated as having no participatory elements at all.

The advantage of assigning signatures to each case is that it allows us to differentiate *intensive* variation in how participation is being defined, and to compare such definitions across *extensive* domains.

Analyzing participation signatures

We analyzed participation signatures in three ways. Using hierarchical agglomerative and k-means clustering, we analyzed the complete set of 102 cases to get a rough sense of the number of clusters—representing distinct modes of participation. Additionally, we conducted principal component analyses of all cases, and subsets representing different modes, in order to detect which dimensions accounted for most of the variation across the signatures.³ Because the hierarchical agglomerative and k-means cluster analysis resulted in similar groupings—and in the interest of brevity—in the discussion that follows we present only the results from the hierarchical agglomerative and principal component analyses.

Hierarchical agglomerative clustering

Our first step in searching for modes of participation was to get a rough sense of how signatures clustered—



Figure 2. Signatures of free/open source software cases—Linux, Mozilla, and Blender.



Figure 3. Signatures of user interaction intensive services—Grindr, Amazon, Twitter, and Facebook.

the *number* of possible modes. Cluster analysis is a helpful exploratory technique here because it sorts data into families based on similarity, most often visualized as a dendrogram or phylogenetic tree. Hierarchical clustering methods have the advantage that they produce a clearly defined hierarchy of families and sub-families. Hierarchical methods can use different distance metrics (Euclidean, Manhattan and others) for determining similarity between data points and linkage methods (Ward, Complete, Single, etc.) to iteratively create hierarchical clusters of similarity. Different distance metrics and linkage methods can produce slightly different cluster hierarchies, necessitating the task of both comparing these different approaches and of recognizing that no one of them is likely to be the most correct. Further, hierarchical clustering does not provide a metric for the ‘correct’ number of clusters present in the data—it generates a hierarchy of groups, but the choice of where to cut that hierarchy into a specific set of groups is a matter of interpretation (Jain et al. 1999).

Applying hierarchical clustering to our data, we identified two main families of participation. An example is given in Figure 4.⁴ First, there is a set of strongly correlated cases including Wikipedia and similar cases—Connections, Global Voices, Open Street Maps, etc., as well as a set of other more radical projects (Anonymous, Indymedia, RiseUp) often closely associated with activism and radical politics (Group A in Figure 4). All the cases in Group (A) were evaluated positively with respect to most of the seven dimensions of participation, particularly goals and voice. In the discussion below we refer to these cases as examples of a *radical-direct* mode of participation. The second main cluster—Group B, or *non-radical-direct* cases—consists of two subgroups (B1 and B2). The distinction between these subgroups is harder to interpret than the higher-level families and the cases associated with them vary across clustering methods. Group B1 contains a mix of citizen science,

crowdsourcing, non-profit and political projects; B2 includes various social media sites (Twitter, Facebook, Myspace and others) as well as dating sites and most “citizen journalism” sites. Overall, the result of analyzing the cases confirms two robust families of participation signatures. Significantly, this analysis confirms that many of the cases most discussed in the literature on Internet-enabled participation—particularly those cases frequently pointed out as positive examples of peer-production—are similar with respect to goals and voice, and are clustered together in Group A. The variety of cases in Group B is conspicuous; it initially appears more straightforward to interpret this cluster in negative terms—all cases not in Group A—rather than as a coherent family of cases sharing a common mode of participation. Accordingly, in our subsequent analysis, in addition to the PCA of the entire set, we isolate Group B in order to better explain variation within the group.

Principal components analysis

To further refine our understanding, we also analyzed the data using principal component analysis (PCA) (Bartholomew 2008). PCA complements hierarchical clustering by showing how the seven dimensions contribute to each of the components that account for the variance in case signatures. As seen in Table 2, the first component accounts for 49% of the variance of the cases, while components 2,3, and 4 account for between 10 and 13% each.

By looking at the contribution of the seven dimensions to each of the first four components, one can see how these different modes are composed. In the first component, the overwhelming contribution comes more or less equally from three dimensions: goals, resources and voice. In the other three components, the main contribution comes from resources (PC2), metrics (PC3) and education and communication (PC4). This result

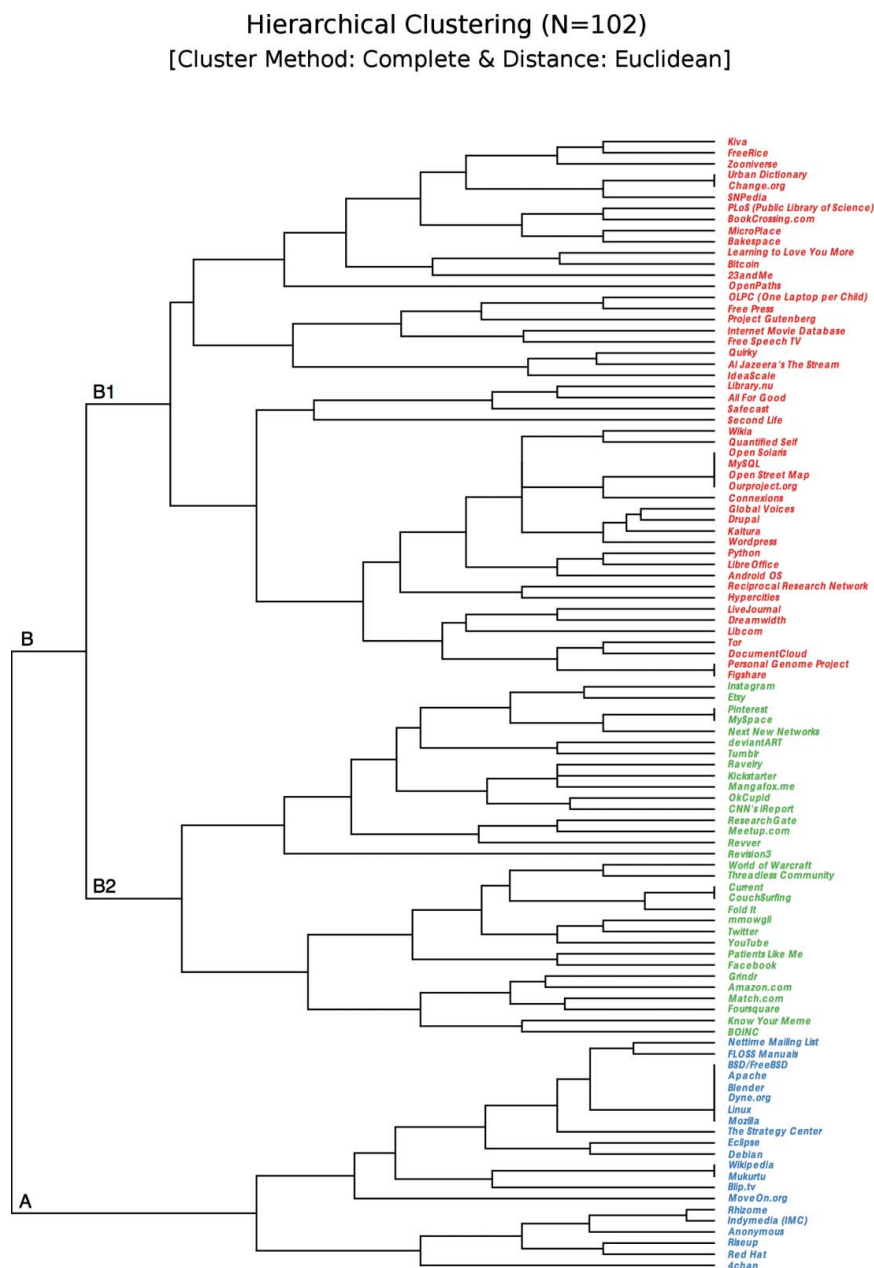


Figure 4. Agglomerative hierarchical clusters of all cases ($n = 102$). The three largest groups are labeled A, B1, B2.

suggests that there are two broad modes: one where the access to goal setting, effective voice and control over resources are present, and a separate class that is primarily about educative dividend, affective or communicational experience and metrics. Because resources are strongly represented in both Component 1 and

Component 2, it is likely that this aspect of participation further subdivides these classes, suggesting an important role for this dimension, whether or not goals and voice are present.

Because of the dominance of the dimensions of goals and voice, we also performed PCA on only those cases

Table 2. Principal Component Analysis of all 102 case signatures. The four most prominent components are shown along with the contributions from each dimension.

	% var.	Education	Goals	Resources	Exit	Voice	Metrics	Communication
PC1	49	9.45	32.26	25.34	1.29	30.63	0.37	0.67
PC2	14	9.27	5.49	61.8	0.05	10.93	12.1	0.37
PC3	12	1.64	0.06	9.27	1.28	1.86	81.2	4.69
PC4	11	39.13	8.52	1.8	4.81	1.04	2.24	42.47

Table 3. Principle Component Analysis excluding radical-direct cases ($n = 62$).

	% var.	Education	Goals	Resources	Exit	Voice	Metrics	Communication
PC1	29.59	10.81	0.11	81.62	1.31	2.7	1.82	1.63
PC2	25.84	59.96	0.28	15.92	2.59	12.22	0.46	8.58
PC3	16.06	4.52	0.18	1.56	0.62	0.1	61.64	31.37
PC4	12.13	6.41	0	0.57	9.74	3.19	33.71	46.38

that do not fall into the “high” goals/voice set, i.e., we isolate the cases identified as Group B in the hierarchical cluster analysis, above (see Table 3). This effectively removes all free / open-source software cases, many activist cases, and various other cases ($n = 62$). With the remaining cases, the computed components emphasize the relative importance of dimensions in a class of cases where goals and voice are not as well represented.

In this analysis, the first two components account for about half of the variation, and they clearly correspond to *control over resources* (PC1) and *educative dividend* (PC2). PC3 and PC4 components, which together account for another quarter of the variation, consist of contributions by *metrics* and *communication*. To summarize, if we leave out cases that allow for participation in *goals* or *effective voice*, and look only at cases that primarily emphasize the experience of participation (education, communication, metrics), we get a much different picture: a mode of participation that primarily emphasizes collective experience and education, but is divided between those cases that emphasize control over resources and those that do not. We refer to this latter mode as *experiential-affective* participation.

Discussion

What modes of participation exist in our set of cases? Our claim is not to have discovered modes of participation, but rather that their differences are caused by variations in how actors in the world define, set up, implement, code, or practice participation.

There are broad theoretical commitments—amongst those participating on the ground and scholars writing on participation—to the *effects* of participation: it will be positive and democratizing, or vice versa; it results in cooptation and exploitation; it will extend politics to ever-greater numbers of people; or vice versa, it is fundamentally anti- or apolitical.

Much of the writing on participatory culture and youth celebrates the possibility of positive effects from participation, including spillover effects of cultural participation into political participation (Jenkins et al. 2007; Jenkins et al. 2016); the literature on the use of the Internet and new media for increasing political participation has (until very recently) been on balance enthusiastic about the effects of participation, digital and participation divides

notwithstanding (Earl and Kimport 2011; Hargittai and Walejko 2008; Karpf 2012; Kreiss 2013). On the other hand, there is skepticism that participation is a containment strategy that deflects the work of politics and masks the political power of non-participation (Barney 2010; Barney and Coleman 2016; Lutz and Hoffmann 2017b; Casemajor et al. 2015); beyond information and communication scholarship, scholars in participatory international development have gone so far as to call participation “a new tyranny” (Cooke and Kothari 2001; Hickey and Mohan 2004).

All the literature on participation, however, tends to define it as being unitary—as being one kind of thing that is consistent across cases, even if its effects are interpreted differently. What we show here is that these definitions vary widely—both in the world and in the scholarly literature—but they do not vary infinitely. Instead they cluster clearly into a couple of forms that might help us make sense of when participation seems to have the positive effects attributed to it, and when it might have the negative effects. In what follows we explore these modes with respect to the specific cases we used to generate these results and we suggest some key findings based on these analyses.

Two modes of participation

Our analysis strongly confirms a perhaps unsurprising fact: the most significant differentiators of participation are the ability to participate in the crafting of goals and agendas, not just tasks, to have a strong voice that is heard, and to have a stake in the distribution of any resources produced. This form of participation, which we label “**radical-direct**,” is one of two broad meanings of participation—in this case a clearly political form that emphasizes autonomy, involvement and control by individuals and intentional collectivities.

This finding is unsurprising because it has long been emphasized by scholars and practitioners that, in the words of Sherry Arnstein “participation is a categorical term for citizen power” (Arnstein 1969b). In more recent media studies, Carpentier has made a strong and rigorous case that effective participation is related to its ability to shift power from one group to another, or to demonstrate that power through concrete capacities for media making and interpretation (Carpentier 2011; Carpentier 2016; Carpentier, Dahlgren, and Pasquali 2013). Related

fields of democratic theory, especially deliberative democratic theory, have long rested on an expanded sense of participation (beyond voting or individual, rational choice) that also confirm the centrality of goal-setting and the capacity to hear and be heard by others (Dryzek 2002; Mutz 2006; Benhabib 1994; Cohen 1997). In these traditions, participation plays an *instrumental* part in achieving something more and different than what lone individuals can achieve—even when aggregated together, as in voting.

There is another mode of participation (which we call “**experiential-affective**”) that prefers instead to emphasize the collective, subjective experience of participation, involving both an emotional component of feeling or affect, and a representation of the collective that reflects that experience. Such a form of participation is less obvious in the existing literature. The work of scholars in participatory culture exemplifies this commitment to the experience of meaning-making amongst collectives (though they also often claim an explicit political dividend as a result) (Jenkins et al. 2016). The role of affect in political theories of collective participation has been clear since the time of Gustav Le Bon’s discovery of “the crowd” in the late 19th century (to say nothing of the vast field of scholarship on autocracy, totalitarianism and propaganda) (Borch 2012); and while specific questions of emotion and affect are well-studied in information and communication studies (e.g. the enthusiasm for “sentiment analysis”), only a few works relate participation and emotion theoretically to participation (Papacharissi 2015). The field of “affect theory” is one valuable resource (Gregg and Seigworth 2010; Clough and Halley 2007; Berlant 2011; Massumi 2015). These works emphasize that the practice and content of politics is not restricted to rational thought and action but also depends on the affect and emotional investment of participants. Emotions can be powerful and disruptive, but they can also be disabling (Berlant, for instance, pointed to “cruel optimism” as a case: when political actors sustain hopes for a state of affairs that will never come about.) “Experience” (as part of participation) refers to these emotional states of being, but it also refers to the experience of being-with-others (and especially, being aware of that experience), as in the case of crowds or mobs (when individuals are said to “lose themselves” in the crowd), or in the cases we looked at, when there are elaborate metrics of connection (friends, likes, followers, views, etc.) that give a palpable sense of being among a collective, and which can create feelings ranging from solidarity and intimacy to jealousy and anger. In some cases, this experience can have political effects; but in others it can be a deliberate attempt to control political passions. A concrete example of the appeal of this experience of

participation has been analyzed by Caroline W. Lee in the growing “engagement industry” that stages political events precisely in order to provide a powerful experience as part of a political process—instrumentally these events are about deliberation and debate, but experientially they are designed to channel, evoke, or control emotions.

In many of our cases, this form of experience is exclusive of the elements of a radical-direct mode, though some embrace the possibility of having both. However, we emphasize that the absence of *goals, voice or control over resources* does not make a case *non-participatory*; rather, it forms a distinct mode of participation that emphasizes the bond produced or strengthened by becoming part of a collective and the skills or knowledge gained thereby. The distinction we draw between participation as an experience—especially a powerful affective and cognitive one—and participation as a feature of democracy—of autonomy and control—is not new, but it is all too often understated or ignored in writing about participation. Worse, the two modes are often collapsed—suggesting that if one exists, the other must as well. By contrast, the existence of an “authentic” democratic control and autonomy in participation can take place in a very lonely crowd, unaware of its collectivity or effects—subject to apathy and a dispiriting sense of struggle. This is often the sense of “neoliberalism” critiqued by those who see participation as an “anti-politics machine” crafted to forestall authentic politics in the name of a banal procedural autonomy (Ferguson 1990; Barney 2010; Cooke and Kothari 2001). And it is just as likely that an enthusiastic collective effervescence, riddled with data and metrics demonstrating massive numbers of participants and collective effects can happen without anything approximating direct democratic control or autonomous political voice—to be “authentically real and disempowering at the same time” (Lee 2014, 29; Felstiner 2012; Fish 2013a).

While the signal that there are at least two major modes of participation is clear, reducing participation to only two modes of participation would contradict our effort to make finer distinctions. The results of our analysis are intended to sharpen our sense of what is being called participation rather than dull it. We present several of the most well-supported of these interpretations here. One tool that can help visualize the relations among the *cases* and the *dimensions* are bi-plots of selected components from our PCA analysis. These graphs (Figures 5 and 6) overlay the strength of the components (the arrows issuing from the origin) with the relative location of several of the cases (whose location on the plot is determined by the signature, and the two components chosen).

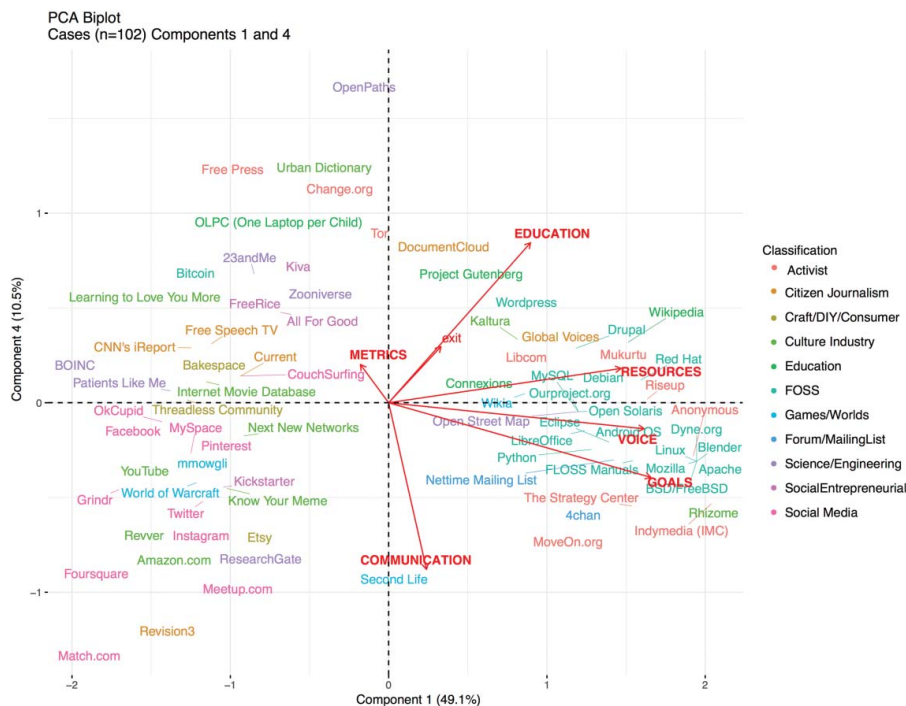


Figure 5. PCA BiPlot of Components 1 and 4 ($n = 102$). X Axis represents radical-direct participation and Y-axis represents experiential-affective participation.

Goals vs. voice

An important finding of this analysis is that participation in goals and effective voice are strongly correlated with each other—they are often present or absent together in a case. This is unsurprising since a key mode of

participating in goal setting is through voice—speaking up and arguing, being heard and demanding change. However, it appears surprising to us because one of the oft-invoked reasons for the power of new Internet-enabled participatory media is that it can transcend *scale*

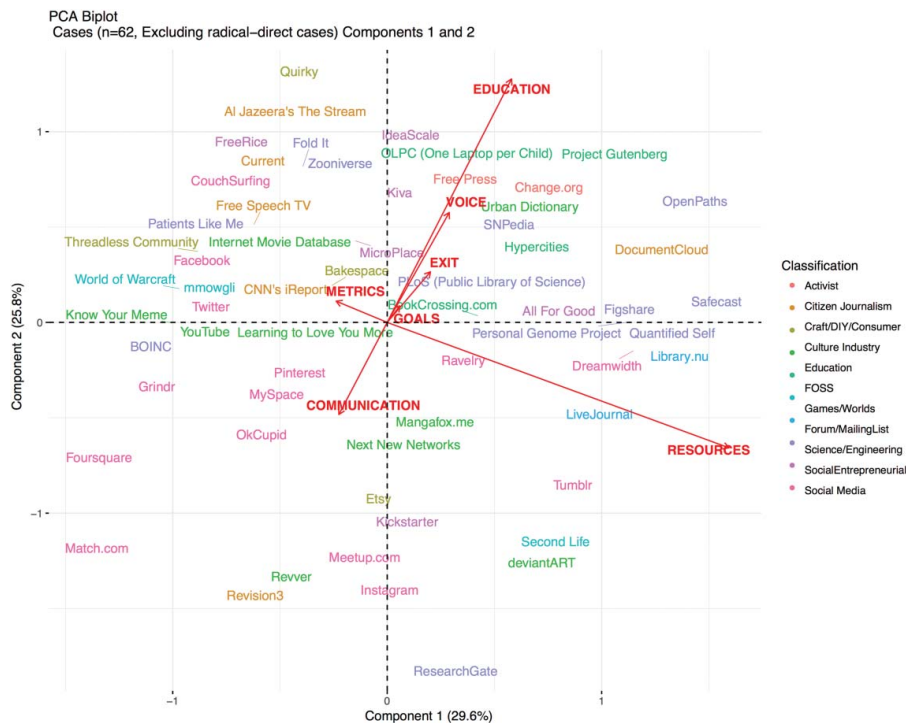


Figure 6. PCA BiPlot of Components 1 and 2 ($n = 62$). X axis represents “control of resources” and Y axis represents “communication-metrics.”

and the classic political problem of moving from participatory to representative democracy—that the Internet “scales up” the agora, as it were. However, these new solutions often do so at the expense of *voice*, and in favor of a collective experience made tractable through a limiting and channeling of participatory tasks (or an *experience* based on metrics and numbers rather than direct interaction, emotional connection or some version of effervescent collective togetherness). Crowdsourcing is emblematic in this sense: in order to achieve large numbers, and to give participants an exciting sense of collective achievement, the tasks and contributions must be narrowed and precisely defined—voice must be constrained to achieve a pre-set goal. That is, it emphasizes the collective bond as such, not the creation, modification or control of collective-making in the first instance.

It is therefore surprising that in all the cases we looked at, the strongest correlation was between the ability to set and control goals, and the presence of effective voice. This result suggests two hypotheses: 1) that lack of effective voice is a good indicator that participation in goals will also be absent, and 2) that other dimensions of participation (educative dividend, capacity for exit, and communication) do not imply or entail participation in goals. By establishing two different dimensions (participation in goals and effective voice) from the outset, our research project carried the implicit hypothesis that it would be possible to have access to effective voice and at the same time *not* to participate in goals; or to participate in goals without being given a voice. We expected to see some signal of the fact that contemporary participatory projects ubiquitously provide an attenuated or “phony” voice in the form of comments, voting, liking, or other structured forms of voice that do not equate with authentic capacity to direct goals. To have voice but no access to goals however, seems to correlate more with the “experiential-affective” mode of participation—it does not satisfy norms of autonomy and democratic control, but it does satisfy norms of affective belonging or a sense of collectivity that people desire. On the other hand, to experience control or autonomy without voice—through the use of technologies of crowdsourcing, crowd-funding, voting, liking or otherwise mediating one’s interests or desires through technology would seem to be a key feature of contemporary participation; but our results suggest rather that either both goals and voice are present, or they are not.

More generally, this finding suggests an affiliation with the political theory of deliberative democracy, which has made much of the necessity to democracy of forms of civil, ongoing, deliberative use of voice (Mutz 2006; Dryzek 2002; Benhabib 1994; Cohen 1997). Of course, the term “civil” carries great weight here—a point

all the more obvious in the wake of online harassment cases like GamerGate, or the 2016 election season (Massanari 2017). Much of deliberative democratic theory depends on an image of interactive deliberation as—at its core—a non-violent form of participation. Online hate campaigns, bullying and assault can be understood as attempts to silence that voice, and in keeping with our finding here, to disable the participation in goal-setting as a result. There is no confirmation of a Habermasian communicative sphere of rationality here—but nor is the centrality of voice to political decision-making denied.

Political autonomy vs. educative dividend

Many commentators who see participation as a form of cooptation or just badly implemented, often do so in the name of increasing political autonomy and power (Arnstein 1969a; Carpentier 2016; Barney 2010). But even those cases that rate most highly in terms of political power (*goals, voice and control of resources*), can also be weaker in terms of other values: educative dividend and capacity for exit, as well as the quality of the collective experience they create. This is best explored in Figure 5, by taking several specific cases in turn. Here the axes model two components of the PCA: from left to right along the horizontal axis a variation from low to high of a component comprised of *goals, voice and resources*; and along the vertical axis, a mix of the *educational and communicative/affective* value of the cases.

All of the free / open source software and many of the activist cases cluster along the right-hand side (Debian, RedHat, BSD, Android, Riseup, Indymedia, etc.), while on the left-hand side, social networking sites (Instagram, Twitter, Foursquare), dating/connection sites (Match.com, Meetup), many culture industry sites and citizen journalism sites (YouTube, Revision3, Internet Movie Database, etc). This left-right distribution shows the diversity of forms of participation in accordance with the classic sense of political autonomy, power and influence. It confirms much of the existing literature about cases like Linux, Wikipedia and radical political movements and their use of technology (Benkler 2006; Kelty 2008; Schoonmaker 2007; Tkacz 2015; Benkler 2002)—but such cases are clustered closely together on one side of the graph, and are closer to the X-axis than they are distributed along the Y-axis. This could indicate that while they are very strong in terms of a classic normative democratic sense of participation, they are actually quite weak in terms of whether they enhance a sense of educative dividend, or a collective experience of participation mediated by metrics or collective communication. This perhaps confirms some of the literature emerging around free and open source software, hackerspaces, and the

politics of openness that directly challenge the notion of openness, or suggest that forms of exclusion (especially gendered exclusion) remain persistent and troubling in these communities (Dunbar-Hester 2014; Nafus 2012; Ford and Wajcman 2017; Fox, Ulgado, and Rosner 2015).

Cases in the extreme corners of the plot represent ones that seem to maximize the different combinations of the two modes. Somewhat predictably the most “upper-right” of the cases is Wikipedia—devoted to both openness and educational dividend through participation at all levels (Tkacz 2015). Opposite Wikipedia in this mapping (in the lower left), Foursquare depends on the massive participation of its users to collectively remap spaces of association, producing a strong affective experience of being part of a collective, of competing to become “mayor” of a space; however, it does not allow users to control the process in any significant way; data, including location data, are not available to users beyond what the interface affords, and on assuming the position of “mayor” one does acquire any kind of political power (Lindqvist et al. 2011).

In the upper left are cases such as One Laptop Per Child (an effort to achieve educational goals by distributing free laptops), Zooniverse and 23andMe (both “citizen science” projects with a focus on crowdsourcing as well as personal educational achievements). All of them demonstrate a strong commitment to education through participation, but a relatively weak commitment to participation in goals, voice and control over resources (Prainsack 2011; Prainsack 2013; Raddick et al. 2010; Wiggins and Crowston 2011). Finally, in the lower right, cases such as Moveon.org and Indymedia (both devoted to advancing progressive causes through participants’ direct involvement) emphasize a strong sense of classical political autonomy through a commitment to journalistic critique and classical movement-based organization, but with perhaps less of a concern for the collective coherence, experience and affect of those actions (Earl and Kimport 2011; Karpf 2012; Kreiss 2012; Eaton 2010).

Control over resources

Among all the dimensions of participation, the issue of control over resources provides a way of distinguishing *between* the two major modes of *radical-direct* and *experiential-affective*, but also *within* them. Whereas cases in the radical-direct set tend to emphasize the use of commons, free software licenses or the public domain, the role of resources in the experiential-affective set is less obvious. In most of our cases “resources” refers to digital or informational goods (software, data, virtual items)

governed by intellectual property law and terms of service. But not every case produces a tangible resource, and in some cases that resource is neither measurable nor trackable (e.g. cases such as 4chan or Anonymous). The “experience of participation” therefore can include a sense of contributing to a resource that will be made more or less widely or publicly available (as in a commons or the public domain), or one that can be “monetized,” “extracted” or otherwise converted. Thus, a second figure—this time excluding all cases of radical-direct participation—maps the contribution of resources along the horizontal axis, and the contribution from communications and metrics along the vertical axis.

Here it is evident that most social media, dating, culture industry, and many craft/DIY and marketplace sites (on the left-hand side) de-emphasize control over resources by participants (Fish 2013b; Brabham 2010). For instance, while participation on YouTube or Foursquare can create an experience of participating in a globally, collaboratively produced social network, it can also de-emphasize the experience of controlling that resource (videos, data or metadata). By contrast, participating in Project Gutenberg, SNPedia, or Quantified Self emphasizes a similar collective experience of participation, but with an avowed eye towards maintaining control over the resources, either as public resources (digitized libraries) or private ones (personal health data).

An exemplary pattern showing this distinction emerges amongst so-called “citizen-science” projects (Fold.it, 23andMe, Zooniverse, Safecast, or PatientsLikeMe), all of which clearly emphasize a strong experiential aspect (communication, metrics, education), but downplay participant control over resources (as do other commercial crowdsourcing projects like Threadless or Quirky), often struggling to define what will be accessible to individuals versus what will remain under the control of the scientists or project initiators. On the other hand, for projects like SNPedia, Safecast or OpenPaths, participation often means also inclusion of control of resources. As such, we argue that the *experiential-affective* mode can be further subdivided into an *extractive* and a *redistributive* subclass.

Conclusion

Because participation is a vague term, scholars tend to try to pin it down by defining it narrowly—but this causes us to miss the variety of definitions in play in different domains. Our analysis suggests that there are predominantly two modes of participation: a *radical-direct* mode that emphasizes the ability to participate in the crafting of goals and agendas, not just tasks, to have a strong voice that is heard, and to have a stake in the

distribution of resources; and an *experiential-affective* mode that emphasizes the experience of participation, both as an affective, subjective experience, and as an objective fact captured in metrics and data. The latter mode has two clear valences centered on whether or not the control of resources is included in that experience—*extractive* or *redistributive*.

If participation is conceived of as a capacity, our analysis suggests that people are developing that capacity in two very different modes. This suggests either an enlargement of participation, or bifurcation into different types—because participation is a central normative value in liberal democracies, these differences have political implications. On the one hand, *radical-direct* participation captures many of the aspects central to past political theorizing about democracy and participation: voice, control over the direction of goals and agenda, the maintenance of resources as collective public goods, and the robustness of a powerful public sphere in society. On the other hand, *experiential-affective* participation captures a different set of values—those associated with a feeling of collective belonging, collective power, and/or the demonstration of the presence and effects of collectives. *Experiential-affective* participation generates the feeling of *becoming-collective* that is central to the sense we have of being not just part of something, a member, but an *instance* of a collective—the public, the people, a crowd, the community. Such a mode may be more desirable today because of a general sense of the decay of community, cohesiveness, and solidarity (Putnam 2001). This mode of participation might sometimes lead to a more *radical-direct* mode, emphasizing voice and control over resources, and other times might lead away from it, towards an extractive and addictive version of participation—participation without goals.

This analysis opens several questions for further research. One might ask about the *effectiveness* of participation (rather than its presence/absence or amount) when either *mode* of participation is present or absent. Does effective participation require both modes? From a design perspective, the results here challenge designers to think not only about how many people participate, but about the substance of that participation: can participation be designed in such a way to enhance one mode or another? What infrastructures, platforms, or algorithms elicit or impede either mode of participation and how? It is clear, for instance, that algorithms increasingly structure the *experience* of participants just as much as they might enable or limit the ability to direct an agenda, make a decision, or make one's voice heard (Bucher 2017). Similarly, as platforms and organizations are transformed by the political participation of their users, how might they respond to the 'experience' of users without reducing the

capacity for decision-making and agenda-setting on the part of ever-larger groups of people? These are questions that require us to refine our understanding of what participation is and can be in the future.



Notes

1. Canonical political theories that focus on the role of participation in democratic institutions today includes (Pateman 1976; Bachrach and Botwinick 1992; Fung and Wright 2003); as well as related work on representation (Urbinati 2006; Pitkin 2004) and deliberative democracy (Mutz 2006; Dryzek 2002; Elster 1998). Most scholarship on participation, however, is defined in very domain—or discipline-specific ways, e.g. media studies (Carpentier 2011; Barney and Coleman 2016; Lutz, Hoffmann, and Meckel 2014), art/art history (Bishop 2012), genetics and medicine (Prainsack 2011), environmental planning (Beierle and Cayford 2002), development (Cooke and Kothari 2001; Cornwall 2011), user generated innovations (Hippel 2005), fan cultures and youth media (Henry Jenkins et al. 2007; Henry Jenkins 1992), collaborative governance (Ansell and Gash 2007), architecture (Cupers 2013; Jones, Petrescu, and Till 2013), participatory budgeting (Wampler 2012), and many, many others, including distinctive national variations.
2. We developed a web-based application—CASE, “Comparative Analysis and Study Environment”—to collectively organize and analyze the cases (Erickson 2015).
3. We also repeated the above analysis by dividing our cases into high and low confidence sets (by which we mean sets where there was highest consensus amongst the various researchers on the presence/absence of a dimension in a case), no significant difference was detected, but these analyses are not reported here.
4. We compared three different methods (Ward, Complete, and Average), and two distance metrics (Euclidean and Manhattan). We found some interesting variations in these methods but overwhelmingly similar groupings.

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