

<b>Institution:</b> University of Liverpool		
<b>Unit of Assessment:</b> UoA27 English Language and Literature		
<b>Title of case study:</b> Enriching Ecological Understanding and Enhancing Healthcare Practices through the application of Literary Research into Science and Environment		
<b>Period when the underpinning research was undertaken:</b> 2004-2020		
<b>Details of staff conducting the underpinning research from the submitting unit:</b>		
<b>Name(s):</b>	<b>Role(s) (e.g. job title):</b>	<b>Period(s) employed by submitting HEI:</b>
Professor Alex Harris	Professor	2008-2017
Professor Greg Lynall	Professor	2004-current
Dr Sam Solnick	Senior Lecturer	2015-current
<b>Period when the claimed impact occurred:</b> September 2015 to November 2020		
<b>Is this case study continued from a case study submitted in 2014?</b> N		
<p><b>1. Summary of the impact</b> (indicative maximum 100 words)</p> <p>Literature &amp; Science Hub (LitSciHub) research into ecology, sustainability, place and the affective power of literature has changed public, artistic and institutional attitudes to nature at a time of environmental and mental-health crisis, leading to improvements in education and healthcare delivery and practice. LitSciHub, often in conjunction with arts organisations (e.g. Tate Liverpool, BBC, Loud Crowd Opera Company), has extended public awareness of the complex relationships between the arts and ecology, and influenced artistic practice. This process generated resources for the development and delivery of innovative educational and healthcare initiatives with a range of major collaborators across Merseyside (e.g. Alder Hey Children's Hospital, widening-participation schools, Everyman &amp; Playhouse Theatres, Mersey Care NHS Trust). LitSciHub changed and enhanced the content and approach of these organisations' arts-based provision and thereby improved ecological understanding, and the health and wellbeing of in-patients, NHS staff and the general public both regionally and, during the COVID-19 pandemic, nationally.</p>		
<p><b>2. Underpinning research</b> (indicative maximum 500 words)</p> <p>LitSciHub research argues that literature offers one of the most powerful ways of exploring the past, present, and future of humanity's complex interrelationship with the organic world. In particular, literature has a unique capacity to re-imagine and communicate the complex intersections between society, technology and ecology, and to re-shape emotional and psychological dimensions of individual and community relationships with what we call 'nature'. LitSciHub researchers have established a platform from which to explore ways in which arts, education and healthcare can engage with the political, psychological, ethical and aesthetic challenges of environmental, societal and technological changes.</p> <p>Harris's research on culture, place and environment, ongoing since 2008, but most recently in <i>Weatherland</i> (3.1), details the changing British imaginative responses to the natural environment across the centuries (moving from medieval meteorology to current climate change debates). Harris tracks the evolving conceptual and affective representation of weather, persuading us to consider the ways literary culture has always been informed by the environment and, conversely, how our artistic depictions of weather and climate have shaped social perceptions and embodied experience of our environment.</p> <p>Lynall's work on literature, energy and technology, including <i>Imagining Solar Energy</i> (3.2), shows how recovering solar power's history transforms understanding of current perceptions of energy, the environment, and solutions to the climate emergency, and explores the influence of psychological and affective responses to environmental and energy issues upon our choices and behaviours.</p> <p>Lynall and Solnick's interdisciplinary exhibition at Tate Liverpool ('Made from Light', 3.3) brought together expertise from across the University of Liverpool to trace histories, cultures and</p>		

futures of energy, with interactive demonstrations, creative writing workshops, talks, displays and performances from Architecture, English, History, Engineering, and the Stephenson Institute for Renewable Energy. The visiting public wrote their own imaginative responses, and these were added to the exhibition itself, to emphasize the importance of dialogue between different voices and disciplines as part of LitSciHub's approach to transforming public understanding about energy.

Solnick's research since 2014 addresses issues such as activist art, conceptions of place and landscape, technology and embodiment, pollution, and climate change. His essay 'Apocalypso' (3.5) identifies a strand within environmental thought and literature that foregrounds hope and collective agency against the despair and cynicism often associated with visions of apocalypse. Solnick's monograph *Poetry and the Anthropocene* (3.4) argues that literature offers a space to both engender and interrogate cognitive and emotional responses to nature. Solnick explores the belief held by some contemporary poets that literature can act as a kind of 'medicine' for a diminished awareness of landscape, mortality and embodiment, and concludes that it offers valuable insight into the way we think, feel, and act in relation to nature, with implications for sustainable behaviour, psychological health and the processing of death and pain.

The publications, workshops and learning resources created from LitSciHub research around environmentalism and affective responses to nature provoke individuals and communities to reconsider their agency, their embodiment, their responsibilities, and the possibilities for change and belonging.

### 3. References to the research (indicative maximum of six references)

3.1. Harris, Alexandra, *Weatherland* (London: Thames and Hudson, 2015), book, Website: <https://thamesandhudson.com/weatherland-9780500518113> [Ondaatje Prize shortlist; Wainwright Prize Longlist; Atmospheric Science Librarians International Choice Awards winner]. [REF Output]

3.2. Lynall, Gregory, *Imagining Solar Energy* (London: Bloomsbury Academic, 2020), book, DOI: 10.5040/9781350011007. [REF Output]

3.3. Lynall, Gregory, and Sam Solnick, 'Made from Light: The Art and Science of Renewable Energy', Tate Liverpool (June 2018), workshops and exhibition [<https://www.liverpool.ac.uk/literature-and-science/madefromlight/>]

3.4. Solnick, Sam, *Poetry and the Anthropocene* (Abingdon: Routledge, 2016), book, DOI: 10.4324/9781315673578 [REF Output]

3.5. Solnick, Sam, 'Apocalypso', in *An Ecotopian Lexicon* (Minneapolis, MN, University of Minnesota Press, 2019), pp. 22-33, book chapter, DOI: 10.5749/j.ctvthhdbm.7 [Available from the University on request]

### 4. Details of the impact (indicative maximum 750 words)

The impact has two, related aspects, with the impact on public perception and artistic creation described in Section (A) engendering and providing resources to develop the second set of impacts enhancing education and healthcare practices outlined in Section (B).

#### A) Influencing public perception and artistic creation through LitSciHub research

LitSciHub influenced perception of environmental issues through their publication and exhibition activities. Alex Harris's *Weatherland* sold over 22,000 copies, was one of the most widely chosen titles in UK press 'Books of the Year', and was translated into Korean. Readers reported a change in awareness of the relationship between literature and nature, with public comments including 'opened up a new world into language and nature for me' and '[contained] a breadth of sensitivity to nature, art and literature and enhances our perception of all of these' (5.1). Lynall and Solnick's 2018 'Made from Light' workshops and exhibition at Tate Liverpool (gallery footfall approximately 4,000) featured in Alexei Sayle's BBC TV documentary on the history of Tate Liverpool, and 81%

of visitors surveyed reported gaining new awareness on sustainability, with comments such as ‘completely changed my whole sense of energy’ (5.2).

Hub research also inspired new creative work. Harris’s accompanying BBC Radio series to *Weatherland* ‘A British History of Weather’ (estimated 100,000 listeners), provided impetus for the BBC to experiment with new digital engagement practices, commissioning emerging artists at Ravensbourne College to produce online animations that adapted and visualised *Weatherland*’s content. Other significant artistic outputs that reported being directly ‘inspired by’ Harris’s research include Katie Himms’s radio series *Clouds in Trousers* and Andrea Allen’s paintings (5.1). Solnick acted as an advisor to Opera company Loud Crowd within their production of *The Emperor of Atlantis*. His essay ‘Apocalypso’ (3.5) influenced both the staging and script for initial performances in Cardiff, which fed into their successful Arts Council Funding bid (match-funded by Selfridges) for London performances in 2018 and 2019 with over 1,000 visitors and rated 4\* by *The Times* (5.3).

## **B) Enhancing Education and Healthcare**

The public and artistic responses to LitSciHub research detailed in Section (A) above enabled Solnick and Lynall to develop their own educational and healthcare resources based on LitSciHub research and those responses. Through working directly with the public and schools (particularly groups categorised as BAME, disabled, deprived, or receiving medical care), and through informing the practice of healthcare and arts organisations in Merseyside, LitSciHub researchers have used and entrenched literature as a conduit to addressing environmental and health issues, with impacts on teaching and learning (Bi below), and in-patient and community healthcare practices in relation to palliative care, social/community care, and the wellbeing of NHS staff and those in lockdown during COVID-19 (Bii below).

### **Bi) Improving disadvantaged children’s environmental understanding and engagement using creative responses to LitSciHub research**

Since 2016, Lynall and Solnick have run four youth-engagement initiatives, targeting marginalised and disadvantaged groups across Merseyside, in particular schools from two electoral wards ranked first (Princes Park) and seventh (Picton) nationally for having the highest percentages of children living in poverty. These initiatives involved running writing workshops and creating learning resources based on 3.1, 3.2, 3.3 and 3.4 to improve children’s understandings of their environment and increase their engagement with nature. These activities saw participation from 25 Merseyside schools, generating creative responses to LitSciHub research from over 1,000 children, including cohorts from 4 SEN schools (St Vincent’s School Blind Institute, Knotty Ash Primary Deaf Resource Base, Crosby Special School, Newfields School). Students reported greater understanding (e.g. ‘I learned a lot about the effects that natural disasters have on people physically and mentally’) and teachers said they will now incorporate environmental issues into their literacy classes (e.g. ‘This was not previously a topic that we explored [...] but will be something that we embed into our [English] curriculum’; ‘KS3 Creative Writing will now incorporate more themes about the environment’). In 2018 LitSciHub partnered with arts organisations Shrinking Space and METAL to deliver the ‘Picton Poets’ initiative about climate change, delivering creative workshops to 300 pupils (80% BAME, 10% disabled) followed by a community-backed poster campaign. Shrinking Space said that LitSciHub helped ‘support young people to make connections between their experience of climate science in relation to their everyday lives and immediate locality’, ‘elevated our capacity to convey the importance of the role of art and creativity in communication [of climate change]’, and that teachers had reported positive behaviour changes, including pupils writing to their local MP and joining beach-cleaning initiatives. ‘Picton Poets’ was shortlisted for the ‘Best Creative Programming’ category in the 2020 Creative Green Awards run by the leading arts-sustainability charity Julie’s Bicycle and for an Impact Award in the ‘Environmental Sustainability’ category at the 2020 Liverpool City Region Culture and Creativity awards (5.4).

**Bii) Impact on Healthcare: Supporting the mental health and wellbeing of in-patients, NHS staff, vulnerable adults, and those on lockdown, via creative engagements with LitSciHub research**

LitSciHub has been working with world-leading paediatric hospital Alder Hey since 2017, using Solnick and Lynall's research on affective and imaginative responses to nature to produce resources and activities for Alder Hey's 'Arts for Health' programme that uses arts 'within a clinical and medical scientific environment'. LitSciHub (including Lynall, Solnick and affiliated Creative Writing PhD students Bernadette McBride and Philippa Holloway) contributed to multiple initiatives that improved Alder Hey's healthcare provision for patients and the wellbeing offering for staff. These included i) A series of pop-up exhibitions in Alder Hey's Atrium (based on LitSciHub's Tate 'Made from Light' exhibition in Section (A) above), with patient writing workshops and associated activity packs on nature writing and sustainability created in consultation with hospital arts coordinators, and for use in arts-therapy sessions on all 8 appropriate in-patient wards. Alder Hey said that these 'made patients reflect on issues around the environment as well as thinking about their own wellbeing' and that 'having a programme of creative writing that drew upon the environment and climate change for inspiration has helped to strengthen the messages we are trying to convey'. ii) A 3-month programme of weekly 'nature writing for wellbeing' classes for hospital staff based on LitSciHub research. Alder Hey staff reported a 'greater connection with nature and the environment' and improved mental health (e.g. 'great sense of wellbeing' and 'feel[ing] better-connected and rooted'). iii) The further development of the 'Trees' collaboration (one of the youth-engagement initiatives in Bi above) with 19 poems being permanently displayed as a poetry trail in Springfield Park. Alder Hey reported that 'reading the poems on the trail is designed to encourage contemplation for patients, parents and staff, and is an integral part of the park's art and wellbeing strategy'. Alder Hey also said that LitSciHub writing activities being part of the 'Arts for Health programme was extremely beneficial to our patients' and that LitSciHub 'has really opened up our eyes in terms of how that relationship between the arts and sciences could be much broader, and we plan to develop this' (5.5).

Building on the Alder Hey staff workshops, Solnick and McBride developed a new 'nature writing for wellbeing' programme based on LitSciHub research (3.1-3.5 above) and incorporating creative responses to that research from Section (A) above (such as the Harris-inspired Ravensbourne videos and *The Emperor of Atlantis* script). This was delivered for 'Life Rooms at the Playhouse', a project Solnick ran in collaboration with the Everyman & Playhouse Theatres (E&P) and Mersey Care NHS Trust. This innovative pilot combined creative-learning and healthcare practice to help vulnerable adults from areas of Liverpool that are ranked as having the highest national levels of deprivation (top 1%) and who suffer from issues such as poor mental health, under-employment and addiction. The research-led writing sessions became an integral part of the Life Rooms weekly programme, targeting improvements in users' recovery and wellbeing through creative-learning activities themed around nature. When the in-situ Life Rooms programme was curtailed by COVID-19, Solnick re-designed the programme for YouTube and Zoom sessions. Mersey Care said that the nature-focused creativity sessions brought a 'very important layer' to the Life Rooms' creative activities and helped 'enable more awareness of nature; encourage participants to explore their local surroundings, which helps with stress and anxiety' and highlighted LitSciHub support in creating bespoke materials to 'keep the creative arm of Life Rooms going during lockdown'. E&P also praised the focus on nature and said that 'The feedback from participants evidences that the sessions enhanced wellbeing and helped prevent crisis' (5.6).

Solnick and McBride also used videos and workshop plans created for Life Rooms to support an environmentally- and science-orientated online writing programme designed to enhance participants' wellbeing during the period of lockdown and sheltering from April-July. It was devised for health-sector staff, with participants from staff at NHS trusts and health charities across England (including Alder Hey, Great Ormond Street Trust, Sheffield Children's Hospital, the Brain Charity, and Macmillan Cancer Research), but was also open to the general public. Videos produced for the project received over 7,000 views, 65% of participants who responded to the evaluative survey said the course 'changed their awareness of the relationship between literature and science/environment', and 100% agreed with the statement that the course 'helped your mood or wellbeing during lockdown' (5.6). Alder Hey, whose video of their poem written for



the course gathered over 9,500 views, said that it 'has been a great way for staff to support their wellbeing and mental health during the Covid-19 pandemic [and] has also been so positive to share this programme with our colleagues from other NHS Trusts across the country'. The project featured in media including ITV, a variety of regional press, BBC Radio, and the 'Mental Health Monday' podcast. In November 2020, a selection of the creative works produced by course participants, along with writing resources for use by those in education and arts-based healthcare, was edited into the *Spray of Hope* anthology distributed to healthcare providers and arts organisations, and made available for sale (with profits going to health charities) (5.6).

The success of E&P's summer creative activities, including Solnick's provision (singled-out as a 'must have' by Life Room's Service Users), meant that E&P are now leading on the creative wing of Mersey Care's ground-breaking new 'Digital Life Rooms'. This was launched in October 2020's Mental Health Week and is an initiative to make the service resilient to COVID-19 and, going forward, more accessible and with a wider reach. E&P said that 'thanks to their success in the initial pilot, and on Zoom during COVID', Solnick's nature-writing-based programme is 'now part of the ongoing creative offering at the new Life Rooms On-Line' and being developed into a 'sustainable long-term offering' for Mersey Care service users (5.6).

#### **5. Sources to corroborate the impact** (indicative maximum of 10 references):

5.1. Evaluation report on Alexandra Harris and *Weatherland*: containing testimonials, sales statistics, reviews and media examples evidencing the reach and influence of Harris's research and its role in inspiring new creative work.

5.2. Evaluation report for 'Made from Light': confirming Tate footfall, visitor responses to the exhibition, and photo documentation.

5.3. Testimonial letter on *The Emperor of Atlantis* from Loud Crowd, confirming the influence of Solnick's research on their production plus photo documentation of production.

5.4. Evaluation report on 4 youth engagement initiatives 2016-2020 (Powers of Nature; Trees; Picton Poets/Amplify; Building for the Future). These include testimonials from collaborators (Alder Hey; Metal/Shrinking Space) and feedback forms from schools confirming influence on arts-educational practice and on young people's engagement and understanding.

5.5. Evaluation report on LitSciHub initiatives with Alder Hey Children's Hospital (atrium exhibitions, creative writing with patients, activity packs for wards, staff nature writing for wellbeing initiative, 'Trees' poetry trail). Includes testimonials from Alder Hey, staff feedback forms and photo documentation confirming impact on Alder Hey's arts-based health and wellbeing strategy, its delivery and the benefits to patients and staff.

5.6. 'Nature Writing for Wellbeing' report, including testimonials from the Everyman & Playhouse Theatres and Mersey Care confirming LitSciHub enhancement of Mersey Care and E&P service delivery, benefits to their service users and ongoing collaboration of LitSciHub in the Digital Life Rooms. Report also contains lockdown writing initiative video statistics; media coverage; survey responses; Alder Hey testimonial and documentation of resources and anthology confirming effects of participants' engagements with LitSciHub research to benefit their wellbeing.