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Young people, climate change and fast fashion futures

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ABSTRACT

Young people are key stakeholders in the future, but their stake is rarely considered in decision making and policy development. In this paper we explore how climate change education can allow the voices of young people to be listened to and help young people imagine desirable futures and develop agency to address the steps, both personal and policy based, that are needed to achieve this. Initially reporting on the findings of a survey of 985 young people (aged 7–18 years from across the UK), we explore what young people currently know about climate change. Informed by this data, we then present a creative approach to backcasting, using a participatory action pedagogical approach to explore the desired futures that 150 young people aged 8–11 years have about the fast fashion industry. We suggest that within the context of fast fashion and other climate related industries, such a methodology could enable educators to address climate change without provoking eco-anxiety and provide a way that decision makers in industry and government can listen to young people's voices.

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Climate change; eco-anxiety; backcasting; survey; young people

Introduction

Young people are the generation who will be most affected by climate change (Ojala 2012) and who will be tasked with dealing with the consequences of climate change (Corner et al. 2015) yet they are generally not considered in climate change decision making and policy making. Those children leaving primary schools in the UK (age 11 years) in the summer of 2023, will be 18 years old – with the right to vote – by 2030 when targets of the Sustainable Development Goals (2015) and the various national and international policies relating to climate change are set to be met (United Nations 2022a). However, even before becoming voting citizens, young people are becoming more audible in their desires for action in the face of the climate emergency. In 2021, the UK hosted the UN's global climate change conference (COP26) providing a platform for world leaders to recognise the threats posed by climate change and work to combat their effects. Notable at COP26 were the protests by children and young people for changes in government policy. An officially designated 'Youth Day' saw thousands of young people march in protest, calling for greater youth participation in decision making. A petition signed by 40,000 young people was handed to the COP presidency demanding changes (Quiñones 2021). Following this, COP27, held in Egypt in 2022 had a Youth Envoy and Children and Youth Pavilion; presenting a commitment to hearing the voices of young people, not just as victims of climate change, but as contributors to climate action (United Nations 2022b).

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There is, however, evidence that children and young people feel let down and betrayed by government (in)action (Walker 2020; Hickman et al. 2021). This has been reiterated by Greta Thunberg, a globally recognised leader for young people's climate action, who notes in her speeches that politicians have consistently ignored both climate science and the voices of young people in their policies and decision making (Thunberg 2019).

This paper falls into two parts. In the first part we talk about a survey we conducted in May 2021, with 985 young people in the UK (age 12–18 years) asking them about their views on climate change. Our survey was carried out in response to a UK-wide survey with adults (over 18 years) also from the UK (Holland 2021). As young people's voices often go unheard in policy and planning, despite them being key stakeholders in the future, our survey attempted to redress this balance. After reflecting on the findings of our survey, fast fashion was identified as an area within the climate change debate to focus on. Fast fashion refers to one of the clothing industry's business models where brands mass produce garments at low cost and get these into outlets quickly and at multiple times across a year. Global fashion is one of the most problematic industries environmentally and ethically (Todeschini, Cortimiglia, and Medeiros 2020). 93% of garment brands do not pay workers in their factories a living wage. The fashion industry as a whole is responsible for 10% of global carbon emissions, 20% of global wastewater, and for vast amounts of ocean based plastic pollution (United Nations 2019). Todeschini, Cortimiglia and de Medeiros (2020) note that environmentally sustainable innovation within the industry is reliant on stakeholder collaboration. The second part of the paper considers how young people can be encouraged to address the challenges posed by the climate crisis, with a sense of agency and purpose, seeing their personal future and the global future as being interconnected. To do this we present a creative, participatory action pedagogy, backcasting methodology to explore the desired futures that 150 young people (age 8–11 years) have around the fast fashion industry.

Climate change education – about or for the environment?

We start our enquiry by focusing on what children and young people say they know about climate change and who they believe is responsible for causing climate change and who is responsible for stopping it. Providing young people with the knowledge and skills needed to address and understand climate change has, for some time, been a key objective of environmental education (Kuthe et al. 2019, Monroe et al. 2019, Carmi, Arnon, and Orion 2015).

But, as Jurek et al. (2022) point out, knowledge can be understood in different ways, and that when discussing climate change, there is a difference between factual knowledge and its application.

Students may be aware of the terminology of, for example climate change, but do not understand how the words link up in practice. However, research shows that simply providing information about climate change is a relatively ineffective way of encouraging pro-environmental behaviour (Whitmarsh, Poortinga, and Capstick 2021). The 'bicycle model' of climate change education described in Cantell et al. (2019) helps explain why knowledge alone is not a sufficient spur to action. The model describes the interconnected elements of climate change education. Scientific knowledge is represented by the bicycle's front wheel, but the authors show that a range of other factors are needed for climate change education to be effective including thinking skills, motivation, future orientation, identity and world view and emotions including hope.

We want to start with a focus on knowledge because although currently climate change education is criticised as being positioned *about* the environment, rather than *for* the environment (Dunlop et al. 2021, 29; Rousell and Cutter-Mackenzie-Knowles 2020) and what constitutes effective climate education has yet to be clarified (Reid 2019). We would argue that we (and this includes children and young people) need to know what the issues are before we are

motivated to do anything about them. In other words, we want to start with knowledge because, without knowledge, the climate change education bicycle would topple over and go nowhere.

An accurate understanding of climate change has also been shown to be necessary to develop agency and empowerment and that without a clear understanding of issues related to climate change 'misconceptions may fuel climate anxiety through increased uncertainty and confusion' (Crandon et al. 2022, 27). What is needed is a pedagogical approach that provides young people with knowledge about climate change that is action- rather than fear-based. Such an approach which 'empowers youth with tangible strategies that they can collectively implement' (Crandon et al. 2022, 27) creates meaningful agency for young people which can help reduce eco-anxiety. Young people are more likely to engage in climate change action when they understand the processes underpinning climate change and have knowledge of effective strategies of action (McNeill and Vaughn 2012). Such an approach is endorsed by teachers in England, who indicated that they supported an action-focused climate change curriculum, incorporated into all subjects, and they even identified what they considered to be age-appropriate content for 5–16 year olds (Howard-Jones et al. 2021).

We suggest that *knowing about* climate change in an action-focused curriculum using participatory action pedagogy, would enable children and young people to take part effectively in everyday environmental activism, where they are empowered to act *for* the environment by 'interrupting and altering [their] own – and influencing others' – actions according to their perceived environmental impact' (Trott 2021, 301). Participatory action pedagogy is a social justice pedagogy that positions the learners as participants in the pursuit of knowledge democratisation and emancipatory change. This pedagogy, like that of participatory action research, rejects passive participatory methods of information gathering alone and instead replaces it with participatory interactive workshops and analysis that embeds reflection in order to support agency towards activism (Keahay 2021). Everyday activism may include altering consumption patterns or talking about the climate crisis with friends and family. Without having a clear understanding of the issues involved, these actions and conversations will be less effective and may fuel further anxiety. We would also suggest that *knowing about* climate change enables children and young people to engage with policy in a meaningful way. Although everyday personal activism may not be targeted directly at policy makers or decision makers in industry, these everyday actions, values and practices make up the overall cultural landscape within which policy and financial decisions are made (Trott 2021) and as such will indirectly influence policy makers in government and industry.

Listening to young people talking about the future

Concern had been voiced that young people are experiencing a loss of hope, that they perceive the future as a threat rather than a time of promise (Levrini et al. 2021) and struggle to create positive future worlds. The climate crisis can be seen as a source of distress about the future for many young people (Martin et al. 2022). In a recent survey of 10,000 young people aged 16–25 years, from 10 different countries, Hickman et al. (2021) found that 95% of all the young people they surveyed said they were 'worried' about climate change, with 59% saying they were 'very' or 'extremely' worried. Furthermore, over 50% of the sample reported a range of negative emotions including sadness, anger, anxiety powerlessness and guilt in relation to climate change.

However, there is evidence of a more nuanced position that young people occupy, where they experience a duality in future thinking (Levrini et al. 2021), envisaging the future as simultaneously positive and negative – a form of two track thinking (Threadgold 2012) – in which young people imagine their personal future and the global future as developing along distinct pathways, with their own future seen as positive, optimistic and under their own influence, and their collective, global future viewed with despair and fear, and seen as beyond their control

(Cook 2016), a situation in which 'hope and distress coexist' (Finnegan 2022). This lack of hope in a positive global future is accompanied by a loss of agency – young people feel that there's nothing that they are able to do about the actions of government or industry (Ojala 2015; Baldwin, Pickering, and Dale 2022). This lack of positive images for the future, can have a negative impact on wellbeing (Ojala 2021; Hickman et al. 2021; Wu, Snell, and Samji 2020).

Research in the field of futures literacy (Miller 2010) has brought new insights into how we can develop young people's ability to understand more fully the role that the future plays in what they see and do in the present. It recognises that the way we think about the future will influence our decision making in the present (Pouru and Wilenius 2018). Active engagement with the future is something that can be taught (Häggström and Schmidt 2021) and by developing young people's ability to think about possible futures can allow them to develop a sense of agency and purpose with which to address the challenges of the climate crisis, in a way which supports their wellbeing. We use backcasting with creative activities as there is also evidence that using creative practices in research can be empowering and can have a therapeutic effect as it enables people to make previously hidden ideas and experiences more visible (Richardson and St. Pierre 2005; McKay et al. 2020) which would also allow educators to address the 'emotional landscape of climate concerns' (Finnegan 2022, 1) in a way that supports young people's wellbeing. In this context we explore backcasting as a participant action pedagogy. Backcasting looks at where we want to be in the desirable future and then what steps are needed to achieve this. This sits in contrast to more linear and normative approaches to future planning where the route to the utopian future is based on identifying what the current problems are and then seeks the mitigation of these. Dreborg (1996) suggests that backcasting is a particularly useful model when: navigating a complex issue (which climate change related to fast fashion is); a major change is required (such as the reconceptualization of the fast fashion industry) part of the problem is embedded within dominant trends (which the fast fashion industry feeds off and into).

This paper recognises that research concerning young people and the climate crisis 'needs to go beyond the "giving voice" agenda' (Skovdal and Benwell 2021, 265), where we simply hear what young people have to say. Engaging in dialogue, we suggest, is more fruitful than *listening* to young people. Listening is an intersubjective process, while engaging in dialogue with young people about their vision for the future is 'a practice of creating worlds (…) and of allowing oneself to be recruited into those worlds and being altered by them' (Nolas 2021, 328).

An aim of this paper is therefore, to shift focus from a single narrative reporting on what children know about the climate crisis and what they want to do about it and instead embark on a process of *collaborative listening*, in partnership with young people to explore how their knowledge and understanding of the present and their imagined futures intersects with policy and personal action and, through an art-informed activity, how this could simultaneously support future planning and wellbeing.

Research questions

1. What concepts relating to climate change do 7–18 year olds: report as understanding, feel responsible for, and optimistic that solutions will be found?
2. How can pedagogical approaches support personal and collective responses to an environmental issue?

Phase 1 survey

Data was collected in two phases: a UK-wide online survey, followed by five workshops conducted in schools in the UK. Ethical guidance was taken from BERA (2018), consent was provided

by both parents/carers and the young people participating in the research. Ethical clearance was gained from the University's Ethics Committee.

Participants

In this part of the study, 985 young people in the UK aged between 7–18 years completed an online questionnaire, delivered through Qualtrics, asking for their views on climate change and current mitigation policies. The survey was distributed via schools and youth organisations across the UK, using a combination of convenience, snowball and voluntary response sampling. The survey was conducted in May 2021. As participants were approached via known networks, the problems with contacting young people online were reduced (for discussion see Harris and Porcellato 2018).

As one aim of this part of the study was to explore whether there were age related differences in the answers given by the young people surveyed, the respondents were bracketed into two age groups: 7–11 years and 12–18 years, to reflect whether children were in UK primary education (7–11 years) or secondary education (12–18 years).

In total, 985 young people completed the questionnaire, 289 respondents (29.3% of the sample) were age 7–11 years (mean age 9.60 years, SD 1.33; 53% girls) and 696 (70.7% of the sample) were age 12–18 years (mean age 14.04, SD 1.93; 60% girls). In both age groups girls were significantly more likely to complete the questionnaire, a finding which is reflected in much survey research (Saleh and Bista 2017).

Questionnaire

The questionnaire was designed in order to compare responses to a UK-wide survey (Holland 2021) for people aged over 18 years, living in the UK, which explored peoples beliefs and attitudes towards climate change and mitigating action.

Online surveys are generally considered a valid way of conducting research with children and young people (Lloyd and Devine 2010). In order to address the potential cognitive differences between adults, for whom the questionnaire was originally designed and the children we intended to survey (Livingstone et al. 2011) and the tendency for young children to find surveys intimidating and boring (Barker and Weller 2003), the original questions from Holland (2021) were considered by a focus group ($n = 9$) of young people (7–16 years old). This group discussed and rewrote questions to improve clarity for young people. The aim of this co-production was to clarify any questions that a younger respondent may not understand and also identify questions that young people felt they were unable to respond to. After this planning session, the survey was piloted with a different group of 7–16 year olds ($n = 10$) for ease of use and understanding.

The survey was written in Qualtrics, and a link to the online survey with an additional information sheet about the nature of the survey and why it was being undertaken was emailed to schools and youth organisations around the UK for distribution. Following De Leeuw, Hox, and Kef (2003) we used self-completion methods, so that the individual could set their own pace for answering the questions. Apart from giving consent, no questions were compulsory. Each question could be heard as an audio file, which meant that those who found reading difficult were not excluded from participating (Gerich and Lehner 2006).

The dataset can be found at http://researchdata.uwe.ac.uk/677

For the purposes of this paper, we will be focusing our analysis on questions which asked about the respondents' understanding of key terms used when talking about climate change; questions concerning who respondents felt was most responsible for causing climate change and questions about who they felt played the greatest role in stopping climate change. We will

consider the trust the young people have in the UK government to find solutions to climate change and finally how optimistic they were that the world would be able to find solutions to climate change. In this context our focus was on young people's confidence in talking about given terms, ahead of their knowledge of climate change.

For the purposes of this paper, we are also focusing on age-related differences in responses.

Analyses were performed IBM SPSS Statistics (Version 28), with significance levels set at $p < .05$. Cases with missing data were excluded only if they were missing the data required for the specific analysis, cases were included for analyses for which they had the necessary information. N is noted for all analyses.

Results

Researchquestion 1:what concepts relating to climate change do 7–18 year olds consider they understand?

The young people were presented with a number of terms related to climate change: (1) renewable energy, (2) carbon emissions, (3) fast fashion, (4) greenhouse gas, (5) COP26 and (6) carbon footprint. The young people were asked to indicate how well they understood or didn't understand the words.

We found that 12–18 year olds were significantly more confident in their understanding of all the provided terms related to climate change than 7–11 year olds. Both age groups were less confident that they understood the term 'fast fashion' and there were low levels of understanding of the term COP26 across both age groups. (see Table 1).

Who is most responsible for causing climate change?

The young people were asked to choose who they thought was most responsible for causing climate change from the following options: ordinary people, business and factories, governments of rich countries or governments of poor countries. Table 2 shows that overall, business and factories are seen as most responsible for causing climate change by both age groups.

A Chi-square test of independence[1] indicated a significant association between age and attribution of responsibility for climate change (χ^2 (5) = 18.13, p = .003, φ = .142, p = .003).

Table 1. Understanding of terms used when talking about climate change.

	7–11 year olds % Understand the term (N)	12–18 year olds % Understand the term (N)	Chi Square Analysis
Renewable energy	70.9 (247)	92.9 (645)***	χ^2 (1) = 75.43, $p < .001$, φ = .291, $p < .001$***
Carbon emissions	57.3 (246)	80.6 (644)***	χ^2 (1) = 50.34, $p < .001$, φ = .238, $p < .001$***
Fast fashion	22.8 (246)	59.3 (641)***	χ^2 (1) = 94.86, $p < .001$, φ = .327, $p < .001$***
Greenhouse gases	76.7 (249)	88.4 (640)***	χ^2 (1) = 19.51, $p < .001$, φ = .148, $p < .001$***
COP26	13.1 (245)	20.2 (642)*	χ^2 (1) = 6.14, p = .013, φ = .083, p = .013
Carbon footprint	76.0 (246)	83.6 (641)**	χ^2 (1) = 6.82, p = .009, φ = .088, p = .009**

*$p < .05$, **$p < .01$, ***$p < .001$ chi-square test of significance

Response aggregation: the response options 'totally understand' and 'understand a bit' were combined into a new variable 'understand' and the response options 'don't understand a bit' and 'don't understand at all' were combined into a new variable 'Do not understand'.

Table 2. Who is most responsible for causing climate change?.

	7–11 year olds % Most responsible $N = 253$	12–18 year olds % Most responsible $N = 642$
Ordinary people	13.4 (–0.2)	13.9 (0.2)
Business and factories	54.2 (1.6)	48.1 (–1.6)
Governments of rich countries	13.4 (–3.2)	23.1 (3.2)
Governments of poor countries	2.4 (–0.5)	3.0 (0.5)
Someone else	0.8 (1.5)	2.3 (–1.5)
I don't know	15.8 (4.5	9.7 (–4.5)

Adjusted residuals in brackets

Table 3. Who has the biggest role to play in stopping climate change.

	7–11 year olds % biggest role in stopping climate change ($N = 233$)	12–18 year olds % biggest role in stopping climate change (Total $N = 603$)
Ordinary people	35.6 (2.5)	26.7 (–2.5)
Business and factories	19.7 (–1.0)	23.1 (1.0)
Governments of rich countries	24.5 (–3.9)	39.0 (3.9)
Governments of poor countries	3.0 (0.9)	2.0 (–0.9)
Someone else	1.7 (0.1)	1.7 (–0.1)
I don't know	15.5 (3.4)	7.6 (–3.4)

Adjusted residuals in brackets

Examination of the adjusted residuals shows that 12–18-year -olds are significantly more likely than 7–11-year-olds to say that governments of rich countries were responsible for climate change (23.1% compared with 13.4%, AR =3.2), and 7–11 year olds were significantly more likely to say that they didn't know who was responsible than older respondents.

Who has the biggest role to play in stopping climate change

The young people were asked to indicate who they thought played the biggest role in stopping climate change from the following options: ordinary people, business and factories, governments of rich countries or governments of poor countries. Table 3 shows that the 7–11 year old respondents thought that 'ordinary people' played the biggest role in stopping climate change, whereas 12–18 year olds thought that governments of rich countries played the biggest role. A chi-square test of independence found a significant association between age and who the respondents to our survey thought had the biggest role to play in stopping climate change (χ^2 (5) = 26.79, $p < .001$, $\varphi = .179$, $p < .001$). The adjusted residuals showed that 7–11-year -olds were significantly more likely than 12–18-year-olds to say that ordinary people had the greatest role in stopping climate change (35.6% compared with 26.7%, AR = 2.5); 12–18-year -olds were significantly more likely than 7–11-year-olds to state that governments of rich countries had the biggest role to play (39% compared with 24.5%, AR = 3.9) and 7–11-year-olds were significantly more likely to answer 'don't know' to this question than older respondents.

Trust in the UK government to find solutions to climate change

In the survey, the young people were asked to indicate whether they trusted the UK government to tackle climate change. Table 4 shows that overall, there were low levels of trust shown by the young people.

A chi-square test of independence showed a significant association between age and trust in the government (χ^2 (2) = 40.59, $p < .001$, $\varphi = .208$, $p < .001$). The adjusted residual suggests that 7–11-year-olds were significantly more likely to say they trusted the government to find solutions to climate change than 12–18-year-olds (42.2% compared with 24.0% AR = 5.5),

Table 4. Trust in the UK Government to make the right decision to tackle climate change.

	7–11 year olds *N* = 263 %	12–18 year olds *N* = 671 %
Trust the UK Government	42.2 (5.5)	24.0 (–5.5)
Do not trust the UK Government	41.1 (–6.2)	63.5 (6.2)
Don't know	16.7 (1.7)	12.5 (–1.7)

Adjusted residuals in brackets

Response aggregation: the response options 'trust them a lot' and 'trust them quite a bit' were combined into a new variable 'trust the government' and the responses 'do not trust them very much' and 'do not trust them at all' were combined into a new variable 'do not trust the government'.

whereas 12–18-year-olds were significantly more likely to say that they did not trust the government than younger respondents (63.5% compared with 41.1%, AR = 6.2).

Possibility of the world finding solutions to climate change

The young people responding to our survey were overall optimistic that the world would be able to find solutions to climate change, with 78.7% of 7–11 year olds (*N* = 249) and 71.6% of 12–18 year olds (*N* = 620) saying they thought it was possible.

Discussion of survey results

In our survey 78.7% of younger respondents and 71.6% older respondents were confident that the world could find solutions to climate change. This optimistic approach by the majority of respondents reflects the findings of Ojala (2012) and Bishop and Willis (2014) however it does leave a substantial minority of respondents who are not confident that climate change can be sorted out and it is these young people who might be more susceptible to experiencing eco-anxiety as described by Hickman et al. (2021).

We found differences between the older and younger respondents on most questions, a finding reflected in much other research (Liefländer and Bogner 2014; Olsson and Gericke 2016). When responding to the survey, the young people told us clearly who they thought was responsible for causing the climate crisis, with both age groups saying that business and factories were most responsible for causing climate change. This reflects the findings from research in the UK (Lee et al. 2021) and elsewhere (García-Vinuesa et al. 2021; Jurek et al. 2022).

The answers were more nuanced when the young people told us about who they thought was most responsible for stopping climate change. The younger respondents said that ordinary people were most responsible, whereas for the older respondents, this responsibility had shifted to governments of rich countries. This accords with research which found that younger children were more likely to see individual/personal activities like recycling to be the way of tackling the climate crisis (Malandrakis et al. 2011). This potentially puts the older respondents into a powerless position, with limited agency in relation to tackling climate change. There is little industry consultation with young people in relation to climate change and as most of the young people we surveyed were under 18 years, they are therefore unable to vote, and as such can have little impact on government decision making around climate change. This sense of powerlessness is further highlighted by the finding that 63.5% of these young people do not trust the UK government to find solutions to climate change. Cologna and Siegrist (2020) showed the importance of trust, finding that successful climate change mitigation and adaptation depended on the public's trust in experts. Marks et al. (2021) note that young people's (16–25 years) mental health and well-being in the face of climate change is directly correlated with perceived inadequate government response.

In terms of their knowledge, in common with much previous research the young people we surveyed were confident in their knowledge of most climate change terms (Baldwin, Pickering, and Dale 2022), with older respondents significantly more confident than younger respondents. However, the young people were least certain about the term 'fast fashion', than other climate related terms (e.g. renewable energy, carbon emissions, greenhouse gases), with only 28.8% of 7–11 year olds and 59.3% of 12–18 year olds saying that they understood the term, in relation to climate change. Given that global fashion is simultaneously one of the most economically relevant and sustainably problematic industries (Nature Climate Change Editorial 2018) and one that many young people participate in directly through buying and wearing fast fashion, this is the field we focussed on in the second phase of the project using backcasting as a methodology.

Phase 2: fast fashion workshop

Following analysis of the survey, fast fashion was identified as an area that young people did not understand as well as other terms related to climate change, yet offered a tangible focus for classroom activities due to its connection with everyday life and potential for hands on practical work relating to making and mending clothes. If young people are to have their stakes as active agents and citizens with voting rights in 2030 recognised within this context, then they need to be equipped with the technical knowledge and understanding of the processes. Young people need to know about the goals wider society has for mitigating social and environmental impacts of the fashion industry at a time of climate crises in order to participate in future planning towards a more socially and environmentally just system.

To develop this knowledge and understanding which not only informs young people about climate change issues, but provides a way of empowering young people we aimed to develop an innovative art based pedagogical approach, using a backcasting methodology, which is considered particularly useful when discussing sustainability (Vergragt and Quist 2011).

Working directly with the Global Goals Centre, a UK sustainable education charity, which has a curated hub of resources for educators to support and inspire learning on climate and equity – including a focus on fast fashion – we developed a fast fashion workshop for 10–11-year-olds. We chose this age group as children at this age were moving from primary to secondary education in the UK. Between January – February 2022, schools across Bristol were approached to take part in the free, 90 minute workshops. Five workshops were delivered in classes of c. 30 children ($n = 120$, 10–11-year-olds).

The aim of the workshop was to provide young people with a safe place to explore the relationship between fast fashion and climate change. Although our survey results suggested that young people had little knowledge about the link between the fast fashion industry and climate change, we wanted to go beyond simply providing information about this issue, which could lead to fear and disempowerment (Crandon et al. 2022, 127), but rather provide an environment in which the young people could interrogate their ideas, beliefs and actions in an informative, collaborative and creative way. Designing the workshops offered two challenges: how to provide knowledge and understanding about the fast fashion industry that had been noted as absent in the first phase of our research; and how to present the knowledge and understanding in a way that would not incite eco-anxiety or distress. Our emphasis on positive action and change was a pedagogical strategy designed to support learners. It was informed by Hicks (2014) and used an art-informed activity as this has been demonstrated to promote wellbeing in young people (Jensen and Bonde 2018).

The design of the workshops was informed by a backcasting methodology, and aimed to support young people to envision a sustainable fashion industry of the future.

Knowledge and understanding of the themes are essential to the backcasting method (Robinson et al. 2011) and as identified in our survey, young people have little knowledge about the relationship between fast fashion and climate change. To address this, in the

workshops we watched and discussed Angel Chang's Chang (2017) TED Ed animation *The Lifecycle of a T-shirt* which follows the production of an average white t-shirt from field to wardrobe. This six-minute video highlights the impact of the fashion industry on the planet in its consideration of: the use of pesticides in cotton production; the fossil fuels used in the transportation of raw and processed products; the low wages and often poor working conditions of many garment workers; and the water use and pollution caused by the industry. The final part of the film looks at how the consumer can look after their clothing to make it last longer and have less impact at this stage of its lifecycle.

The film was stopped at points to allow for discussion regarding what the young people participating in the workshop thought should be done about the challenges they saw, and we discussed how all sorts of people and organisations were already working towards mitigation at different scales. For example: how businesses were encouraged to sign up to the Bangladesh Accord (2018) to ensure safe and fair working conditions for garment workers; how the international charity Fashion Revolution raises awareness and petitions for change. A short 3-minute video was then shown of a company that supports a circular economy framework (T-Mill https://teemill.com/circular-fashion/). The discussion in the workshops was a form of deliberative engagement, situated in dialogue (Roper and Hurst 2019) which allowed the young people to see their views and actions as being a contribution to a larger social issue, rather than based around their own self-interest.

The final part of the workshop session invited young people to decorate a patch based on the future fashion system they wanted to see. They were provided with thread, needles, buttons and fabric pens. In this activity learners simultaneously: developed mending skills (many practiced sewing on buttons and threading needles for the first time); created an artifact that could be used for patching worn clothes (which could be used to disrupt a garment's route to being thrown away); and have time and space for a creative response where young people could articulate desired futures without the demand for talking and writing. The young people could make sense of their internal landscape in relation to fast fashion and climate change and align this with the outside world. Their patches acted as an aesthetic third (Froggett 2008); a space through which ideas could be articulated and understood. Futures were depicted in picture, symbol or word and young people were then invited to share their patches with the whole group. A majority of patches saw young people write their messages for change in text. Others would incorporate their sewn on buttons into a design (for example, as the door to a washing machine/dryer, as the centre of a flower or sunshine, or an eye of a smiley face). The smiley face emoji was a frequent image on patches and the absence of sad or crying faces is notable; perhaps indicating the positivity felt in future planning. Once created, the patches were then categorised into the themes by the young people in order to employ participatory practices whereby feedback was shared and participants could identify different stakeholders in their futures planning. These patches were photographed and notes were made during each session to record direct quotes and themes.

Phase 2 workshop results

In this section we addressed research question two:

- How can pedagogical approaches support personal and collective responses to an environmental issue?

The themes the young people identified on their patches are summarised in table 5.

Examples of the patches can be seen in Figure 1.

For 26 (22%) of participants new consumer practices constituted their vision of the future of the fashion industry. These included using little water and energy to wash clothes; line-drying clothes and only buying what you need. For 12 (10%) participants, reusing clothing through personal networks (friends and family redistributing outgrown or unwanted garments) charity shops and garment rental was seen as the dominant future vision.

Table 5. Summary of Changes the young people would like to see in the fast fashion industry.

The change you want to see	Number of patches with this theme
Fair and safe working conditions for garment workers	18
Microplastic filters on all washing machines	16
Using little water and energy to clean clothes	16
Not completed	12
Reuse clothes being accepted and normal practice – including borrowing, renting and giving to charity	12
Little use of pesticides in the growing of cotton	12
A circular economy with recycling embedded	12
People with the ability to mend their own clothes	12
People only buying what they need	6
Line drying clothes	4

Figure 1. Examples of patches produced in the workshops.

While some of the changes envisioned by the young people as being necessary to bring about a desired future looked to the family for action, considerable emphasis was on how shops and businesses needed to provide these services. The young people made a number of comments similar to 'We need more shops to sell second hand, but good second hand', 'renting clothes is a great idea, specially for special occasions, or for like work suits'. A further 12 (19%) of participants considered mending clothing and learning to mend a top priority. It is interesting to note that from the 120 young people that took part in the workshops only 40 (33%) had sewn on a button before (all in school) with only 7 (6%, all female) having done any sewing at home. When asked whether mending skills should be taught in school, 109 (91%) responded positively with comments such as 'yes!', 'absolutely, it's fun and useful', 'it's important to learn this stuff at school, where else will we learn it?'. While sewing and mending could be framed as personal action in response to the impact of fast fashion, a majority of young people felt it was through school (and so through government education policy) that changes needed to be made, reflecting the reciprocal relationship between top-down shifts (in government policy and industry practice) and bottom-up shifts (in behaviour and culture) (Trott 2021).

Bringing the patches together at the end of the session enabled the groups to conceive of the over-arching themes their future vision of a just clothing industry would incorporate. Across the workshops, the young people identified four central themes in a future where personal and collective responses included:

- Farming practices to support biodiversity
- Business and industry to be part of a circular economy model that's fair on people and on the planet
- Consumption practices that are based on a circular economy model
- New technology to be designed and used with the protection of the environment as an essential feature.

The backcasting method used in the workshops meant that the young people were able to create a vision of a desirable, environmentally and ethically sustainable future – at a time of climate crises – for the fashion industry and then explore the steps needed to achieve this on a personal level and also from business and government. When asked to reflect on the workshop, all participants responded positively, with comments about how knowing about government, international and national policies and actions that were happening, made them feel better. Comments included: 'it's great to know about the Bangladesh Accord and that people are trying to help, to do something', 'that there's companies already adopting a circular economy, that's just great', 'that we can reduce the amount of ocean plastic', 'there is something that can be done'. Participants made comments such as how they felt 'less anxious' and 'not so scared', 'a bit more hopeful' at the end of the workshop due to this new knowledge and understanding.

Limitations

This paper reports on a two phased approach each of which present limitations that should be noted. Phase one's survey has an uneven distribution of respondents – with far more in the older age range making comparison challenging. Fast fashion was identified as a the least understood term in all age categories (including adults) and we would suggest that further work interrogating and developing strategies to engage and enable people to explore these issues should be a focus of future work. The workshops of phase two offered insight into 108 young people within a limited age bracket. Again, future work needs to explore how successful backcasting might be with younger and older children. Due to the restrictions of time and resources on the school day, workshops were limited to 90 minutes. We recognise that as a teacher exploring a theme with a class follow on work may be possible and such possibility requires further interrogation and consideration.

Discussion and conclusions

In this paper we have considered young people, not just as current stakeholders, but as agents with stakes in the climate change agenda who should be listened to and inform future planning as active agents and future voting citizens by 2030. We have presented backcasting methodology to explore futures in an age appropriate way with regard to the fashion industry. Bibri (2018) notes that backcasting is helpful to industry as it provides opportunity to foresee opportunities and avoid risks. Within the context of fast fashion and other climate related industries, such a methodology used with young people could result in informed planning that is not just driven by the ethical demands of a system failing to mitigate climate change, but could also help industry expand their perspectives and engage with burgeoning citizens and the next generation of voters, employees and employers, economically active consumers and leaders.

The phase one survey reported here indicates that young people feel that government policy does not support climate change mitigation. While young people were seen to have considerable hope that climate change could be sorted out, over 63% of 12–18 year olds and 41% of 7–11 year olds did not think they could trust the UK government to find solutions to climate change. This is an important finding, as Thaker et al. (2019) have shown that in order to achieve engagement with climate change policies, trust between the public and government is essential. We would suggest that using a similar backcasting methodology to that used in the workshops, young people could be introduced to the arguments about, for example the UK's requirement for strategic reduction in carbon based fuel technologies and the plans to generate clean power. This would allow for the communication of key sustainable policies (such as how to deliver clean energy) to be presented in a format with which young people can engage, and have experts, policy makers and young people co-developing resources to support this.

Understanding climate change is complex, but our survey suggests that as young people get older, they have a growing confidence with many of the terms used in relation to it (e.g. carbon emissions and greenhouse gases). However, there are young people who are still unclear with regard to all of these terms. As climate change is not explicitly mentioned in the English Primary National Curriculum in the UK (Department for Education 2013), and in secondary education there is a 'general absence' of environment education policy (Glackin and King 2020), there is room to grow this understanding and the mitigation strategies that are in place to support processes in this policy.

Older participants identified the government as having the greatest responsibility for mitigating climate change, whereas younger respondents identified themselves. Feeling the weight of global change on a young person's shoulders can put significant emotional pressure and expectation on the individual resulting in negative impacts on mental health and wellbeing. Our focus in workshops was a single industry that all age groups in the survey knew little about. It allowed an exploration of the complex interrelated networks involved in a global supply chain at an age/stage appropriate way. The workshops we developed highlighted how critical reflection on fast fashion, informed by positive examples of how challenging issues are already being overcome, provided young people with the expert input and space to think and talk about the problems. The workshops also supported learners in recognising that they are not alone in mitigating the impacts of climate change now or in the future, so supporting wellbeing. Young people identified how their desired futures relied on governments, charities and industry to make changes. Their futures planning identified that changes would not necessarily have to be driven by individual altruistic actions or demands to help mitigate climate risk, but could also be focused on the actions of industry. As such, the workshops provided young people with a way of engaging in participatory action pedagogy that fed into policy response. This was empowering as it both engaged with policy and simultaneously created an artefact that could disrupt the fast fashion system (developing sewing skills and making a patch to repair worn out clothes).

The method we have presented places children in the situation of being the present and future agents of their present and future lives. It highlights the importance of analysing data in nonreductive ways, with the young people, to ensure that data were not misinterpreted. Work with young people needs to be more than 'representational', it needs to go beyond 'hearing the voices' of young people, it needs to foreground the otherness of childhood (Jones 2012) and the methodological challenges of adults interpreting children's voices (Musgrove, Pascoe Leahy, and Moruzi 2019).

When writing about educating for hope and action, Finnegan (2022) suggests that effective climate change education requires more than imparting expertise, but calls for new pedagogic approaches. We would suggest that using creative activities can provide young people with the opportunity to think about a desired future and the knowledge, both declarative and practical (Jurek et al. 2022) of the steps needed to reach it in a creative way. Such a methodology

provides a way for young people to address the global climate crisis which foregrounds the reciprocal relationship between individual, short-term actions and the longer-term actions needed by government or industry.

Note

1. A Chi-Square Test of Independence is used to determine whether or not there is a significant association between two categorical variables.

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