LIBER QUARTERLY
The Journal of the Association of European Research Libraries
Vol. 28, (2018) xx–xx | e-ISSN: 2213-056X

A New Trend in Media and Library Collaboration within Citizen Science? The Case of 'A Healthier Funen'

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Abstract

Beginning in 2017 three major institutions on the island of Funen, Denmark, collaborated on a Citizen Science project: "A Healthier Funen" (AHF). The partners were a university, a university hospital and a regional broadcaster. The project invokes citizens to vote for the allocation of research funding.

In the case study presented here, we analyze the Citizen Science aspects of AHF and the roles of libraries as collaborators, we examine the results and the reach of the project, and we argue that this strand of Citizen Science could be a possible new trend for Library, Faculty and media collaboration.

Seen against the background of the scope and definitions of Open Science and LIBER's Open Science Roadmap, the case of AHF suggests that the field of Citizen Science bears great potential in regard of providing a new level of innovation for Libraries: through a collaborative professional approach to science communication, libraries can assume a strategic role together with the Faculty staff.

In the context of reciprocality within Citizen Science, the Library can build skills for engaging in projects, adopt toolkits or models, as well as

Uopen Journals | http://liberquarterly.eu/ | DOI: 10.18352/lq.10248

participate in the recruitment and retention processes for staff/volunteers, participate in marketing activities and promote a positive attitude towards Citizen Science, thus creating an increased Public Understanding of Science, as the underlying public service criteria are seen in at least 31 countries.

Key Words: Citizen Science; roles of libraries; library strategy; innovation; library/media collaboration; social impact

1. Introduction

Beginning in 2017 three major institutions on the island of Funen, Denmark, collaborated on a Citizen Science project called "A Healthier Funen" (AHF). The collaborators were the University of Southern Denmark (SDU), Odense University Hospital (OUH), and TV2/Fyn, a major regional broadcaster. The project invoked citizens to vote for the allocation of research funding and has proved to offer a promising new method in Media-Library collaboration and in empowering the general public. AHF was launched a second time in April 2018.

The project is part of the activities of the Citizen Science Network at SDU, where the University Library holds joint leadership with the Faculty of Health Sciences, thus paving a possible new path for libraries. Based on 2 years of results from the project, the purpose of this case study is three-fold: (1) to briefly outline the scope and field of Open Science and analyze the Citizen Science aspects of AHF and the roles of libraries as collaborators, (2) to examine the results and the reach of the project, and finally (3) to discuss whether this type of Citizen Science is a possible new trend in Library and Media collaboration.

Based on the empirical and theoretical findings within the field of Citizen Science, an integrated part of Open Science, AHF can be seen as a possible new bridge between researchers and the Library.

2. The Field of Citizen Science and the Role of Libraries

This story begins at the LIBER Conference at Patras in 2017. At that point in time, the Conference Planning Committee organized a strategic café, where

Citizen Science was discussed among many other themes. Participants were handed small gluey green and red dots and could vote on the relevance of the various subjects on big posters. As AHF had premiered only a few months before and the layout of a Citizen Science Network at SDU was emerging, the authors curiously hovered beside the Citizen Science poster.

The experience was confounding, and this for a number of reasons. Firstly, the poster by anecdotal evidence got the highest number of votes among all the posters at the café. Secondly, a lot of the dots were red. And thirdly, there was a great deal of confusion about what Citizen Science actually is, whether it could be regarded as "science," and whether it is just another hip term for, e.g. crowdsourcing (seen for decades in national archives and libraries). I.e. if Citizen Science actually represented an original new trend, and whether it could possibly fit into the Library landscape ("we already have Open Access, you know, and now *this* too!").

With the authors on hand eager to help define Citizen Science, discussions broke out, some even bordering on a mild degree of hostility (something not often seen in the library sector, or maybe the late and hot afternoon hour or the cocktails served at the café was the culprit).

2.1. Open Science

Fast forward to a year later. At the 2018 conference in Lille, LIBER presented its Open Science Roadmap with Citizen Science playing an integral strategic part.

The rationale behind Open Science is complex, but one of its main arguments is sociological: that scientific knowledge is seen as a product of social collaboration and its ownership belongs to the community. There are multiple approaches to the term and definitions, and Fecher and Friesike (2013) have proposed five Open Science schools of thought in the form of Pragmatism, Infrastructure, Measurement, The Public, and Democracy.

This plays in handily with other key definitions and policy programmes. The European Commission (2016) has made a strong push for Open Science in the form of democratization of research, transparent replicable research, new disciplines and new research topics, which in casu could promote a symbiosis of science, society and policy.

A large number of European universities agree that Open Science can harvest great benefits. However, at the same time the need for a cultural change is identified. Universities, therefore, are encouraged to establish advocacy programmes whilst being realistic about the challenges. As stated by LERU, institutions may want to draw up a communication strategy, which enables the whole university body to become familiar with Open Science practices, and accordingly appoint a senior manager to lead Open Science approaches across all pillars of Open Science (Ayris, López de San Román, Maes, & Labastida, 2018, p. 22).

2.2. Open Science Roadmap

The LIBER Roadmap is built on this solid strategic foundation (Grant, 2018, pp. 3–4), and this is also the case for Citizen Science. The Roadmap, e.g. advocates turning the library into a working environment, especially for students and citizen scientists, developing training programmes and guidelines that support the entire Open Science ecosystem as well as covering key concepts such as Open Access, FAIR Data, metadata and data management and Citizen Science (Grant, 2018, Focus areas 4–5).

But Citizen Science is founded more deeply on the Open Science movement. The EU white paper on Citizen Science was published several years ago (Socientize, 2014), the League of European Research Universities has made its recommendations (Grey, Wyler, & Fröhlich, 2016), The Horizon 2020 call "Science with and for Society" has recently published a number of grants for Citizen Science (Horizon 2020, 2018) and furthermore – at least in Denmark – there seems to be a growing trend towards social impact (Danish Ministry of Higher Education and Science, 2018).

Accordingly, Ayris and Ignat (2018) have proposed a number of ways in which research libraries can contribute to Citizen Science. They include building skills for engaging in Citizen Science projects, adopting a toolkit for developing Citizen Science projects, building a collection of protocols, data forms, educational materials contributing to FAIR open data as well as offering infrastructure (Ayris & Ignat, 2018, pp. 18–19). It is within this emerging landscape that AHF may be seen.

2.3. The Field of Citizen Science

But what is Citizen Science, exactly? Although perhaps 10–15 years of age, it can still be regarded as an emerging and diverse scientific practice, encompassing various forms, depths and aims of collaboration between citizens and researchers, covering a broad range of scientific disciplines. There are numerous definitions and one of the more common ones is seen in the EU white paper:

> "Citizen Science refers to the general public engagement in scientific research activities when citizens actively contribute to science either with their intellectual effort or surrounding knowledge or with their tools and resources" (Societize, 2014).

However, for a more comprehensive understanding with regard to the case of AHF, we include Lewenstein (2004), Bonney et al. (2009), Bonney, Philips, Ballard and Enck (2016) as well as Golumbic, Orr, Baram-Tsabari and Fishbain (2017).

Bonney et al. (2009) suggest a theory or definition including contributory, collaborative and co-created projects. In a study of scientist's engagement in Citizen Science, Golumbic et al. (2017) suggest three characteristics revealed by the researchers themselves and the current literature in the form of inclusion, contribution and reciprocality. This definition seems to be in close relation to Lewenstein's original theory of the participation and engagement of non-scientists and scientists, including the decision-making and democratic processes (Lewenstein, 2004, p. 1), but with regard to the aspects of reciprocality Golumbic et al. (2017) include dissemination of scientific information to the public as potentially valuable, as it can serve as an important factor in science communication and in raising Public Understanding of Science (Bonney et al., 2016; Golumbic et al., 2017, p. 3; Riesch, Potter, & Davies, 2013) as well as Public Engagement of Science (Brossard & Lewenstein, 2009). As AHF includes an external media partner, this dimension seems particularly relevant for that project.

When looking at the DNA of Open Science (in Section 2.1), Citizen Science is not only one of the pillars, but it is also integrated in before mentioned

Fecher and Friesike's (2013) Public School by making science accessible to the public. However, Citizen Science seems to hold a larger potential. Although not included in the author's proposed Democratic School, the case could be made that the string of Citizens Science within reciprocality could potentially boost this area and expand Open Science. The Democratic School includes a focus on dissemination of scientific information to the public in direct line with the values identified in Public Understanding of Science as well as Public Engagement with Science, as this line of thinking furthermore aims at making knowledge available for everyone in direct accordance to e.g. The European Commission (2016).

Building on this strategic, empirical and theoretical foundation, hundreds if not thousands of Citizen Science projects have emerged in the last few years. It is quite impossible to mention them all, but suffice it to say that e.g. the web-based gaming project Eyewire has 130,000 participants from 130 countries (Tinati, Luczak-Roesch, Simperl, & Hall, 2017) just as The Zooniverse from Oxford University last year reached 100 projects and mentions the participation of hundreds of thousands of volunteers worldwide.[1]

In that context, AHF could be seen as a somewhat radical idea of collaboration within Citizen Science that could be ripe for exploration by European research libraries.

3. The Case of 'A Healthier Funen'

Funen is an island in the middle of Denmark with 496,413 citizens,[2] one university (SDU), one university hospital (OUH) and several media outlets including TV2/Fyn, which is a major regional broadcaster. There is a well-established strong collaboration between the university and the university hospital with shared tenured appointments and a vast number of research projects; in the last few years partnerships between the media and the university have been formed, primarily including the School of Journalism and the University Library, as a response to e.g. Fake News and the boosting of democratic values.

In accordance both SDU and OUH felt that more dialogue and communication with the public could minimize the use of alternative facts and Fake News and strengthen the trust in research and its results. Thus Citizen Science

emerged as a possible new way to engage local citizens in research. As the result of a workshop held in October 2016 with TV2/Fyn, AHF was conceptualized as a strategic partnership and a potential Citizen Science model for engaging citizens in Health Sciences, for the prioritization of research and as a potential booster of democratic debate and values.

The project allows citizens to vote for funding for research. In practice the Research Council at OUH channels 1 mill. DKK (app. 135,000 EUR) for projects that live up to the criteria of (1) Quality in research, (2) research collaboration between SDU and OUH, (3) that are communicable, and (4) include Citizen Science elements like the possibility for citizens to participate with data, or the involvement of citizens/groups of patients in each individual research project.

3.1. The Goals

Beginning in 2017 there were several goals or criteria to be met with regard to a successful outcome and continuation of AHF.

Firstly, based on the criteria of the Research Council, four to five research projects had according to the peer review process the standard and quality needed to enter the competition part of AHF. As mentioned, OUH provides funding and the peer-review of projects.

Secondly, AHF is designed as a two-way dialogue with the public in the design of a campaign for 2 weeks in April. SDU – including the Library – handles project management. TV2/Fyn is responsible for communicating AHF through their various channels and platforms (flow tv, website, and social media) and is responsible for the voting system. During the campaign various public events are held, and all participating research projects get similar exposure. In the end the research project with the highest number of votes wins the grand prize which is handed out at an award show.

With that in mind, during meetings in the Steering Committee with members of the upper level management from all partners, it was cautiously suggested that the accumulation of 1,000 votes should be achieved. Furthermore, the benchmarks were set to obtaining a result vaguely described as "above average reach and dialogue" compared to other Citizen Science projects as well as to hosting a live award show with 250 guests, broadcasted live on regional television.

Third, and perhaps most important, the goal was to test a new concept or model for public participation in research, with the underlying agenda to see whether it was possible for the partners to work together. The project seems unique in the sense that, although there is a strong peer-to-peer evaluation of the mentioned criteria, it takes away the power of Health Science professionals and politicians in the prioritization of research. Furthermore, the participating researchers were subject to a thorough communication training process in the hands of media professionals with no background in Health Science. And finally, neither OUH nor SDU received from the media partner advance guarantees for a certain amount of content based on specific themes, as is often seen in a perhaps more traditionalistic dialogue with academia and the media. It all depended on the process and not least on the public.

3.2. The Results: The Response and Reach

When looking first at the three overall goals, it proved possible to attract quality research projects for both the 2017 and 2018 editions.

With that in mind all partners in the project were initially curious – if not a little bit anxious – to see how the project would be received by the citizens, by their elected representatives and by the research community at large. Even though the numbers only show part of the story, the response from the public was quite overwhelming (see Table 1).

When dissecting the statistics it should be noted that, on advice from the media partner, the number of projects was reduced from five in 2017 to four

Table 1 Statistics and reach of A Healthier Funen.[a]

Category	2017	2018
Total reach	272,725	192,889
Views: showing of videos on Facebook +5 s	134,279	130,552
Views: readings of articles on webpage	44,003	51,517
Number of citizens voting	11,900	6,981

[a]The statistics are based on data from Facebook, Google Analytics and the providers for the online voting platforms. In 2018 voting was done by text/sms minimizing potential double voting but also making voting more difficult than the online voting system the year before.

in 2018 in order to create a stronger focus on the individual projects and researchers, thus limiting the number of broadcasts, news articles, videos, social media postings, etc. Furthermore, between 2017 and 2018 Facebook implemented a new algorithm in the process limiting the total reach for projects or campaigns like AHF.[3]

In both 2017 and 2018 the campaign relied quite heavily on journalistic formats creating dialogue and discussion between researchers and the public, thus promoting views that were not necessarily in accordance with the direct scope and focus of research projects but leaving them – and the project in general – open to interpretation.

So how big was the reach, really? Compared to the before mentioned Eyewire and The Zooniverse, AHF is perhaps not big in size and direct participation. On the other hand, compared to e.g. other Danish Citizen Science projects, AHF has a huge reach and perhaps a similar impact. According to the social media statistics mentioned above, AHF reached between 41 and 58 percent of all citizens of the Island of Funen. The social media statistics were boosted by daily coverage by TV2/Fyn on stream tv, and it could prove rewarding to analyze the ratings and reach of these broadcasts. Unfortunately, the Danish television landscape does not allow for regional tv-stations to measure the impact.[4]

All this underlined the quite extensive reach of the project. And it more than met the second goal of the overall project, although perhaps not meeting the criteria of creating a two-way dialogue. Also, with regard to the third goal, the aim of AHF was to test a new concept or model for public participation in research, with the underlying agenda whether it was possible for the partners to work together. This in practice proved possible and it thus created a sustainable concept for the future.

3.3. The Citizen Panel

The partners in the project had not foreseen this huge interest from citizens, politicians and news media. Going from 2017 into 2018, however, the project management found a lack of direct two-way dialogue with the citizens about the overall concept. Although the events produced hundreds if not thousands of visits from the public engaging directly with the researchers, as well as a

similar number of comments on social media, there was still a lack of insight into why local citizens wanted to participate or engage, who they were, and what could motivate them in participating in Citizen Science projects like this in the future.

As a response the Citizen Panel was created for the 2018 version. The 18 members were recruited solely by TV2/Fyn in a dialogue with project management and turned out to be a quite diverse group with regard to age, gender, employment, social groups, health, contact with the medical system, etc. The panel members were invited as VIPs to all events, were interviewed by TV2/Fyn, participated in public debates, and perhaps, most significantly, also participated in two focus group interviews, before and after the conclusion of the project. Furthermore, the participants were also subjected to a survey. All members attended one or more of the AHF-events and either participated in the focus groups or participated in the concluding survey.

The Panel as a whole had a positive attitude both towards AHF, to the concept of citizens doing actual prioritization of research itself, but also towards engaging in Citizen Science projects in the future. More significant, perhaps, almost all of the members to some degree felt misled by signing up for The Panel, since they expected to contribute to concrete ideas, projects and themes, or even to work around particular illnesses for which they felt that funding or prioritization was necessary. Furthermore, while having an understanding of the peer review process, The Panel wanted to interact more closely with the Research Council at OUH. These proved valuable points for future editions of the project, including the creation of a High School Panel for the 2019 version.

4. A New Trend in Media and Library Collaboration within Citizen Science?

4.1. Connection to Citizen Science

All in all, all nine scientific contributions that entered AHF in both 2017 and 2018 included Citizen Science elements like the possibility for citizens to participate with data, a dialogue with regard to research questions as well as the participatory involvement of citizens or groups of patients in the project. In this respect, they allowed to various degrees participants to interpret data

and funnel new research questions. In that sense AHF (both as an overall concept and as the actual research projects at hand) could be seen as a contributory and to some degree collaborative project as defined by Bonney et al. (2009); it also contains some inclusive and contributory elements as defined by Golumbic et al. (2017).

On the overall conceptual level, however, AHF has a strong focus on dialogue with the public in the form of the actual prioritization of research, direct dialogue with researchers about their projects as well as a healthy dose of debate/discussion between researchers, university and hospital management, NGO's, media and the public at large. A strong component is the researchers' dialogue with citizens which takes all shapes and forms (a kick-off event, a science fair, interviews, social media interaction, award show, etc.), and in that sense AHF was designed to engage new audiences as well as to test a new model for public participation in scientific research (Bonney et al., 2009, p. 13).

Furthermore, AHF relies heavily on the dissemination of scientific information to the public and also on listening to citizens' opinions and needs (Golumbic et al., 2017, p. 8) and in that way it can serve as an important factor in science communication and in raising Public Understanding of Science (Riesch et al., 2013). In this sense the scientific data and findings from the projects were communicated to participants through the before mentioned ways (stream tv, social media, web, live events) which served as platforms for participants to discuss their findings, raise new questions, and interact with scientists (Bonney et al., 2016; Jackson, Østerlund, Maidel, Crowston, & Mugar, 2016; Golumbic et al., 2017). In this way they boosted or consolidated the ability of Citizen Science to contribute to democratizing science and they promoted a two-way dialogue between citizens and scientists.

4.2. Public Engagement with Science: A New Potential?

This dialogue came as a premium in AHF, and would therefore seem to live up to the category of Public Engagement with Science, which emphasizes democratizing science, determining public desires and needs, encouraging transparency, and encouraging collective decision making (Brossard & Lewenstein, 2009; Golumbic et al., 2017, p. 3) and in connection exploring a new trend or connection to Citizen Science.

AHF, with its strong focus on a media partnership, therefore seems to hold a somewhat great potential or further capacity for going forward in relation to this field. When taking a closer look at the public service legislation (public service criteria) that governs tax payer funded media in Denmark, the aim is to secure "a wide variation of programmes and services including news coverage, public information teaching […] with the supply aiming for quality, versatility and diversity […] with a weight in the information dissemination on factuality and impartiality" and furthermore with a strong focus on democratic debate.[5]

Values like transparency, collective decision making, and democratization match with the criteria from Public Engagement with Science (Brossard & Lewenstein, 2009) and with public service criteria of public information teaching and information dissemination; this seems to fit Haywood and Besley's (2014) deliberative approach to Citizen Science, in which the authors combine elements of both science education and science engagement with science, thus creating a direct link with the Citizen Science criteria of reciprocality as defined by Golumbic et al. (2017).

In this context AHF helps create or promote a two-way communication platform between scientists and the public, and it furthermore seems to fit another and larger trend.

In Europe public service broadcasting is a policy project under revision (Donders, 2012, p. 1), and entrepreneurial media executives, editors and journalists appear to explore or expand the somewhat narrow confines of public service both in terms of content and platforms (Donders, 2012, p. 196). AHF appears to fit that trend. In connection the project won the 2018 CirCom Award for "News Stories for All" with the runner-up being the program *Tube Noise*, from BBC London, a collaboration between the BBC and University College London.[6]

Although public service criteria may vary from country to country and from continent to continent, at least 31 countries carry a focus on public service in relation to public media outlets, carrying with them 29.4% of the market share in competition with commercial suppliers (Rövekamp, 2014), thus making the potential for citizen science and public service media visible and feasible from the perspective of researchers, libraries, faculties and the medias. In Denmark perhaps even more so, as the share of public service media is a remarkable 65.9% (which could help explain the reach of AHF) but closely

followed by New Zealand (62.0%), Iceland (56.3%) and the United Kingdom (53.7%) (Rövekamp, 2014, p. 52).

Therefore, Citizen Science projects like AHF with a focus on reciprocality, policy, public debate and the dissemination of knowledge, might be worth exploring for libraries in other countries with similar media and criteria.

Furthermore, AHF includes a level of innovation by a collaborative professional approach to science communication with the Library joining forces not only with the Faculty of Health Science at SDU and with the local university hospital but also with a media partner. In that context, the Library can be seen as building skills for engaging in Citizen Science projects, adopting a toolkit for developing Citizen Science projects, as well as participating in the recruitment and retention processes for staff/volunteers, participating in marketing activities and creating a positive attitude towards Citizen Science (Ayris & Ignat, 2018, p. 18–19).

4.3. The Citizen Science Network at SDU

In accordance with the trends outlined above, SDU is now pursuing a concept of Citizen Science, where researchers interact with the general public to enhance the impact of science and research, with The Library playing a central role in accordance with the LIBER Open Science Roadmap (Grant, 2018, p. 13).

Firstly, and as a direct consequence of the success of AHF, SDU and Odense University Hospital have established a Citizen Science Network[7] with the Library and Faculty of Health Science sharing joint leadership. The Network is based on the Open Science agenda of "making processes more efficient, transparent and effective by offering new tools for scientific collaboration, experiments and analysis and by making scientific knowledge more easily accessible" (The European Commission, 2016) and bringing it to the public. Furthermore, the Network has strong leanings towards the reciprocality string of Citizen Science and Public Understanding of Science, as the mission is to possibly open the research process for all citizens across all levels of education and social groups.

Secondly, the interaction with the public is seen through several Citizen Science projects – who all have embedded a media partner. Projects include

public workshops and hearings on narrative medicine, already a part of the curriculum for students of medicine at SDU, but now tested as a tool for reflection on health in general. Also, an Active Living Area in close proximity to the university is developed in collaboration with local citizens, NGO's and the Department of Sports Science and Clinical Biomechanics. Further projects focus on new user driven journalistic formats targeting several age and social groups and finally a project within circular economy in the form of recycling electronic devices and in the process harvesting valuable data airs this Fall.

The strong media interest in these projects underlines the link between Public Service Criteria, Citizen Science and Public Understanding of Science and it highlights the potential for this aspect of the Open Science Agenda.

5. What's Next?

AHF seems to be an original idea by empowering the general public through including citizens in the policy and prioritization process; so much so that the 2019 version will be expanded and cover the whole region of Southern Denmark thus doubling in potential reach. The project can be seen as integrated in the Open Science landscape and perhaps expanding it. AHF has a social impact on the wider community by being a new innovative future activity for libraries and by covering a wide geographic area and population due to a new form of partnership. Furthermore, projects within this string of Citizen Science can create meaningful partnerships between Libraries and Faculty.

As the LIBER Road Map states, both Open Science and Citizen Science facilitate and encourage broad participation in science and research, as they are mutually beneficial (Grant, 2018, p. 15). Open Science, however, represents a fundamental change in the way universities and their scholars work. As suggested by LERU the change might be prompted by a communication strategy, which enables the whole university body to become familiar with Open Science practices, and may include appointing a senior manager to lead the change (Ayris et al., 2018, p. 22). While SDU has not implemented such a strategy, the Citizen Science Network is a possible stepping stone, as upper level university management is represented in the steering committee. Sharing inspiring examples might also lead the change, and the Network

helps highlight Library and Faculty successes (in the form of the cases mentioned in section 4.3) as Open Science champions not only across the university but in the community at large (Grant, 2018, p. 9).

As Citizen Science on the overall level seems to bear a great potential not only for universities but also for their libraries, we at SDU have begun exploring a permanent Citizen Science Office, perhaps based in the Library. This would seem to fit the trend from e.g. University College London and the University of Zürich, all in all potentially boosting a much larger Open movement with the potential of radical innovation as suggested by one of the keynote speakers at LIBER 2018, Dr. Johannes Vogel, who is also Chair of the Board of Trustees at the European Citizen Science Association.

Going forward, LIBER could have a critical role to play within this field. The consideration is adopting not only an Open Science Roadmap but also – like other key European institutions – a policy on Citizen Science in its own right in the form of a white paper, and second, followed by a Working Group with the mandate of exploring partnerships across and more importantly outside the library sector.

In that way Citizen Science, including the strand of reciprocality promoted by AHF, can be implemented as the key strategic component identified by LERU and the EU, thus potentially propelling libraries to new meaningful roles within Open Science.

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Notes

[1] "First Citizen Science platform celebrates 100 project milestone." http://www.ox.ac.uk/news/2017-05-31-first-citizen-science-platform-celebrates-100-project-milestone#.

[2] The Danish Statistical Bureau 2018. https://www.dst.dk/da/Statistik/emner/befolkning-og-valg/befolkning-og-befolkningsfremskrivning/folketal.

[3] *Wired Magazine,* 11. January 2018. "Facebook Tweaks Newsfeed to Favor Content from Friends, Family". https://www.wired.com/story/facebook-tweaks-newsfeed-to-favor-content-from-friends-family/.

[4] *Gallup.* http://www2.tns-gallup.dk/nyhedscenter/statistik/tv-meter-seertal.aspx.

[5] The authors' translation from *Retsinformation.* https://www.retsinformation.dk/Forms/R0710.aspx?id=166986.

[6] CIRCOM Regional is a Professional Association of Regional Public Service Television in Europe. The awards are handed out yearly. AHF competed with 222 other entries. https://www.circom-regional.eu/news1/1018-the-grand-prix-circom-2018-announced. On *Tube Noise*: https://www.bbc.com/news/uk-england-london-42791299.

[7] An overview of activities and the mission statement of the SDU Network for Citizen Science can be viewed at: https://www.sdu.dk/en/forskning/forskningsformidling/citizenscience/citizen+science+netvaerk.