Participation as a research approach in academia: a converging field

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Abstract

Citizen science, transdisciplinary research, dialogic forms of science communication or public engagement: these and other research approaches and fields, often subsumed under *participatory research*, have in common that they enable people outside of academia to actively engage in the production of scientific knowledge. However, each of these fields sets its own goals, uses different formats and has a different scope and impact. The conference 'Opportunities and Limitations of Participation in Academia' held in September 2022 as part of the German Science Year 'Participate!' aimed to connect the various participation communities in Germany and to explore commonalities and success factors. Through intensive discussions in four working groups, a keynote speech and a panel discussion, the conference initiated an exchange of ideas and experiences amongst researchers in a converging field. This report is a summary of the key questions and outcomes of the conference.

Keywords

citizen science, transdisciplinarity, science and technology studies, participatory action research, maker spaces, science shops, responsible research and innovation, science communication

German abstract

Citizen Science, transdisziplinäre Forschung, dialogische Formen der Wissenschaftskommunikation oder gesellschaftliches Engagement: Diese und weitere Forschungsansätze und Forschungsfelder, die häufig unter dem Begriff "Partizipative Forschung" zusammengefasst werden, haben gemeinsam, dass sie Menschen außerhalb der akademischen Forschung die aktive Teilhabe an wissenschaftlichen Erkenntnisprozessen ermöglichen. Sie verfolgen jedoch jeweils eigene Ziele, nutzen verschiedene Formate und haben unterschiedliche Reichweiten und Wirkungen. Die Tagung "Chancen und Grenzen der Partizipation in der Wissenschaft" im Rahmen des Wissenschaftsjahres "Nachgefragt!" im September 2022 hatte zum Ziel, die vielfältigen Partizipations-Communities in Deutschland zu vernetzen sowie Gemeinsamkeiten und Erfolgsfaktoren zu identifizieren. Mit Keynote, Podiumsdiskussion und intensivem Austausch in vier Arbeitsgruppen wurde ein nachhaltiger Ideen- und Erfahrungsaustausch zwischen diversen Akteur*innen angestoßen. Dieser Bericht fasst die Fragestellungen und Ergebnisse der Tagung zusammen.

Introduction

Participation, collaboration, engagement: Participation in research is increasingly coming to the fore in many forms and with many objectives. Citizens are invited to take part in research or to become actively involved in scientific processes. The formats used are diverse – from citizen science, transdisciplinary research, real-world-laboratories or participatory action research to citizens' councils. As part of the German Science Year 2022 – 'Participate!', the conference 'Opportunities and Limitations of Participation in Academia' (in German: Chancen und Grenzen der Partizipation in der Wissenschaft) aimed to bring together various stakeholders and initiate a future-orientated dialogue.

The term 'participation' is used in a variety of academic contexts and disciplines, including the natural sciences, social sciences, humanities, design thinking, planning studies and engineering. To reflect this broad usage in science and research, we will here refer to this concept as 'participation in academia'. By referring to research practices that involve non-academics at different points of the research process and to varying degrees, the concept has the potential to move academia towards a more open and democratic conception of science and research. What various approaches to participatory research have in common is that they aim at less bounded academic

practices in which the knowledge of the many is valued and the potential of non-academic experts for epistemic endeavours is acknowledged.

German science policy: spotlight on participation in academia

German policy-makers have shown a growing interest in participatory research in recent years. In 2016, the Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF) published its first policy paper on participation (Bundesministerium für Bildung und Forschung 2016). The BMBF's participation strategy aims to create a broader social acceptance of research and innovation and to strengthen citizens' trust in research and its results. At the same time, results and innovations are to be better aligned with the needs and interests of society. This participation strategy already included a number of instruments and actions to promote participation, such as civic dialogues, participation platforms, participation projects and the funding of citizen science to foster cooperation between researchers and citizens in solving societal challenges. Since 2000, the *Science Year* initiative has been another strategic instrument. Each *Science Year* focuses on a scientific discipline or a current scientific theme and aims to facilitate an exchange between science and the public. The thematic focus for 2022 was participation and invited citizens to formulate their own research questions, as the BMBF is currently developing an updated participation strategy to take account of the changes and growing opportunities in this field. This new strategy is expected to be published in the summer of 2023 and also reflects a political agenda set by the coalition agreement between the governing parties in 2021, which stated that they intended to 'include science communication at all career stages and in the requirements for funding'. In addition, citizen science is to be used to 'increase the inclusion of societal perspectives in research' (SPD, Bündnis 90/Die Grünen und FDP 2021).

In line with this process, the German academic system has been developing institutions, projects and initiatives to respond to this call for more dialogue between science and society. From the point of view of German citizens, there is also a demand for participation in research (Maier et al. 2021) and the benefits of using participation as a research approach are manifold. However, interest in participatory research has not been as strong in all German research institutions or funding agencies as it has been in the German Federal Government or the BMBF.

A nuanced position on the use of participation as a research approach has recently been adopted by the Alliance of Science Organisations in Germany (Allianz der Wissenschaftsorganisationen). The statement issued by the Alliance in November 2022 – two months after this conference – highlighted the benefits of involving non-academic actors in the governance and planning of research, in the research process and in the dissemination of results, provided that this brings added value (Allianz der Wissenschaftsorganisationen 2022). Participation in science has, thus, gained momentum both scientifically and politically and, in Germany, the development of an official ministry strategy for its promotion is underway. It is, therefore, timely for the

participatory research community to shape the issues and questions that will be relevant in the coming years.

Aim of the conference

With the aim of bringing together different actors from research, practice and politics, this conference on participatory research took place at the Museum für Naturkunde Berlin (MfN) on 26 September 2022. It was co-organised by MfN and Chemnitz University of Technology and funded by the German Federal Ministry of Education and Research (Bundesministerium für Bildung und Forschung, BMBF).

The conference had three overarching aims:

- Connecting the participatory research communities in Germany;
- Opening a discourse on participation in academia and highlighting the different perspectives, approaches and knowledge about participatory formats;
- Disseminating research results to the wider public (politics, civil society etc.) and the academic community.

The organisers invited a programme committee of German experts in the field of participation to shape the topics and chair the sessions of the conference. This committee of more than 20 researchers (see list of names in the Appendix) – mostly social scientists who study participation in science and research from different perspectives – has since developed into a lively network of experts that continues to meet on a monthly basis.

Participants and documentation

The conference brought together a diverse community of scientists, administrators, public engagement practitioners, research policy-makers and funding agencies from Germany. A total of 101 participants attended the event and took part in discussions throughout the day. Invitations were sent to various research groups and institutions in Germany that are already active in either research with participatory methods, such as transdisciplinary research or the citizen-science community. Disciplines represented in our distribution list included, but were not limited to, media studies, sociology, political science, psychology, urban planning, science and technology studies and design theory. The invitation was also snowballed. The aim of this invitation strategy was to reach out to a not yet well-connected community of scholars from different fields – and to create a network for the exchange of ideas on the current state and future of participation in academia in the German context.

The first panel discussion and talks were live-streamed, the recording is available on YouTube (https://www.youtube.com/live/JrMD34MY0sQ) (Fig. 7) and archived on Zenodo (Schultka et al. 2022). Graphic recordings by Christine Oymann illustrate the different sections of the event (Figs 1, 2, 3, 4, 5, 6).

The conference website is still available. Four copies of the conference website are archived at https://archive.org/ : www.museumfuernaturkunde.berlin/de/wissenschaft/chancen-und-grenzen-der-partizipation-der-wissenschaft

Additionally, most of the website's content, for example, the original programme and the list of the programme committee members, are included in this publication in Suppl. materials 1, 2.

Programme and process

Johannes Vogel (Director General of the Museum für Naturkunde Berlin; MfN) and Elisabeth von Uslar, (Head of Sub-Department 11 *Innovation and Transfer Policy*; *Federal State Cooperation* of the Federal Ministry of Education and Research; BMBF) welcomed the audience on site and online.

The conference was divided into a triad of:

1. a high-level panel discussion that allowed different perspectives to be heard;
2. a keynote speech on participation as a scientific method; and
3. two workshop sessions based on the previous inputs that provided an opportunity for conference attendees to discuss the most pressing issues that cut across all disciplines dealing with participation in academia.

The workshops were organised into four working groups, chaired by experts and covering the following topics:

1. the understanding and value of participation in Germany;
2. the impact of participation in research and society and its measurability;
3. how participatory research can promote social dialogue and the integration of under-represented groups; and
4. how to compare and learn from international developments (see working groups in 3).

This report summarises the main outcomes and discussions of the conference. The original programme is provided in the supplementary material (Suppl. material 1). The authors were members of the conference programme committee (Suppl. material 2) and workshop chairs and reflect on the conference, outstanding issues and possible future work.

The conference programme

The panel discussion

The conference opened with a high-level panel discussion on values and limits of participation formats in academia from the science-policy perspective in Germany. The

four panellists represented relevant institutions in research funding and science policy: The German Bundestag, German Research Foundation (DFG), the Leibniz Association and the 'Stifterverband für die deutsche Wissenschaft'. The panel including Alexandra Busch, Professor for Archaeology and Director General of Leibniz-Zentrum für Archäologie, Kai Gehring, Member of the Bundestag and Chair of the Committee on Education, Research and Technology Assessment, Karin Jacobs, Professor in Physics at Saarland University and Vice President of the German Research Foundation and Volker Meyer-Guckel, Secretary General and Chairman of the Board of the Stifterverband, was moderated by Lisa Ruhfus and discussed issues around the value, recognition, funding and limitations of participation in academia.

One of the questions addressed during the panel was which advantages participation in academia can have for democratic processes and if and where there are limits to these potentials in different scientific disciplines. Additionally, the panellists discussed what role participation in academia could play in transformation processes in society and science. Another important issue during the discussion was the question whether participation should be implemented as a performance indicator for scientific projects. Some concern was expressed as to how best to ensure that academic freedom is respected and to what extent and how to involve citizens. Academic freedom is protected by the Constitution of the Federal Republic of Germany, Art. 5, (3) 'The arts and sciences, research and teaching are to be free[...]'. Protecting this right is, therefore, an important democratic responsibility. Some panellists emphasised that this free choice of research topic is of great importance for German research institutions. On the other hand, citizen participation can provide an additional, broader perspective and a new source of ideas and the inclusion of participatory approaches does not in itself affect the scope and direction of scientific research. Citizen participation can lead to new and innovative research questions that might not otherwise have been considered. While applied science and research, for example, has long benefited from and used participatory approaches, there is still room for discussion in other research fields about the feasible and desirable extent of participation by non-academics.

The keynote by Martina Schraudner: participation as a method of science and research

Following the panel discussion, Martina Schraudner (Scientific Director of the Fraunhofer Center for Responsible Research and Innovation and Professor at the Technische Universität Berlin) summarised the state of research on participation in academia and its added value for the various actors involved. Some of her findings are outlined in this section.

Against the backdrop of the major transformations associated with climate and sustainability goals as well as digitalisation, the societal demands on and the self-image of science itself are changing (Directorate-General for Research and Innovation (European Commission) and Mazzucato 2018, Schütz et al. 2019). While participatory approaches have been in use in the Western world – for example, in companies via open

innovation or in infrastructure projects as described in the VDI Guideline 7000 (VDI 2015) – since the turn of the millennium, they are still rather in their infancy in science, maturing under the catchwords transdisciplinary research or Mode 3 knowledge (Gibbons et al. 1994, Carayannis et al. 2012). Yet, it is precisely these approaches, combined with science communication or public engagement approaches, that can help not only to inform different social groups about design options for the future at an early stage, but also to integrate their perspectives and opinions into design processes.

Participation counteracts demarcation and fragmentation. It achieves more than the transfer of information and knowledge by allowing academic and non-academic actors to co-develop target images of a desirable future and to strive for them together. To achieve that, science must be committed to providing information at an early stage and on an ongoing basis, i.e. not only at the end of a research project, when it comes to disseminating research results. Rather, it is a matter of communicating and engaging with society in such a way that impulses and reactions from society can be incorporated into one's own research. An ongoing dialogue between science, society and policy likely instils a sense of mutual trust and shared responsibility in jointly addressing current challenges/problems. This applies to a wide range of time horizons: from citizen-science approaches in which scientists and citizens work side by side on research projects, to future fields of innovation in which ethical guard rails are developed or applications are explored, to future goals that raise entirely new questions for science and research.

None of these approaches calls the principles of science and research into question – but they are unfamiliar practices to scientists and to large parts of the population. Scientists must reach out to society with new methods and approaches and a new self-image, informing society and involving it in transdisciplinary approaches. Ways must be found to recognise and overcome knowledge silos (Blackwell et al. 2009), also between disciplines, in order to get people from diverse contexts and backgrounds interested and engaged in new topics at an early stage, even outside of science (Collingridge 1980). The way to achieve this lies ahead.

Four thematic working groups

Mapping participation: positioning and differentiating participation in the German science system

Chairs: Karola Köpferl (University of Technology, Chemnitz), Arne Maibaum (University of Technology, Chemnitz) & Philipp Schrögel (Heidelberg University)

This hybrid working group, a mixture of online and on-site activities, began with three keynote presentations. Julia Hahn (Karlsruhe Institute of Technology, KIT) started with insights into participation for research organisations: excellent research agendas and the integration of participation processes. The ensuing discussion revealed the importance of clarifying buzzwords and terms, using the concept of community as an example. This was followed by a report from Philipp Schrögel and Susanne Hecker (Museum für Naturkunde

Berlin) on #FactoryWisskom, a science communication think-tank initiated by the German Federal Ministry of Education and Research, which proposed a typology of participation (more information can be found here https://www.wissenschaftskommunikation.de/wp-content/uploads/2021/12/Factory_Wisskomm_Publikation_EN.pdf). A discussion then arose on the relationship between science communication, participation, citizen science and transdisciplinary research. Henrik Mucha (Fraunhofer IOSB) opened another perspective with his impulse on participation and design: a brief classification from the perspective of design and product development. Participatory Design (PD) means that everyone who will be affected by a future technology should have an active say in its development. Mucha illustrated this with the model of Scandinavian PD, which focuses on democracy work.

In the second session, the working group discussed approaches, concepts and terms. Overall, the group identified a general lack of knowledge in academia about participation, especially in research, how it relates to and interacts with other activities. Fields such as science communication, citizen science, transdisciplinary research and (constructive) technology assessment were mentioned as examples. These fields have developed their own research and practice communities, some of which overlap with and contribute to the field of participation. It should be emphasised that there may, of course, be some activities and projects that are not known to and/or represented by the researchers that convened in the working group. It is apparent that a deeper exploration of different perspectives on concepts and approaches is needed to generate the mapping of a participatory research landscape. At present, there are no long-term, overarching structures or contact points that can provide information and knowledge on the current state of participation in research in Germany. Here, funding agencies seem to have the greatest potential as a source of information needed to start an evaluation and mapping of existing projects and initiatives.

Impact, which can usually only be measured after a considerable time lag, if at all, was another key issue that was discussed, as were data management issues. As one participant pointed out, metadata on participatory data are rarely collected, stored and shared. Ways need to be found to protect the privacy of participants in participatory projects. This also raises the question of how mapping can then adequately address the dimension of impact.

The mapping of a German participatory research landscape was also discussed as a way of making the value of participatory research visible. In order to achieve this, a participation map needs to provide a comprehensive overview of where people are and where they are researching, i.e. provide a landscape of participation in research and science. Different approaches to participation in academia should be clarified and visualised. The role of participation intensity as a mapping dimension was questioned and the need for more reflection on the dimensions was emphasised. The working group agreed that, overall, a simplified approach that links to existing discourses and keywords seemed promising. However, key questions remain: What methods of mapping are appropriate? What happens where? Who (with what perspective and aim) maps whom?

Who does not participate? Challenges for participation in science for and by society

Chairs: Julia Backhaus (RWTH Aachen), Carolin Schröder (Technische Universität Berlin) & Silke Voigt-Heucke (Museum für Naturkunde Berlin)

This working group discussed challenges to the participation of marginalised groups. The first session comprised three short inputs and a reflective plenary discussion, while the second session focused on policy and funding implications in small group discussions. In the first session, Ansgar Klein, founding Managing Director of the Federal Network for Civic Engagement (Bundesnetzwerks Bürgerschaftliches Engagement; BBE) argued that, to this day, (formal) education seems to be a necessary condition for participation in research: participants usually need to be able to speak, write and read in a certain language and they need to have a lifestyle that allows them to participate. He also stressed the importance of access to science and research for the wider public in order to support the democratic development of society. Hella von Unger (Ludwig-Maximilians-Universität München; LMU) shared insights into building long-term working relationships with marginalised groups during EMPOWER, a project aimed at developing a community research network. Creating attractive opportunities for participation (including financial rewards), speaking the 'right language' to really connect and communicate and a systematic focus on reflection and learning are crucial preconditions for wider public participation in research processes. Robel Afeworki Abay's (Humboldt-Universität zu Berlin) presentation on participatory research as a decolonial practice challenged the existing institutionalised concept of inclusivity and described problematic power relations in participatory processes.

The subsequent discussion identified a number of groups that are currently not, or do not feel, addressed by participatory research. As an example of institutional exclusivity, it was suggested that open calls for participation tend to attract the stereotypical white male pensioner who has an interest in and time to engage with local developments and projects. Furthermore, participation formats often do not target groups and individuals with less formal education or poor language skills, in general, but especially in Germany. The working group gave examples of groups known to be less likely to participate, including women, people with physical disabilities, people whose first language is not German, people with a (family) migration background, BIPoC (Black, Indigenous, People of Colour), illiterate people, the unemployed, elderly people beyond the 'best age', craftsmen and workers, business enterprises and civil society organisations.

The group postulated that there should be more diversity in participatory approaches, including more flexibility in approaches, funding and formats. The participation of currently under-represented groups requires building trust, networking and long-term cooperation with local actors. At the same time, it is important to open up research projects to participation as early as possible (e.g. when identifying research questions and conceptualising the project) to maximise inclusion. It is also critical to clarify what level of empowerment is required and desired in research projects: this can range from a

more distant, research-focused approach with regular public meetings, to a community-based approach where the goals and structure of the participation process are defined by the participants.

The second session dealt with the implications of the previous observations and discussion points for research policy and funding structures. The group agreed that, to address current shortcomings, the full range of participatory approaches in science and practice should be described and visualised (see also workshop 1). Ideally, such a map of different participatory approaches should provide information for the design of funding schemes. In addition, more reflection and systematic research is needed to better understand the impact of different approaches in different contexts. Another key request from the group was a call for simplification of application procedures for funding. This was identified as critical by the workshop participants as smaller organisations, which often have the best access to local communities, often lack the resources and access to information about funding opportunities. Additionally, building trusting relationships between researchers and research participants will require more time and human resources than project funding has so far provided, including longer contracts for researchers. Finally, the working group requested communication between funding agencies and potential scientific or public partners should be made more transparent, especially when it comes to providing feedback on rejected project proposals (which is already common practice at EU level).

What are the benefits of transdisciplinarity and participation? Evaluating the effects of participatory and transdisciplinary research in science and society

Chairs: Andreas Bischof (University of Technology, Chemnitz) & Martina Schäfer (Centre for Technology and Society/ TU Berlin)

At the beginning of the working group, Martina Schäfer and Emilia Nagy (Centre for Technology and Society/TU Berlin) presented a participatory impact-orientated approach for formative (process) evaluation in transdisciplinary projects. Their *theory of change* approach enables a shared understanding within the research team of the preconditions for effects, which may occur after the research itself is finished. Next, Madlen Günther (University of Technology, Chemnitz) presented the BMBF project NUMIC in the context of transport development and urban planning in Chemnitz (Bienenzeisler et al. 2022). The results of this project show that citizen participation is a key mechanism for strengthening sustainable mobility awareness and increasing the positive perception of the urban transformation process (Günther and Krems 2022). Then Stephanie Jahn (Leuphana University of Lüneburg, Helmholtz Centre for Environmental Research Leipzig; UFZ) presented an analysis of 59 research projects. Her study demonstrates that more interactive and integrative research modes achieve more societal effectiveness. However, they also show that increased social effectiveness is often accompanied by lower scientific effectiveness.

The subsequent discussion focused on the added value of participation for society and academic research. There was agreement that participation processes can have an

added value for society. However, identifying and attributing these impacts, which can occur with a time lag and have multiple causes, remains a challenge. External as well as internal evaluation often fails due to lack of resources or competencies.

The negative relationship between social and scientific effectiveness of participation in academia, pointed out by Stephanie Jahn, sparked controversy amongst the workshop participants and was a central topic of discussion. To complement the results of Jahn's study (Jahn et al. 2022), reference was made to a study by the tdAcademy, which shows that academic actors use participation deliberately because of certain advantages (forthcoming publication). For example, academics value the identification of problems that are relevant for the non-academic actors, as well as the better validation of findings through access to actors with particular types of knowledge. At the same time, they perceive that this added value cannot be satisfactorily accounted for in scientific evaluation systems. Adequate generalized evaluation criteria for the success and effectiveness of participatory projects are lacking. However, an evaluation framework analogous to and as simplistic as citation frequency was considered insufficient by the majority of the workshop participants.

In the discussion, it was also emphasised that participation involves a great deal of effort for all participants and requires special expertise. Participatory researchers need sufficient resources to carry out the diverse tasks. In particular, knowledge integration processes, such as participatory problem formulation, are resource-intensive, but, at the same time, essential for scientific findings and social effectiveness. For this reason, the working group pleads for adequate funding for participatory research modes. It would make sense to supplement the usual funding with a financial framework for the proposal preparation (participatory problem formulation) and for the evaluation of effectiveness after the end of the project (participatory impact evaluation).

Participation in science: an international perspective

Chairs: Mhairi Stewart (Museum für Naturkunde Berlin), Victoria Shennan (Museum für Naturkunde Berlin) & Wiebke Rössig (Berliner Hochschule für Technik)

The fourth working group, dealing with international perspectives on participation in academia which could be used to further develop and accelerate structures and concepts in Germany, began with four impulse talks. Wiebke Rössig presented the International Practice Community of Engagement and Participation in Science as a Resource and Call to Action, showcasing possibilities for joint action and cooperation in this field for a more open dialogue on science. Annette Klinkert (European Science Engagement Association; EUSEA) posed the question: 'Do we need a new definition of excellence to promote participation?' as part of a presentation on formulating new excellence criteria focused on openness and transparency. Benedikt Fecher (Alexander von Humboldt Institute for Internet and Society) pointed out three shortcomings in managing societal impact in Germany in a presentation on misplaced priorities in science communication. Additionally in: Accelerating the National Anchoring of Engagement. Where are the

drivers and pitfalls?, Mhairi Stewart gave an overview of relevant factors for sustainable science communication and public engagement.

These talks highlighted that current science communication in German research institutions is largely, with a few notable examples, limited to dissemination techniques such as broadcast and social media, press, science festivals, blog/podcasts etc. As a result of this, the advantages to the research, researchers, institutes and funders of dialogue with stakeholder groups that could contribute to shaping current research and future research questions are largely lost. The audiences reached are also often restricted to those already engaged with research and having high levels of science capital (Archer et al. 2015).

The support that institutions provide their researchers is almost entirely based on media distribution and dissemination. For this reason, German institutions and researchers often undertake activities with societal actors that are largely based on the deficit model of science communication.

In the second half of the first session, working group participants undertook an exercise in self-reflection using a technique derived from the EDGE tool (NCCPE 2017). Under nine headings, attendees were asked to rate the experience and current status of support for embedding public engagement and science communication in research culture in German institutions by the following stakeholders: institutional structures, senior management and funders. The options of ‘embryonic’, ‘developing’, ‘gripping’ and ‘embedded’ were described and discussed in groups and individual assessments made. While this tool was used as a reflection device in this workshop, it is a perfect example of an international resource that can be used to accelerate the embedding of high quality, impactful engagement in the German research culture.

The second session focused on challenges associated with researcher and institutional adoption of strategies in support of dialogue, potential strategies to overcome these barriers and global evidence bases that could be used to advocate for a change in research culture. These resources could provide more support for researchers to engage in dialogue and not just information dissemination. Attendees identified many barriers in the German academic system to a culture of embedded engagement in research practice, including:

1. fear of change;
2. lack of expert support for researchers in their institutions;
3. lack of recognition for researchers;
4. lack of dedicated funding; and
5. lack of value placed on non-academic knowledge.

The working group then reflected on ways to overcome these barriers and challenges, with a range of possible interventions. In particular, while considering the global knowledge bases which can be drawn upon in undertaking this work, areas were also

identified where there is a global lack of evidence. These are areas where there is potential to contribute to the science of science communication and public engagement.

Key results and outlook

Tailored participation leads to better results for every research project

At the conference, there was a consensus in favour of a broad concept of participatory research: participatory approaches can have epistemological benefits for all research projects, as long as the format chosen allows the modes of participation to be tailored to the specific needs of the discipline and research question. Not every research project needs to apply a co-creation approach. Nevertheless, initiating dialogue – even at a very basic level, such as a round table on a project's research findings – is a step towards a more democratic understanding of what research in academia could encompass. The community, with all its different backgrounds, shared a common mindset on promoting the involvement of non-academic actors in research.

The following common benefits of participatory approaches in science were identified, amongst others, at the conference:

1. democratisation of research for societal change;
2. empowerment of citizens;
3. evidence-based policy development;
4. improved scope and quality of data through researchers' access to more diverse datasets and innovations that are better adapted to users' perspectives;
5. better solutions to "wicked" societal problems by involving different actors and integrating their knowledge;
6. better insights into citizens' hopes and fears; and
7. increased access to non-formal training in research methods for citizens.

Many of the discussions in the working groups highlighted similar issues and needs for participatory research approaches in academia, such as the need for:

1. definitions and common concepts;
2. shared methodologies for implementing participation across disciplines and national borders;
3. advocacy for more appropriate working conditions and funding for researchers willing to engage with the public; and
4. appropriate evaluation that is able to show the benefits of participatory approaches – even if these become apparent only after a considerable time lag.

Participation research converges on research questions across disciplines

The conference identified the converging goals of participation researchers as:

1. to better understand the status quo of participatory research in Germany;
2. to identify factors that increase the quality of participation;
3. to reach new audiences with adapted methods; and
4. more generally to promote the diversity of projects and the depth of engagement for tailored participation in science.

One of the main aims of the conference was to map the participatory research landscape in Germany in order to understand and share knowledge about the definitions and terminology of the converging communities (e.g. citizen science, transdisciplinary research). To create such an overview, more long-term and overarching structures or points of contact for available data are needed. As discussed in working group 1, one of the main challenges in mapping the participatory landscape in Germany is the diversity of backgrounds and terminologies of the disciplines using participation, which makes people- or project-based mapping difficult – the different disciplines and approaches, such as citizen science, responsible research and innovation or transdisciplinary research, provide a better overview of the field.

Despite coming from various disciplinary backgrounds – be it practical or theoretical research on participation – the researchers who gathered at the conference shared a unifying objective: to improve the efficacy, targeting and accountability of participatory research. Future research in this field should thus prioritise the development of new adapted formats, alongside considerations of equitable and inclusive conditions for all research project participants.

Evaluation and assessment of outcomes and impacts has to further be researched. Participation is a complex process that cannot be measured by classical scientometrics measurements alone. There is a need for appropriate evaluation methods that are able to show the outcomes and benefits of participatory approaches – even if these only become apparent after a considerable delay. Quality criteria for the evaluation of bottom-up initiatives have to be developed as well – criteria that are truly able to capture and measure the societal impact of participatory projects. To this end, project-specific participatory quality criteria and indicators are still required in the field.

The discussion in working group 4 revealed that, in particular, public engagement and science communication are, far from being bidirectional, for academia and the public in Germany. The deficit model is mostly still in place – if research is communicated to the public at all. The conference attendees identified a need for more research comparing participation in academia internationally, as well as its evaluation across disciplines, if bidirectional communication and the development towards mode three knowledge production (Carayannis et al. 2016) is to be promoted in Germany.

Political positions and policy recommendations

The conference was not only an opportunity to network within the participatory research community, but also to reflect on the conditions under which participatory research can best take place. In policy, research approaches using participation are increasingly accepted for many of their benefits. This became visible both in the panel discussion statements and in the aforementioned strategy paper published by the Alliance later that year: The Alliance of Science Organisations in Germany (Allianz der Wissenschaftsorganisationen 2022) here expressed their commitment to actively support participation in academia where it promises added value for both research and society. At the same time, they highlighted that, for participation to bring such added value to research, several conditions must be met: participatory methods are not suitable for all types of research and not for all researchers. It was noted that not every field of research can be expected to use participation to the same extent or in the same way - emphasising the difference between applied and basic research. At the conference, it was generally agreed that mandating citizen participation in research is not appropriate for all projects and research. It was, however, stressed that researchers and scientists who do engage in participatory research make a valuable contribution and their efforts should be recognised, for example, in the recruitment of academic staff or the appointment of professors. The fact that the benefits of participating in academia do indeed require a significant investment of time and money was highlighted several times during the conference. The additional effort researchers make in a participatory process beyond their core research should, therefore, not only be recognised during recruitment, but lead to adapted funding schemes in Germany. Moreover, these benefits cannot only be created by researchers themselves. New professions specialising in the community work required in participatory research projects, such as public engagement or community managers, are emerging – but funding for and recognition of such positions are still scarce.

The conference was a first step towards finding a common voice and forum to discuss participatory research from multiple angles. It successfully brought together researchers, scientists, practitioners, policy-makers and funders from diverse disciplines, ranging from medicine and mobility to robotics and renewable energies. The world is full of complex and interconnected problems, known as wicked problems, that pose significant challenges for society. In order to navigate these challenges, it is important to harness the power of science and technology. One consensus that emerged was the importance of inclusivity. In order to effectively tackle these challenges, we must ensure that everyone has a voice and a role to play in the process.

The discussion on finding a common understanding of participatory research and mapping the German participatory landscape led further to the conclusion that a narrow definition of participation in academia would do more harm than good to a scientific community that wants to truly embrace the diversity of research and research methods.

A number of government representatives attended the event and received documentation after the conference. We believe the message was clear: more funding, recognition and training are needed for both practitioners and academic researchers in the field of participation, now that the political support and commitment is strong.

Next steps

Meanwhile, the network for participation in academia is flourishing: the next conference on 'Participation in Academia' will take place in Chemnitz, Germany, in November 2023. The German Society for Transdisciplinary and Participatory Research (in German: Gesellschaft für transdisziplinäre und partizipative Forschung), which was newly founded in March 2023 by – amongst others – members of the programme committee of this conference, will be an associate partner in the organisation of the conference.

Graphic recordings and video recording

Christine Oymann and her team of illustrators created the graphics for the different parts of the programme (Figs 1, 2, 3, 4, 5, 6).

The talks and panel discussions were live-streamed on https://www.youtube.com/watch?v=JrMD34MY0sQ and the video recording is now available here in Fig. 7 and on Zenodo (Schultka et al. 2022).

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Grant title

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Hosting institution

Museum für Naturkunde – Leibniz-Institute for Evolution and Biodiversity Science, Berlin, Germany

Author contributions

S.V.-H. and A.B. organised the conference and led the project, U.S. drafted the concept of the report, M.B.-N. coordinated the writing and editing process, M.S. drafted the text of her keynote speech, the chairs of the working groups drafted the summary of their sessions, all authors contributed to the drafting of the report, provided comments on the draft and approved the final version. M.B.-N. and S.V.-H. finalised the report.

Conflicts of interest

The authors have declared that no competing interests exist.

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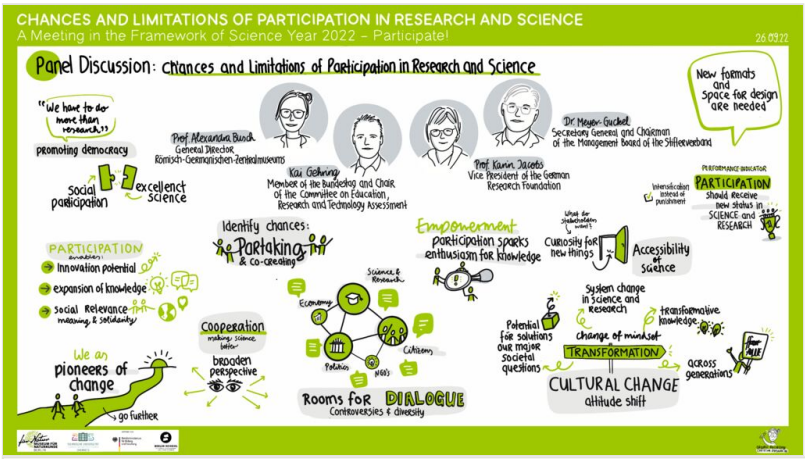

Figure 1.

The panel discussion on opportunities and limitations of participation in academia.

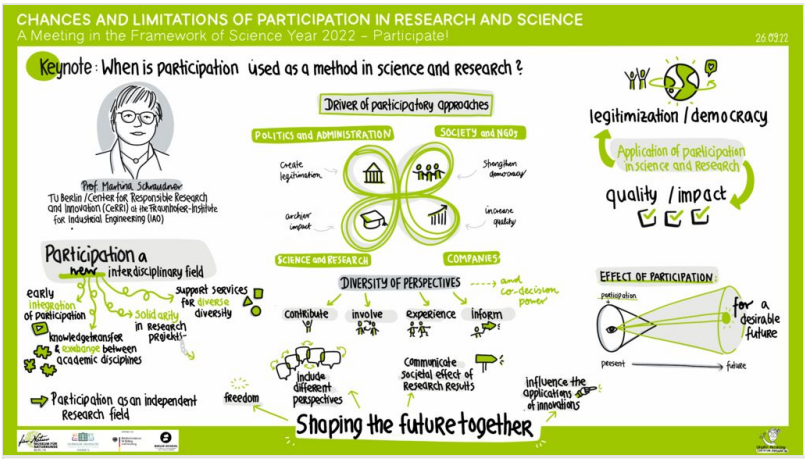

Figure 2.

The keynote by Martina Schraudner (Fraunhofer Institute for Industrial Engineering; Center for Responsible Research and Innovation, Berlin, Germany) on participation as a method in science and research.

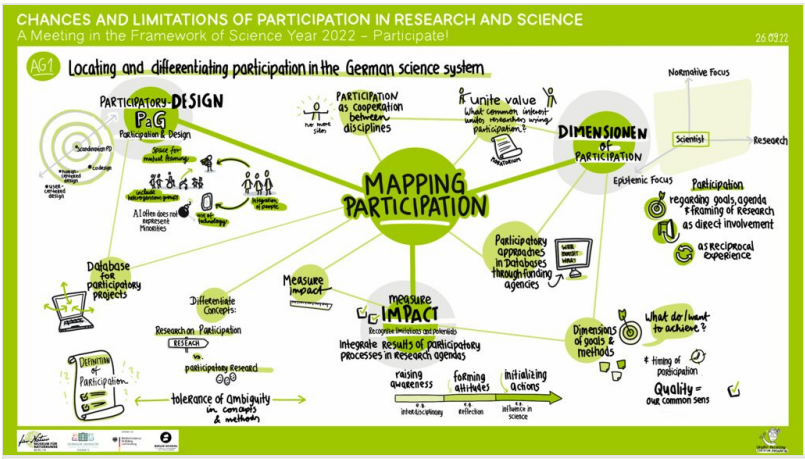

Figure 3.

Working group 1: Mapping participation: positioning and differentiating participation in the German science system.

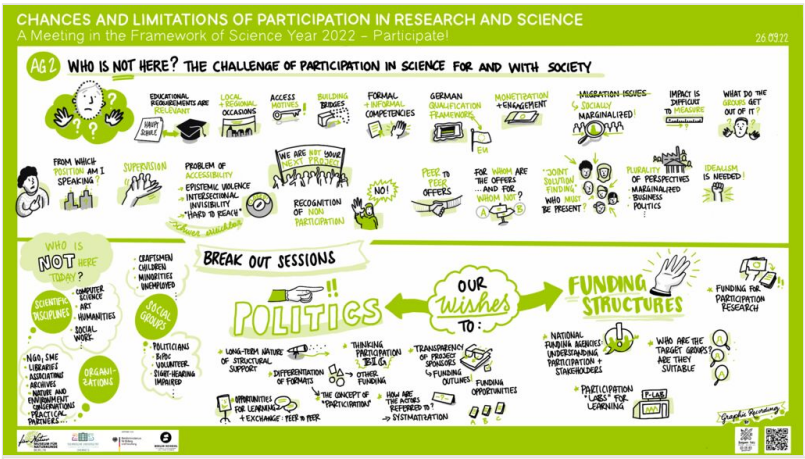

Figure 4.

Working group 2: Who does not participate? Challenges for participation in science for and by society.

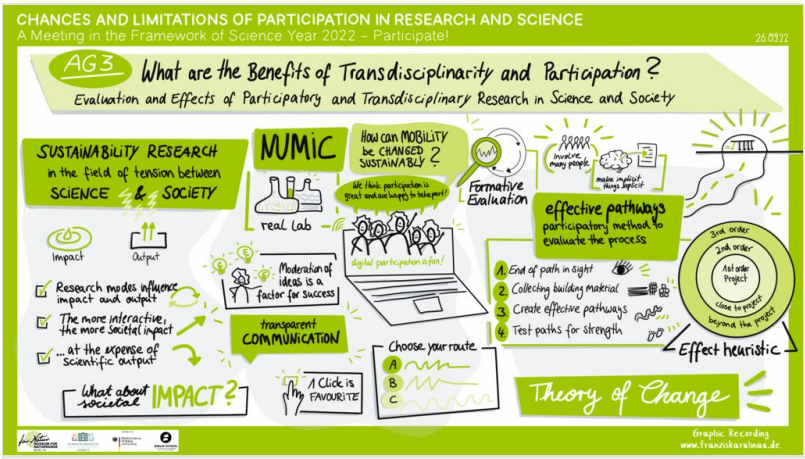

Figure 5.

Working group 3: What are the benefits of transdisciplinarity and participation? Evaluating the effects of participatory and transdisciplinary research in science and society.

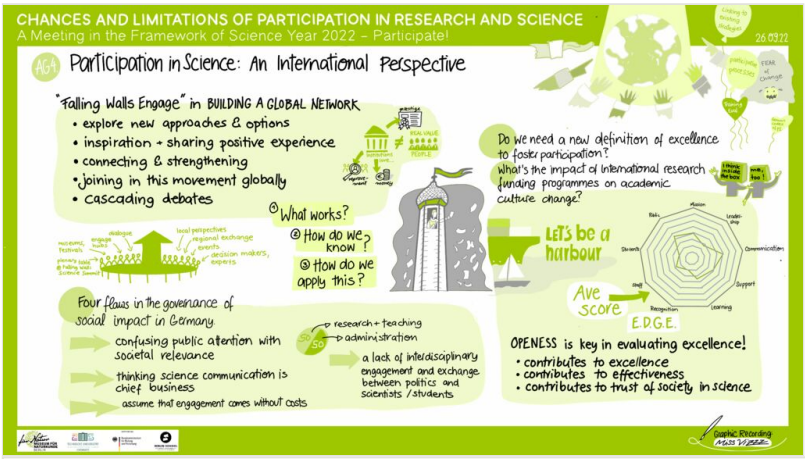

Figure 6.

Working group 4: Participation in science: an international perspective.

Figure 7.

The video recording of the panel discussion on opportunities and limitations of participation in academia. A MP4 version of this video was uploaded on Zenodo for long-term archival (Schultka et al. 2022).

Supplementary materials

Suppl. material 1: Programme of the conference (original copy)

Authors: Silke Voigt-Heucke, Andreas Bischof
Data type: Schedule
Download file (309.39 kb)

Suppl. material 2: Programme committee

Authors: Silke Voigt-Heucke, Andreas Bischof
Data type: List
Download file (71.08 kb)