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4 **The Last Hurrah (and The Long Haul): co-creation of theatre as climate change education**
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28
29 **Abstract**
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32 *Meaningful action on climate change requires affective engagement with the human impacts of the*
33 *problem. The Last Hurrah (and The Long Haul) project was developed using theatrical storytelling as a*
34 *tool to provoke thought and empathy about the lived experience of climate change. Over a period of three*
35 *years, a company of Acting students and their lecturer worked with faculty and students from a*
36 *Geography department to explore climate change stories and the physical and human geographies that*
37 *shape their impacts.*
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41 *This paper reflects on the process, highlighting opportunities and challenges for Geographers to become*
42 *involved in interdisciplinary teaching and creative engagement as part of a more holistic approach to*
43 *wicked problems, and explores the impact of the learning experience with the students involved. We*
44 *conclude that storytelling is profoundly suited to overcoming the psychological barriers that can stand in*
45 *the way of appreciating and empathising with the implications for everyday life of an altered climate*
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3 *system. Recommendations are made for future interdisciplinary education projects using creative arts to*
4 *address global challenges.*
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7 8 **Keywords** 9

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11 Climate change, theatre, storytelling, interdisciplinarity
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14 15 **Introduction** 16

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18 Almost ten years ago, Haslett et al. (2011, p4) observed that, due to the immediacy of the impacts of
19 climate change, “the next few cohorts of students are the last graduates that could effect meaningful
20 change”. The Intergovernmental Panel on Climate Change recently reported that the task of keeping
21 warming below 1.5 degrees requires a reduction of global net anthropogenic CO₂ emissions by about 45%
22 from 2010 levels by 2030, becoming net zero by 2050 (IPCC, 2018, p. 12). This suggests that Haslett et
23 al.’s statement still has currency. The statement is equally applicable to students outside of subjects (such
24 as Geography, Earth and Environmental Sciences) which tend to feature formal climate change education
25 in their curricula. Moreover, there is an urgent need for an interdisciplinary climate change pedagogy that
26 applies geographical knowledge in a manner that is useful to other disciplines while also remaining open
27 to reciprocally importing knowledge and approaches, a point also recognised by Boyko et al. (2015) and
28 Lehtonen et al. (2018).
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42 The Last Hurrah (and The Long Haul) is a devised theatre project co-created by Bath Spa University
43 (UK) students and staff as a co-curricular activity between 2017 and 2020. The play tells the story of a
44 community living above the Arctic circle whose way of life is closely dependent on natural resources and
45 what happens to them when traditional cycles of seasons are interrupted by climate change. It was created
46 by a company of BA (Hons) Acting students (referred to here as “the Actors”) and their tutor (RL),
47 although the process was guided from the outset by two BSc (Hons) Geography students and one BSc
48 (Hons) Global Development & Sustainability student, collectively referred to as “the Geographers”, in
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3 association with their tutor (ML).
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6 This paper explores the framing of climate change as a wicked problem, the psychological barriers to
7 engagement with climate change, and the process of creating the play. It also reflects on the pedagogic
8 process the students were involved in, and the ways in which our experiences can contribute to a model
9 for future creative interdisciplinary climate change education. Recognising the role of Geography students
10 as “sustainability ambassadors” (see Robinson (2011) for more discussion of this), we include the Actors’
11 learning in our assessment of using this work to teach a ‘wicked problem’ in Geography.
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20 **Climate Change as a “Wicked Problem”**

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23 As originally framed by Rittel and Webber (1973), “wicked” problems are those that are ill-defined, and
24 that have no fixed criteria to determine when they have been solved. Climate change fits these criteria
25 because it entails a complex entanglement of social and environmental considerations that defy simple
26 solutions. This complexity contributes to difficulties understanding climate change, and can impair
27 individuals’ assessment of how big a risk climate change presents.
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34 Environmental psychologists place emphasis on the influence of understanding a risk on behavioural
35 response (Swim and Whitmarsh, 2019). They recognise three steps to assessing a risk. First of these is
36 detection of the problem, which secondly must be interpreted as an emergency or a threat, and finally
37 individuals must accept and take responsibility for actions to address the problem. But problems can be
38 difficult to detect or interpret, especially if there is no point of comparison. Humans use mental shortcuts
39 called heuristics to simplify their cognitive response to new information - one of these, the availability
40 heuristic, means that it is much easier to interpret a risk that has been seen before. It can also be easy to
41 think of climate change as being something affecting people who live far away on the other side of the
42 planet, or who will live in a future time some remove from our own, a situation which is known as
43 psychological distancing (Swim and Whitmarsh, 2019). As Lehtonen et al. (2018, p. 345) point out, this is
44 a pervasive problem, and “awareness of interconnectedness has been missing at societal and academic
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2 levels”.

3 4 5 **Storytelling as an approach to wicked problems**

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8 Drawing on research in environmental psychology, Corner and Wright (2017) framed a set of six
9 principles for talking to people about climate change that can overcome some of these barriers. Their third
10 principle is that stories are much easier for people to relate to than scientific facts, an essential step
11 towards fulfilling Swim and Whitmarsh’s (2019) three steps. Creative arts are perfect for this, because at
12 the heart of them is a desire to explore human stories, and to make the unimaginable imaginable. As
13 Hulme (2011, p. 178) argues, “the role of storytelling needs elevating alongside that of fact-finding” in
14 climate change research (and we would suggest in pedagogy as well). Indeed, psychological studies have
15 repeatedly found that policy support and risk perception are strongly influenced by experiential factors
16 and that affective engagement is critical to the promotion of pro-environmental behaviours (Leiserowitz,
17 2006; Lorenzoni et al., 2007). The use of storytelling additionally offers a key method to link climate
18 change to an audience’s social context (Howarth et al., 2020). More recent work using environmental art
19 (Marks et al., 2016) and participatory arts (Burke et al., 2018) have explored attempts to engender such
20 behavioural change. Theatre is a medium especially well-suited to this, as the shared experience of
21 attending a live performance promotes conversations amongst audience-members about the show and its
22 subject matter.
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41 Positive visions are also a key component of meaningful affective engagement. Beattie and McGuire
42 (2019) explore climate change campaigns that they judge to have failed because they offer only a vision
43 of fear without a clear message of what action can be taken, and that do not present a positive alternative.
44 Theatre is a vehicle for building positive visions: as playwright Chantal Bilodeau (2020, p. 23) notes,
45 making theatre about climate change “really means creating a new root-metaphor for our lives - a new
46 worldview”.

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50 Geographers have long made use of collaborations with artists to expand their explorations, for example
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3 the lengthy collaboration of Judy and Mark Macklin (Macklin and Macklin, 2019), or Schaaf et al.'s
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5 (2016) interdisciplinary investigation of a University campus landscape. Of special relevance to our work
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7 is Joanne Jordan's collaboration with theatre students at the University of Dhaka, drawing on her research
8
9 into the lived experience of climate change in Bangladesh (Jordan, 2020). More broadly, we might
10
11 interpret such entanglements with different artistic practices (beyond mere analysis) as part of the
12
13 "creative (re)turn" Geography has been experiencing/exploring in recent years (Hawkins, 2018). As
14
15 Foster and Lorimer (2007, p.431) conclude "all kinds of art-geographical relationship make it possible to
16
17 learn from each other's way of intervening in the world, and to offer better informed critique of respective
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19 practices".
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23 Storytelling, meanwhile, is championed by Burlingame (2019) as way to "re-enchant" geographic writing,
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25 in order to "help close the distance between ourselves and the work we do so we are able to connect to
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27 larger narratives and thereby a wider readership" (p.69).
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31 The notion that affective engagement drives behavioural change is to some extent mirrored in pedagogical
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33 theory, in particular in social constructivism (Jones, 2002; Hill et al., 2019), the idea that knowledge
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35 creation and social experiences are intertwined; and in conversational theory (Pask, 1976), which places
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37 importance on the pedagogic impact of considering an experience from different perspectives.
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41 The approach we have taken is influenced by the notion of synergy. Conway-Gómez et al. (2011) suggest
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43 that synergies in education are motivated by the realisation that no single way of knowing is sufficient for
44
45 understanding the complexity of the world, and that synergy in education involves learning experiences
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47 that invoke contexts beyond the classroom, by bringing together disparate elements with the purpose of
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49 creating something new. As such, the project can be viewed as existing in a "pedagogical borderland", as
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51 articulated by Hill et al. (2016). In particular, we hoped that bringing together students from Geography
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53 and a creative discipline would permit new insights into the human impacts of climate change to emerge,
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55 and to encourage empathy to act as a driver to learning.
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3 Our approach is also a form of discovery-based learning (Walkington et al., 2011), engaging students in
4 the shaping and production of research, although in this case the research output the students were
5 engaged in was performance-based rather than more traditional scholarly output. Involvement in the
6 research process has long been recognised as benefitting learners in terms of depth of learning and
7 understanding (Healey, 2005).
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13 **Climate change education in practice: the making and sense-making of the Last Hurrah (and The** 14 **Long Haul)** 15 16 17

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19 From an interest in both public engagement with climate change, and creating alternative spaces for
20 pedagogy, ML and RL began to discuss the idea of making a play about climate change, and letting
21 student Geographers use their expertise to help shape the direction the play took. Involving student
22 Geographers provided an opportunity for more open exploration of the Actors' knowledge base and
23 transforming views through peer -peer learning (Hill et al., 2019). The ensuing collaboration was entirely
24 co-curricular. An open invitation for Actors was sent out to students on the first year BA (Hons) Acting
25 module Process, Form and Composition via an open call on the module's Virtual Learning Environment
26 (VLE), which drew 4 volunteers, the final 4 Actors being recruited over the course of 2017/18 as the
27 project's 'personnel' needs became clearer, as they seemed like best fit in terms of acting style, skills,
28 interests and 'gelling' with the group.
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42 The two Geography students were recruited from the second year module Climate Change and
43 Sustainability, via a similar online open call. The Global Development and Sustainability student was
44 carrying out a dissertation project which explored student attitudes towards climate change, supervised by
45 ML. All three had previously taken the first year open module Sustainability in Life and Work, which
46 provided a grounding from first principles on climate science, climate change impacts and the psychology
47 of climate change.
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55 In our interactions with the Actors, we were mindful of the barriers to teaching climate change in higher
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3 education identified by Robinson (2011), in particular the impact of media coverage in shaping views and
4 creating a sense of over-saturation, allowing learners to develop misconceptions while feeling informed.
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8 We began our provocation with an introductory session in which ML spoke on the causes and impacts of
9 climate change and SC spoke on student attitudes towards climate change. This was an important
10 component as it demonstrated that other students at the University felt that there had been a lack of
11 dialogue in their lives about climate change, and that misconceptions were widely shared among the
12 Actors' peers, for example the conflation of ozone layer depletion with climate change (Corbin, 2017).
13 We followed this with a panel where the four Geographers invited the Actors to ask them anything about
14 climate change, with the ground rule that there was no such thing as a stupid question. As the language
15 used in different disciplines can be impenetrable to others we had prepared for the fact that the
16 collaboration between the students may need to initially overcome the challenge of approaching the topic
17 from very different perspectives. Therefore, one of the initial objectives behind the project sought to
18 challenge siloed, discipline-specific learning (Lehtonen et al., 2018).
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32 The next meeting in the process involved a discussion centred upon working through potential story
33 scenarios. Students were asked to draw on their experiences and studies in preparation. Possibilities were
34 suggested by the Geographers: one on migration from a rural to urban environment, inspired by real-life
35 situations in Bangladesh; one on the human impacts of coastal erosion, inspired by the case of
36 Happisburgh, in Norfolk, UK; and one on disruption to a way of life that is attuned to the seasons,
37 inspired by the city of Kivalina, Alaska, USA. This latter story was preferred by the Actors, in part
38 because in their imaginations it lent itself to the creation of a theatrical world, but also because it
39 presented a positive image of a sustainable way of life. By the end of this session, the Actors had begun to
40 sketch out a possible opening scene, to envisage the world they were creating. The Geography students
41 organised subsequent meetings to share research and develop ideas, one student sharing a case study
42 report she had written about Kivalina for an assessment on the module Global Mobility, Risks and
43 Environmental Justice, her work on the play having influenced the topic choice for assessment.
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3 The play developed over the succeeding two years, largely dictated by the availability of windows of
4 opportunity in-between programmes of study. Throughout 2017/18 we met once a month before a three
5 week period of full-time development over the summer recess. Originally titled 'When the Whaling
6 Ends', which the Actors felt was too sentimental, the play came to be known as 'The Last Hurrah (and
7 The Long Haul)' as a reflection of both the end of a way of life and the decommissioning of the
8 temporary on-campus rehearsal space that we had been using. The 'Long Haul' suffix was added to offset
9 the festive, 'tally-ho'-esque, partyish sense of 'The Last Hurrah' with a nod towards length, endeavour and
10 hard work. A brief run-through of an opening scene in front of staff and students from the Acting
11 department was used to enlist dramaturgical feedback in April 2018, and there was an extended period of
12 development during the summer before initial performances at Bath Spa University Theatre in October
13 2018. Throughout this period, as the original Geography students had graduated, the Actors took on the
14 role of researchers as well, fleshing out the factual basis of their story with support from ML, delivered
15 both informally through discussions and more formally in a classroom setting (Figure 1). Throughout
16 2018/19, we continued to meet monthly, holding a further five week intensive period of development and
17 rehearsal, until a more refined show was performed at Bath Spa University Theatre in October 2019, and
18 at the Cornerstone Theatre in Didcot in February 2020.

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37 During the period of development and rehearsal for the October 2019 performances, ML (Geography
38 lecturer) and SC (Global Development & Sustainability student) interviewed the eight Actors following a
39 rehearsal in order to explore their reaction to making the play, their previous awareness of climate change,
40 and the learning impact of the project. Actors were interviewed in pairs, and all interviews were audio
41 recorded. The Geographers, having graduated and dispersed, were interviewed via email in March 2020
42 in order to gauge whether their impact of their involvement in the project impacted their attitudes to
43 learning about climate change. Interview transcription was completed by SC, and SC and ML
44 independently applied *a posteriori* codes in order to analyse emergent themes. ML applied these codes to
45 the transcript using the RQDA package in R (Huang, 2018).
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Results and Discussion

Having familiarised ourselves with the interview data and completed the coding we began to generate initial themes, each being mentioned by at least 50% of the Actors (these are presented in Table 1 and discussed in this section). For us, the initial themes overlap across two core themes (pro-environmental behaviours on the part of the Actors, and their anxiety about climate change), which we will return to in the conclusion.

Table 1: initial themes and core themes emerging from coding

Initial Theme	Number of Actors mentioning theme	Core Theme 1: Pro-environmental behaviour	Core Theme 2: Anxieties about climate change
Prior education	8	x	x
Concern over future impacts and conundrum over choices	7		x
Adopting pro-environmental behaviours	4	x	
Sustainable theatre practice	4	x	
Current prominence of climate change discourse	4	x	x
Empathy and enhanced awareness of climate change impacts	4	x	x

The Actors' prior education and motivations for participating

The Actors were asked about their motivations for participating in the project. Although four Actors

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3 expressed curiosity about working across disciplines, two others reported being unsure what their
4 motivations were. Echoing Foster and Lorimer's (2007) assertion that Geography-Art collaborations
5 allow a chance to learn from each others' ways of working, the Actors were positive about learning from
6 Geographers:
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12 *Actor A: "It's quite nice being like, okay, this is what happens when we work together, and collaborate*
13 *with something and this is the result that can happen, and this is how it can help"*
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17 One of our preconceptions before beginning the project was that the Actors would have received little
18 prior formal education on climate change. In fact, their experiences were mixed, although four of the
19 Actors reflected that opportunities for formal education on climate change in primary and secondary
20 school had been missed.
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27 *Actor C: "If you don't take it [Geography] beyond GCSE [General Certificate of Secondary Education -*
28 *a United Kingdom subject-specific academic qualification typically gained after the final year of*
29 *secondary education], you don't get an awful lot do you? I certainly don't remember having any, so*
30 *perhaps that's an indication as to how much I've received. Education wise, I think very little. Especially*
31 *beyond! In sixth form [two years of post-secondary education in the UK, equivalent to eleventh and*
32 *twelfth grades in the United States] , you don't do it at all, as far as I'm aware".*
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40 ***Concern over future impacts and conundrums over choices***

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43 Although it was never explicitly framed to them as such, the Actors recognised climate change as a
44 "wicked problem". Five mentioned feeling daunted by the future impact of climate change in their lives,
45 and that they face a conundrum over the best decisions to make in their lives. Actor E expressed this in
46 terms of enormity of the problem and their powerlessness in its face:
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53 *Actor E: "it [climate change] feels like such a big concept and there's so much to it. It's not just that,*
54 *it's not as simple as I don't know what I can do to change things"*
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Adopting pro-environmental behaviours

We were interested to know how the development of the play had impacted upon the Actors involved in terms of their pro-environmental behaviours :

Actor G: "it's definitely kept me in that headspace and made me very conscious of everything. I've gone out and got a metal water bottle because I don't want to use plastic anymore and all that kind of stuff.

Yeah, it's definitely keeping me in that sphere of being aware of what's going on".

Actor F: "also, after we performed it last Summer the feedback we got actually made me think more, as people were saying "it needs to be seen", the story is relevant and there needs to be more awareness of climate change and things. So, that gave me more of a drive to try harder and do more".

The responses suggest that their work researching the story and making the play had increased Actors' awareness of climate change impacts, and show the benefits of interdisciplinary collaboration as a tool for public engagement with the issue.

Four of the Actors reported that working on the play had encouraged them to adopt more pro-environmental behaviours:

Actor B: "I did make a conscious effort at the weekend when I went home. I usually drive, which is not great, but I got the train. Which is better! I was like, do I just leave the car in Bath somewhere and then get the train. And I was just like, yeah okay I'll reduce the emissions".

Actor H: "I guess I would feel like a hypocrite if I was making a play about climate change and then not doing anything myself".

Sustainable Theatre Practice

Following from an increase in pro-environmental behaviours in their personal lives, work on The Last

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3 Hurrah (and The Long Haul) engendered a critical reflection on practice by the Actors, with four Actors
4 mentioning that they have been considering ways to make the production as sustainable as possible, and
5 understanding that the use of paper to print out script revisions comes at an environmental cost. The
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7 Actors now audit the sustainability of the play, estimating carbon emissions associated with meetings and
8
9 rehearsals, and sourcing recycled set material and costumes where possible.
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14 In our conversations with Actors, we found a range of personal responses to climate change, from
15 accepting the need to change and embracing that change, to occupying a more contradictory space where
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17 the need for the company/ production to be sustainable was a strong belief, but personal change was seen
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19 as harder. Two Actors explicitly recognised this as a double standard.
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24 The process of the creation of the show has now become part of the second year Acting curriculum at
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26 Bath Spa University. Because of this over the past three years, while learning about devising theatre,
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28 roughly 150 Acting students have also been learning, albeit briefly, about climate change and its impacts.
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31 *Current prominence of the Climate Change Discourse*

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35 The timing of our work developing the show coincided with a growing awareness of climate issues
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37 among the UK public (IPSOS Mori, 2019; Steentjes et al., 2020), following widespread media reporting
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39 of direct action campaigns such as the School Strike for Climate and Extinction Rebellion (one Actor
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41 reported that their mother had joined Extinction Rebellion and that this had added to their concern about
42
43 the issue). Actors C and D in particular were open about the relative importance of this in their changing
44
45 views about climate change, and the ambiguity it created:
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48 *Actor C: "Since doing it, a lot has changed in the world. But, that potentially has had more of an impact*
49 *on me than this show. The fact this show exists means yes, my awareness is high. But, I think higher is the*
50 *amount that has changed up and down the country and the awareness of environmental issues in the*
51 *news. It's in the news everyday",*
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3 *Actor D: "There's a culture changing as the show's gone on, so it's hard to tell which had an effect".*

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6 Whether we are able to identify the cause of the effect here or not, we argue the groundswell in interest in
7 climate change underlines the relevance of Geography and ways that interdisciplinarity can help to secure
8 the profile of Geography programmes in student eyes.
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10 11 12 13 ***Empathy and enhanced awareness of climate change impacts***

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16 One of the key intentions of the play is to provoke audiences by overcoming psychological distance and
17 making the human impacts of climate change apparent and relatable, turning scientific fact into human
18 stories in the words of Corner and Clarke (2017). We were interested to know if there was a similar effect
19 on the students involved. To this end, we asked the Actors and Geographers about their views on the
20 effects of climate change having worked on the play. Their responses reveal that they were surprised
21 about the scale of the problem, and in particular had not necessarily drawn the connection between
22 environmental effects and the impacts on human lives:
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32 *Actor A: "it [climate change] is much more prominent than people like to believe and we need to*
33 *actually get that into our heads. I think that's a big part of what this show's done, is being like "no, this is*
34 *actually a lot more serious than you want to hear', but that's the facts of it".*
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40 *Actor E: "oh my goodness, this is a thing that affects real people!"*
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43 *Geographer A: "What I think was interesting was seeing how misunderstood and almost under-*
44 *appreciated the issues of climate change were to the Actors prior to their involvement. I remember one*
45 *discussion in which many of them expressed how they had always thought of the environmental impacts of*
46 *climate change but had never appreciated the effect it has on people".*
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52 *Geographer B: "I think my understanding of climate change drastically changed as being able to see*
53 *their [the Actors'] reactions when the bigger picture of climate change emphasised how most people have*
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3 *a limited understanding of climate change and the true impacts it is having and will continue to have”.*

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6 The responses here reflect the fact that making art has the power to increase empathy, building the sense
7 of interconnectedness that climate action requires (Lehtonen et al., 2018). The benefits were reciprocal
8 between disciplines: for the Geographers, involvement in the project was especially useful for
9 understanding how the human impacts of climate change were not as widely appreciated as the physical
10 science. In the spirit of discovery-based learning, this in turn inspired their subsequent work:

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18 *Geographer A: “I think for me the project helped me to understand the importance of correctly framing*
19 *and highlighting issues/subjects to people without bias to maximize their understanding. This in turn is*
20 *something that I was able to incorporate into my dissertation as a result of the project”.*

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32 *Geographer B: “I understand that effective storytelling through the use of acting can help people to*
33 *connect emotionally to climate change and therefore feel more obliged to act in a more sustainable*
34 *manner. This is therefore something I want to incorporate more and more in my current profession [as a*
35 *primary school teacher]”.*

36
37 Following the analysis of data we will now reflect on the two broader patterns of meaning, pro-
38 environmental behaviours and eco-anxiety, drawing some general conclusions and reflecting on
39 pedagogical implications of the project.
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41 **Conclusions**

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45 In our attempts to facilitate collaboration between the two groups of students, ultimately with the hope of
46 encouraging a conscious shift towards pro-environmental behaviour, we had not anticipated that anxieties
47 about climate change would permeate through different aspects of the project. We were pleased to see
48 that the interview data revealed that our attempts to use pedagogical and interdisciplinary work (exploring
49 geography and artistic interventions in teaching and learning about climate change) did indeed appear to
50 inspire greater reflection and meaningful change for the students. Time will tell whether this is sustained
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6 The students' accounts of coming to terms with the discourses, impacts, and apparent lack of education
7 about climate change all speak to a process that Verlie (2019) calls 'learning to live with climate change'.
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9 Perhaps our most important realisation about The Last Hurrah (and The Long Haul) project has been that
10 this kind of work has the potential to be transformative and enabling for students to express the emotions
11 evoked by and when facing climate change. This leads us to call for a renewed focus on eco-anxiety, its
12 various impacts, and crucially that a sense of hope (see Ojala, 2015; 2016) needs to be embedded within
13 taught programs as part of climate change education – there is a public interest in developing a better
14 understanding to address these concerns, and higher education has a significant role to play in doing this –
15 a focus which we hope to explore further with students in our next project.
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26 Wicked problems are inherently daunting for learners, but environmental psychology identifies
27 approaches to make climate change less abstract. Our work on The Last Hurrah (and The Long Haul)
28 presents a case in which pedagogic synergies arise where creative arts are used to work through 'wicked
29 problems'. By participating in the project, the Actors built a new understanding of the human impacts of
30 climate change and empathy with those who are impacted, which in turn influenced their adoption of pro-
31 environmental behaviours. The work additionally encouraged a critical reflection on practice by four of
32 the Actors, who expressed a desire to explore how the production could be made more sustainable.
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42 The changing context of public awareness of climate issues throughout the time that we have been
43 working on the project means that it is difficult to be sure that reported impacts on the Actors are because
44 of this project. However Geography has never been more relevant and the exchange between disciplines
45 (we would argue) can help sustain and enliven Geography programmes to enrich the student experience.
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50 The ambiguity over attribution of increased awareness in this case is valuable, as it highlights the
51 importance of peer networks in environmental education.
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55 Bringing student Geographers into the project, and presenting research by one of them into perceptions of
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3 climate change among their peers, successfully created a permissive space where the Actors could explore
4 their understanding of climate change openly. The Geographers benefitted from working in a space where
5 they were able to see the importance of affective engagement in enhancing understanding of the impacts
6 of climate change, and also from feeding forward the lessons of this project to their other assignments and
7 beyond into their professional lives. The Actors benefitted from the nascent expertise of GEES students as
8 trusted peers who could share their learning.
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17 For us, the project highlights the success of storytelling in bringing depth to understanding of wicked
18 problems. The scale and time commitment of this particular project means that it does not readily
19 translate to a model that can be incorporated into a module curriculum, however, and when asked what
20 they would change about the project if they could start it again, the Geographers unanimously reported
21 that they would have liked more time to work on it.
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28 That said, practical aspects of the initial sessions can be scaled down for interdisciplinary teaching. In
29 November 2019, ML and RL trialled bringing three of the Actors into a classroom setting in a workshop
30 for PhD students and early career researchers on “Creative Engagement with Global Challenges”. In this
31 workshop participants were led by Actors to develop storylines relating to their own research. A future
32 model for use in a Geography module might see creative arts practitioners or students working with
33 groups on a project to tell a story about a current global challenge, with the intended outcome of bringing
34 depth to student understanding of the issue and highlighting the social realities that underlie scientific
35 facts; conversely Geography students could function as sustainability ambassadors and provide the factual
36 basis for student projects in creative arts subjects. Equally, co-creation of a short piece of theatre, perhaps
37 in collaboration with school drama classes, could form the basis of a climate change education
38 dissertation project or module intervention.
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52 As Lehtonen et al. (2018) observe, though, such an approach is not without challenges. Not least, the role
53 of the instructor(s) is key, because they must mentor and guide the work, which “demands conceptual and
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2 interdisciplinary expertise or it might lead to a narrow and, therefore, limited understanding of the
3 phenomena”.

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7 Affective learning implies an emotional response to the subject matter, and in this case some of the Actors
8 expressed feelings that could be ascribed to ‘eco-anxiety’, concern about the uncontrollable and
9 unpredictable nature of climate change. Anxieties arise as a consequence of working with wicked
10 problems because they are enormous, hard to comprehend, and can challenge our ways of relating to the
11 world, a situation which might be termed ‘Wicked Anxieties’. In some cases, this may be a positive
12 thing, as anxiety can be a motivator for positive action (Ojala 2016; Panu 2020). In other cases, however,
13 there is a risk of leaving learners with enduring psychological discomfort. Ojala (2016) examines this risk
14 in climate change education, and advocates for an open and critical discussion of worries, with the aim of
15 understanding the values and concerns that underlie this concern, as well as a discussion of pathways to
16 possible futures allowing students to become active participants in these pathways. A number of
17 dimensions to eco-anxiety have been recognised (Panu, 2020), and it is important to develop a nuanced
18 understanding to avoid a narrow view of what students are going through.

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34 Although some of the Actors explicitly recognised that they were anxious about the future, some
35 identified more mixed feelings. Actor E articulated this by noting that, although they were generally
36 aware of climate change and the need for action, it was not always a pressing concern:

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41 *Actor E: “I think I should be more worried about it [climate change], but I’m not, but I am at the same*
42 *time; that’s my position”.*

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46 The anxieties of the cast were balanced with a sense of optimism, however, in the sense that by using
47 storytelling to invoke empathy among audiences, the play became a meaningful part of addressing climate
48 change.

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54 We argue that creative collaboration is a valuable student-centered process which possesses a wide
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1 ranging and effective potential for greater exploration as part of a more holistic approach to climate
2 change education. The project was something of a step into the unknown for all involved, existing in a
3 borderland space (Hill et al., 2016); however it functioned as a provocation to the students, staff and
4 audiences involved to reflect on the human story of climate change, providing transferrable benefits for
5 the Geographers, and inspiring sustainability thinking among the Actors. It also reinforced the benefits of
6 storytelling to enhance understanding of climate impacts, following the third principle of Corner and
7 Clarke (2017). Or, in the words of Geographer B:

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18 *“Effective storytelling through the use of acting can help people to connect emotionally to climate change*
19 *and therefore feel more obliged to act in a more sustainable manner”.*

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20 FIGURES
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26 *Figure 1: Theme development notes from a devising session in July 2018 (Photo: ML)*
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29 *Figure 2: Performance of The Last Hurrah (and The Long Haul) at Bath Spa University Theatre, October*
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31 *2018. Photograph by Jack Offord, used with permission.*
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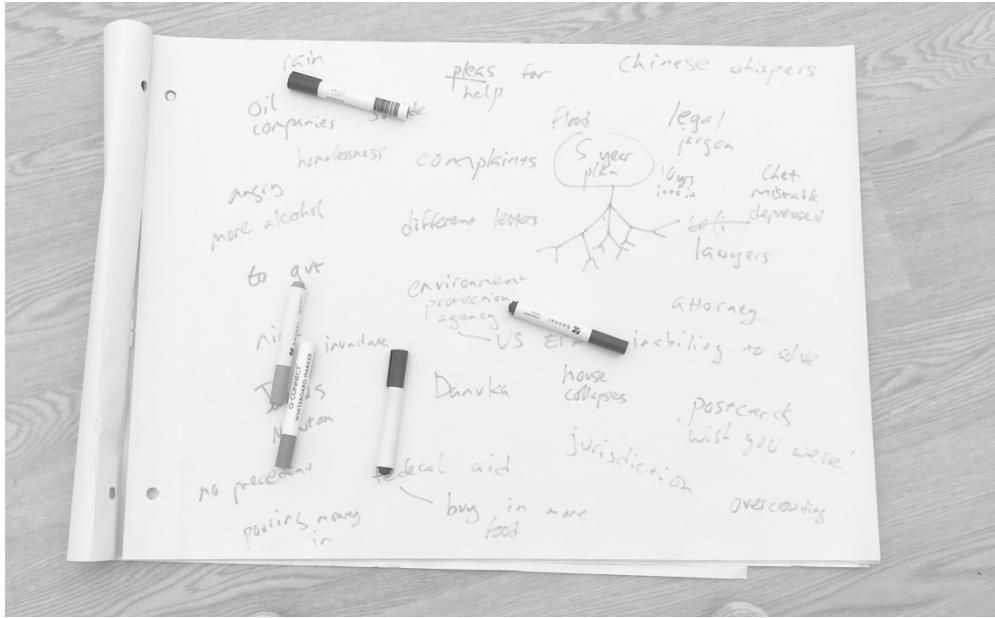


Figure 1: Theme development notes from a devising session in July 2018 (Photo: ML)

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Figure 2: Performance of The Last Hurrah (and The Long Haul) at Bath Spa University Theatre, October 2018. Photograph by Jack Offord, used with permission.

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