CHAPTER FIVE

A Participatory Experiment in Science Policy

Results and Evaluation of the 'Publication System' Online Consultation

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1 Introduction

As part of developing its recommendations (BBAW 2015), the 'Future of the Scholarly Communication System' interdisciplinary working group (IWG) of the Berlin-Brandenburg Academy of Sciences (BBAW) conducted an online consultation. In this innovative online participatory approach, German-speaking scientists were invited to present their views on current problems and challenges in academic publishing and to formulate respective objectives. It was supposed to provide the IWG with input for developing recommendations. The goal of this chapter is to describe, reflect on and evaluate the experiences that were made with this participatory tool. This should provide insight into whether such an approach is in principle appropriate for gaining perspectives from within science, what the requirements are for such an approach and whether other areas of application and further development of the tool are conceivable.

The chapter is structured as follows. In the first section, the contexts in which the online consultation was set up will be described. The significant contexts are the working programme of the IWG, on the one hand, and the evaluation and decision-making procedures within the BBAW, on the other. In the second section, the goals and conceptual framework of the consultation

will be described. This includes the relevant characteristics of the procedure, the description of the two areas of consultation and the mobilisation strategy. The subsequent quantitative analysis of extent and composition of participants will provide information on who made use of the participatory offer. In the fourth section, the results of one consultation area, in which scientists were able to state their position on the principles of a good publication system will be summarised. Here it will be documented in which form the contributions of the participants influenced the recommendations. In the second consultation area, scientists were asked to provide indications of the problems and challenges of publishing. The fifth section briefly summarises the results. The sixth section attempts to give an evaluation of the overall approach. The chapter concludes with an outlook on possible future use of participatory approaches within science.

2 Setting up the 'Publication System' Online Consultation

2.1 Working programme of the IWG

As stated above, the objective of the IWG was to develop recommendations on the future of the scholarly publication system. For this purpose, four large dynamics, which are usually only looked at separately, and which the communication system is currently subject to, were to be analysed with respect to their mutual interactions. These are the diverse influences of processes of digitisation, an increasing observation of publication activities by means of bibliometric and user-based indicators, the economic orientation of academic publishers especially in the field of science, technology and medicine (STM), as well as the repercussions that result from the observation of science by the mass media (medialisation).

The working programme of the IWG brought the perspectives of three groups of actors together. During three hearings with experts, the IWG made itself familiar with the perspectives of academic publishers and libraries.[1] The perspectives of the most important group, the scientists, were revealed in interviews with representatives of different disciplines.[2] In view of the significant differences in the communication cultures of the different disciplines, as well as those between generations of researchers and the framework conditions, the limitations of this approach quickly became apparent. In order to reflect this diversity adequately, interviews would have needed to be conducted

1 The results are documented in chapters 3 and 4 of this volume.

2 See the chapter 2 by Konstanze Rosenbaum in this volume.

on a much broader scale than was possible in the context of the group. An alternative, however, was an online consultation.[3]

After hearing the three groups of actors and conducting the online consultation, the information gathered was summarised, evaluated and the recommendation text was formulated on this basis. In each session of the IWG, information on specific issues or challenges, such as access problems or unintended consequences of bibliometric indicators, were discussed and parts of the recommendation text were edited. After completing the recommendations, the aim was to publish them not as a group but in the name of the BBAW. For this purpose, the Academy has an evaluation and decision procedure (*Nostrifizierung*).[4] The president of the BBAW is presented with the results and assigns a group of reviewers. After the review process and possible revisions, the text is discussed among members of the BBAW in classes.[5] The board of the BBAW suggests to the council of the Academy whether to accept or reject the recommendations, which then decides.

3 Concept of the online consultation

3.1 Objective

In the online consultation, as many scientists as possible were addressed and given the opportunity to state their position on the issue. Participation served three purposes:[6]

Information: The most important objective by far was to mobilise the knowledge of scientists about the publication system of their discipline for the development of recommendations. This approach is in contrast to an expert-oriented approach in which specialists are interviewed about relevant issues, such as digital publication, open access and long-term archiving, and whose expertise is subsequently evaluated. The main differences are not only the number of persons involved in the process, but also the type of knowledge that is mobilised. While experts provide a systematic and often theory-

3 Participatory online approaches have emerged in Germany especially in urban and regional planning. See Märker and Wehner (2008: 84–85), Albrecht et al. (2008: 35) and Märker (2010: 48–49).

4 The concept usually relates to the recognition of academic and occupational certificates of foreign countries. Here it refers to the recognition of the results of a working group of the academy as scientifically and/or socially relevant and based on scientific standards (BBAW 2013).

5 Members of BBAW are assigned to five classes: humanities, social sciences, mathematics-natural sciences, biosciences-medicine, engineering sciences.

6 See Nanz and Fritsche (2012: 31–35, 120–123). The term 'consultation' should emphasise the significance of the function of information.

grounded knowledge, scientists have practical experiences in dealing with the communication system and the publication infrastructure of their discipline.

Legitimation: A second objective was to strengthen the perspective of science in handling the current challenges and shaping the scholarly communication system.[7] Taking such a position as an advocate for science is particularly in need of legitimation. Thus, scientists – as authors and recipients – should be involved as the group for whom the functional context of the communication system is of central importance.[8]

Implementation: By involving a large group of researchers, the scientific community was supposed to be made aware of the topic of the IWG and of the current problems within the communication system of science. The approach itself, the continuous public documentation of the results and their use, as well as publication of the recommendations, aimed to put emphasis on the challenges and problems, and to strengthen respective initiatives and activities.

3.2 Topic

The topic of the online consultation was the scholarly communication system which, according to the understanding of the IWG, has three analytical dimensions.[9] The *first dimension* includes all published communication by scientists, which addresses the scientific community and informs it about new discoveries and research results. In the literature, this is often called the formal communication system of science.[10] Aside from dissemination, this first dimension also includes registration, certification and archiving of reported research results.[11]

The *second dimension* involves technological components, such as publication media (for example, journals, monographs, anthologies, conference proceedings and review literature) as well as institutions that serve the production and use of publications and publication media (for example, newspaper databases, repositories, specialised databases, search engines, citation databases, and online

7 This objective is in line with the intention of the academy to provide advice to politics and society and to promote science. Cf. http://www.bbaw.de/die-akademie/aufgaben-und-ziele/staatsvertrag-pdf and the constitution of the Berlin-Brandenburg Academy of Sciences and Humanities of 14 August 2012 (http://www.bbaw.de/die-akademie/aufgaben-und-ziele/satzung-pdf).

8 Only in the section 'Principles of a good publication system' of the online consultation was it intended to achieve a consensus among the scientists. The idea was to achieve legitimacy by establishing a fair procedure in which all perspectives and interests could be articulated (Luhmann 1969).

9 A more detailed elaboration of this perspective on the formal communication of science is provided by Taubert (2016a; 2016b).

10 Gravey and Griffith (1967) and Whitley (1968).

11 For the functions of the formal scholarly communication system, see Kircz and Roosendaal (1996: 107–108), Andermann and Degkwitz (2004: 8), Hagenhoff et al. (2007: 8), Taubert (2016a) as well as Taubert and Weingart in this volume.

editorial management systems). Since, taken together, these components have the character of an infrastructure, they are also called publication infrastructure. Organisations responsible for developing and maintaining these technological items (libraries, publishing companies, editorial offices of journals, as well as research institutions and specialised societies) constitute a *third dimension* that could be called service organisations.

3.3 Characteristics of the participatory approach

In the following, the most important characteristics of the approach are described. One significant characteristic is the openness towards setting new topics on behalf of the participants. It was not the aim to ask about predetermined dimensions of the formal communication system. Instead, the approach was supposed to be open and to enable the participants to come up with topics they regard as being relevant, and to articulate new and unanticipated perspectives. In addition, the intention was to depict controversial issues and perspectives. Therefore, the procedure was designed in a dialogic manner.

Together with a provider for participation services,[12] an online platform was developed on which the consultation took place.[13] The platform consisted of two areas, which allowed different kinds of participation. In the first area – in the following termed Principles for a Good Scholarly Communication System (or 'Principles' in short) – the focus was on finding out whether there was a general consensus within science of what a desirable communication system would look like. In order to achieve such a consensus, it was considered necessary to focus the discussion and to provide pre-formulated, brief texts for discussion. The participating scientists were able to comment in this area on the six principles as presented and to provide their evaluation via supporting or rejecting votes.

The second area was to survey the participants' perspectives towards current challenges and problems of the formal communication system of science. Such problems could refer to science as a whole, such as, for example, general conditions with respect to copyright, as well as to individual disciplines. In order to enable the participants to address unpredicted topics and issues, this part of the consultation was characterised by a weak structure and openness. The Problems and Challenges area can probably best be described as a space for communication in which the participants were invited to formulate their problems to which other participants could then react. The platform allowed the

12 Zebralog (see http://www.zebralog.de).

13 This platform was available under http://www.publikationssystem.de until one year after the procedure had been completed.

participants to comment on the topics or, again, evaluate them via supporting or rejecting votes. In order to focus the contributions on the topic of the online consultation and to provide a starting point for the discussion, two things were done. On the one hand, example topics were indicated on a slider at the top of the website of the area. On the other hand, members of the IWG described problems and posted short descriptions at the beginning of the process in the consultation section. In order to create transparency, the authorship of the contributions was indicated. A search tool provided orientation in the collected contributions and topics and issues. During the online consultation, the collection seemed to become blurry. Therefore a tagging system was introduced, which helped the participants to navigate through the descriptions of problems and challenges.

A further characteristic of the procedure comprised low hurdles in terms of the accessibility and use of the platform. All participatory functions, with the exception of positive and negative votes, could be used anonymously without having to go through a registration process. The evaluation function was protected by a registration procedure to prevent individual participants from voting more than once and thus distorting the results.[14] In the course of the registration, the participants were asked to answer six personal questions voluntarily. These concerned their discipline, position, academic qualification, age, gender and institution. This information was surveyed in order to interpret the results of the procedure. Registered participants moreover had the opportunity to subscribe to a newsletter to stay informed about the further development of the procedure and the recommendations.[15] In addition, information on the procedure and its embedding in the process of developing recommendations was made available on the website where the rules (netiquette) of the online consultation were also described. The platform also had a 'Praise and Critique' forum in which participants were invited to give feedback on procedural aspects or were able to ask questions. Contributions that were posted on the platform were immediately visible to other participants. The moderation was restricted to keeping the rules of the procedure in place and to responding to emerging questions.

14 This made it more difficult for participants to vote more than once on each contribution but did not exclude this possibility entirely. Experience shows, however, that this protection was sufficient and there were no indications that there were multiple registrations of individual participants.

15 To avoid stressing the attention span of the participants, newsletters were sent out on two occasions during the online consultation. After the procedure had been completed, the subscribers of the newsletter were informed about the initial results, the publication of the evaluation report, and the publication of the recommendations.

3.4 Addressees, mobilisation strategy

As participants in the online consultation, German-speaking scientists from universities, non-university as well as privately funded research institutions were invited. In order to reach this group of addressees and to get them involved in the consultation, an extensive mobilisation strategy was pursued. The most important step here was the dissemination of invitation emails via mailing lists of research institutions and specialised societies. All research institutions in Germany as well as all German-speaking learned societies received emails and 205 scientific societies and research institutions agreed to disseminate the invitations.[16] In addition, an email mailing list with interested people was compiled, and Facebook and Twitter accounts were created where the process of the procedure was regularly documented. Furthermore, the online consultation was announced on websites and in print media that were related to science.

4 Extent of participation[17]

A total of 697 persons participated in the online consultation. A large majority of 651 persons registered while 46 persons chose the role of 'guests'. Of the registered participants, the majority (542 people = 83.3% of registered persons or 77.8% of all participants) were willing to provide information about themselves voluntarily. These data allowed a description of the composition of participants. A strong diversity was achieved in terms of age, highest qualification, position, and (to a limited extent) discipline. The opposite was the case for gender and type of research organisation.

- The age groups 30–39, 40–49 and 50–59 each represented one quarter of the participants. The age groups 20–29 and 60–69 were each represented by a little more than 9%.
- Highest qualification: 21.7% of the participants held an academic degree, 46.2% a doctoral degree, and 32.2% a habilitation.[18]
- Position: 34.7% of the participants had a professorship, 40.4% worked as research assistants or lecturers, 6.9% were doctoral students and 17.9% had some other position.

16 For the list of organisations that supported the online consultation, see Taubert and Schön (2014: 124 ff.).

17 The results of the online consultation are also described in Taubert and Schön (2015).

18 The highest qualification level attainable through a process of a university examination in German-speaking countries.

- The humanities and social sciences were represented by 43.1%, the life sciences by 26.1% and the natural sciences by 21.5%. Of the participants, 9.3% were from engineering sciences.
- Gender: 74.7% were men and 25.3% women.
- Research organisations: The majority was employed at universities (66.9%). A significant part of the contributors also came from the Leibniz Society (9%), Max Planck Institutes (4.3%) and Helmholtz Research Centres (3.1%).

In summary, it can be said that the desired diversity in the group of participants was achieved. In the interpretation of the results, it was taken into account that the humanities and social sciences were strongly represented and that the online consultation predominantly reflected the perspectives of male participants employed at universities. Overall, the participants contributed valuable input for the development of recommendations, with reports on problems and challenges, 527 comments and 2 884 votes.

5 Results from the 'Principles' area

In this section, the results from the Principles for a Good Scholarly Communication System ('Principles') consultation area and their influence on the recommendations are described. The principles for a good scholarly communication system discussed here were taken into account in the formulation of the final recommendation and represent an important pillar of the argument (BBAW 2015: 22–27). On the one hand, these principles formed the normative basis for evaluating characteristics as well as structures and mechanisms of the publication system as problematic or ripe for change. On the other hand, the principles provided orientation for desirable directions of development. In the next section, we briefly contrast the original formulation of the principles, the feedback of those involved in the consultation and the final version of the recommendations. This will make the influence of the feedback from the online consultation on this part of the recommendations visible. It has to be taken into account that the brief principles are supplemented by explanatory texts in the final version, which also explains the relationship between the principles. Due to limitations of space, they were omitted here.

Principle 1 Freedom of scientific exchange

> The scholarly publication system should be oriented along the principle that it supports the free exchange of research results and scientific knowledge in

> the best possible way. Access barriers should be as low as possible, so that every interested person can participate in the publication system.

Of the 245 votes cast on this principle, 96.7% agreed and only a small number of 3.3% rejected the principle. In the comments, there were only very few requests for change/adaptation. It was questioned whether participation here should refer to the role of the reader, the reviewer or the author. In addition, it was controversially discussed what is meant by 'access barriers as low as possible' and how this could be put into practice. The final version of the recommendations is in line with the original formulation, albeit much briefer. The requested clarification was taken into account in the explanatory passages. The scholarly publication system should support the free exchange of research results.

Principle 2 Self-regulation by science/Self-regulation of quality

> The exchange of research results should be determined by the criteria of the respective disciplines. The quality of a contribution should be defined solely through science itself and not through the influence of other factors – such as the public perception or monetary factors.

A full 85.6% of the 229 votes were in favour of this principle. The relatively large number of negative votes (14.4%), however, indicated that there was need for revision. This concerned the unit that steered the exchange, which was not always adequately termed 'discipline' or 'subject'. Second, it was discussed to which aspect 'self-regulation' referred. This is clear with regard to 'quality' but not with respect to 'relevance'. Third, participants were asked to explain which processes are precisely meant by 'self-regulation'. The final version took these reservations into account, the principle was limited to the self-regulation of quality and a broader formulation was chosen for the steering unit.

> The quality of published research results should be defined by the criteria of the respective fields of knowledge and not by the influence of other factors – such as a specific media public or monetary incentive.

Principle 3 Choice (of medium)

> The choice to publish as well as the choice about the adequate medium of publication should solely lie with the scientists responsible for the research

> results. A precondition is a plurality of publication media and the absence of strong mandates to publish in a certain medium.

Of the 203 votes, 84.7% were in favour of this principle, and the comments indicated that the principle was formulated comprehensively. A large number of comments and 15.3% of negative votes, however, indicated that there was disagreement. The participants were split with respect to the question whether the principle of choice should have its limitations in an obligation to publish open access. Here, choice and free accessibility were viewed very differently. Moreover, it was pointed out that restrictions of the principle of choice must not influence the mechanisms of recognising achievements in research. In the final version, all of this was taken into account. The final recommendation does not refer to an obligation of publishing open access, and does not exclude a limitation in the freedom of choice by a respective regulation.

> In principle, the choice to publish as well as the choice of the appropriate medium of publication should lie with the scientists responsible for the research results. A precondition is a plurality of publication media and the absence of strong mandates to publish in a specific medium.

Principle 4 Sustainability/Permanent accessibility

> With regard to publications, the goal is first of all to have permanent access as open as possible. This requires a reliable archiving of publications. Concerning the media of publication, this also means that the operation is permanently secured and that there are possibilities for change.

'Sustainability' received 98.6% (of 214 votes) positive votes. The basic formulation, however, was criticised. The discussion focused on the implementation of this principle. In the final version, the principle was therefore changed to 'permanent accessibility':

> Open and permanent accessibility of scientific publications should be ensured.

Principle 5 Transparency of funding/Competitiveness

> The scientific publication system is financed largely by public funds. The recipients of these funds, therefore, need to lay open their extent and form

> of use. This concerns all recipients and, aside from the researchers, includes libraries, publishing companies, scientific societies and research organisations.

Of 191 votes, 16.2% rejected this principle. Together with the critical comments, this indicated a need for revisions. In the discussion, participants were first asked to clarify what the demand for transparency precisely refers to. Second, the benefit of transparency should be considered in relation to the resulting effort in documentation. Third, the generality of the principle was criticised, and it was pointed out that in using public funds, the state had an obligation towards the taxpayer, but enterprises do not have an obligation towards the state. Therefore, the demand for transparency could not refer to the 'use' of funds by the recipients.

Due to the clear and plausible criticism of the principle, the working group considered the general direction of the principle and a change of focus. The aspect of transparency was no longer addressed. Rather, the focus was on competition on the market for privately produced and publicly financed services in connection with scientific publication.

> Within the chain of production of publications, part of the services are done by private enterprises and financed by public trusts. In order to prevent inflated prices, securing a functioning, competitive market for such services is a public task.

Principle 6 Efficiency of resources/Saving of time resources

> The scientific publication system should use resources in an efficient manner. It should only use as many resources as it needs to be successful. Efficiency of resources refers to the monetary resources necessary for the operation as well as the voluntary resource of time provided by the researchers in the role of author, reader, editor and reviewer.

The largest rate of rejection (29.8% of 171 votes) concerned the principle 'efficiency of resources'. The main criticism was that the principle was too vague, the definition too imprecise, as well as the aspect of efficiency. A large number of comments referring to superfluous work phases in the production process of publications indicated, however, agreement with part of the objective of the principle. In the recommendations, the principle was redefined as 'saving of time resources'.

The framework conditions of the scientific publication system should be designed in such a way that the working time of scientists is not unnecessarily increased.

6 Results from the 'Problems and Challenges' area

In this second area of the consultation that focused on participants' perspectives towards current challenges and problems of the formal communication system of science, the participants discussed 124 problems and challenges, which covered a broad thematic spectrum. A large number of the contributions can be assigned to one of the following eight fields.

1. *Printed and digital publication:* One topic was the basic technologies of the publication media, print and digital technologies. Among the participants there were advocates for both whereas the positions strongly corresponded to the areas of science in which they worked. In the natural and life sciences, there seemed to be a preference towards electronic publication. In the humanities, scientists seemed to like both. The discussion made clear that the preference did not only result from habits of accessing or receiving but also from different attitudes towards the problem of long-term archiving, different understandings of 'good accessibility' and diverging patterns of ascribing quality to media of publication.
2. *Business models of the publishing companies:* The business practices of particularly the large publishers in the fields of STM were another major focus in the online consultation. Criticism of the business models referred to the costs of journal subscriptions, the revenues generated in this area and the structural problems of the market for scientific publications. As a result of the high prices, access problems were reported, which were especially apparent at locations that were financially weaker. Moreover, other interested people, such as experts, the interested public and journalists, were partly excluded from having access to publications. The business models were problematic in the humanities and social sciences since the licensing fees in STM bind large parts of the library budget, thus having a negative effect on literature in terms of monographs and anthologies. Suggestions by the participants on how to solve this problem mainly aimed at a weakening of the publishers' position and asking for a structural change.
3. *Open access:* This area shows strong reference to the preceding one. The majority of contributions welcomed the free accessibility of publications on behalf of the recipients. Two types of arguments supported this

position: research that is publicly funded should also be publicly available, and open access has the potential to increase the dynamics of science and to improve the transfer of knowledge into fields of practice. In addition, advantages and disadvantages of the different types of open access (green and gold) were evaluated. It is worth noting that especially the gold open access model, financed by publication fees, was criticised.

4. *Indicator-based performance evaluation:* The basic tendency of contributions in this field was critical or even disapproving. Criticism was aimed at the pressure to publish, which leads to splitting research results into as many publications as possible, a growth in the number of publications, and a decrease in substance and quality of publications. A broad spectrum of perspectives can be found regarding the question of the role publication-based performance indicators should play in the future. This ranges from a basic critique to a call for reform to a position that advocates further development of the indicators. The complexity of the discussion resulted from the fact that three fields of application were discussed simultaneously: the use of performance-oriented allocation of funds, the context of recruiting procedures, and the evaluation of project proposals.
5. *Authorship:* Here, the focus was on the question according to which rules authorship should be allocated. The perspectives can be summarised as four types of understanding authorship: writing (i.e. cooperating in writing the text), exclusive (i.e. cooperating in all phases of knowledge production), inclusive (i.e. cooperating in one phase of knowledge production), or documenting (i.e. documenting precisely the type of contribution). It is noteworthy that the discussion almost exclusively revolved around the question of a fair attribution of performance, disregarding other aspects entirely. This could be due to the publication-based measurement of performance and the resulting significance of (first) authorship.
6. *Peer review:* Here the focus was on two areas. First, there were the problems in review procedures of journals. Participants mentioned problems in quality which, in part, were attributed to the growth of the number of publications and to a lack of care on behalf of reviewers. Second, suggestions were made for the reorganisation of the procedure on the basis of digital technologies. The digital network of all those involved in the review process would provide the opportunity to experiment with the new forms of open peer review and open discussion. The objective then is to improve the old procedures (single-blind/double-blind peer review).
7. *Publication bias:* Research results that do not confirm a hypothesis are more likely not to get published than results which proved a connection or an effect. To solve this problem, different measures are considered,

such as the introduction of a two-phase review procedure or the establishment of a second level of publication in addition to journals for the often-rejected null results.

8. *Research data:* In addition to the advantages of accessibility of research data – such as the improvement of comprehensibility and an increase of trust in publications – the focus here is on the outstanding tasks of developing a particular infrastructure. Aside from creating sustainably financed research data repositories, the development of routines in archiving and establishment of standards, the necessity of developmental processes within science is also emphasised. The willingness to publish research data often only exists if there are corresponding mechanisms of acknowledging publications of data.

In comparison to the Principles area, transferring the output of the Problems and Challenges area into the work of the IWG turned out be more difficult. It became obvious that it would be impossible to take all of the issues into account in the final recommendation text. Therefore, it was decided to concentrate on five issues that the IWG considered to be of significance as these were largely commented on in the online discussion as well. These were prices and costs, resulting access problems, the archiving of electronic publications, wrong incentives due to indicator-based performance measurement, and the growth of the number of publications. The description of these problems in the recommendation text (BBAW 2015: 28–34) is mainly based on the online consultation and the first four issues in the list above, as well as on other sources of information. The recommendations (BBAW 2015: 35–50) also dealt with many aspects and suggestions that were mentioned in the Problems and Challenges area. Still, although an effort was made to integrate as many aspects as possible and to take into account different perspectives, processing the input of this area was more indirect than the first one.

7 Role model or failed experiment? Evaluating the online consultation

In conclusion, some points on the evaluation of the procedure should be made. In order to prevent any misunderstanding, it has to be noted that this is not about results of a formal evaluation. Rather, strengths and weaknesses of the procedure should be discussed based on the experiences. It should not be concealed that the authors of this contribution were also advocates for the online consultation and they were also the ones who carried it out. An impartial observer may therefore come to a different conclusion. There is still no acknowledged set of evaluation criteria to assess success or failure of such an

innovative, non-standardised (Nanz & Fritsche 2012: 90) online participatory approach. Thus, it seems appropriate to assess the online consultation with respect to its own standard and objectives.[19] These were, as described at the beginning, the functions of information, legitimation and implementation.

With regard to the information function, it should be asked whether the online consultation represented the practical experiences and diverse perspectives of scientists. Furthermore, to what extent was this knowledge successfully taken into account in the development and acceptance of the recommendations?

Regarding the execution of the procedure, the target group of researchers could be reached, and the mobilised knowledge was indeed mainly practical knowledge of people who used the publication infrastructure of their respective disciplines as authors and recipients. The objective to reach a plurality of perspectives was also achieved. A total of 124 descriptions of problems and challenges, 527 comments and 2 884 votes provided a large variety of perspectives. Participation was thus sufficient to depict diverse aspects and different arguments, and was not too divergent to prevent consideration of the individual accounts. Moreover, the contributions were all thematically relevant and the tone was, except for a few cases, rational.

Comparing participation in the two areas, there is a striking difference. In Principles for a Good Scholarly Communication System, the predetermined statements provided by the IWG led to longer discussions that were also related to each other. In the Problems and Challenges area, intensive discussions only occurred on controversial issues. Together with the large thematic diversity, this made the evaluation of this area more difficult.

In general, it can be said that the contributions of the online consultation were compressed into longer texts that were the basis for the IWG sessions. Dealing with the results, however, varied. While criticism and suggestions could be taken into account for the Principles area, the diversity of issues discussed in the second consultation area made it necessary to set a certain focus. Thus, some interesting discussions could not be pursued. These experiences suggest that it would have been better to limit the themes discussed in the consultation.

With regard to the function of legitimation, the question is whether the online consultation has contributed to the perception of the recommendations as a contribution to the debate about the future of academic publishing, i.e. that it speaks for an important part of the scientific community. This question

19 The evaluation on the basis of the achievement of objectives has already occurred in another participation exercise (Taubert et al. 2012: 31–35). Such a goal-oriented evaluation is appropriate in the case of individual exercises and avoids the controversial discussions about general evaluation criteria. See Kersting (2008: 283) and Hebestreit (2013: 173–194).

cannot be answered fully here.[20] The experience in the course of adoption of the recommendations within the BBAW indicated that the legitimating effect of such a participatory approach should be viewed with caution. During this process, a small group of members from the humanities protested against the tone of the recommendation text as presented, which hinted at a preference for digital over printed publication. In the course of the discussion, it became obvious that neither the opportunity of participation nor the fact that the tenor of the recommendations reflected the opinions of the participants of the online consultation developed any legitimating effect.

The greatest weakness of the process was revealed by the fact that the changes of the recommendations were a result of micro-political negotiations rather than the online consultation. The participatory approach and the decision-making process within the Academy were not in line with each other. During the development of the recommendations by the IWG, the absence of formal rules could be compensated by the fact that the IWG stood behind the procedure and was willing to deal with the results. Such willingness could not be observed in the committees of the BBAW in which the online consultation was perceived from a distance.

The question to which extent the consultation was able to focus attention on challenges and questions on how to shape the formal communication system of science (implementation) can also not be answered fully. More than 8 500 visitors[21] of the online platform, more than 550 visitors of a presentation with initial results of the procedure and overall 10 invited lectures at conferences of scientific societies and research in different fields of study institutions indicate a certain response. It should be noted, however, that the Publication System Online Consultation is part of a much larger discourse about the future of academic publishing that has been going on for quite a while and at various locations. The same goes for the recommendations that emerged from the procedure, at least in part. They are part of a series of recommendations and science policy papers on that topic that have been released at local, national, international and global level.

8 Outlook

The evaluation of the 'Publication System' Online Consultation arrived at a mixed result. The practicality of such an approach in science could be demonstrated.

20 An analysis of the perceptions of the recommendations on behalf of the addressees would be necessary.

21 See http://de.slideshare.net/ntaubert/onlinekonsultation-publikationssystem-zwischenstand-auswertung.

In particular, the initial assumption was corroborated that such a procedure would be appropriate for science since the addressees were reachable through scientific societies and research institutions and used to respond to complex issues and problems. On the other hand, the requirement to embed such a procedure in the process of developing and passing recommendations became obvious, and was not always met. Moreover, the online consultation would have benefitted from a stronger structure with respect to issues in the second consultation area. These deficits, however, do not represent basic problems that would speak against using such a procedure, but could contribute to developing further participatory approaches in future.

Therefore, the final question should be in which fields of science such a procedure could be applied. There are at least three.

1. *Science policy:* First, an online dialogue could be used to develop science policy recommendations, strategies, declarations and positioning papers, which take up feedback from scientists. As in the 'Publication System' Online Consultation, the function of information, which aims at surveying and focusing on the diversity of perspectives within science, would be at the core.
2. *Research evaluation:* A second potential field of application could be processes of research evaluation as long as they refer to larger units, such as entire disciplines or types of research organisations. Involving the evaluated scientists could, for example, contribute to the acceptance of the evaluation results. Here the function of legitimation would be at the core.
3. *Research funding programmes:* Online participatory approaches could contribute to assessing the need for larger research funding programmes like collaborative research centres or priority programmes. The participation of potential future applicants could help to coordinate the individual research interests and may contribute to the development of suitable programmes for the respective fields of study.

Especially in the latter two fields of application, a high willingness to participate is likely since these issues are of immediate relevance for researchers.

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