



Article

# What is the public's role in 'space' policymaking? Images of the public by practitioners of 'space' communication in the United Kingdom

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[pus.sagepub.com](http://pus.sagepub.com)**Marta Entradas**

Instituto Universitário de Lisboa (ISCTE - IUL), DINÂMIA'CET, Lisboa, Portugal

## Abstract

Studies on experts' understanding of the public have mainly focused on the views of scientists. We add to the literature on constructions of the public by analyzing the views of decision-makers, professional science communicators and scientists involved in 'space' communication on the public and public participation in policy. Findings show that contextual situations and roles determine the way the public is conceptualised: the public is sophisticated and knowledgeable to participate in space activities/citizen science, but in matters of policy, a gullible image of the public is brought up. Despite the democratic talk on participation, practitioners delimited public involvement in policy in some way or other to protect their own power and decision-making capabilities. This conception of the public competes with the stated aims of scientific and political institutions for public engagement and the substantive value of public participation, leaving a limited role for the public in space policymaking.

## Keywords

astronomy and space exploration, discourse, practitioners, public images, public participation, space policy

## 1. Introduction

Public participation in science has frequently been referred to as public involvement in science policy with the highest level of involvement being public input into decision-making (Rowe and Frewer, 2005). In the United Kingdom, public participation has gained in importance following numerous policy crises such as genetically modified (GM) foods and bovine spongiform encephalopathy (BSE) in the 1990s, and has since been advocated by governments as a means of improving public communication and combating public distrust of science (Wynne, 2006). This move towards participation reflects the positive contribution that the public can offer to policy. As Stirling (2005) maintained, 'under a normative view, participation is just the right thing to do'. From an instrumental perspective, it is a better way to achieve particular ends. In substantive terms, it leads to better ends (p. 220).

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### Corresponding author:

Marta Entradas, Instituto Universitário de Lisboa (ISCTE-IUL), DINÂMIA'CET, Avenida das Forças Armadas, 1649-026 Lisbon, Portugal.

Email: [marta.entradas@gmail.com](mailto:marta.entradas@gmail.com)

Public participation has been challenged by two trends: the ability of scientific and political institutions to incorporate public views, and the potential of the public to contribute to policy. In the first case, despite success of localised initiatives (e.g. Khan, 2003), criticisms have pointed to policy disconnect with engagement processes and failure of engagement exercises during implementation (Entradas, 2014; Castro and Mouro (2015)). Concerning the second trend, although research has shown the value of local knowledge, opponents of public participation have argued that expertise should be separate from democratic rights (Collins and Evans, 2002) with more extreme views claiming that public opinion can ‘harm’ scientific and technological developments if handled imprudently (Slovic, 1986).

Space exploration is an issue of public interest and an important dimension of science policy. The UK government’s agenda for public engagement in space research has not departed from the rhetoric on dialogue with reports calling for public involvement in decisions about the future of space exploration (British National Space Centre (BNSC), 2008; Space IGS, 2011). Moreover, UK space research has gained public visibility with the increase in investment through the UK Space Agency<sup>1</sup> (established in 2010) and participation in the European Space Agency’s (ESA) human space programmes. While there is evidence showing that public support for government funding of space activities has increased in the last 30 years in Europe and the United Kingdom, there is also increasing public scepticism about exploring outer space (Entradas et al., 2013; Eurobarometer, 2005; Mori, 2004). Discussing controversial topics in space research with the public may assume particular importance now that the United Kingdom has changed its long-standing opposition to participating in human space exploration. (The British astronaut joins the International Space Station (ISS) in 2015 under a British government affiliated programme (Space IGS, 2011) and international preparations for a human mission to Mars are underway<sup>2</sup>). Hence, it is important to understand the views of those in positions to elaborate on the public’s role in policy. Studies into the ways the public is conceptualised have mainly focused on scientists’ views (e.g. Burchell, 2007; Cook et al., 2004) and other actors such as technical experts or people involved in the development and implementation of (generally) controversial technologies (Lima, 2004; Walker et al., 2010). These studies have found ‘deficit’ images of the public whose views are seen as unimportant. Fewer studies, if any, have explicitly looked at the views of other key practitioners in public engagement such as decision-makers or professional communicators. Certainly none has looked at the ‘space’ context which, due to its simultaneously ‘entertaining’ and ‘controversial’ character, may be linked to views different from those found elsewhere.

In addition to the views of scientists, we address more systematically the views of decision-makers and professional communicators involved in ‘space’ communication as an attempt to add to the existing work on constructions of the public. We also bring another dimension of discourse into the analysis, namely, practitioners’ views on rationales for participation. There have been few cases examined from this perspective, and they have dealt mainly with environmental governance and planning (e.g. Wesselink et al., 2011). Despite the limited evidence, we believe that understanding rationales provide insights into the motivations and choices of practitioners (Stirling, 2005) and might be useful to framing future public involvement in space research.

## 2. Method

### *Sample and procedure*

Data collection involved 15 semi-structured interviews undertaken in 2010 in the United Kingdom. Criteria for inclusion in the sample were practitioners’ ‘active’ involvement in the design of space communication activities and/or policies and representation of a diverse spectrum of actors

from different types of institutions (museums/space centres, universities and scientific and political institutions such as Research Councils, Astronomy Societies and Observatories) to explore whether they held different views. Our sample included decision-makers (senior staff at institutions, for example, Deputy Directors for Engagement) ( $n=5$ ), professional science communicators (e.g. curators at a museum) ( $n=6$ ) and scientists ( $n=4$ ) from different career stages, ages and genders and with different experiences and histories in space public engagement (referred to hereafter as practitioners).

Interviews lasted between 60 and 90 minutes and sought to explore a range of topics about 'space' engagement. This note focuses on perceptions of the public and public participation. As we were interested in exploring hidden frames (Schon and Rein, 1994), we asked provocative questions to confront practitioners with controversial and contradictory opinions about the public. Questions asked included the following: Is there a public for policy? Should the public have a say in space policy? Who is the 'right public' for space policy, and why undertake participation?

### Analysis

Interviews were audio-recorded in full, transcribed, and anonymised. Data were coded manually after the transcripts were read twice and then grouped according to key themes. We draw on principles of discourse analysis to examine how images of the public were constructed and notions of public participation used. Specifically, we analysed practitioners' discourse on rationales for participation and public limitations. In some cases, we draw on notions of subject positions (Gilbert and Mulkay, 1984) to understand how practitioners made claims about the public's role in policy. We analysed features of practitioners' self-positioning and how they aligned themselves with experts or lay persons, or used organisations' views to talk about the public's power to influence policy (Dickerson, 2000).

## 3. Results

### *Practitioners' views on 'the public'*

*Knowledgeable and sophisticated public.* Despite a diverse range of ideas expressed about 'the public', we identified a number of key concepts. A positive perception of the public was an almost universal point. Conceptions such as 'interested', 'engaged', 'curious', 'passionate', 'knowledgeable' and 'motivated to contribute to science' (discussed in the context of citizen science, for example, GalazyZoo<sup>3</sup>) were frequently found in practitioners' discourse. The extract below illustrates it:

[The public] do know a lot about astronomy and they have endless questions and it's sometimes a bit of a challenge to keep up with the news [...] and they tell me what they know about it. And it's quite fascinating because they are so knowledgeable; they are all up to date. (Scientist)

### *Practitioners' views on public participation in space policy*

When conversations narrowed to understand practitioners' views on participation, talk moved away from a 'knowledgeable public' with practitioners assuming differing positions: while the majority agreed that public views should be considered when framing space policy, generally alluding to democratic rationales, a third clearly opposed, often invoking public limitations. However, some cases were more complex and contradictory. For example, some interviewees showed concerns about the public having a say despite agreeing that it is a democratic right.

*Rationales for public participation.* Normative considerations of democratic principle were the most frequently mentioned by supporters of participation, regardless of their specific roles. This is the

idea that all those affected should have a say (Habermas, 1975) to rebalance the power of interested parties; it appeals to fairness of equal access and empowerment of the process, and values are important outputs of the decision-making process (Fiorino, 1990).

Most arguments revolved around the notion that in democratic societies, where civic participation is valued and where public taxpayers are funding science, participation is every citizen's right:

we need to pay more attention to this public who is funding science, so I think we need to discuss more [...] it is an important question and we are now planning a new phase for the strategy of the European Astronomy, so we have to think about that. (Science communicator)

They've [the public] got not just a right to hear about science but a right to ask about it as well, a right to shape it, to think about it. (Science communicator)

In these statements, both practitioners placed the public on par with policymakers, suggesting a commitment to democratic participation and an open attitude towards considering all relevant viewpoints to form decisions.

Instrumental reasons were the second most mentioned by interviewees, although exclusively brought up by professional communicators and decision-makers. Here, participation is seen as a means to achieve particular ends, to make decisions more legitimate and to restore public credibility and trust in institutional authority, expertise or decisions (Fiorino, 1990).

Two interconnected main ideas were mentioned: building trust and making the institution of science open. One decision-maker explained that engaging the public was important 'to show an open and transparent organisation, so that the public knows what we're doing'. And, a science communicator argued,

It's about giving the public a sense of some kind of input into the process and also giving them a sense of trust that sensible decisions are being made.

Participation is described by this practitioner as a means to an end – in this case securing public credibility and trust in institutions. This is linked to a stereotyped image of a public that mistrusts science; by involving the public and making them feel part of the policy process, this could rebuild trust. If legitimacy is all that is sought, participation might only be seen as a 'desultory' process (Cass, 2006) to justify decisions already taken (Stirling, 2005).

Substantive rationales were mentioned by one decision-maker. This is the idea that participation gathers diverse views and depth of information to produce better ends; it ignores power issues and policy goals can be changed. He argued,

to listen to the public and hear any views and concerns they have and take those into account. For example, if the public are really worried about [pause]of our not wanting to contaminate Mars with our bacteria and not wanting to contaminate the Earth with Martian bacteria, the level of public concern will probably inform the degree of security and protection and sterilisation and the arrangements for handling these samples as we go to Mars and as we bring things back. The more [pause] I would think that the more the public are concerned, probably the more investment in these protections and sterilisations and so on there should be. (Decision-maker)

And he continued,

if the UK was participating in a manned space flight programme, which it's probably about to do [...], then it would probably be a good idea to have conversations with the public about the risk. (Decision-maker)

In this decision-maker's (government) statement, substantive and instrumental rationales seem to coexist. The substantive element can be found when he discusses the importance of 'listen(ing) to the public and hear(ing) any views and concerns they have and tak(ing) those into account': there is reference to the usefulness of additional views to agenda setting for the exploration of Mars. He acknowledges that the public might see problems that experts do not.

Simultaneously, this statement seems to reveal a hidden frame (Schon and Rein, 1994) in that it sets limits to public 'input'. This is the instrumental rationale. Participation is welcome, but should be limited: policy goals are not open for discussion, only the details. For example, the public can play a role around contamination in a mission to Mars, but the fundamental question of going to Mars will not be put to a public dialogue. By involving the public in low-level decisions, practitioners can claim a commitment to participation and enhance public trust in the decision to go to Mars, thereby supporting the interest of institutions and policymakers.

### *Limitations of the public*

We identified three images of the public as constructed by practitioners disagreeing with public input into policy.

*Knowledge-deficit public.* The first pertained to knowledge levels. Practitioners argued that only if the public had the competencies necessary to discuss the issues at stake could it make informed decisions. Whether the public was sufficiently 'informed' or 'educated' (scientist) were primary concerns:

I think public opinion is interesting but it's not something to be followed. Because quite often the public is not fully informed. [...] I'm not in a position where I can make a decision about [pause] it could be genetic crops for example, which is an interesting topic but currently I don't feel well enough informed about that to say what I believe in it. (Scientist)

This criticism of the public's (lack) of scientific knowledge was most likely to be held by scientists (see also Young and Matthews, 2007). In this example, however, the scientist made it clear that the difficulty in remaining informed is not exclusively a characteristic of the general public, but also a problem in scientific circles that are ostensibly ignorant about subjects outside their professional sphere (Levy-Leblond, 1992). This implicitly positioned him as a lay person because like the public, he is not fully informed about specific scientific issues. Moreover, this quote suggests that the public is not considered guilty for being uninformed, but rather this is a product of science specialisation.

*The public can be manipulated.* The second public image identified was an image that the public can be easily 'manipulated':

There is a gut reaction where people can be eased and manipulated by, shall we call, the general media or whatever who have their own vested interests. (Decision-maker)

This decision-maker showed a concern about letting people decide as public opinion can be influenced by the media or other interested parties – an idea found by Burchell et al. (2007) in the discourse of scientists. Also, it suggests that those presenting the information have control over the public (Slovic, 1986) and infers a critical attitude towards those who take advantage of an uninformed public.

*Public values and beliefs may mislead public opinion.* The third image related to values and beliefs that might misinform public decisions:

If people have deep-seated beliefs because of either religion, fear, uncertainty or anything else it's very, very hard to change that over any significant short period of time. So at the end of the day the government has to make a decision knowing it's going against popular opinion and say all right, we're going to do this because we believe it's right. (Science communicator)

This statement reflects a preoccupation with individual factors such as religious beliefs, which may misguide the public. It is implicit that the public have no role to play in policy now, and in the near future, because beliefs are hard to modify (Slovic, 1986). Interesting is the implication that the public can be misled but not scientists or the government. What values and beliefs guide the government; who is to say 'those' are the right ones? Meanwhile in the extract below, a scientist shows concerns about letting the public decide on a mission to Mars as they could be guided by non-scientific principles rather than an understanding of its scientific value:

I am a little bit wary about letting the public decide because one of the big issues I think we have is the discussion about do we send people to Mars or not? No one country can afford to send people to Mars and the UK has always been resistant to manned space flight. Well, I think if you ask most people they'd be quite excited by [a Mars' mission] [...] it is cultural value, but it's not scientific value. (Scientist)

Based on these images of a 'limited public', practitioners often reasoned that policies should be left to relevant experts. As a communicator argued, 'There are always going to be some issues where you really do need a small number of experts to assess the evidence very, very carefully and come up with what they think is the best decision'. For this practitioner, political bodies are the overarching authority and public opinion is secondary.

## 6. Discussion and conclusions

This research note examines images of the public and public participation in space policy by practitioners in space engagement. We found that views varied with contexts and roles. The public was largely seen as sufficiently sophisticated and knowledgeable to participate in outreach/citizen science activities, but in matters of policy, images of a gullible public were found. Opponents to participation maintained that policy is the responsibility of policymakers and governments and that a knowledge-deficient and easily influenced public should be excluded. These images were used to establish a basis for political authority in policymaking in which a separation should exist between experts and the public (also found previously, for example, Kerr et al., 1998; Young and Matthews, 2007). In some cases, practitioners aligned themselves with the public and/or institutions' aims to emphasise this separation. This conception allows a line to be drawn in space policy: the public is welcome to contribute to science activities/citizen science projects and to shaping certain agendas such as discussing risks associated with space missions, but 'high-level' decisions such as whether the United Kingdom should participate in human space missions need no discussion in the public sphere. It is therefore likely that to these practitioners, the legitimacy of political decisions depends only on representatives who speak in the name of the public (e.g. politicians), suggesting that the public has a limited role if any to play in space policy.

Data on rationales support our argument. Despite some overlapping and more complex interactions, democratic rationales were largely mentioned regardless of practitioners' roles, professional communicators and decision-makers were more likely to refer to trust and legitimacy issues (see

also Stirling, 2005), and substantive rationales were mentioned only by one decision-maker. While future research is needed to understand the reasons for these variations, our preliminary data suggest that practitioners – a hybrid group of experts with varying backgrounds and positions in science – acted according to their roles at institutions. In particular, decision-makers and professional science communicators adopted the politically correct rhetoric of engagement to legitimise an institutional view: for example, decision-makers in our sample worked for government/political institutions with requirements for science to be publicly visible and with institutionalised commitment to public engagement. It is therefore unsurprising that their talk falls within their organisations' stated aims. Moreover, these practitioners may be engaging in boundary-work for their area of expertise to protect their own authority: by defining a limited public, practitioners argued that decisions are best left to experts, like scientists and decision-makers themselves. Furthermore, by claiming a commitment to participation, practitioners can sustain public credibility and trust in their (institutions') decisions supporting their own interests. Despite the generalised democratic speech, practitioners delimited public participation by presenting a deficit image of the public suggesting a clear separation between the role of expertise and democratic rights (Collins and Evans, 2002) for these practitioners in 'space' engagement.

This deficit image of the public competes with the substantive value of public participation and may compromise public involvement in space policy decisions – if faced with a national debate on human space exploration, for example, the UK practitioners may be unprepared to deal with public participation challenges. It also raises questions about the meaning of public participation for these practitioners, in particular scientists, (for whom the public is considered via levels of knowledge rather than values), and who overlook frames or ethical principles used by the public to approach these issues.

Finally, it is interesting to note the general democratisation of participation found. Space research involves concerns distinct from more controversial areas such as GM, for example, funding and infrastructures. Therefore, it would not be surprising for these practitioners wanting to see more funding for their discipline to favour participation driven by the idea that a non-supportive public will restrict the advancement of space exploration – research has shown that positive attitudes associate with stronger preferences for government funding of space activities (Entradas et al., 2013). While further research on practitioners' motivations would be needed to confirm this argument, the general democratisation found in our sample could be unique to space research.

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## **Notes**

1. The UK Space Agency (UKSA) is an executive agency of the UK government, responsible for the civil space programme. In 2010, the UK space industry was valued at £6 billion and supported 68,000 jobs. The UKSA's 20-year aim is to increase the industry to £40 billion and 100,000 jobs (Space IGS, 2011).
2. Simulation missions to study human performance on long-duration isolation missions have been carried out in recent years to prepare for future human exploration of Mars (e.g. Mars500, conducted between

2007 and 2011 by Russia, European Space Agency (ESA) and China, and current project Hawaii Space Exploration Analog and Simulation (HI-SEAS), sponsored by National Aeronautics and Space Administration (NASA)).

3. GalaxyZoo is a volunteer-generated classifications of galaxies created in 2007, which collected over 60,000,000 classifications with public assistance.

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### **Author biography**

Marta Entradas is a Postdoctoral Researcher at ISCTE – Lisbon University Institute, and a visiting scholar at London School of Economics (LSE) and Cornell University. Her research interests focus on science communication, public attitudes towards science and technology and public participation in policymaking. Her current research focuses on institutional communication with the public.