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Orchard-Webb, Johanne, Kenter, Jasper O. orcid.org/0000-0002-3612-086X, Bryce, Ros et al. (1 more author) (2016) *Deliberative Democratic Monetary Valuation to implement the Ecosystem Approach*. *Ecosystem Services*. pp. 308-318. ISSN 2212-0416

<https://doi.org/10.1016/j.ecoser.2016.09.005>

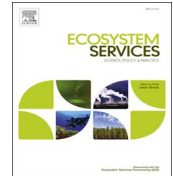
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Deliberative Democratic Monetary Valuation to implement the Ecosystem Approach



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ARTICLE INFO

Keywords:

Shared values
Deliberative monetary valuation
Deliberative democracy
Communicative rationality
Environmental justice
Cultural ecosystem services

ABSTRACT

The potential for developing the participatory dimensions of the Ecosystem Approach are examined through the work of Habermas to guide the design of Deliberative Democratic Monetary Valuation (DDMV) and elicit social willingness to pay. DDMV is contrasted with Deliberated Preferences approaches, which are a deliberative adaptation of stated preference techniques and comprise almost all Deliberative Monetary Valuation studies so far. In a detailed case study where coastal and marine cultural ecosystem services were set within a broader societal context, DDMV was undertaken through three iterative workshops involving a single group of participants representing local residents and different interests across the public, private and third sectors. The use of DDMV generates insights into its potential for securing a socially sustainable route to environmental management: sustainable development that brings together values for ecosystem services with other social priorities, is more inclusive of diverse user needs and values, and is sensitive to issues of environmental justice. As well as highlighting the benefits and challenges that a more democratic deliberative valuation presents, we highlight the practical strengths and vulnerabilities of this approach and indicate directions for further methodological evolution of DDMV.

1. Introduction

The Ecosystem Approach has grown in prominence in environmental management research and application since the late 1990s (UK National Ecosystem Assessment, 2014; Everard et al., 2016). The Ecosystem Approach, as defined by the Convention on Biological Diversity (CBD, 2004), seeks to take better account of the highly inter-connected societal benefits of supporting, regulating, provisioning and cultural ecosystem services, while balancing conservation and use of natural resources in an equitable and participatory way, on the basis of both scientific and local knowledge, in order to better inform and secure the sustainable management of our social-ecological systems. In this paper we reflect on the value of drawing upon the Habermasian deliberative democracy principle of communicative rationality (CR) to satisfy participatory and social sustainability principles in delivery of the Ecosystem Approach. The need to develop a deliberative democratic approach has become more urgent as the body of evidence grows concerning the prejudgement and design bias in many traditional expert-led information transfer approaches to environmental valuation (Lo, 2011; Lo and Spash, 2012) highlighting a worrying democratic deficit in environmental planning

decision making (Symes, 2006; Zografos and Howarth, 2010). Such traditional valuations inherently seek to secure an outcome based on an aggregation of the instrumentally rational, *homo economicus* consumer choices of individual preferences based valuation. The ethical and substantive limitations of this approach and subsequent negative environmental justice and social sustainability implications (Zografos and Howarth, 2010) lead us to critically reflect in this paper upon the potential for value democratisation in an innovative example of Deliberative Monetary Valuation (DMV). Distinctively, this novel implementation of DMV employs a range of techniques to stimulate deliberation and to establish social willingness to pay for policy options through deliberation and negotiation, rather than aggregation of individual values as in previous empirical examples of DMV. We argue this approach has value as it places greater emphasis on key issues central to the Ecosystem Approach as defined by the CBD (2004); those of social sustainability and environmental justice relating to *participation* in decision-making that affects the quality of one's environment and accessible ecosystems services, and *recognition*, in terms of appreciation and respect of one's stake, voice and identity in this process (Agyeman et al., 2003).

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<http://dx.doi.org/10.1016/j.ecoser.2016.09.005>

Received 18 December 2015; Received in revised form 15 September 2016; Accepted 16 September 2016

Available online 09 November 2016

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Table 1
Twelve principles of the Ecosystem Approach (Convention on Biological Diversity [CBD], 2004).

1	The objectives of management of land, water and living resources are a matter of societal choices.
2	Management should be decentralised to the lowest appropriate level.
3	Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
4	Recognising potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should: a) Reduce those market distortions that adversely affect biological diversity; b) Align incentives to promote biodiversity conservation and sustainable use; c) Internalise costs and benefits in the given ecosystem to the extent feasible.
5	Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the Ecosystem Approach.
6	Ecosystems must be managed within the limits of their functioning.
7	The Ecosystem Approach should be undertaken at the appropriate spatial and temporal scales.
8	Recognising the varying temporal scales and lag-effects that characterise ecosystem processes, objectives for ecosystem management should be set for the long term.
9	Management must recognise the change is inevitable.
10	The Ecosystem Approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
11	The Ecosystem Approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
12	The Ecosystem Approach should involve all relevant sectors of society and scientific disciplines.

With a specific focus on human–environmental interactions, the Ecosystem Approach “is a strategy for the integrated management of land, water and living resources to promote conservation and sustainable use in an equitable way” (Convention on Biological Diversity, 2004). The Ecosystem Approach has arisen early on in the implementation of the Convention on Biological Diversity as a central tenet. It was adapted as the primary framework for action under the convention in 1995. In 2000, the Convention adapted twelve principles to help define the approach (Table 1). Here we focus on the social, economic and political elements. These emphasise the importance of a precautionary approach; adaptive management; balancing biodiversity conservation and management of ecosystems for their services; the economic context; integration of local and expert knowledge; decentralised management with a high degree of participation; and that the way ecosystems should be managed is a matter of societal choice. It is the attention to the adoption of relevant inclusive, participatory and deliberative techniques in ecosystem services valuation that makes drawing on deliberative democracy theorists like Habermas appropriate and potentially fruitful in the evolution of methodologies employed to successfully deliver an Ecosystem Approach to environmental planning.

The relevance of Habermas is that he argues that CR – embodied in the social process of reasoned discussion and making sense of information by free and equal citizens - is key to improved democratic qualities in decision making (Lo, 2011; Zografos and Howarth, 2010). Central to its link to the Ecosystem Approach and DMV is the intent of equitable consensus building via discursive process that enables participants to progress from individualistic preferences and value claims to those informed by reciprocal understanding and mutuality (Flyvbjerg, 2000). Specifically, CR seeks to achieve “a noncoercively unifying, consensus-building force of a discourse in which the participants overcome their at first subjectively based views in favour of a rationally motivated agreement” (Habermas, 1990:315). A continued lack of meaningful public engagement and learning upon which to inform ecosystem service valuation and environmental management encourages us to seek out better participation and specifically include deliberation in Ecosystem Approach methodologies. Recent work in UK National Ecosystem Assessment (UK NEA,

2011) and its Follow-On (UK NEA, 2014) show us that counter to the underlying Ecosystem Approach principles (Table 1) there is still very little deliberative content in economic methods used to elicit ecosystem service values, which are instead dominated by survey-based techniques such as questionnaires (Kenter et al., 2014). Deliberative techniques in contrast involve “developing reasoned assessments of an issue through group debate and learning” (Fish et al., 2011, pp.15). Participatory and deliberative processes can create the conditions for CR by providing participants with the conditions to learn about the ecosystem under investigation, to voice, debate and reflect upon their knowledge and views, and to learn about and take into consideration the values of other participants (Christie et al., 2006; Kenter et al., 2016c). Importantly, deliberation via open group discussions can create conditions more conducive to raising moral and political issues relating to rights, responsibilities, equity and fairness, and transcendental values more broadly (Raymond and Kenter, 2016; Kenter et al., 2016c; Kenter et al., 2011). It is in highlighting and making attempts to address these inherent moral and political considerations in the valuation and management of ecosystem services that the role of deliberative methods has come to the fore (Kenter, 2016a, 2016b, 2017; Kenter et al., 2014, 2015; Lo, 2011; Lo and Spash, 2012; Spash, 2007; O’Neill, 2007; Zografos and Howarth, 2010; Parks and Gowdy, 2013).

While moralisation and democratisation of values has been a theoretical concern for some time, nonetheless DMV in practice has so far paid little explicit attention to the political and ethical dimensions of valuation, but rather has focused on informing preferences through deliberation (Kenter, 2017; Bunse, 2015). DMV can thus be differentiated into two types of approaches, which we term *Deliberated Preferences* (DP), which comprise most empirical studies to date, and *Deliberative Democratic Monetary Valuation* (DDMV), which has seen little application. DP approaches adapt stated preference valuation techniques (contingent valuation or choice experiments), incorporating deliberation to develop more robust preferences. DDMV goes further, not just using deliberation to inform individual preferences but also to negotiate value to society indicated by social willingness to pay. It is particularly the potential for DDMV to be informed by the Habermasian principle of CR that we focus upon here.

We develop this paper by firstly introducing the work of Habermas and deliberative democracy theory in environmental planning and public resource management. This is followed by a summary introduction to the core qualities of CR and the dominant critiques that have emerged in environmental management debates. In the main section of this paper we analyse empirical data from an innovative UK NEA Follow-On DDMV case study to reflect upon the presence or absence of this principle in the sequence of mixed deliberative and analytical-deliberative methods employed. As a critical reflection on this potential for an improved participatory and socially sustainable approach to the Ecosystem Approach we also consider how the empirical data reflects growing concerns over what Lo (2011) describes as an analytic-democratic tension (i.e. the contrasting – even conflicting valuation approaches to technical and democratic natural resource management issues). In addition we pay attention to related concerns described by Reed et al. (2010) and Kenter et al. 2016c in terms of recognising, understanding and mitigating for challenges, such as the institutional context and role of power, in securing deliberation and social learning, which they argue are so important to successful environmental resource management. In conclusion we reflect on the benefits to and natural synergies with the Ecosystem Approach from a critical integration of CR, while stressing the need for more careful attention to the added value of social learning as part of this methodological democratisation. We intend for this innovative deliberative methodology and reflection on its employment of elements of CR to help inform debate around increased public participation and related social sustainability factors in environmental planning.

2. Communicative rationality and communicative action

Despite decades of environmental valuation there has been limited evidence of successful changes in environmental behaviour on the scale required to secure the sustainability of our ecosystems services (Jordan and Russel, 2014). Some authors argue this failure has much to do with the absence of attention to social and political processes in valuation that has instead been dominated by a neoclassical economics approach prioritising aggregated individual values and expert-based analytical approaches, resulting in an explicit democratic values deficit in environmental policy (Kenter et al., 2015; Lo and Spash, 2012; O'Neill, 2007). In response, a number of commentators have sought to mine what is described as the 'deliberative turn' in democratic theory to address concerns about inclusivity of citizen participation as regards both the process and content of environmental valuation (Zografos and Howarth, 2010). The deliberative turn "has at its core the imperative of mutual justification of the positions held by those subject to the consequences. Democratic legitimacy is sought by participation in an open, inclusive and reciprocal dialogue among free and equal citizens" (Lo and Spash, 2012, pp.769). Jurgen Habermas' concepts of CR and 'communicative action' have drawn particular interest in this respect in arguing that citizen values should be articulated through constructive dialogue and communication based on the premise of reciprocity and mutual recognition (Habermas, 1984, 1987, 1989, 1990). In CR, people listen to arguments and use reasoned judgement in a deliberative forum to come to an agreement or decision, securing greater democratic outcomes than aggregation of individual preferences. In contrast to the reductive logic of instrumental rationality, bound by market and administrative efficiency and control (Zografos and Howarth, 2010), CR includes efforts to make sense of differing perspectives by checking, reflecting and seeking to bridge distinctive perspectives by identifying a generalisable domain where the different views make sense to each other (Flyvbjerg, 2000; Thomassen, 2010). The principle is grounded in co-operative intent to resolve conflict and secure fair policy outcomes via authentic group deliberation. Habermas argues this approach enables communicative coordination (underpinned by the power of the discursive argument) rather than strategic or systemic coordination (Flyvbjerg, 2000).

In our conception, communicatively rational deliberation is not a sterile process based solely on who has the most convincing logical argument, but brings in diverse transcendental values, the overarching principles and life goals that guide our decisions and actions (Kenter et al., 2015; Raymond and Kenter, 2016) to help evaluate a particular context. Individual transcendental values relate to sets of shared communal, cultural and societal values, and also to the relation between environment and culture (Irvine et al., 2016; Fish et al., 2016). Thus CR brings in shared values both in the transcendental sense of the shared principles and life goals that help define us as individuals, communities and cultures, and in the way that it can develop intersubjective, deliberated contextual values expressed by the group of people engaged in the deliberation.

Communicative rationality is only fulfilled as an approach if it leads to 'acting in the world' and a discussion of what we could and should do (Healey, 1992, 1997). Habermas describes this as communicative action (Habermas, 1989). Alive to the risk of a new dominant consensus taking hold through the process of deliberation, Habermas introduced a critique that he structures around questions of integrity, legitimacy and truth (Habermas, 1984). Others have since developed this internal critical reflexivity by arguing it should be underpinned by questions that check for imbalances of power in the application of CR by asking: 'Who has an interest and should be involved?'; 'What other ways of understanding can be employed?'; 'How should the result be expressed to achieve the most meaning?' (Forester, 1989).

When the principle of CR is translated to deliberative valuation methods, the key to their democratic content is the expression of transcendental values, procedural fairness, reason giving, social inter-

action via argument and efforts to persuade, listening and respect for other views and plurality of values (Lo, 2011). In such a process, there is an important role for social learning (Kenter et al., 2016c). It is particularly through the social interaction of deliberation that social learning scholars believe Habermas is most instructive in securing changes in understanding (Reed et al., 2010). By creating the conditions for social learning through deliberation, including open group discussion and genuine exchanges of ideas and arguments, it becomes possible to witness change of ideas and perceptions through persuasion, as will be demonstrated by the case study below. What Habermas describes as CR and communicative action, social learning scholars see as being integral to collective action or social movements leading to changes in social networks, institutions and society more broadly (Reed et al., 2010; Everard et al., 2016). We will return in Section 5 to a discussion of the fruitful relationship displayed in our case study between processes of CR-informed deliberation and social learning and what this means for increased participatory and social dimensions for the Ecosystem Approach.

2.1. Critique of Habermas' communicative rationality thesis

Habermas' CR and communicative action thesis is not without criticism. Many of these criticisms from policy and valuation practitioners are concerned with practical limitations, arguing processes of inter-subjective communication are too slow and imprecise to address pressing environmental issues (Healey, 1992). Others argue the improbability of consensus on more controversial issues makes the practical delivery of equitable and implementable solutions more challenging than an expert-led approach (Kidd et al., 2011). Perhaps the most pressing and important critique of CR from an environmental justice perspective is a failure to account for considerable discrepancies in power amongst participants and institutions (Cooke and Kothari, 2001; Flyvbjerg, 2000; Zografos and Howarth, 2010). Many authors argue such an approach is naïve in its failure to acknowledge the exercise of power in decision-making via the norms of technocratic and bureaucratic practices, which rarely empower the weakest voice but instead increase the power of existing elites (Cooke and Kothari, 2001; Kidd et al., 2011; Pieraccini and Cardwell, 2016; Tewdwr-Jones and Allmendinger, 1998). Healey (1992) articulates concerns that CR can never fully accommodate and enable mutual understanding of our different 'systems of meaning' (also see Edwards et al., 2016). Further, Habermasian rationality of deliberation is underpinned by inclusiveness (Thomassen, 2010) yet fails to address the very practical difficulty of inclusion of all those affected by a decision; and secondly, the embedded privileging of a modernist interpretation of 'rational' argument that creates inequity in the communication of different knowledge claims and modes of argument (Pieraccini, 2015; Young, 1996; and see Ranger et al., 2016).

These critiques relating to power inequalities extend to critical attention to the process of deliberation-based methods, which owing to the value-laden nature of both process and inquirer ('expert') can result in an inevitable bias (Lo and Spash, 2012; Zografos and Howarth, 2010). Group composition and process design are key in exacerbating or limiting inequalities of power and communication that can lead to deliberative inequalities, and as such deliberative methods risk privileging of 'expert' knowledge, creating imbalance owing to participant familiarity with and skill in the process of deliberation, privileging a particular interest owing to greater representation, and exerting pressure to adapt to social norms (Kenter et al., 2016c). In practical terms this means the challenge of securing impartial facilitation and enabling the idealised Habermasian conditions for inter-subjective deliberation where a representative group of participants speak freely and as equals (Habermas, 1990). Thus, there is a need for critical attention to inclusivity and diversity from design, to delivery, right through to final valuation and collective action.

3. From Deliberated Preferences to Deliberative Democratic Monetary Valuation

There are efforts to mitigate these challenges to secure more successful deliberative ecosystem service valuation. A recent example of advocating the legitimate use of deliberative democracy theory principles in environmental policy formation processes is the persuasive introduction by [Lo and Spash \(2012\)](#) to their model of ‘choice democratisation’. Drawing in part on [Habermas \(1984\)](#), the evolution of DMV articulated through ‘choice democratisation’ is one that embraces the essentially political nature of environmental valuation. Specifically, in the Habermasian tradition it employs a more open and inclusive process that encourages inter-subjective deliberation, participant reciprocal understanding of a multiplicity of value positions, justified through reasoned argumentation, reflected upon and assessed through an open and interactive discursive group process that seeks fair terms for social co-operation. Valuations, they argue, should be open to multiple knowledge claims and ethical systems including non-utilitarian approaches and non-economic motives for valuing the environment ([Lo and Spash, 2012](#)).

In practice, however, the notions of deliberative democracy and CR have been largely absent in the field of ecosystem service valuation. Most approaches to DMV have followed a DP approach, which harnesses deliberation to enhance neoclassical economic valuation methods ([Kenter, 2017](#)). The main focus of DP is to provide research participants time to discuss and think about their preferences, to ease the respondent’s cognitive burden, and to help them become more familiar with complex goods such as biodiversity and ecosystem services. Discussions are primarily focused on nurturing value elicitation at the individual level, which are analysed and aggregated to the societal scale using econometric approaches. While nominally, as in conventional stated preferences (SP) studies, in DP the focus is on eliciting individual WTP on the assumption that this reflects individual, self-regarding, utilitarian preferences, nonetheless the deliberation may enable a degree of value plurality: discussion rarely limits itself to information only, and the deliberation implicitly provides space for non-utilitarian perspectives and transcendental values. However, following [Kenter \(2017\)](#) we call this *weak value plurality* because ultimately participants are asked to base their judgements solely on maximising their individual utility, with those who do not typically excluded from the sample as protest votes. In the way that we conceive it, the notion of value plurality does not primarily refer to the absence of value convergence (cf. [Lo and Spash, 2012](#)), but rather to ontological and axiological value plurality: the elicitation of different, potentially incommensurable value dimensions (also see: [Cooper et al., 2016](#) and [Kenter, 2016b](#); and for a more detailed discussion of valuation and commensurability see [Kenter et al., 2015](#) and [O’Neill, 2016](#)).

In contrast to DP, in our conception of DDMV the focus is on providing a platform for people to deliberate directly on the public good. The purpose of DDMV in valuation is not to moralise values towards any specific moral premise, or to create an artificial divide between the ‘I’ and the ‘We’ ([Lo and Spash, 2012](#)), but rather to create new democratic spaces for evaluating options across different types of ethical and practical stances. DDMV is a structured process enabling strong value plurality and allowing value incommensurability, where participants consider benefits and costs of different policy options alongside non-instrumental concerns, including deontological motivations such as social norms, rights and duties, virtues such as fairness or responsibility, relational values ([Fish et al., 2016](#)) and narratives: stories that explain the past but may also express values on how to move forward ([O’Neill, Holland and Light, 2008](#)). The transcendental values inherent in these are often latent ([Kenter et al., 2016a](#)), and in contrast to DP, DDMV recognises the need for explicit consideration in deliberation.

Both DP and DDMV recognise that biodiversity and ecosystem services are complex and often not fully familiar to people (e.g. [Christie](#)

Table 2
Deliberated Preferences (DP) vs Deliberative Democratic Monetary valuation (DDMV) (adapted from [Kenter, 2017](#)).

	DP	DDMV
<i>Conception of deliberation</i>	Informing preferences through group discussion	Deliberating on plural values to consider public good
<i>Issues the approach addresses</i>	Familiarity	Complexity and uncertainty
<i>Means of establishing value to society</i>	Aggregation of individual utility	Strong value plurality Value aggregation Deliberation and negotiation
<i>Value concept focus</i>	Contextual & indicators	Transcendental, contextual & indicators
<i>Value provider</i>	Individual in group setting	Group
<i>Rationality assumptions</i>	Instrumental	Communicative
<i>Conception of representativeness</i>	Statistical	Statistical or political
<i>Scale of value and value indicators used</i>	Value to individual (individual WTP or fair price)	Value to individual (fair price); Value to society (deliberated social WTP)

WTP: Willingness to pay

[et al., 2006](#)). However, DP nonetheless tends to present the implications of different policy options for ecosystem service trade-offs as more or less certain and linear, as this facilitates the objective of estimating utility curves and marginal value implications of policy alternatives. DDMV provides more flexibility in dealing with complexity, uncertainty and risk, as deliberations on the social value of different policies can come to conclusions accounting for a lack of evidence, by deliberating whether society should pay for precautionary measures or should accept risks. This provides more scope to establish values around, for example, threshold effects and tipping points in ecosystem service provision.

Further differences between DP and DDMV are illustrated in [Table 2](#) and discussed in more detail by [Kenter \(2017\)](#). The case study that will be presented in the next section was specifically designed following the DDMV approach, and will be presented and critically reflected upon in light of democratic potentialities and tensions. This then serves to aid our discussion of DDMV as a methodology to support implementation of the Ecosystem Approach.

4. Case study

4.1. Background and aims

We explore the democratic potential of DDMV through an in-depth local case study focussing on valuing ecosystem services around inshore fisheries and marine conservation in Hastings, Sussex, on the southeast coast of England, which was undertaken in collaboration with the Hastings Fisheries Local Action Group (FLAG). The case study contributed to the second phase of the UK NEA national programme of work to better understand the state of the UK environment and its social, economic and cultural importance to human well-being ([UK NEA, 2014](#); [Kenter et al., 2014](#)). The case study focused on the marine environment as an area of environmental management which has a history of top down, technocratic and science-led resource management ([Symes, 2006](#); [Reed et al., 2013](#); [Alexander et al., in press](#))

characterised by an absence of meaningful local level fisheries stakeholder participation and limited social learning across the socio-ecological system (Reed et al., 2013; Ranger et al., 2016). Thus the focus of the case study was on the potentialities and challenges – both practical and philosophical – of drawing on deliberative democratic theory. As such, we aimed to engage a group with a range of stakeholder perspectives to come to a genuine, negotiated outcome on the basis of principles of deliberative democracy. The case study objectives included:

1. Working with local community members to engender learning around the value of the marine environment, with particular attention to cultural services and benefits associated with inshore fisheries, including cultural identity and sense of place.
2. Developing a practical and portable approach to assessing values, with regard to Ecosystem Approach principles and placing consideration of ecosystem services within the context of broader social concerns.
3. Develop and apply an innovative DMV methodology independent of stated preference techniques.
4. Evaluate, from a deliberative democratic perspective, its effectiveness and legitimacy in enabling a community to establish shared values around policy priorities.

4.2. Methods and results

The methods and results of this case study will be discussed here in summary, with more detail provided by Kenter et al. (2014) pp.135–150. The three iterative workshops described in Table 3 included DMV extended through a range of non-monetary valuation exercises, all intended to stimulate processes of deliberation ranging from individual to group and from unstructured discussion to facilitator-directed. The methodological techniques used in the workshops can be subdivided into four categories: deliberative, interpretive-deliberative, analytical-deliberative and psychometric-deliberative (Kenter, 2016a). Deliberative techniques allow stakeholders to “confer, ponder, exchange evidence, reflect on matters of mutual interest, negotiate and attempt to persuade each other” (Stern and Fineberg, 1996, pp.73); while analytical-deliberative methods involve more structured processes that integrate deliberative techniques with more formal decision-support tools (Fish et al., 2011). Interpretive-deliberative techniques seek to find meaning and understanding through the subjective identification and analysis of discourses in a deliberative setting (Kenter, 2016a). Finally, psychometric-deliberative techniques stimulate deliberation around psychometric indicators, such as in the use of a ‘Transcendental Values Compass’ (Kenter et al., 2016a) where participants score and then discuss their transcendental values. The workshop themes were developed in collaboration with the Hastings FLAG as a purposeful approach to ensure the workshop participants selected and themes explored were predominantly fisheries-led. The workshops were three hours in duration. Organisations and interests represented included (note some participants represented multiple communities): fisheries sector (x3); tourism sector (x1); old town residents (x4); a ‘new town’ residents association (x1); Hastings Borough Council (x2); (x1); local sea angling club (x1); education sector (x1); students (x1).

5. Discussion

In this section we consider the empirical findings from the iterative range of deliberation and valuation exercises employed in the Hastings case study to reflect upon the deliberative democracy and specifically Habermasian CR qualities that they demonstrate, clarifying the participatory and democratic content of these methods whilst also highlighting tensions or deficits in this regard. The discussion concludes with a consideration of how CR implemented through DDMV can

Table 3
Summary of methods and results used in Hastings case study workshops (See Kenter et al., 2014, pp.135–150, for detail).

Method	Results
Workshop 1 (W1)	
Benefits & subjective well-being from the marine environment (Psychometric-deliberative technique) - group plenary to discuss a broad range of participants’ cultural ecosystem service benefits from the marine environment, relating to place identity, engagement with nature, therapeutic, spiritual and transformative/memory values, and social bonding (based on the dimensions developed by Bryce et al. 2016), plus ‘sense of fulfilment/achievement’, bequest and existence values. These benefits were then evaluated in terms of importance using an individual scoring exercise.	‘Place identity’ was ranked highest by all participants (mean=92 on 0–100 scale) and with the smallest variation in score (SD=8.8); other values all scored above 60 on average but with much greater differences between participants (Fig. 1). As part of the initial plenary discussion the group collectively agreed upon additional benefits: economic value, educational value and relaxation & enjoyment.
Structured discussion on transcendental values (Psychometric-deliberative technique) - small groups used a Transcendental Values Compass (Kenter et al. 2016a) to mark the relative importance of different transcendental values	Values that emerged as being most important were: sense of belonging; enjoying life; and protecting the environment. Values of self-direction (including creativity and freedom) and social justice also featured prominently (Fig. 2).
Storytelling (Interpretive-deliberative technique) - storytelling (Kenter et al. 2016a) where each participant related a personal experience about the Hastings’ marine environment followed by a short group discussion. In the analysis, we counted how many stories referred to the well-being benefits discussed previously.	Most of the benefits relating to the marine environment that were previously discussed resurfaced in the storytelling. Most often mentioned were themes related to transformative and memory value, sense of fulfilment and place identity.
SWOT analysis of Hastings and identification of community goals (Analytical-deliberative technique)	A Strength, Weaknesses, Opportunities, Threats analysis (SWOT; Bull et al., 2016) led to 10 key goals that reflected environmental, social, economic and cultural aspirations (Table 4).
Workshop 2 (W2)	
Presentation of W1 results and visions	From W1 results the researchers distilled four ‘visions’ for Hastings in 2030: <i>City of Culture</i> , <i>Green Hastings</i> , <i>Greater City</i> and <i>Business as Usual</i> .
Beach walk and in-depth discussion (Deliberative technique)	The visions were put into a physical context through informal discussion during a beach and seafront walk, which led to participants linking the marine environment with the need for improving education and culturally appropriate local economic regeneration.
Participatory systems modelling (Kenter, 2016b) (Analytical-deliberative technique) to develop a shared understanding of the social-ecological system. Participants were split into two small groups that were presented with a set of 32 initial variables derived from the SWOT analysis, e.g. ‘fish quotas’, ‘consumerism’, ‘gentrification’, ‘average income’, ‘wellbeing/quality of life’, ‘external investment’, ‘health of local fish stocks’, ‘number of cultural events’. These were used to develop influence diagrams (adding in additional	Participants develop and discussed two conceptual system models that showed an appreciation of the highly inter-linked (and complex) nature of the relationship between variables as participants made extensive linkages and feedbacks between ecological, social, economic and cultural variables. For example, well-being was related to not only economic factors but also pride of place, social cohesion, social justice, biodiversity, and in the long term, resilience to climate change, and the dynamics between these different variables.

(continued on next page)

Table 3 (continued)

variables if desired); finally reinforcing and balancing feedback loops were identified and discussed.

Multi-Criteria Analysis (MCA)

(Ranger et al. 2016) (*Analytical-deliberative technique*) to analyse the relationships between goals and visions - the ten key goals identified in W1 were ranked in terms of importance from 0–100, first by individuals at the start of the workshop and then at the end of the workshop by the group. The second stage involved scoring visions in terms of their potential to deliver goals, again on a scale from 0–100. A weighted score for each vision (i.e. the goals rated highest by the group were valued proportionally higher in the scoring) were calculated and reflected back to participants in W3 to illustrate how well the visions were expected to perform overall.

Key changes between individual and group scores for the importance of different goals concerned 'resilience to climate change', which increased in importance from a mean of 60 to a consensus score of 100, and 'a well educated population', which changed from 80 to 100. Consensus scores for performance of the four visions vs the ten communal goals are depicted in Fig. 3. Final weighted scores indicated the Green Hastings vision was perceived by the group to best achieve the goals overall.

Workshop 3 (W3)

Presentation of MCA results and re-evaluating visions

(*Deliberative technique*) - identification of which key policy features should be kept for each vision and what negative side effects would need to be mitigated against. This exercise aimed to develop group views on potential conflicts and trade-offs.

DDMV stage 1: policy package development and participatory budgeting

(*Analytical-deliberative technique*) - presentation of a hypothetical sustainable development grant and division of participants into three working groups (environmental, social-economic, and cultural) so that they might develop a policy package proposal ('Hastings 2030') focused on addressing communal goals identified in W1. Each policy measure had to meet tests including goal satisfaction, correspondence to group shared transcendental values, and achievability within the given timeframe. Measures were costed and accompanied by a set of success indicators.

DDMV stage 2: policy package negotiation

(*Analytical-deliberative technique*) - package revisions and negotiation of 'Hastings 2030'. The environmental, social-economic and cultural policy components were presented to the whole group, discussed, and constituent measures ranked by importance. The most important measures were brought together and social willingness to pay established in a budget for the final package. This was a group negotiation process with a return to a consideration of the prioritised goals, conflicts, trade-offs and synergies between different policy measures, and willingness to pay.

The policies were discussed in light of both the degree to which they satisfied communal goals, and broader transcendental values such as social justice and protecting the environment. This exercise thus helped progress the participants in terms of translating transcendental values into shared contextual values more explicitly.

In option development participants focused on maximising synergies between the policies in terms of different environmental, cultural and social-economic benefits. This process was enabled by the shared learning and common knowledge of the complex inter-linkage of community variables developed in the systems modelling exercise. For example, 'improvement of the harbour arm', both as a sea defence to adapt to climate change and as a support for the beach launched fleet central to the cultural identity and touristic attractiveness of the town. Cultural ecosystem services featured in an integrated way, such as in discussing the importance of environmental education in protecting the health of the marine environment and providing continued employment in environmental sectors, particularly fisheries (see Table 5).

Participants requested a final ranking of importance of the selected policy measures providing a non-monetary evaluation alongside the deliberative monetary outcome.

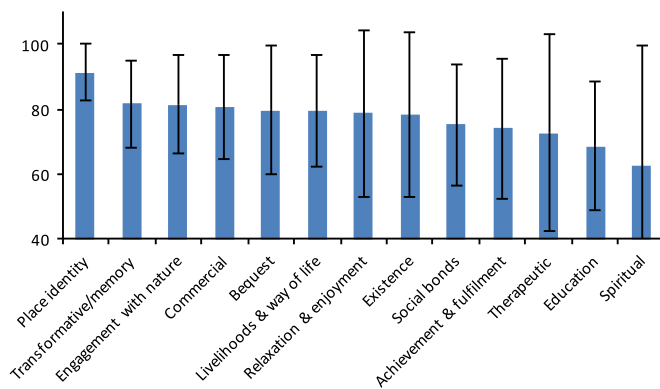


Fig. 1. Mean importance scores assigned by participants to different benefits of the marine environment in workshop 1. Error bars indicate standard deviation.

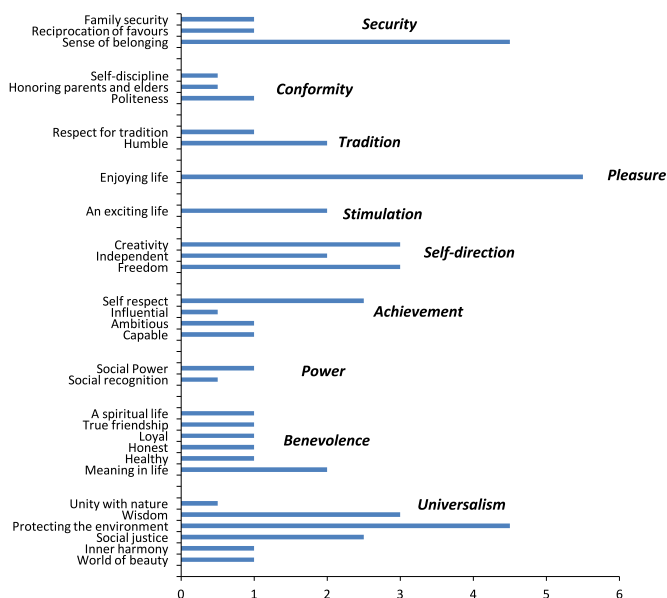


Fig. 2. Transcendental Values Compass results: number of participants choosing particular transcendental values as most important. The vertical axis shows value items, bold type indicates Schwartz (1994) value categories.

Table 4 Group key goals for Hastings used in MCA and DMV exercises.

1.	Reduced unemployment
2.	Increased social justice
3.	Increased community cohesion
4.	Economic growth
5.	Resilience to climate change
6.	Conservation of biodiversity
7.	Reduced pollution
8.	Strong cultural identity
9.	Engagement with nature
10.	Well-educated population

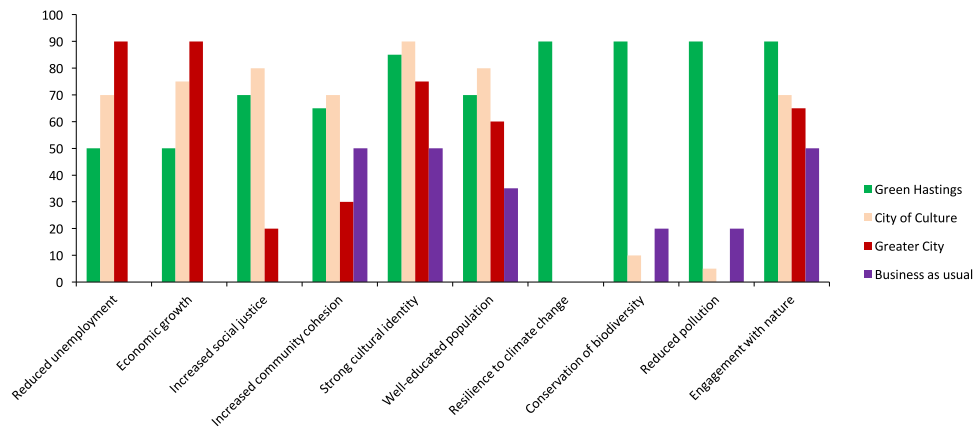


Fig. 3. Multi-Criteria Analysis group consensus scores for performance of the four visions against the ten communal goals.

Table 5

Final ‘Hastings 2030’ policy package with social willingness to pay indicated through funds allocated in the budget.

Measure and description	Funds allocated (£ million)	Anticipated match funding (£ million)	Importance: marks assigned
Harbour arm+sea defences	5	10	8
Eco-housing and refurbishment (incl. social housing)	10	50	4
Sports centre & swimming pool	10	10	2
Develop Cinque Port heritage and museums	2	4	3
Develop castle	2	4	0
Improve seafront structures	5	5	1
Community education fund (incl. environmental education)	1	3	1
Investment in lifelong learning and cultural education	3	–	4
Work-based training programme	2	–	0
Support for new and existing employers	4	–	2
Neighbourhood planning	1	–	0

inform the delivery of the socio-economic and political elements of the Ecosystem Approach principles (CBD, 2004).

5.1. Expression of communicative rationality

Key aspects of CR that we will consider in evaluating the case study include the degree to which the deliberative process (1) was inter-subjective; (2) was inclusive of different knowledge claims and ethical principles; (3) led to communicative action; (4) was open and participant-led; (5) allowed for ‘making sense’ of differing perspectives.

A key aspect of CR is inter-subjective deliberation, involving an interactive social process of reason giving, reasoned argumentation and justification of value claims (Habermas, 1984, 1989). The intention is to contest others’ beliefs, values and preferences and through a process of discursive argument increase mutual or reciprocal understanding

(Lo, 2011). This aspect of CR is particularly evident in the case study where deliberative interventions were designed to provide participants with analytical opportunities to share information and learn from each other (participatory systems modelling, SWOT analysis), share experiences, perspectives and beliefs and moralise the discussion (values compass, storytelling, beach walk, visioning). Consistent with the process of inter-subjective deliberation – which is meant to enable a shift from individualised subject-object reasoning to consideration of broader perspectives – the format enabled participants to progress on a journey from firstly identifying and advocating for their individual value claims, to more communal and then other-regarding values. For example, the systems modelling and visioning exercises forced participants to consider different time scales and the variety of beneficiaries and interests affected by potential changes in the social-ecological system. While fisheries and the marine environment remained a central theme, decisions became equally driven by strong social concerns around issues such as youth unemployment, deprivation and lack of opportunity for the disenfranchised. The different exercises forced the justification of claims, repeated individual and group reflection, and negotiation within the group so that they might achieve mutual understanding and reciprocity. This process resulted in the in-depth discussions of policy measures and costings to be framed by participants’ efforts to achieve a sense of balance and fairness for different beneficiaries and to bridge and reflect transcendental values across a diversity of Schwartz’ (1994) value axes, from wealth to social justice to harmony with nature, without pushing one as a single dominant principle. This then strongly informed the development of consensus around which policies to prioritise in the final negotiation session and group-deliberated social WTP.

Habermas argues this process of CR should be inclusive of different knowledge claims or systems of meaning, and that it should create space for multiple ethical principles or systems (Healey, 1992). We can see efforts to achieve this end through this DDMV by including a range of differentially situated participants and efforts to provide platforms for a range of discourse including narrative (storytelling), experiential expression (beach walk), and analytical-technical (systems modelling). The storytelling exercise provided an accessible way of discussing transcendental and contextual values which then made it easier to revisit these during the discussion of the policy packages. As argued in more detail by Kenter et al. (2016c) and Raymond and Kenter (2016), different transcendental, cultural and subcultural values are often implicit and thus not automatically related to policy measures, but the way the process was designed to engage different modes of knowledge and value elicitation and articulation meant that people were able to assess potential policies in these terms. This is crucial for avoiding the dominance of traditional methods of making your case and argumentation that largely rely on technical and instrumental modernist ‘rationality’ (Young, 1996) and enabling what Habermas (1984) himself called

critical reflexivity. Analogously, planners have asked ‘*what other ways of understanding can be employed?*’, so that exclusion at the hands of language is avoided (Forester, 1989; Healey, 1997).

CR is employed with the express intention of resulting in communicative action based on what the group feel they could and should do to satisfy a fair policy outcome (Habermas, 1990; Healey, 1997). Here the adoption of CR is clear as the sequence of methods enable participants to work towards an implementable consensus based policy package, underpinned by an explicit consideration of fair outcomes. In CR the aim is to seek out fair terms for social co-operation, and the co-existence of competing or conflicting values through reciprocity (Lo and Spash, 2012).

CR is associated with open and participant-led processes, where participants are enabled to exchange information and beliefs, understand the values of others, and to internalise equity issues and procedural fairness (Lo, 2011; Lo and Spash, 2012; Kenter et al., 2016c). The Hastings case study demonstrated mixed results in this respect. Here we discuss the way that the case study was able to express these principles while limitations are discussed in the next sub-section. The group rejected and amended elements of the monetary valuation exercises, which addressed, at least in part, concerns regarding the CR criterion of open and participant-led debate. The exercises were designed to encourage open dialogue, and actively facilitated to try to mitigate for more obvious power inequalities owing to gender, age, educational background and other social and cultural capital differences. The process also purposively included a range of differentially situated participants, all of whom would be affected by the consequences of the process and included a number of interests frequently underrepresented in such environmental planning, such as a student, a sea angler and a local housing representative. Involvement of the Fisheries Local Action Group board in the early scoping and design of the exercises in terms of focus, approach and range of participants went some way to address concerns around inclusivity in design and delivery.

Finally, central to CR is also ‘making sense’ of differing perspectives (Thomassen, 2010) through the process of intersubjective and inclusive deliberation. In this case study the process of making sense was effected chiefly through the social learning resulting from exchange of participants’ views and knowledge, to help inform contextual values and value indicators, such as the in-depth discussions about ecosystem services and their inter-linked nature with the town in the conceptual systems modelling exercise. Notably, DDMV can create a social learning opportunity that does not exist a priori. Creating the conditions for deliberative social learning involves exercises that stimulate the sharing of experiences, reflection and experimentation (Reed et al., 2010). This goes some way to address concerns that CR can never fully accommodate and give equal footing to our different ‘systems of meaning’ (Healey, 1992; Young, 1996). The process of social learning has not been explicitly addressed in CR. Connecting the social process of ‘making sense’ and social learning can be a productive future line of methodical and conceptual development for both CR and DDMV in environmental valuation.

5.2. Limitations in relation to and of communicative rationality

The DDMV design clearly delivered a process that established different policy options through making sense of each others perspectives, using a range of different participatory techniques to enable knowing, understanding, learning, contesting and debating values and beliefs, and negotiating outcomes. However, there were limitations to the degree to which this process of democratic deliberation and intersubjective sense making was open, inclusive and free of power dynamics. In particular, limitations concerned: (1) inclusivity in group composition; (2) implicit power dynamics, including those resulting from broader ideological hegemonies; (3) the tension inherent in the concept of DDMV as an analytical-deliberative approach.

In reflecting on who has an interest and should be involved, notwithstanding the efforts described above to include a wide range of voices and community collaboration in the design, there was a feeling by participants that other often less heard citizen voices in the town were missing. In addition to the absence of conservation NGOs, it was felt by participants, in their feedback at the end of the process, that a different set of values would be identified further inland, away from Hastings ‘old town’ traditionally associated with the fishers and marine environment, and in parts of the more deprived ‘new town’ that are less explicitly connected to the marine environment. This highlights issues of environmental justice that can be reinforced through these exercises if not subjected to critical reflexive tests of legitimacy and representation. While there are practical considerations in terms of size of groups and participant availability, a key issue is that those who are generally underrepresented in established institutional processes are also likely to be less well organised, and have less social and political capital than those who are, which then reinforces existing hegemonies.

In this DDMV case study, as with any exercise of this nature, the bias of strong personalities, or existing social ties (e.g. communities of practice around the fishers) inevitably shaped the group dynamic, notwithstanding active facilitation to balance out influence between participants, e.g. by ensuring the voices of less vocal participants did not go unheard by actively creating space for their perspectives. The emphasis of the values that emerged and how they translated into the results was affected by the balance of participants, their expertise, their role in the community and the associated power and knowledge capital they held in the group. During the storytelling the narrative created was shaped in part by participants’ relative experience of storytelling in public. In the more analytical exercises, community leaders, with known/respected knowledge in relevant fields and familiar with traditional policy making processes, often led the deliberation and discussion process and, in particular, played the role of pragmatists. For example, at some point within the systems modelling exercise one of the participants with less technical expertise raised questions around the broader negative implications of economic growth. While the points raised were not denied, they became moot by the broader frame of pragmatism presented by politically more experienced participants that suggested that broader, i.e. non-local, institutional issues could not really be influenced and should be seen as given. These dynamics were amplified by time restrictions, as pragmatists were also inclined to prioritise completing the exercises over further discussion. This required careful facilitation and should be taken into consideration in the development of these methods if DDMV is to avoid marginalising less confident participants with less technical knowledge. The discussion above highlights participant power relations challenges in this methodology, and the elusive nature of the Habermasian participant who is completely free, equal and not subject to coercion (Habermas, 1989; Flyvbjerg, 2000).

Finally, as Lo (2011) pointed out, there is an inherent tension between structured analytic methods and the Habermasian conceptualisation of deliberative democratic processes, with the political ideals pointing in a different direction from analytic requirements, such as establishing WTP in DMV. Thus DDMV informed by CR should ideally be participant orientated rather than expert-led with limited behavioural intervention by facilitators (Lo and Spash, 2012). In DMV, as discussed previously almost all empirical studies to date can be classified as Deliberated Preferences approaches, which only permit weak ontological and ethical value plurality, as they ultimately frame preferences as solely instrumental (Kenter, 2017). DDMV aims to go beyond this to allow strong value plurality. But while DDMV does not make restrictive assumptions about the values that underpin social WTP, nonetheless participants in the case study were ‘coerced’ into a framework of budgetary trade-offs that they to a degree resisted, or at least found limited as a means of expressing value, and they decided on the need for a parallel non-monetary rating. The preceding processes of learning and value expression, while diverse, were also externally

designed and facilitator-led, and thus in this respect did not satisfy idealised CR. However, it could be argued that ultimately the demands of CR in this respect are overly idealistic, and probably unrealistic, in terms of the belief that participant deliberation can be free of deception, strategic behaviour and domination via exercise of power (Flyvbjerg, 2000), and it is precisely expert facilitation that is needed to manage these concerns (Kenter et al., 2016c). Thus, we consider that the usefulness of CR comes to the fore not as a methodological protocol but as a set of aspirational principles that can provide a touchstone for the degree to which deliberative valuation is democratic. However, they can, in practice, never be perfectly implemented due to the inevitable implicit differences in power due to differences in knowledge and experience, the demands of the decision-making context influencing the goal, scope and terms of deliberations (also see Ranger et al., 2016), the influence of those designing and facilitating the process (also see Edwards et al., 2016), and logistical limitations (time, resources etc).

5.3. DDMV, communicative rationality and the Ecosystem Approach

There are also parallels between application of CR and communicative action through DDMV, and specific Ecosystem Approach principles (Table 1; CBD, 2004). DDMV is a form of economic valuation to assist in internalising economic costs and benefits in decisions (Principle 4), albeit on the basis of deliberative-democratic principles and value plurality rather than neoclassical assumptions. Employing CR qualities of inter-subjective deliberation applied on the premise of mutual understanding and reciprocity, DDMV offers environmental management an Ecosystem Approach enabling tool that includes multiple viewpoints and knowledge claims, providing opportunities for integration of local and indigenous knowledge (Ecosystem Approach Principle 11). The process of democratic deliberation endorses Ecosystem Approach objectives around acknowledging the situated nature and diversity of values held by different sectors of society, and their fair and equitable inclusion in the management of ecosystem services (Principle 1). CR encourages an inclusive process of deliberation with the specific inclusion of those likely to be affected by the decision (Principle 12). Similarly, the Ecosystem Approach advocates that management is decentralised to the smallest appropriate scale with a high level of local stakeholder involvement (Principle 2). This process of deliberation and shared learning to reach a common understanding with the intent of social co-operation enhances the chance of consensus across different interests and demographics, potentially improving the chance of connectivity (spatially and temporally) of ecosystem services management (Principle 7).

The Hastings case study demonstrated how processes of deliberation can draw out social and political issues that put ecosystem services in a perspective of broader societal choices (Principle 1). This broader approach that does not narrowly focus on ecosystem services alone can help participants view ecosystem services as part of a dynamic and complex social-ecological system that requires ongoing adaptation and social learning processes in management (Principle 9). DDMV through the process of deliberation and open discussion creates the opportunity to identify plural values within groups and communities that would otherwise be difficult to evaluate; the under-representation of these values could result in under- or overvaluing and potential mismanagement of ecosystem services. Biological and cultural diversity are both central to the Ecosystem Approach and therefore methodologies that enable better recognition of more implicit, subtle and relational ecosystem service values are particularly valuable (Principles 1 and 11).

Both Principle 1 and 4 highlight aspirations of equity of process and distributional equity. DDMV informed by deliberative democracy theory is able to particularly attend to these environmental justice elements of the Ecosystem Approach, by: (1) challenging conventional economic efficiency measures, which tend to favour the rich over the poor (Martinez-Alier, 2003), and (2) expecting the internal discipline for critical reflection articulated by CR, in terms of who is involved in decision-making over

environmental change (participation), and which voices are heard vs marginalised and whose knowledge is valued (recognition).

5.4. Future directions

The innovative DDMV methodology developed here was theoretically and empirically successful in bringing together a group of diverse stakeholders to come to a set of agreed values and policy priorities based on deliberation and negotiation, based on ideals of CR and communicative action, and meeting many of the principles of the Ecosystem Approach. Future research could focus on the following key directions for application of DDMV: (1) Better incorporation of ecological considerations and a broader set of ecosystem services; (2) Investigating the tension between analytical needs and democratic deliberation; (3) Integration of deliberative democracy theory with social learning; (4) Developing a deliberative democracy theoretical test for environmental valuation; (5) Understanding demand for new methods in evolving institutional contexts.

5.4.1. Better incorporating ecological considerations and a broader set of ecosystem services

As is evident from the above discussion, DDMV appeals to many of the Ecosystem Approach principles, but in the Hastings case study the more explicitly ecological principles surfaced least. The study focused on provisioning services (inshore fisheries) and cultural services, which in terms of the framework by Fish, Church and Winter (2016) were contextualised as cultural practices (fishing, cultural-historic events, tourism, recreation and environmental education), and associated identities (e.g. place identity and the cultural history of the ancient inshore fleet), experiences (e.g. enjoyment and fulfilment) and capabilities (e.g. local knowledge and traditional skills). There was only limited attention to the marine ecology underpinning these ecosystem services. Despite the biospheric transcendental values they expressed, participants did not choose to give this much thought in their deliberations. Discussion of regulating services was limited to broad discussions around the importance of addressing climate change. This reflected the limited representation of ecological and nature conservation interests and expertise within the group. But it also again highlights the theoretical tensions around process design, facilitation and what should be the role of experts, expressed in the consideration that unless ecosystem services are given explicit attention awareness of them may often not be sufficient to enable their full inclusion in decisions. Further research is thus needed to demonstrate how this tension can be managed in terms of honouring CR principles of free deliberation and open and equal participation whilst at the same time ensuring the process values all aspects of ecosystems and their services.

5.4.2. Investigating the tension between analytical needs and participant-led deliberation

Following on from this, we can more broadly note the need for future research to address the tension between the CR ideal of the participant freedom to set their own deliberation terms and the need for structured and analytical interventions to help address cognitive issues, for outcomes that practically inform decision-making, and for ensuring attention to key concerns that may otherwise may be under-attended. Certainly, there is potential to increase co-design of the DDMV process through for example interactive feedback loops and explicit decision-points during workshops. This could improve both the practical delivery and deliberative-democratic quality of the approach. This may also involve reconsideration of time allocated to particular components. Here, participants resisted certain time restrictions on deliberative techniques as they enjoyed sharing ideas, stories and values and were involved in in-depth group debates; equally facilitators felt reluctant to break up this productive dynamic of sharing and learning. Related to this, management of method complexity and elements of formal analytical logic may need adjusting for different

participants. While a demanding schedule of participation can work well with those who are policy articulate, the pace, complexity and language used need to be carefully considered in light of participants' background, and this is key to the portability and inclusive and democratic nature of these techniques.

5.4.3. Integration of deliberative democracy theory with social learning

In contrast to deliberation, there is limited explicit reference to social learning in Habermas' CR and action principles. Yet social learning scholars specifically highlight Habermas' interpretation of deliberation as being instrumental in the social learning process (Reed et al., 2010). Further, this case study, and other research in this special issue (Kenter et al., 2016c; Everard, Reed and Kenter, 2016; Kenter, 2016b; Ranger et al., 2016), point to the potential of social learning in helping explain how values are shaped and shared through deliberative processes. It is clear that deliberation and social learning are closely related concepts and that this relationship needs further attention with regards to improved participatory and social sustainability within environmental management. As noted by Reed et al. (2010) the concept of social learning is often conflated with its' potential outcomes (e.g. stakeholder empowerment, adaptive capacity) and other concepts such as stakeholder participation. The intention here is not to add to this confusion but rather stress the symbiotic relations between the processes of social learning and deliberative methodologies by drawing on their common employment of elements of Habermasian CR and even a capacity to address inherent CR limitations through greater integration.

5.4.4. Legitimacy of evidence: a deliberative democracy theory test for environmental valuation

There is a widely divergent view as to what 'better' values and valuation might be, ranging from technical improvements and eliminating biases, making values spatially explicit, better informed, more considered or 'deeper' (Kenter et al., 2015). What is clear is that decision-makers require evidence to be contextualised as well as being of high quality (Church and Ravenscroft, 2011). This suggests that, in addition to the quality of evidence, decision-makers' ideas of 'better' are aligned to different perspectives of legitimacy, concerns about what evidence is defensible, and the usability of the evidence. Developing an argument for improved deliberative methods that are defensible in terms of deliberative democracy theory contributes to the work developed in the communicative phase of environmental policy formation and planning and raises new indicators of what is robust evidence in helping deliver the Ecosystem Approach, in a manner that addresses concerns for environmental and social justice around participation and recognition of voice.

5.4.5. Demand for new methods in evolving institutional contexts

We conclude that, while this case study of DDMV advances issues of relatively inclusive, local community co-designed and located conditions for reasoned debate, and efforts to secure mutuality and reciprocity, we still observe evidence of established criticisms of the Habermasian CR approach around the manifestation of inequalities of power within process design and deliberation. While there is an inherent tension between deliberative ideals and monetary outcomes, and it is inevitable that the decision-making context compromises CR ideals to a degree, it is crucial that greater attention is paid within the design and delivery of DDMV to the identification and mitigation of hidden exclusions. This case study highlights how DDMV is informed by both social theory (due to the social interaction and social learning involved in group deliberative processes), but also political theory (as it is to do with being involved in decision making, having a voice, recognition of having a stake in that process, and the socio-environmental rights and responsibilities this process of deliberation and evaluation contends with). Explicit acknowledgement of this interface

can secure a more equitable and democratic approach to valuation, supporting key Ecosystem Approach principles of inclusion, participation, and societal choice.

Throughout this paper we have argued that, in realising DDMV as a more democratic approach to valuation, there needs to be greater attention paid to identifying and mitigating power inequalities manifest in its design, process and outcomes. DDMV should be seen as nested within broader systemic critiques from fields such as political ecology and ecological economics, as for example expressed in the many accounts of failed efforts to secure equity in procedural rationality in real world decision-making in deliberative institutions (Ozkaynak et al., 2012). To realise the social justice potential of DDMV and other methods that seek to genuinely create new democratic spaces (e.g.: Kenter, 2016c; Edwards et al., 2016; Ranger et al., 2016), we must turn our energies to understanding the necessary conditions to achieve procedural rationality in an equitable and democratic manner. In our discussion, we have detailed a range of conditions to be avoided that exacerbate this issue (e.g. imbalance of representation, rushed timing of deliberative exercises and overly curated researcher intervention), as well as pointing out those conditions conducive to the realisation of more power neutral DDMV (e.g. careful facilitation and use of varied communication frameworks in exercises to elicit a wider range of systems of meaning). Going forward, these conditions require further longitudinal empirical testing in real life decision-making with a stronger focus on transparent process feedback mechanisms to allow us to better understand the many ways different types of power manifest in this process (Ozkaynak et al., 2012). Particularly, it remains a major challenge for such mechanisms to genuinely disrupt inequalities in relation to education, class and social position, prevailing ideologies (e.g. the hegemony of economic growth and efficiency measures), and the status of different knowledges. It is through this more explicit recognition of the differentiated power relations at play in deliberative and participatory institutions that we hope to realise just sustainability outcomes via valuation and decision-making processes such as DDMV.

Acknowledgements

This research was funded through the UK National Ecosystem Assessment Follow-On (Work Package 6: Shared, Plural and Cultural Values) funded by the UK Department of the Environment, Food and Rural Affairs (Defra), the Welsh Government, the UK Natural Environment Research Council (NERC), Economic and Social Research Council (ESRC), and Arts and Humanities Research Council (AHRC). J.O. Kenter was also supported in writing this paper by the European Union Seventh Framework Programme (FP7/2007-2013) under Grant agreement no. (315925).

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