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Postdigital Citizen Science and Humanities: Dialogue from the Ground

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Abstract

Whilst much global research takes place in universities, many researchers in the sciences and humanities do not work within these institutions. Some citizen researchers run their own companies or provide independent consultancy, having left their roles in universities through a conflict of values, where they experienced hostile, hierarchical, or restrictive practices. In a world where many postdigital and biodigital challenges do not sit neatly under one discipline or sector, collaboration with community experts to research potential solutions is crucial, as demonstrated during the Covid-19 pandemic. Universities count knowledge exchange partnerships as a key part of their activities, linked to the United Nations Sustainable Development Goals, yet a closer look at how this works in practice reveals different forms of 'lockdowns' that prevent equitable research collaborations. In this collective article, we offer a postdigital perspective on citizen science and humanities research from the ground. This includes a provocation to knowledge-producing institutions via recommendations that emerged from our collective citizen researcher workshop held in Zagreb in Spring 2024. There is now a pressing need to review institutional policies and practices around citizen research, towards more inclusive knowledge exchange partnerships, if we are to collaborate successfully to address many global challenges.

Keywords Postdigital, citizen science · Citizen humanities · Environmental humanities · Citizen research · Co-production · Collaborative writing · Enjoying work, postdigital positionalities · Lockdowns · Postdigital knowledge exchange

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Introduction

Whilst much research takes place through universities across the world, not all researchers are based within higher education institutions, or even connected to them. Globally, it is worth noting too that a quarter of all countries do not have mass higher education or university science and thus a handful of nations tend to dominate epistemic agendas and the template of the 'world-class university' (Marginson 2022: 421). At a disciplinary level, environments in which research takes place can differ considerably too, within and across the broader sciences and humanities. Certain Western traditions strongly structure how research projects are shaped and conducted to uphold ethical and rigorous practices. Without undermining these considerations, there is also a need to be open to where institutional policies and practices may stifle innovative, cross-sector research alliances that could help address pressing global issues.

Against this backdrop, those citizens who undertake research independently in different locations around the world can easily be overlooked, misunderstood, or categorised in ways that they themselves simply would not recognise. They may struggle to have their voices heard through established academic channels, as they work on interdisciplinary and cross-sector projects addressing issues of global importance in postdigital society (Hayes et al. 2024). The Covid-19 global outbreak was such an issue, requiring multiple agencies to work together to confront the crisis in local and international contexts.

Prior to the pandemic, the term 'lockdown' was not in everyday use across households, communities, and institutions. Over four years later, it may seem that most physical restrictions related to Covid-19 are well behind us. Yet it is worth contemplating too what different forms of institutional 'lockdowns' may have existed before, during, and even beyond the recent pandemic, restricting valuable, creative research collaborations across different sectors of society. Such lockdowns may not be obvious to those who are unaffected, but if they remain unchallenged, there are risks that both cross-disciplinary and cross-sector collaboration and impactful co-production of knowledge are hampered, as the citizen researcher dialogue this article is based on will reveal.

If we briefly flirt with the lockdown term more loosely, this article offers one lens to examine certain 'postdigital lockdowns' from the ground, through the eyes and collective dialogue of diverse citizen researchers. By 'postdigital', we refer to a world where interchanges between what is digital and what once was a separate physical human and social life are barely detectable (Jandrić et al. 2018). As a general restriction that prevents people, objects, and information leaving or entering a particular area, a 'lockdown' suggests a temporary state of emergency, perhaps of a biological, criminal, or computational nature. The Covid-19 pandemic provided recent evidence of just how quickly such protocols can be applied across communities globally, and indeed of the impact on the lives of citizens, their work, and their study (for a longitudinal collection of those impacts, see Jandrić et. al. 2020, 2021, 2022). It is also important to consider pre-existing challenges in university communities and to respond to comparative trends that

have emerged (Watermeyer et al. 2021). Now, in the face of complex societal, political, computational, and ecological challenges that require much stronger cross-sector and cross-disciplinary collaborations (Hayes et al. 2023), learning from this is paramount.

As we open this collective article, which offers a postdigital perspective on citizen science and humanities research from the ground, we bring something of a provocation to knowledge-producing institutions. We ask those in academia globally to question whether institutional, even unintentional, 'lockdowns' continue to limit wider citizen research collaborations and co-production that could help to address pressing global challenges. We also wonder what other forms of 'lockdown' that may have long been in place historically are now worth reviewing at a time when we need to address numerous postdigital challenges that do not sit neatly under one discipline or sector. This does not imply the disappearance of traditional disciplines but rather to seek more creative approaches to include the marginal voices of researchers of many kinds who are based outside of universities (Jandrić and Hayes 2019).

It will become apparent later in this article too that some participants have worked and researched within universities and museums and then have left due to conflicting values and a toxic, hierarchical culture. Some of their experiences overlap with descriptions of retreat and 'academic anomie' from higher education where the need for a more human-centric, inclusive, and compassionate leadership and environment is called for (Watermeyer et al. 2024). Whilst the impact of toxic corporate cultures on individual working lives in universities is clearly of concern, there are also far-reaching implications for local communities and the global environment that our participants here raise.

This article is a part of a wider research effort centred on exploring contemporary transformations of postdigital citizen science and humanities. Our international academic team first mapped existing literature in the field (Jandrić et al. 2023a, b, c) and then explored the various aspects of postdigital citizen science using the metaphor of a kaleidoscope (Jopling et al. 2024). In May 2024, we presented our work at the Networked Learning Conference, in Valetta, Malta, in a talk aimed at opening a wider scholarly dialogue on postdigital citizen science and humanities (Hayes et al. 2024). These initial efforts directed us towards a pressing need to expand our postdigital dialogue (see Jandrić et al. 2019) toward citizen science *and* humanities, which make up an important part of citizen research engagement. In parallel to these academia-based enquiries, we also opened the discourse to researchers in the wider community, asking them to write their views on conducting postdigital science (Tolbert et al. 2024).

Given that our research to date has shown that inviting contributions to academic writing alone is a highly specific discipline that places various obstacles to citizen scientists' and humanists' participation, we have since opened a dynamic interdisciplinary dialogue by gathering citizen researchers together. Supported by both a small grant for travel from Bath Spa University (UK) and by funding for catering and provision of a meeting space from Zagreb University of Applied Sciences (Croatia), we invited citizen scientists and humanists to a one-day workshop aimed at face-to-face discussion of their research experiences. This was held in Zagreb on 20

April 2024 and gathered citizen scientists and humanists from Croatia and Bosnia and Herzegovina.

We now present the outcomes of this workshop, bringing together the diverse voices of each person who was present and discussing implications from the themes that emerged. Whilst the population of workshop participants is geographically quite limited, their work is very international and our presented conclusions can be generalised far beyond their immediate contexts, to inform refreshed policy and practices in postdigital society.

Methods

When writing the Bath Spa University seed funding application for this participatory citizen research meeting, Sarah Hayes discussed with Petar Jandrić, the Croatian member of the research team, the possibility of hosting a focus group of this nature in Zagreb. Up until this point, our international research team had been writing about the postdigital nature of citizen science but had not directly explored the opinions of citizen researchers themselves by meeting with them in person. The aim in designing this face-to-face meeting was to try to make visible the participants' own ideas on how they would identify themselves in the context of postdigital citizen research, in whatever discipline or sector they were speaking from, but also to grow a dialogue to surface shared concerns. This addresses the problem that there is a tendency to label citizen participants in research as 'citizen scientists'. However, in postdigital society, research in citizen science and citizen humanities are often intertwined around social, ecological, and scientific issues that also include digital and data disadvantages in an age of artificial intelligence (AI) (for more on these challenges see Hayes and Jopling 2024).

The workshop was planned and co-led by Sarah Hayes, Petar Jandrić, Linda la Velle, and Sarah Earle. This co-authored citizen research paper shares the collective dialogue of all who participated.

Scoping Potential Participants

Citizen scientists and humanists undertaking research in communities are scattered throughout society; they can be found in places from museums and libraries through photo studios and sports centres to aeroplanes and lighthouses. Whilst their work usually has some public component, identifying active citizen researchers is not an easy task. The Croatian member of the research team, Petar Jandrić, started identifying suitable workshop participants through a review of available literature from academic publications to popular media outlets. A few participants also arrived from personal contacts and word of mouth. Due to the organisational restrictions (most citizen researchers make their living in their daily jobs), an initial list of twenty or so participants was finally narrowed down to ten. Some participants have also submitted contributions to collective articles that have been published since
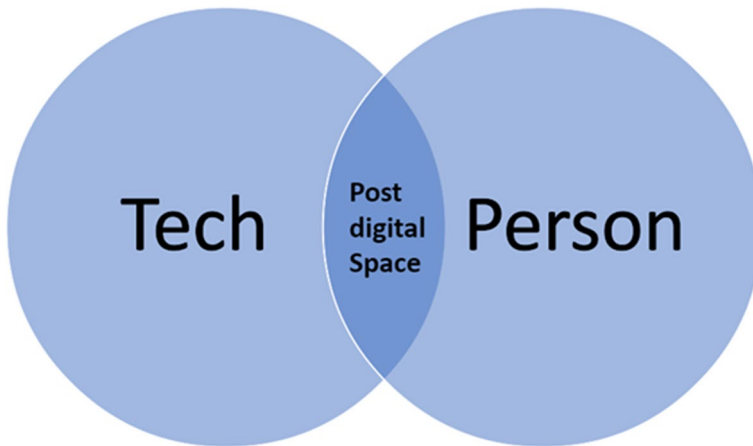
Fig. 1 Where might you place your activities? Authors: Linda la Velle, Sarah Hayes, and Sarah Earle (CC BY 4.0)

the Zagreb workshop (Jopling et al. 2024; Tolbert et al. 2024), thus extending our collaborations.

Special attention was given to disciplinary diversity, and as the co-authorship of this article demonstrates, each workshop participant works in a different area of citizen sciences and humanities research.

Ethical Approach

A full ethical approval application and a data management plan were submitted to Bath Spa University, to conduct, record, and transcribe the planned workshop. Participant information and consent forms were drafted to minimise any potential risks. Here is an important distinction to be made between demonstrating open and robust ethical standards to protect all involved and avoiding stifling a dialogue about different international methodological traditions and innovative research practices in a postdigital context.

Planning the Approach for the Focus Group

The research team at Bath Spa designed a few initial slides in order to open the Zagreb meeting discussions. Taking into account potential language barriers, a visual approach with some simple prompts was taken in order to get conversations started and to surface participant views. As shown in Fig. 1, we asked the group to consider how much of their work they would place in relation to technology, human (people), or postdigital, hybrid activities.
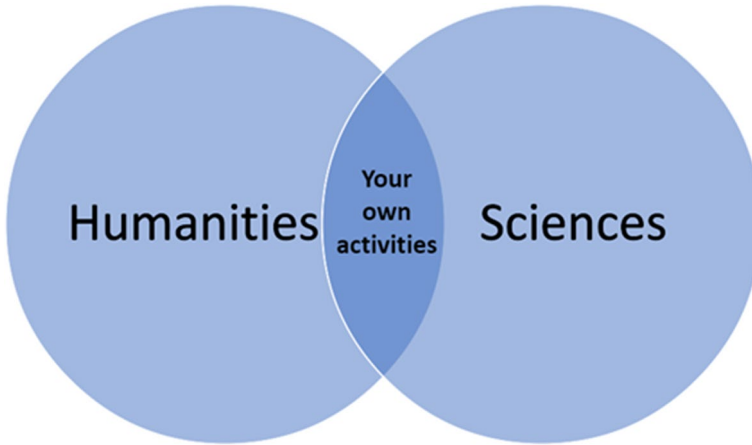
Fig. 2 Where might you place your activities? Authors: Linda la Velle, Sarah Hayes, and Sarah Earle (CC BY 4.0)
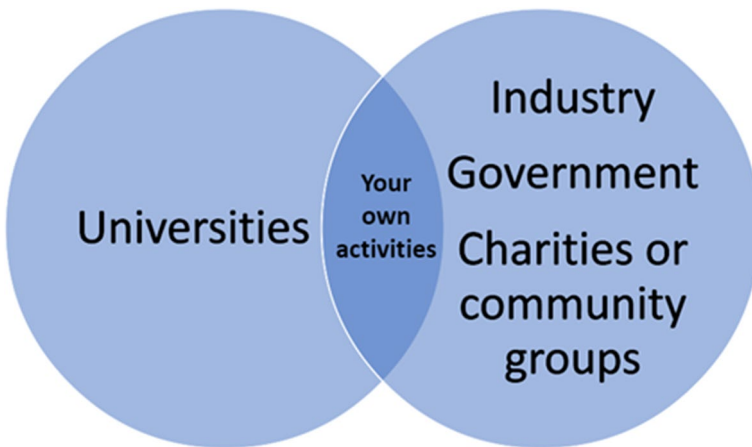
Fig. 3 Do you work with other organisations? Authors: Linda la Velle, Sarah Hayes, and Sarah Earle (CC BY 4.0)

Given that our findings when we were mapping existing literature have shown that citizen science and citizen humanities operate largely independently of each other (Jandrić et al. 2023a, b, c), we were interested too, as shown in Fig. 2, in where the participants would place themselves in relation to disciplinary boundaries.

Coming from universities ourselves, we were also keen to learn which organisations as well as universities participants worked with and where there were challenges (see Fig. 3).

At the end, we shared with participants our impression of a typical research cycle that would generally be followed in many European universities. This was presented with the caveat that Western traditions tend to strongly structure how research projects are shaped and conducted in universities and this is still only one epistemic avenue for research processes.

It was important too in presenting Fig. 4 that the participants understood it as an upward spiral of growth and development of understanding: stage 5 leading on to a greater comprehension of any concept under investigation. The intention, as such, was to hear from participants about the stages of research they would usually participate in, but to then open discussion on any aspects of this particular flow chart they may generally be excluded from.

> Often in universities, projects begin with a research question that a team will aim to shed light on through a chosen methodology, ethical clearance, data collection, presentation of results, conclusions, and publications. Rigorous research processes are of course important, but interrogating where these may 'begin' and 'end', *who* and *what* is included, excluded, or even exploited at different stages, are also critically reflexive responsibilities, of *all researchers* in postdigital society. (Tolbert et al. 2024) (emphases from the original)

Therefore, whilst referring to the forthcoming Zagreb meeting as a focus group or workshop when applying for funding, and then preparing these initial opening slides, we were mindful that we were seeking to hold *a gathering* in Zagreb that would become *a co-created space.*

As mentioned in our introduction, not all 'postdigital lockdowns' stem from a global pandemic. Higher education practices can appear 'locked down'—in terms of slow and traditional processes, to those who are working in wider communities
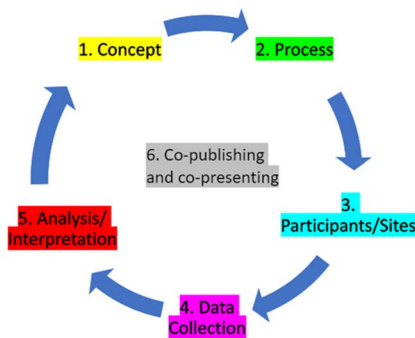
Fig. 4 A typical Western University research cycle. Authors: Linda la Velle, Sarah Hayes, and Sarah Earle (CC BY 4.0)

outside of universities. This can restrict cross-sector collaboration and hamper impactful co-production of knowledge (Hayes et al. 2023; Hayes and Jopling 2024) at a time when '[o]ur hybrid political, economic, technological, environmental, and existential questions are now bigger than any single discipline or sector' (Tolbert et al. 2024). Our collective 'dialogue from the ground' in the eyes of citizen researchers offers a fresh perspective on these matters, opening important dialogic space at the intersection of disciplinary, cross sector, and global, postdigital societal challenges.

Meeting in Zagreb

Whilst the Bath Spa members of the research team were preparing an initial approach to help to break the ice during the focus group to come, the Croatian co-lead, Petar Jandrić, was designing an agenda for welcoming all participants to this collaborative dialogue in Zagreb.

Given that language can lead to misunderstandings, the word workshop rather than focus group was discussed in the Agenda, which was sent out to all participants in Croatian and in English:

Agenda

- Friday, 19 April 8 pm: Introductions and informal dinner in a Zagreb restaurant.
- Saturday 20 April 9 am–1 pm Workshop on Postdigital Citizen Science and Humanities at Zagreb University of Applied Sciences, Vrbik 8.
- Saturday 20 April 1 pm—Lunch at Pri Zvoncu

Figure 5 shows the group at lunch on the Saturday following the workshop, by which time many participants had exchanged contact details with each other. They were then (as can be seen here with so many people looking at their phones) setting up a WhatsApp group to keep the dialogue going.

As everyone had already met each other on the Friday evening over an informal dinner, we were able to gather for the workshop itself on the Saturday with warm greetings and some understanding of our shared purpose. Still, we (as the participants based in universities) were amused to learn how intrigued the invited participants were, that we would want to bring such a diverse group together in the first place!

The Focus Group (Workshop)

Often a traditional focus group will follow a format where only the invited participants sign ethical consent forms and are then asked questions by researcher(s) who facilitate discussions and interactions. Sometimes referred to as 'a form of group interview', focus groups can be rather unnatural settings that may lose focus but can

Fig. 5 Lunch at Pri Zvoncu (CC BY 4.0)

also yield insights on attitudes, values, and opinions through interaction within the group (Cohen et al. 2007: 376).

From the outset, we had described the research team as co-participants in the focus group, along with the invited citizen researchers who were meeting with us. The intention was to ensure that any potential hierarchy or power dynamics could openly be voiced and minimised to aid the flow of conversation. Therefore, everyone present (convenors and participants) signed an ethics consent form at the start of the workshop before commencing the dialogue.

In the section 'Personal introductory narratives', what each participant said by way of an initial introduction to their work and location, in the order in which they spoke around the table (see Fig. 6), appears as a summarised statement. Then, in

Fig. 6 The Zagreb citizen research workshop (CC BY 4.0)

'Summary of Results', the key themes emerging from our collective dialogue are discussed. Each personal narrative has been checked, edited, and verified by the relevant participant. As well as confirming their textual contributions to this collective article, some co-authors also provided images and links to their research.

Personal Introductory Narratives

A Damascus Road Moment for Postdigital Teacher Education (Linda la Velle)

I'm a Professor of Education at Bath Spa University, which is in the Southwest of England in the UK. Everything is very nice there. It's a beautiful campus and the people are lovely and the students are lovely. My colleagues are lovely, so I'm very happy. But, seriously, not all universities are lovely. I'm really a bit of an imposter here because my area of interest, research wise, is about the education of teachers and how they are trained and educated into the profession. So, from their starting point as university students, they then do a year's training to be a teacher, and they go into their career and then they continue learning throughout their career. That professional development is also an interest of mine.

So, I had one of those 'Damascus Road moments' where the light bulb goes on and I realised what the 'postdigital' that Sarah Hayes and colleagues have been writing about potentially was (see Jandrić et al. 2018). I thought, that's of great relevance for teacher education and that's why I'm here really, to see, to hear your stories, and to understand for myself, what is educational and what is pertinent to the education of teachers. Having seen the first computer come into our school when I was a secondary science teacher in the early 1980s, I have seen the rise of educational

technology from its first beginnings and so that's why I am interested in the post-digital and its implications for education, especially the education of teachers.

I should say too that all my degrees are in biology. I've had several citizen science projects during my career, including two PhD supervisions, one of whom did the tracking of butterflies from Southern Portugal up to northern Sweden. This was back in the 1990s when I worked with this student and new technologies. It was an innovative and enjoyable project (Seddon and Baggott 1999). Another doctoral project I supervised was about conservation of sea turtles in the Mediterranean[1] and had involved the building of a virtual field trip for students. The other major citizen science project I ran involved capturing environmental data with school children in a European project called 'Phenologit' (also reported in Jopling et al. 2024).[2] In each of these projects, we collaborated with many wonderful partners, working with schools and capturing bio data in the field. Citizen science is a love of mine; it's just such a pleasure and privilege to be part of this workshop.

Children and Teachers as Citizen Scientists (Sarah Earle)

I was a primary school teacher for thirteen years, then moved into teacher education at Bath Spa University in 2012. When I was teaching children, I was the science lead for the school, organising a science week each year and helping to map out the science curriculum with the other teachers. At the university, I have been part of the primary science teaching team for the pre-service teachers and now I work with in-service teachers across the UK nations co-developing resources and professional development for primary science. I lead the Teacher Assessment in Primary Science (TAPS) project[3] which has been found to have a positive impact on pupil learning (see Earle 2023).

A major part of this work is supporting teacher confidence in science, so that they can be empowered to lead science in their school. Partly this is about raising the profile of science (in a context where English and mathematics take priority due to accountability measures), but it is also about helping the teachers and children to see that science is 'for them' (Nag Chowdhuri et al. 2022)—something that is relevant to their lives, something that they can be part of, which is where the citizen science element comes in. Children and teachers can take part in citizen science as gatherers of data for larger projects, but also following their own interests and local questions, many of which include consideration of their local environment. Finding ways for teachers to support children to carry out their own inquiries and directly apply science to their own context helps to build an understanding of science as a discipline, with relevance to everyday life.

So that's my background, but I'm really interested in the work that you do, even though it is mostly with adults. I can think about how that works with the children as participants; the children are citizens, and the teachers are citizens, so it's citizen

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[1] See https://www.euroturtle.org/. Accessed 10 July 2024.

[2] See https://e-learning.cesga.es/portfolio/phenologit. Accessed 10 July 2024.

[3] See https://pstt.org.uk/unique-resources/taps/. Accessed 10 July 2024.

Fig. 7 Filip (CC BY 4.0)

science. Children are a big audience for all of this work and activism, and they really want to be involved. So how do we support them to do that? That's my interest.

From Academia to Action: A Researcher's Pivot (Filip Šrajer)

I'm an architect by education, a planning professional with my own small company.[4] Research-wise, I'm into environmental history and landscape history. My area of expertise is dry stone walls as a phenomenon in Croatia (Fig. 7; see also Tolbert et al. 2024). Along the coast, we have more than 100,000 kms of these structures, maybe up to 500,000 kms. Today they are an important part of landscape, once they were an important part of life. I think it is very important to examine how these walls got there, what events brought them there, and how we can build data models to describe these processes. This was the theme of my PhD (Šrajer 2019): a double mentorship from the Faculty of Architecture and the Faculty of Landscape Architecture here in Zagreb. It is very interesting because dry stone is not a situated part of heritage. It is intangible. Even my personal connection with the topic first came through the interest and joy of building with dry stone, with the heritage part coming later.

There is a lack of government knowledge to maintain and administrate dry stone, so I'm often called as an outside expert. Besides stones, I am working on a project on wooden architecture supported by Oxford Brookes University (2024).

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[4] See https://www.ekomena.hr/. Accessed 20 August 2024.

One of the biggest technological achievements in the area is the open online database of Croatian dry stone heritage.[5] Its development went through three phases, the second one being supported by a Croatian GIS company that regularly supports community-based projects, a good example of working with industry. The third phase was funded as a working platform of a nature conservation project, funded by Foundation Prince Albert of Monaco (Biom 2024). This foundation deals with small water ecosystems in karst and many of those ponds and wells have dry stone structures around them. Links with nature conservation are important because natural heritage gets more funds than culture.

People are the most important aspect of citizen science, and administrative procedures are often limiting. However, one can occasionally find some little pockets of freedom. For ten years, I used to work as adjunct teaching assistant in urban planning at a big faculty, where I collaborated with young researchers. That little department has managed to remain under the radar of faculty dinosaurs, allowing us to do many interesting things. However, my life led me the other way.

Architecture comes under Technology in Croatia. In the West, it is placed under Arts and Humanities. For Croatian scholars, this causes problems when publishing in academic journals.

Citizen Scientists in Meteorology (Zoran Dragić)

I enjoy collecting data as a citizen scientist, but I never worked as a professional. I am from Zagreb and have worked as a technical computing engineer. One of my hobbies was meteorology which I had been interested in since childhood. I became seriously involved in the early 2000s when data could be collected from automatic weather stations directly to a computer. I got the idea to connect the weather stations from various places and people with similar interests via the Internet.

It started with four locations and now we have a network with over six hundred automatic weather stations in Croatia and neighbouring countries. As citizen scientists in meteorology, we work with educational institutions, various companies such as agricultural, power, travel, tourist, and insurance, and many more. I have been heavily involved with the development of this web-based system, which gathers data collected from weather stations across Croatia, which we then present in various forms to companies and individuals. We maintain a website[6] with a mass of information and we have a relationship with the National Meteorology Service. It is fair to say that we provide more meteorological information than the national service, and our main advantages are near real-time data and higher data density compared to their data.

Citizen Science, Academia, Activism, and Anti-Pollution of Rivers (Safet Kubat)

I'm from Bosnia and Herzegovina and my work as a citizen scientist is as an activist and an academic, working on generating new knowledge about the forty rivers of

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[5] See http://suhozid.hr/. Accessed 20 August 2024.
[6] See https://pljusak.com. Accessed 10 July 2024.

Bosnia and Herzegovina. I'm the founder and leader of a huge, maybe the biggest, activist movement in Bosnia and Herzegovina. I translate academic knowledge into activist practice (see Kubat 2022). We generate new knowledge that we share with the community, translating it into accessible language. We bridge academic knowledge with digital platforms and then translate it into physical activities across more than 40 cities in Bosnia and Herzegovina. The models we develop are designed for the benefit of people, the planet, and care.

We have a movement with 67,000 members (activists), which is organised within a digital community.[7] Our digital actions spill over into physical activities. We do a lot of anti-pollution work at no cost.[8] We lobby the government to stop the building of new small hydropower plants, which is a pressing situation. I am transferring my knowledge from academia to try to stop the huge industrial companies from spoiling rivers, but it is very hard. I think we need to bring new knowledge to practice.

Political ecology is my field and the focus of my PhD. I explore new political ecology models, transforming and implementing them within the community. I mainly focus on models like Doughnut Economy and Citizen Portrait (see Kubat 2024). Therefore, the scientific work should serve as a green book for future green policies in Bosnia and Herzegovina and beyond.

Postdigital Citizen Science and Media for Self-Protection (Ana Peraica)

I live and work in Split, in an ancient 1700-year-old Roman palace (Fig. 8). I am a media theorist (Peraica 2022), with four books published, and I teach at a university in Austria.[9] I am also an activist and have founded a platform for the remaining inhabitants of the Split historic core area. Today, it is a network of 1200 people who actively record the effects of tourism. Citizens post recordings to protest against gentrification and issues with tourists' behaviour. From street cleaners to people who make deliveries, they photograph, record, and upload video materials to be viewed online. We use media tools for self-protection as the material is immediately broadcast to main press agencies.

I am trying through citizen science to change public opinion/law. In community groups and through the media, we are putting pressure on government for change. This is about how postdigital space is implemented. Old fashioned academia is too slow for the demands of contemporary life.

Meteorology, Biodiversity, and Postdigital Life on a Lighthouse (Deni Švraka)

My name is Deni. I completed the agricultural school in Poreč, Croatia, and that's the only formal education that I have, but I know how to read. I'm interested in meteorology and biodiversity. I work on a lighthouse, Sveti Ivan Na Pučini (Fig. 9).

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[7] See https://www.facebook.com/groups/531920737451586/. Accessed 28 August 2024.

[8] See https://www.facebook.com/watch/?v=1309889699840795. Accessed 28 August 2024.

[9] See https://www.anaperaica.info/. Accessed 10 July 2024.

Fig. 8 Ana Peraica in the ancient Roman palace (CC BY 4.0)

I live there with my dog for 15 days, and then I have 15 days off when I do whatever I want, usually hiking. Part of the job is collecting and measuring data for National Weather. I also tend to all maintenance including the lights.

I had a life before this when I worked in different industries, so I know how to make or repair things. My other passion is just listening and watching what's happening in the ecosystem, mainly the sea, because I grew up with my head under the

Fig. 9 Lighthouse Sveti Ivan Na Pučini (CC BY 4.0)

water, fishing and watching. This stuff is just for my passion and it's not really useful. It's just for me to do. I'm not collecting data on that. Just listening and watching the sea and getting depressed at environmental issues. I see what's going on. I feel it's not good. Just noticing.

I don't really like to write. I don't use the computer; I'm just taking it in. I think our postdigital age is deeply problematic. Every child has a phone, a magical device. We throw tablets at kids, but we are not teaching them.

Aerial Archaeology to Map History, Before It Is Drowned (Sara Popović)

I am an archaeologist and aerial photographer. I studied 'classical archaeology' but then went on to do my master's which opened up a whole new world of research, studying not only archaeological sites but looking at whole historic landscapes through a wide range of non-destructive methods. I specialised in aerial archaeology and later went on to complete a PhD through which I developed a monitoring system for a UNESCO protected landscape.

Monitoring landscapes can be quite depressing if you are repeatedly reporting back negative trends but don't see enough effort from the governing bodies to reverse them. That's why, whilst working in the museum, I took the time to do things that will maybe have more impact. For example, I led heritage walks for local people, just in the local language, not for tourists. If people understand and know their heritage, they will protect it better.

Later on, I went to do a postdoc for 3 years. I enjoyed working on the project but found academia to be a very hostile environment. It's all about 'going up the ladder' and what you are prepared to do to get there. That requires skills I'm not interested in having. Publishing in acknowledged journals, losing rights to your own work, having to buy access to papers of other colleagues… I think that the system is

corrupt and that access to knowledge should be free. I decided not to play the game anymore.

For the past few years, I run my own small company working on different heritage protection and research projects, still giving talks at many conferences and invited lectures. For the past 3 years, I also chaired the Aerial Archaeology Research group,[10] an international association of aerial archaeologists, so I'm certain you don't need an affiliation to be recognised in your field of research. At the moment, I most enjoy looking at shallow waters of our crystal-clear sea, mapping history before it is hidden with rising sea levels.

Libraries as an Ideal Place to Connect Scientists and Citizens (Dolores Mumelaš)

I am from Vrbovec and I work in the National and University library in Zagreb.[11] I organise citizen science activities connecting scientists and local communities using library resources and collections. I am passionate about reaching out to the community and wider society as a librarian with my skill set for working with data and helping anyone who is interested in being a part of a research. I am also a PhD student focused on academic libraries and citizen science; in fact, I have already published a few articles and have a study and a few more articles in progress.

I work as an educator with The Center for the Continuous Development of Librarians in Croatia, with my webinar called 'Libraries and Citizen Science'. I am a member of LIBERs Citizen Science Working Group, and I am also preparing education about citizen science for librarians across Europe. I organize many workshops for librarians on specific topic within citizen science (like Citizen Science Sets and Collaboration within Citizen Science) and attend many domestic and international conferences and talk about citizen science. Having a direct connection with other libraries, I can access a large number of collections and databases for scientific research, especially across humanities, arts, and social science disciplines.

Libraries are the ideal place to connect scientists and citizens (Mumelaš 2023). In addition to providing significant benefits for the community (both local and scientific) in which the library is located, it also offers advantages for improving library operations (Mumelaš and Martek 2024). As part of the National and university library in Zagreb, I have close contact with experts across a wide range of disciplines, e.g. psychology, technology, and music. I am able to engage with external partners and schools and I am always looking for opportunities for future cooperation. For example, during the focus group discussion about ordinary people collecting data about dry stone walls whilst walking in the countryside, I could see that Filip's dry stone wall organisation should consider making direct connections with libraries to promote their project and gain more citizen scientists.

Currently, I describe my work as one-way, i.e. it is my library who makes the connection between the scientists and the citizens who are interested in the topic.

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[10] See https://aargonline.com/wp/. Accessed 10 July 2024.

[11] See https://nsk.hr/en/. Accessed 10 July 2024.

Fig. 10 Parkinson Pong Zagreb in Croatia (CC BY 4.0)

The approach is rarely the other way, i.e. the citizens approaching the library to put them in touch with a scientist (or scientist approaching the library to put them in touch with citizens). This produces a hierarchical power imbalance. My future plans include harnessing powerful resources of libraries to redress this top-down relationship and acknowledge a symbiosis of experts and citizen data gatherers in advancing scientific understanding, recognising libraries as institutions that can be equal participants in scientific research.

Table Tennis to Improve the Quality of Life of Parkinson's Patients (Daniella Pospiš)

I have been involved in table tennis for some time, travelling a lot and meeting players around the world. We found that table tennis is really supportive for those with Parkinson's disease. It is accessible because there are not injuries like in tennis, so table tennis and tennis are not the same.

Players can select their better hand and playing is good for hand–eye coordination. It is also a good mental support, being active and with other people, especially for those who have trouble talking about their Parkinson's with their families. People with Parkinson's do not really have a place to compete, because they would not be able to join professional teams, but there is also not really a place for them in para sport. Since 2019, we have our own World Championships in table tennis for people with Parkinson's disease and there are now more than 300 people involved across the world.

We know this is good for everyone, but we do not get support from the city; we rely on contributions from small companies to pay for a coach for the team. I buy medals and gifts for the players with my own money. For now, we have only one table tennis club Parkinson Pong Zagreb in Croatia (Fig. 10) and we are working with people with Parkinson's disease 2 times per week. In addition to training, we also organise sports medical education and tournaments, and we take care about them like a sports family. My hope is that we can enlarge the project, helping more people in other countries and maybe with other conditions beyond Parkinson's.

We Are All Subjects and Objects of Research at the Same Time (Petar Jandrić)

I'm a professional scientist and academic from Zagreb. The idea for this project came up a year and a half ago when Sarah Hayes and me, with a few other people (Sara Tolbert, Michael Jopling and Cheryl Brown), started to develop an interest in Citizen Science. We started writing together, beginning with our 'Mapping the Field' article (Jandrić et al. 2023a, b, c), to explore the literature. Existing research explores citizen scientists in the way that you explore dry stone walls or in the way that you explore archaeology, meaning that most research looks at citizen scientists as objects of research. In our opinion, this practice is wrong on several levels from ethics to epistemology (see Jandrić et al. 2023a, b), so we wanted to flip this power dynamic.

Writing about citizen scientists can't be done without citizen scientists themselves. We wanted citizen scientists to talk to us on an equal basis, and to research citizen science together. We are all subjects and objects of research at the same time. This is why, for instance, we all signed the same consent forms. We hope that will be reflected in our outcomes including follow-up publications.

Curators as Researchers (Barbara Vujanović)

I am chief curator at The Ivan Meštrović Museums,[12] dedicated to the world-famous Croatian sculptor. The museum has centres in Zagreb, Otavice, and Split, with the sculptor often being used by tourist guides. Meštrović's work is very much present in public space as well as in other public and private collections. His relationship with politics and art means that a lot of Croatian and European twentieth-century history can be discussed through consideration of his life.

I have worked at the museum for 15 years and have begun to learn more about Meštrović by collaborating with contemporary international artists. This innovative and provocative work attracted a lot of media attention. I have continued to work with contemporary artists, architects, and designers to develop new interpretations of Meštrović's work through unconventional exhibitions.

I recently completed my PhD on the classical component in the works of Ivan Meštrović (Vujanović 2021). My institution nominally supported my studies, yet most of my research and conferences were conducted during my holidays. I have given talks and presentations on Meštrović in various European and Asian countries;

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[12] See https://mestrovic.hr/en/home-en/. Accessed 26 June 2024.

however, most of these were self-funded. Due to my employment in a museum, many colleagues from universities and institutes do not see me as an equal. In some cases, other curators and I have been excluded from research and treated as mere providers of information.

After the most recent refurbishment of the building, I am now tasked with curating a new permanent exhibition for The Ivan Meštrović Museums. I find it interesting to consider the balance between technology and artefacts in the exhibitions, especially when they are here to stay for a long time. I have found that the overuse of multimedia can result in noise in communication and a unification of different types of material (i.e. natural history and artistic collections). When the artefacts are in the room, it seems wrong to focus on the screen. I find it important to concentrate on the first-person experience, being immersed in the exhibition and the ambience, with senses experiencing the real sounds of creaking stairs, etc.

I Don't Work, I Enjoy! Vertical Farming and Biodigital Convergence (Sergej Lugović)

I am the founder of a vertical farming company, Vesela Motika Ltd, for biopharming and nutritional farming, using precision artificial light to grow vitamins at home. My research has resulted in so-called microgreens, or a 'mobile salad' that contains all vitamins and minerals needed for life; take 2–4 pills after the meal.

The development of the pill took five years. It is based on the scientific research about precision lighting. It is also important to understand plant growth systems and ways of implementing them in people's living spaces in urban areas. This idea of biodigital convergence fits cosmically into what I do. My product is grown in the basement, dried on the 4th floor, and stored on the 1st floor; 100% made in our house. I work on European green projects and appreciate any ideas around biodigital convergences.

I have a background in cybernetics. I worked at TVZ with Petar at the Faculty of Electronics and Engineering, where I also wrote my PhD. So I come from a combination of entrepreneurship and information science. But now 'I don't work, I enjoy'. This is my first premise, to enjoy and contribute to society.

How to reach people and get them to understand? Sometimes it is just the loud ones who get the attention. To avoid environmental vandalism, we need spaces for open discussion. I published a paper using ChatGPT about digital sustainability. I work with companies and universities and have had discussions with various research institutions from all around the world. I published a blog post[13] using ChatGPT about how to do digital sustainability based on one of my old papers from the area before ChatGPT.

Understanding Diverse Postdigital Citizen Researcher Identities (Sarah Hayes)

Sergei's motto, 'I don't work, I enjoy', is an appealing way to think of research. I am a professor at Bath Spa, but I didn't start in universities originally. Decades ago, I did a

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[13] See https://veselamotika.com/blogs/vesela-motika-blog/enhancing-scientific-discourse-the-potential-of-sustainable-lean-science. Accessed 28 August 2024.

degree in Art and Design in Edinburgh. I thought I would be famous, a designer like Zandra Rhodes. So I had a store that sold my designs for two years but I realised I couldn't make enough money to live. I then did the complete opposite and went into finance… which helped to pay our mortgage.

When we had young children in the 1990s, I made a slow move into higher education, very small hours in a Pollen Research Unit. I became interested in research and information technologies, but I was worried that technology was seen uncritically, as a driver or a simple means-to-an-end in education. It was the start of e-learning and learning management systems. Teaching materials that had previously been openly accessible on web pages went behind closed doors. I had been training staff and leading funded projects but then I taught computing and studied alongside. After my Masters, I did my PhD in Sociology and taught Sociology. In 2012, I met Petar on an academic anarchist website, visited Zagreb, and this is my 6th visit, as I have attended several wonderful conferences that Petar has hosted.

In my research about digital technologies and university policy, I have been critical of McDonaldised discourse which refers to what technologies, and not people, are enacting (Hayes 2019). I have argued against such dehumanising discourse, but conversely pointed out problems in university inclusivity and diversity policies. Here the discourse omits the complex interplay of digital technologies, data, and AI systems (Hayes et al. 2023), as these intersect with people's existing disadvantages, and 'postdigital positionalities' (Hayes 2021, 2023).

On the Citizen Science side, I'm interested in Citizen Humanities, Environmental Humanities, Digital Humanities, and why these tend to sit separately to Citizen Science. More than categories, I want to better understand diverse citizen researcher identities.

Themes from the Collective Dialogue

In this section, we discuss the range of themes that emerged in the collective dialogue that followed our personal narratives. Themes are grouped together below and clustered where they are similar in nature, if a little different in the use of language.

Democratic Issues, Language, Positionality, and Identity

How citizen researchers are being understood in different ways was a theme that was often voiced in the discussions. This included questioning our *common understanding of terms: citizen science; research; science, citizen humanities, digital humanities, dialogue.* Also, *power dynamics within knowledge exchange relationships* and *altruism* and *activism.* Examples are as follows:

– The children are citizens, and the teachers are citizens, so it's citizen science. (Sarah E.)
– Tickling the scientist inside the child. (Deni)

- I enjoy collecting information as a citizen scientist, but I never worked as a professional. (Zoran)
- My work as a citizen scientist is as an activist and an academic. (Safet)
- We generate new knowledge that we share with the community, translating it into accessible language. (Safet)
- I translate academic knowledge into activist practice. (Safet)
- Citizen science to change public opinion/law. (Ana)
- It looks at citizen scientists as objects of research and we wanted to flip this power dynamic. (Petar)
- But you can't deny that different academic disciplines have their own sub culture. The way of thinking their own methodologies and so on. So there will always be categorizations. (Linda)

An academic need to define terminology around citizen science and humanities may arise from this theme; however, definitions constructed purely by those in universities are not proposed as a satisfactory solution. Evolving use of language should be acknowledged, together with ensuring that future discussions around defining the space are inclusive of those participating in such work. An academic text that is written only by academics and not accessible to citizen researchers would be likely to reinforce the divide discussed by the group, rather than support fruitful collaboration.

Environment and Sustainability

A general *air of pessimism*: of *human impact on the environment*; *disempowerment*, and *the importance of volunteering*. For example:

- Watching the sea, getting depressed at environmental issues. I see what's going on. (Deni)
- Mapping history before it is hidden with rising sea levels. (Sara P.)
- Look more about this dynamic between those volunteers who put the data. (Filip)
- Somehow maybe share the information, so that we change public opinions and by that we change policies. (Ana)
- Children are the really big audience for all of this work and the activism, and they really want to be involved. So how do we support them to do that? (Sarah E.)
- I am transferring my knowledge from academia to try to stop the huge industrial companies from spoiling the rivers. (Safet)
- To avoid environmental vandalism, we need spaces for open discussion. (Sergej)
- I think all of us can find some area where we can do something for a better world. (Daniella)
- Addressing digital sustainability is also very interesting. (Sergej)

Local and global environmental challenges require the attention of all citizens. For many in the focus group, academia was too slow to be of use for helping with the issues they could visibly see getting worse. The sense of urgency and frustration at lack of action was explicit in the shaking of heads around the table, but the sharing

of new means of activism via social media, for example, signified hope that there were citizen researchers and activists who could connect and bring about change.

Power and Status in Academia and Knowledge Exchange

Challenges of *power and corruption* as these play out through government and education systems. *Open Access issues and dissemination*, *access to citizen research by others. Issues around writing: getting published in academia* (too slow and exclusive); *levels of writing* (academic papers, practitioner outlets, social media, press releases, etc.); role of *ChatGPT* and other *generative AI systems*. For example:

– I found academia to be a very hostile environment. It's all about 'going up the ladder' and what you are prepared to do to get there. (Sara P.)
– Universities and academia is not only oppressive here, but it's also overly slow for the demand of contemporary life and changes that we need. (Ana)
– Publishing in acknowledged journals, losing rights to your own work, having to buy access to papers of other colleagues. (Sara P.)
– Access to knowledge should be free. (Sara P.)
– We have huge problems publishing our stuff. (Safet)
– It is very hard for librarians to publish scientific articles here in Croatia. (Dolores)
– Architecture comes under Technology in Croatia. In the West it is placed under Arts and Humanities. For Croatian scholars, this causes problems when publishing in academic journals. (Filip)
– Academia is too slow, old fashioned a mechanism for the issues the world is facing. You can publish on TikTok. (Ana)
– In education we put findings out at different levels for parents, children, policy, on social media too. It can take 2 years to publish a journal article. (Linda)
– We can pool resources and help with publishing outlets if we work together. Importance of networks, foster collaboration, remain connected. (Petar)

Making the outcomes of research more accessible is not just a question of open access. It also concerns the accessibility of the language, the length of academic articles, and the extended time taken to publish. Citizen researchers are also faced with questions around what to access, which source to trust, and how to summarise the findings of such a large body of outputs. Critical consumption of research becomes even more pressing when considering the increasing role of AI.

Relationship with Universities and Their Relations with External Organisations

Who is *doing the outreach*? *Funding/no affiliation for research outside of academia.* Issues of *dissemination at conferences* and *research conducted in own time using own funds.* For example:

– Most of my research and conferences were conducted during my holidays. Most of these were self-funded. (Barbara)
– Due to my employment in a museum, many colleagues from universities do not see me as an equal. (Barbara)
– I figured that working with different sectors is easier than staying in your own. (Sara P.)
– I have been excluded from research and treated as mere provider of information. (Barbara)
– I figured no organization will help with the heritage knowledge, so I was doing the free walks through heritage for local people. (Sara P.)
– There are funding challenges so I am trying to find small companies to help us. (Daniella)
– An important institution which connects universities with all those other stakeholders should be the library. (Petar)
– Libraries are ideal places that can connect scientific and local community and also librarians are really very skilled in data and also in some online tools. (Dolores)
– That works too with the children as participants, children as citizen scientists, and how different links can be made. (Sarah E.)

This theme raises the question of whether there is an unwritten assumption that university-based colleagues can publish and attend conferences to share their research, but the same invitation is not extended to citizen researchers. For example, colleagues in museums, galleries, and libraries may be seen as the public-facing experts in their field but are not made to feel welcome at academic conferences. Citizen researchers respond to these inequities with their own innovative systems but still they face issues with exclusion from funding opportunities if they are not affiliated to a university.

Data Interactions, Access, and Ownership

Data sets collected mainly online and uploaded to larger database (some owned, others controlled by outside agencies). *Some data retained in memories*. Issue of *disciplinary silos*. Ways of *collecting data a bit differently*. For example:

– Development of this web-based system, which gathers the data collected from the weather stations across Croatia, which we then present in various forms to companies and individuals that need the data. (Zoran)
– We maintain a website with a mass of information that people can use. (Zoran)
– Network of 1200 people who actively record effects of tourism in this historic area. (Ana)
– Citizens post recordings to protest against gentrification and issues with tourists behaviour. From street cleaners to people who make deliveries, they photograph, record and upload video materials to be viewed online. (Ana)

- This is one way that we can push back on so much data collected on each of us in society, by people collecting and posting the realities. (Sarah H.)
- This is using media tools for self-protection as the material is immediately broadcast to main press agencies. (Ana)
- One of the biggest technological achievements in the area is the open online database of Croatian dry stone heritage. (Filip)
- This stuff is just for my passion and it's not really useful. It's just for me to do. I'm not collecting data on that. (Deni)

Sharing data is described as important for citizen researchers, both for accessibility and to support activism in relation to global and local issues. The sharing of datasets online becomes a visible output of the research, an alternative to the traditional academic article, where the evidence is used to demonstrate the need for action.

Postdigital Understanding and Input into the Concept (Dialogue)

Our *posthuman condition, postdigital, biodigital convergences.* This included reflecting on the in-person experiences in a museum that technology does not replicate, how virtual reality may affect the brains, and experiences of children and what balance can be found. For example:

- Postdigital is a condition in which you are all completely immersed. (Ana)
- Postdigital is a process. (Ana)
- My book was written postdigitally with a lot of people sending me scans as I had no funding to travel to research. (Ana)
- Rather controversial term of postdigital, to better understand connections with human beings and not saying technology drives everything. (Sarah H.)
- Trying to find balance between technology and a focus on the object in my museum. (Barbara)
- The first person experience of seeing, touching something, smelling something that's really there (Deni).
- What I'm interested in is the fact that everybody can come, with my phone I can put something in the on the map with a pin. (Petar)
- Biodigital, where biology, humanity, technology seems all intermingled. (Sergej)
- It is very important to raise the question of and status of biological imposition of space, not only to assume it as a technological space, to introduce the concept of posthuman. (Ana)
- Our being immersed inside the technologies in position space, but we are also defining ourselves as complex beings that consist not only of our own bodies but also our own viruses and our own genes and parasites. (Ana)

Discussions ranged from providing children with devices, phones, and tablets to access so much information yet not teaching them about how this relates to life

and learning. Questions were raised too about institutional and commercial platform power structures and parallel systems, public spaces and knowledge, and how to negotiate a healthier life across these spaces.

Key Takeaways and Recommendations

Science in the Service of Humanity—Contrasted with Disciplinary Sciences

In summary of this discussion section and the themes that emerged, it is clear just how intermingled physical and digital citizen research concerns are across disciplines and sectors, requiring 'science in the service of humanity'. This also revealed linguistic and structural differences across nations in how scientific research is either siloed into different disciplines (chemistry, biology, physics, for example) or understood more broadly as all life sciences to serve human beings. This includes interdisciplinary environmental and green futures issues, AI, our posthuman condition, security and resilience, power dynamics in knowledge exchange, different species, spaces, cultures, heritage, connected communities, lack of equity with university researchers, funding and affiliation challenges, slow academic publishing concerns, exclusion, data, and disadvantage. Yet, perhaps most importantly, a human needs to enjoy work.

Reflecting on the Significance

We undertook a reflexive, collaborative dialogue to apply some of the principles of 'constructing postdigital research' (Jandrić et al. 2023b), and within this approach, to listen to diverse citizen researcher positionalities in order to effect change (see Hayes 2023) (Fig. 10).

We have learned of the challenges for citizen researchers, as the language and practices of each postdigital community researcher has intersected with the language and practices of academia and governing institutions. Reflecting on this, if the many postdigital social and environmental challenges raised in our discussion section are to be addressed, then more equitable knowledge exchange practices across sectors and disciplines are needed.

In the tentative model in Fig. 11, we can value and take forward arguments from different research positionalities (wherever the researchers themselves may be based) for fruitful collaboration across sectors, age groups, cultures, and disciplines. We can call out inappropriate language and also look for equitable ways to co-publish our findings, seeking parity of esteem for co-researchers in communities and universities (Hayes 2023). Ultimately, this also requires changes in university and government policy and practices, as well as those of funding councils and publishers.
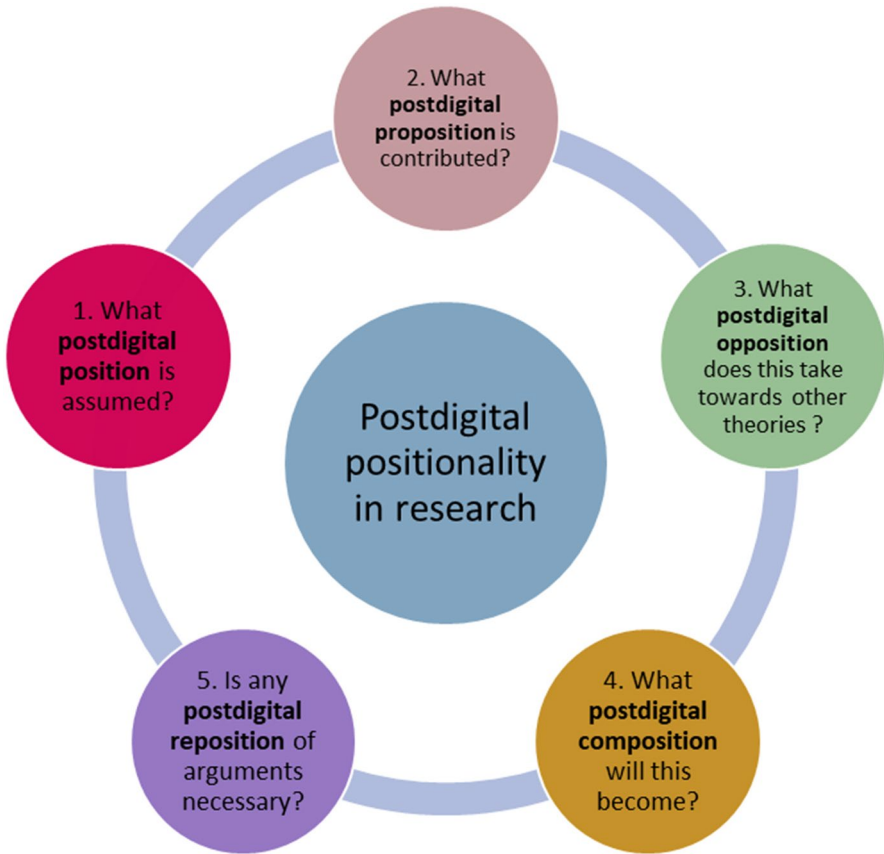
Fig. 11 A tentative model for developing a postdigital positionality process in research (CC BY 4.0)

Recommendations for Policy and Practice

Interdisciplinary citizen research, in all of its diversity, raises an important challenge to our existing higher education (HE) structures and processes. Stressing the importance of knowledge exchange from a position in universities will not connect productively with the pressing concerns of those who are researching matters of global importance in wider communities. We therefore recommend the following actions to inform HE policy and practices:

- Language and terminology matter in relation to citizen/participatory sciences and humanities; therefore, avoid referring to 'non-academic' actors.
- Review how community, citizens, and research are understood and referred to in funding calls and calls for contributions to academic publications.

- Examine where citizen researchers might collaborate at all methodological stages of a research project through to publication and dissemination at conferences.
- Changes are needed to rapidly report outcomes of research in more accessible language.
- Recognise that new opportunities are opened via posthuman and postdigital perspectives and this has changed the nature of research collaboration and engagement.
- Universities now need to ask how they can adapt their processes to better enable agile partnerships that support and connect with community research issues, rather than to present topics to citizens and simply ask them to gather data alone.

Conclusions

We cannot say, as collective authors of this paper, that this work is concluding as such. The research continues, and meanwhile from our warm exchanges in Zagreb, we all have new potential collaborators for our projects to follow.

The Covid-19 pandemic brought a raft of new viral terminology into use and the experience of 'lockdowns' was a big part of this. As we discussed earlier, we see analogies in the findings from our Zagreb citizen research workshop with the concern that 'lockdowns' of different kinds in educational institutions, museums, research funding councils, and publisher models persist. Such 'lockdowns' may take the form of divisive language about researchers working outside of universities, or restrictions of affiliation and status. Parts of a research cycle can appear to be 'locked down' and not accessible to those citizen researchers who gather data as experts, yet often miss out on valuable opportunities that only those in educational institutions can participate in. Unless addressed, these findings will continue to hamper valuable cross-sector research which could have considerable impact in addressing postdigital societal challenges.

We therefore look forward to running further events of this nature and would like to thank every participant for such valuable and enjoyable exchanges so far!

Open Review 1: Re-Signation, Relocation, and (Re)Action (Michael Jopling)

There's a problem with universities. That is what all of the narratives and experiences collected in this article suggest. What is either most troubling or most reassuring, depending on your perspective, is that this seems to be a problem for everyone. Contributors to the article who are not or no longer university-based confirm what the other articles in this series have already identified (e.g. Jandric et al. 2023) in feeling at best patronised and at worst exploited by their contact with universities through citizen science and/or humanities. At the same time, the article begins by referring to Watermeyer et al.'s (2024) notion of 'academic anomie' and the overwhelmingly toxic effects of academia on those still working in universities in the

UK. This article suggests that this toxicity extends far more widely. However, the fascinating narratives collected here are significant not only because they identify some of the micro-issues which contribute to this dominant sense of anomie, but also because they also hint at potential solutions in which citizen science and humanities could play a crucial part. I want briefly to outline three of these issues.

First, it's an issue of language. Like the figure of lockdown with which the article toys at the beginning, the language of higher education too often has a deliberately exclusionary function. Among the contributors, Safet gives what I am calling citizen research an interpreting function, both generating new knowledge and, importantly, 'translating it into accessible language'. Filip demonstrates how 'citizen architecture' ignores in practice, but falls foul of in theory, its disciplinary position between technology and humanities, which makes publishing results problematic. Zoran distinguishes between working as a citizen scientist in meteorology and being 'a professional'.

These distinctions are persistent and often invisible. For example, only those of us based in universities have ORCID links following our names at the beginning of this article, which rather undermines the fact that ORCID stands for 'open researcher and contributor ID', not to mention orcids' long association with dissidence and subversion (Gajewska 2022). More literally, Sara P. offers heritage walks to share archaeology with locals in their language, not just in the languages of tourists. Therefore, it seems important both that a visual approach was adopted in the workshop in part to address language barriers and that this is also reflected in the article itself. This all suggests that citizen research is about translation in the broadest sense, in which it approaches Berardi's (2024: 142) transformative notion of 're-signation' which, as he explains 'in English can mean (if we like—after all, words mean what we decide they do) "re-signification," an act of rewriting signs and reassigning signifiers'.

Second, it's an issue of location. These citizen researchers are outside universities, and being outside universities, they are often much more embedded in, and closer to, the environment (Safet, Sergej). They are concerned with the postdigital balancing of technology and artefacts (Barbara). They live in exotic and enticing places such as an ancient roman palace (Ana) and a lighthouse (Deni). This demonstrates that it is not only the workshop that was a 'co-created space'. The contributors here inhabit their locations, as well as analyse them, in ways that universities usually do not. Being involved in citizen research enables them to engage their interests and resist hierarchical imbalances (Dolores) and academia as 'hostile environment' (Sara P).

Finally, it's an issue of (re)action. As Tolbert et al. (2024) have already demonstrated, it is striking how many of the narrators collected here are activists. Sarah E., Safet, and Ana use the term explicitly, whilst others enact it. Sometimes this is in reaction to the slowness of academic responses (Ana)—after all, there is no time to lose. At other times, their research is defiantly not about data collection, but about inhabiting a place, watching the sea: 'Just noticing' (Deni). Like the joy which both Sarah H. and Sara T. highlight, this shows how citizen research allows some of its practitioners to resist what Slater (2011: 57) in his exploration of late capitalist anomie calls 'the production of despair'. Along with the sheer range of interests and activities on display in this article, that should be something to celebrate.

Open Review 2: On Their Own Terms: Postdigital Practices of Freedom and Joy (Sara Tolbert)

The academy does not have a monopoly on research. The collaboration articulated in this article, alongside the personal narratives of citizen researchers, underscores this reality. In today's postdigital landscape, research extends far beyond the confines of traditional academia. The work presented here illustrates the diverse and expansive nature of knowledge production. What is particularly provocative about these narratives are the ways in which many of the contributors have felt limited or even silenced by the constraints of institutionalised research. As pointed out in the Introduction, they have struggled to have their voices heard from within formal institutions, despite the many ways in which their work addresses postdigital challenges of local and global concern. They also expressed their dismay with the slow and bureaucratic nature of academia, which hindered their ability to do the work that mattered most to them.

Their experiences of disillusionment resonate with many academics whose experiences of academic anomie have prompted them to leave the sector (Watermeyer et al. 2024). Sara P., for example, found academia to be 'a very hostile environment' focused on career advancement over knowledge sharing. She critiqued the system as not only corrupt, but also a gatekeeper of knowledge. Citizen researchers also described feeling trapped by formal institutions. For example, Ana P. commented how '[o]ld fashioned academia is too slow for the demands of contemporary life' and for her activist work. Her role as a citizen researcher supports her efforts to work outside of the constraints of institutions to change law and public opinion. Similarly, Filip mentioned that 'administrative procedures are often limiting' in his work with dry stone heritage.

From within the academy, academic researchers in this article articulated important critiques about the lack of humanity of academic research. Petar observed the ethically and epistemologically problematic nature of how citizen scientists are often treated as 'objects of research' in the academy. Sarah H., like Sara P., critiqued the gatekeeping nature of knowledge that occurs through how vernacular approaches to research are characterised and studied in/by the academy, creating artificial silos between Citizen Science, Citizen Humanities, Environmental Humanities, and Digital Humanities. These silos stifle the cross-sector co-production of knowledge.

As colleagues and I have written of our own recent postdigital academic trajectories, experiences of alienation can bring us together in communities of the alienated (Tolbert et al. 2022). A stark contrast to the toxic culture that is pushing a growing number of academics out of the university, the culture of the collaboration among citizen researchers and academic researchers in this article embodies the cognitive empathy, humility, and other human-centric values that contribute to thriving research communities (Watermeyer et al. 2024). For example, the workshop was designed to surface participants' own ideas on how they would identify themselves in the context of postdigital citizen research, and as such became 'a co-created space' rather than a traditional focus group or workshop. The collaboration fostered rich, interdisciplinary dialogue, bringing together researchers from various

backgrounds, including academia, museums, libraries, and independent citizen researchers.

Rather than going completely 'off the research grid,' so to speak, citizen researchers and co-authors of this article have found ways to creatively circumvent and subvert the institutional constraints that might otherwise stymie their work. They have each created a pathway to do research that matters, and *on their own terms.* In this sense, together and with their citizen research partners, tools, and communities, they enact practices of joy and freedom. These practices of joy and freedom in many cases occur simultaneously inside and outside of academic institutions, networks, or resources, in other cases emerging from them, and in some cases constructed completely outside of them.

Sergej embodied this desire through his motto, 'I don't work, I enjoy'. Filip mentioned finding 'little pockets of freedom' and managing to do work that mattered 'under the radar', even whilst working within academia as an adjunct teaching assistant collaborating with young academic researchers. Daniella, relying on small donations and her own money to bring table tennis to individuals with Parkinson's disease, has expanded her networks and enhanced the quality of life and increased freedom of movement for hundreds of people around the world. Zoran's weather station, which originated from personal enjoyment as a hobbyist meteorologist, has grown into a significant project that brings better weather information and updates to the public than national weather service.

The article demonstrates how citizen researchers and academics can collaborate to create thriving, inclusive research communities—on their own terms. The community facilitated through the workshop was built on mutual respect and shared passion, offering a compelling alternative to the alienating environments often found in traditional academia. The creation of a WhatsApp group to continue dialogue after the workshop indicates a desire for ongoing connection and collaboration beyond the initial meeting. By bringing together diverse perspectives in a spirit of mutual respect and shared inquiry, this collaboration demonstrates how research communities can thrive when they prioritise human connections and shared enjoyment of diverse research practices and knowledges, beyond the constraints of academia.

Open Review 3: From Being Locked-Out to Locked-In (Richard Watermeyer)

To thrive, or indeed, survive contemporary academia, requires unerring focus on the acquisition and accumulation of positional goods; goods that are typically derived from research and which, all importantly, confer their owner with status; easily lost, yet not so easily won. The cultivation of status among academics is thus a primal urge and absolute need: a precondition of their eligibility and barometer of their longevity as operators within an unforgiving prestige economy that provides no sanctuary or respite for also-rans. Where status wanes, irrelevancy and the threat of oblivion creep. Avaricious, anxious, and hawkish behaviours proliferate.

Such has become the case especially in more recent, 'neoliberalised' times, where an invasion of audit and surveillance technologies (intended to maximise productivity and mitigate the profligacy commonly associated with public sector

organisations) and the evolution of the university into a panopticon of 'hyper-performativity' (Macfarlane 2019) have resulted in the precarisation of academics and analogously, the assertion of individualism over collective and collegial endeavour. In their rigid obedience to 'competitive accountability' (Watermeyer 2019), academics have ostensibly locked themselves *out* from each other and their wider communities and brought about a state of profound isolation and estrangement.

Their fetishisation of competition and penalisation of the un/non-competitive (with exclusion) has ultimately become so gross and unpalatable that increasing numbers have found themselves crossing an anomic threshold. The experience of the pandemic (and affordance of national lockdowns for meditations-on-the-self) has sparked a self-awakening and confrontation with what should be no longer tolerable. The loneliness of the academic as prestige-hunter is being rejected as are the fraudulent claims of academia's monopolistic right to knowledge. A new cultural economy for academia is brought into view, reflected in these personal vignettes, which provide a clarion call for the disinvestment of prestige economics and the centralisation of *people* and common humanity to academia's core mission.

These then are accounts that exhort the deterritorialisation of knowledge and the renunciation of knowledge borders, while commending the value of getting lost in the nomadland of the (postdigital) boundary crosser. They are accounts that articulate the joy, authenticity, and efficacy of shared, though unexpected and unscripted conversations, uninhibited by the misassumption of status as that which legislates knowledge creation. The greater chance that these conversations may birth knowledge horizons, the search for prestige might only impede. They are accounts that reject the social peripheralisations and inequities of academic capitalism, the hegemony of (and impoverishment by) positional goods, and the poisonings of outsiderism, imposterism, and anomie. They are accounts that celebrate the knowledge worker as activist and societally agentic and the potential of a new language of collaboration (not competitive performance) in a milieu of necessarily *collective* problem-solving.

They are accounts, however, that are far from naïve or neglectful of the perniciousness of the present reality and the stubbornness of the status quo. Instead, it is their very honesty and uncommon humility, which provides such cogency in calling out the degradation and dishonesty of a system which keeps 'scientists' of all stripes and citizenship, locked-out rather than locked-in, and offers real hope for the public compact.

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