**“It’s our future.”** **Youth and fracking justice in England**

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Youth perspectives on energy interventions are rarely sought or acted on in local and national policy, despite the stake young people have in the future created by today’s energy and environmental policies. The debate on unconventional shale gas development (hydraulic fracturing, or ‘fracking’) is one context in which decisions taken today have long-term, intergenerational consequences, with environmental justice intersecting with energy needs. This study investigated young people’s perceptions and experiences of exploratory fracking and associated political processes in order to understand their experiences of environmental justice. In depth, qualitative field research was conducted with 84 young people in locations within 20 miles (32 kilometers) of operational exploratory fracking sites prior to the moratorium in England announced in November 2019. Data were analysed with attention to recognition, participation and distributional justice. Young people experienced environmental, democratic and social injustices through lack of recognition of their aims and values as both youth and members of a rural community, and exclusion from formal participation in decision-making. Young people saw economic and thus environmental power residing with industry closely tied to national government, and experienced a tension between desire to trust institutional authority and betrayal by these same institutions. We argue that this case study of young people in ‘the sacrifice zone’ demonstrates a connection between depoliticisation and anti-politics, and that these processes undermine trust in democracy. There is a need for recognition and meaningful inclusion of young people and local communities in decision-making, particularly where the consequences of the decisions last for generations.

Keywords: fracking, justice, youth, politics

# Introduction

The relationship between young people and politics has traditionally been neglected, with a lack of opportunity for youth to have a say on social and political matters (Wyness, Harrison and Buchanan, 2004), and limited power to influence decision-making (Tisdall and Davis, 2004). It is important to take the views of youth into account when making decisions about energy, climate and sustainability because they will disproportionally feel the effects of decisions made about the environment today and therefore have a large stake in the future created from these decisions (O’Brien, Selboe and Hayward, 2018). As Lukasiewicz and Baldwin (2017) argue, decision-making about natural resources (here, natural gas) takes place in a context in which some groups have less access to sources of power and entitlements (here, young people). Under the UN Convention on the Rights of the Child, Article 12 (UN, 1989) demands respect for views of the child and provision for children to be heard in matters affecting them, yet policy and law in the UK have not consistently recognised this right, and where the views of youth have been sought, they have had little impact on local and national policy (Hill *et al.*, 2004). Research has a role to play in addressing this: by systematically investigating young people’s views, policymakers can have access to young people’s responses and experiences, both positive and negative, to energy interventions.

A recent debate in energy and environmental policy relates to hydraulic fracturing (fracking). When ‘fracking’ is used in this study, we refer not only to the fracturing of the rock, but to the associated impacts of the industry in areas where it occurs. Natural gas extracted by hydraulic fracturing has been described as a transition fuel, providing countries with energy security as they transition to renewables. However, fracking sits uneasily against the UN sustainable development goals (SDGs), adopted in 2015 to be achieved by 2030, which are a call to “promote prosperity while protecting the planet.” (UN, n.d.). The SDGs take sustainability as development that meets the needs of people today without compromising the ability of people in the future to meet their needs. The goals include access to clean water (goal 6), affordable and clean energy to meet growing electricity needs without producing large amounts of greenhouse gases through the combustion of fossil fuels (goal 7) and urgent action to combat climate change and its impacts (goal 13). These goals are threatened by unconventional shale gas interventions. The extraction and combustion of shale gas can result in long-term, irreversible changes to the landscape and resources in the areas where it occurs, and methane leaks during production and distribution have been found to create more greenhouse emissions than anticipated, offsetting gains made by the substitution of coal by gas (Hoffman, 2017). These emissions contribute to the climate crisis, which will disproportionately affect younger people. Whilst a growing body of research has focused on public attitudes towards fracking (Choma *et al.,* 2016; Stoutenborough *et al*., 2015) and on environmental justice in policy making about fracking (Cotton, 2017), little has focused on the perceptions and experiences of youth in relation to fracking, politics and justice. Before discussing politics and justice in relation to youth, we outline the background context to fracking at the data collection site.

# Fracking in England

The data for this study were collected in November and December 2019, coinciding with the introduction of a moratorium on fracking by the UK government. Prior to the moratorium, fracking was supported by the government for its “potential to provide the UK with greater energy security, economic growth and jobs. It could also support our transition to net zero emissions by 2050” (Department for Business, Energy and Industrial Strategy, 2019(a)). However, fracking had been controversial, with protests taking place against operations from the outset (Muncie, 2019), and little or no opportunity for public participation on shale gas decisions, limiting access to procedural – and social - justice for citizens (Whitton et al., 2017).

At Preston New Road in Lancashire, the local council (Lancashire County Council) rejected a planning application for exploratory drilling. This decision was appealed by Cuadrilla, the company pursuing fracking at the site and in 2016 the appeal was upheld by the Secretary of State who informed the council that he would make the final determination (Szolucha, 2016). The decision to reject the planning application was then overturned on grounds of ‘national interest’ (Aczel, Makuch and Chibane, 2018). The democratic deficit resulted in collective trauma for the community (Short and Szolucha, 2019) and fuelled protest at the site, with activists seeing protest as an option of last resort as their concerns – expressed through democratic processes - were treated as though without legitimacy (Gilmore *et al*., 2019). During exploratory fracking operations, Cotton (2017) observed that methods of economic compensation were used to redress environmental injustices, arguing that these were potentially both coercive to some of the poorest communities and divisive within communities, where benefits and burdens were distributed unequally. The form of hybrid neoliberal resource management found in Cotton’s analysis of fracking in England, where there are attempts to compensate for negative social and environmental impacts, privileges industry and transfers the risk and costs to future generations through lack of transparency, lack of strong impact assessment and inadequate regulation (Baldwin et al., 2019).

Following a seismic event measuring 2.9 ML on the Richter scale in August 2019 (above the allowed 0.5ML magnitude) fracking at the site at Preston New Road site was suspended and the government ended support for fracking in November 2019 ‘unless and until further evidence is provided that it can be carried out safely here’ stating that ‘it is not possible with current technology to accurately predict the probability of tremors associated with fracking.’ (Department for Business, Energy and Industrial Strategy, 2019(b)). Our study took place at a critical point in time for fracking in the UK, with an opportunity for young people to reflect on their experiences of fracking, politics and justice on the introduction of the moratorium.

# Justice as a political issue

Justice requires not only equitable distribution, but also recognition and participation in decision-making processes. Recognition and participation are therefore required in political processes. In the case of fracking, the decision-making process moved out of the hands of the local community (through the consideration of the planning application) to the national government on the basis of an appeal from industry. This shifting of decision-making is an example of depoliticisation. Depoliticisation has been conceptualised in various ways (Flinders and Buller, 2006). In this study we use the definition of depoliticisation derived from a synthesis of literature by Flinders and Buller (2006) as ‘the range of tools, mechanisms and institutions through which politicians can attempt to move to an indirect governing relationship and/or seek to persuade the demos that they can no longer be reasonably held responsible for a certain issue, policy field or specific decision’ (p. 295-296). According to several sources (Beveridge, 2017; Hay, 2007), depoliticisation is on the rise in representative democracies. Flinders and Buller describe this as the shifting of decision-making arena. In the case of fracking, we see the decision-making arena shift from the local to the national. Cotton (2017) argues that the shift from local to national decision-making and use of the ‘public good’ argument violated political equality in planning decisions.

Flinders and Buller describe three types of depoliticisation tactic: institutional, rule-based and preference shaping. In the case of fracking, rule-based depoliticisation was evident (through the requirement to stop fracking operations should seismic activity exceed 0.5ML on the Richter Scale), as was preference shaping (where the Secretary of State overturned the decision to reject the planning application on the grounds of ‘national interest’) and institutional (through the establishment of the Office of Unconventional Gas and Oil, OUGO and the distribution of regulatory functions to the Health and Safety Executive, Environment Agency and others). Depoliticisation has been linked to ‘anti-politics’ (Drake, 2018; Wood, 2016), attitudes that are generally against how politics work and where participation in politics is discouraged through institutions, policies and discourses associated with neoliberalism (Wood, 2016). Whilst there is a close relationship between depoliticisation (which denies choice, agency and deliberation) and anti-politics (which challenges the authority and legitimacy of parliaments and governments) (Fawcett et al., 2017), the nature of the relationship is not clear. Mete (2010) describes anti-politics as internal or external, active or passive. Internal and external anti-politics relate to anti-politics ‘from above’, i.e. from the political class and institutional representatives. Active and passive anti-politics ‘from below’ relate to that originating from political party members and ordinary citizens, with active anti-politics appealing to disappointed voters and activists who oppose the current political configuration and passive anti-politics appealing to disaffected voters and activists or those with less understanding or motivation. Phenomena associated with anti-politics include not voting, protest, criticism, and support for populist movements (Mete, 2010). Anti-politics is one possible consequence of depoliticisation processes; another is the post-political condition, where a consensual policy framework built on neoliberal principles prevents dissensus (Johnstone, 2014). Post-politicisation takes place gradually, and one of the ways in which it occurs is through planning reform whereby national policy statements ratified by parliament determine the answers to questions about need, siting and safety raised by energy interventions (Johnstone, 2014) which then sit outside democratic processes. These changes to the planning process have removed debate and opportunities for democratic participation.  One of the methods of reintroducing democratic participation Cotton (2017) proposes is re-localising the scale of decision making about fracking in order to empower communities in decision-making about environmental risks their community is being asked to take on. To date, studies have not examined anti-politics and post-politics in relation to youth responses to fracking and their experiences of justice. We focus on the perspectives and experiences of young people approaching the age of first electoral participation.

# Energy and environmental and intergenerational justice

Natural gas extracted using hydraulic fracturing requires the consideration of how energy needs impact on environmental justice and intergenerational justice. Environmental justice is concerned with understanding the relationship between people and the environment by analysing the political, social and economic interactions that result in unequal distributions of environmental burdens and pollution, with particular attention to class and race (Sze and London, 2008). Environmental injustices exist along the energy supply chain, with an increase in energy supply often used to justify environmental injustices (Hess and Ribeiro, 2016). Fracking sites are therefore appropriate locations for studying this interaction between energy and environment.

Intergenerational justice relates to justice between generations, in contrast to that within generations, and as such has a temporal component (Tremmel, 2006). Sustainability, with its interest in the future, requires considerations of justice both within and between generations, and in relation to energy and the environment. According to Hansen *et al.* (2013), “continuation of high fossil fuel emissions, given current knowledge of the consequences, would be an act of extraordinary witting intergenerational injustice.” (p.1). Intergenerational justice relates to sustainability in a weak and a strong sense (Vrousalis, 2016), with weak sustainability assuming that natural resources can be substituted with products, and strong sustainability rejecting the possibility of such substitution. In the case of fracking in Lancashire, Cotton (2017) observed that economic compensation had been used to redress environmental injustices (corresponding to weak views of sustainability), noting that these have the potential to be both coercive to some of the poorest communities, and divisive within communities, where some people might receive a higher proportion of benefits and fewer burdens. However, little is known about young people’s experiences of fracking and justice.

In the field of environmental justice, there has been a move away from the use of only distributional theories of justice, to consider recognition and participation. Schlosberg (2004) argues that lack of recognition and limited participation, as well as inequitable distribution, work together to produce injustice and therefore that environmental justice must involve consideration of recognition and participation as well as distribution. There have been calls for the UN to recognise the human right to a healthy environment and for there to be recognition that the most oppressed and powerless members of society have little influence and therefore little opportunity to obtain meaningful environmental justice (Gonzalez, 2019). Recognition is particularly a concern where there has been a move towards centralised decision-making and regulation, with the involvement of the public limited to how, not whether, regulation should proceed (Evensen, 2018). In the context of fracking policy in England, Cotton (2017) argues that environmental justice requires an analysis of the distribution of risks weighed against benefits and the protection of community voice and identities connected to politics, place and culture. This implies recognition at a personal and community level as a requirement for environmental justice. Recognition is necessary but not sufficient for environmental justice: there is also a need for active, institutionalised community participation in order for environmental justice to be achieved. Schlosberg (2004) argues that it is necessary to allow for as much participation as diversity that exists within a community. We see youth as part of the diversity of communities who are often unheard. Similarly, Cotton argues that environmental justice relates not only to the distribution of outcomes, but also the processes through which the outcomes are decided. For there to be fairness in the distribution of outcomes of fracking, there must be a recognition of the diversity of people affected, and some mechanisms by which they can participate in decision-making. Schlosberg’s triple-pronged approach to environmental justice, considers three key dimensions of energy justice, which Lukasiewicz and Baldwin (2017) describe as a social justice framework for understanding decision-making in relation to natural resources. The dimensions included are recognition (who is ignored?), procedural (is there fair process?) and distribution (where are the injustices?). Associated with the evaluative questions are normative questions: how should injustices be solved; how should the ignored be recognised, and which new processes are needed? Below, we examine these three dimensions of energy justice in relation to the existing research literature on fracking.

## Justice as recognition: who is ignored?

Justice as recognition highlights the relational element of justice. Implying both a ‘recognised’ and ‘recogniser’, recognition relies on an understanding of how people stand in relation to one another. Where there is no – or perceived to be no – recognition, there is potential for people, their interests and their projects to be undervalued, as is the case for youth with limited opportunity to participate in formal decision-making processes. This is connected with Lukasiewicz and Baldwin’s (2017) interactive justice which relies on trust in the intentions, truthfulness and propriety of decision-makers, and respect for people by decision-makers. Griffiths (2019) observes that injustice through misrecognition is when cultural or institutional processes result in unjust processes or outcomes for certain groups, here, youth. Gonzalez (2019) observes that decision-makers decide who is listened to and therefore what kind of visions and values matter. Where the state does not recognise or support the right of people to seek address, environmental justice is inaccessible (Gonzalez, 2019). Recognition is a necessary precondition for participation in the decision-making processes that dictate how justice is distributed. In the case of fracking in the North West of England, local communities were ignored in favour of the national interest, despite the prevalence of anti-fracking protests and the decisions made by local government on behalf of the community.

## Justice as participation: is there fair process?

Justice as participation relates to how people and communities are involved in decision-making, and it implies recognition as well as representativeness, transparency, ethics, accountability and accessibility (Lukasiewicz and Baldwin, 2017). Griffiths (2019) argues that procedural justice requires at least equal participation in decision-making processes for those most affected, in the case of fracking in the North West of England, local communities and youth who will disproportionately deal with the effects of fracking and post-fracking operations. Frank (2006) observes that the planning field is increasingly recognising youth as a distinctive stakeholder group, arguing that young people and the community benefit from involvement in planning decisions, however Johnstone (2014) observes that that changes to the Planning Act 2008 have reduced the opportunities for people to intervene in the policy process, and as we discussed above, decisions about fracking were removed from local democratic processes.

Hurlbert and Gupta (2015) propose different degrees of participation depending on the complexity of the problem. They argue that structured problems can generally be solved by technocratic means and minimal participation, but that unstructured problems or moderately structured problems where there are low levels of trust require higher levels of participation and adaptive governance. This is the case in relation to unconventional shale gas development, where knowledge is incomplete, science is contextual and there are many ways of understanding and interpreting knowledge. Where formal processes fail to satisfice, O’Brien *et al.* (2018) identify three forms of dissent based on empirical reality of youth in relation to climate change: ‘dutiful dissent’, which works within existing systems to influence policy change, ‘disruptive dissent’ which contests existing norms and practices to change policy and outcomes, and ‘dangerous dissent’ which subverts existing structures or creates parallel structures by mobilising people around new norms and values. These three forms of dissent have in common the assumption of individual and collective agency.

## Justice as distribution: who enjoys which benefits?

Distributional aspects of justice relate to what injustices exist, who experiences these, and who benefits from them. Outcomes in terms of environmental and energy justice can be different both between and within communities (Schlosberg, 2004). For example, those who work in the industry may experience economic gains, and those living closest to the extraction may experience the greatest changes to their landscape. O’Connor and Fredericks (2018) use energy survey data to compare attitudes between people in two Canadian provinces, one where a moratorium on fracking exists and the other where fracking has been used extensively. They found that respondents in the province with the moratorium perceived there to be more benefits and fewer risks than those where fracking is underway, and also that those in higher income groups perceived greater benefits from fracking. O’Connor and Fredericks hypothesise that economic context shapes attitudes and that in areas with a weaker economy, fracking is seen as more desirable. An alternative or additional explanation may be that those living where fracking is underway have become more aware of, or have experienced, the negative impacts of fracking. For example, there exists a relatively high degree of consensus that contamination of surface water as a result of poor wastewater treatment during unconventional shale gas development is common (Costa *et al.,* 2017). In the UK fracking context, Cotton (2017) identifies unequal distribution of risk, benefit, social impact and decision-making in his analysis of policy. However, issues specific to youth were not addressed. We follow Cotton’s analysis of policy with a view from the ground on how young people have experienced unconventional shale gas development in their community.

# Research question

In this study we analyse the views and experiences of young people in fracking areas in relation to justice. This is important because young people under the age of 18 are excluded from participating in electoral processes, at the same time as being materially and existentially threatened by decisions and actions taken by the state, companies or individuals with influence (O’Brien, Selboe and Hayward, 2018). As Willow (2016) notes, first-hand qualitative data are essential because they reveal how those living in communities where shale gas extraction is occurring are experiencing these processes in order to make sense, in context, of responses to these activities. We draw on Schlosberg (2004) to consider the interconnected relational, distributional and procedural/participative dimensions of justice. The overarching question this study addresses is: *how do young people perceive and experience justice in relation to fracking?* To address this question, we interrogate recognitional, participative and distributional components of justice.

# Methods

Field research took place in the North West of England, where fracking had, until the time of data collection, been operative at an exploratory stage. Approval for the study was obtained from the University of York Department of Education Ethics Committee. Whilst we do not hold data for the addresses of young people in the study, our choice of location for data collection was deliberate. Purposive sampling was used to identify all schools and colleges within a 20 mile (32 km) radius of a site where hydraulic fracturing was active. All schools and colleges in this radius were invited to take part; 4 consented and participated in the study (labelled Institutes A-D below). The majority of participants attended educational institutions within 15km of the Preston New Road site.

An in-depth qualitative approach was used in order to draw out the experiences, perceptions, opinions and feelings of young people in response to fracking. A total of 84 young people aged 16-19 provided their voluntary informed consent to participate. The 16 focus groups took place in late 2019 (just after the declaration of a moratorium on fracking in England). Of the participants, 30 were female, 49 male and 5 non-declared. Most (n=73) were aged 16 or 17, under the legal voting age. All were engaged in full-time study. Males are over-represented in the sample, however as little new information was gained from later focus groups, we are satisfied that we spoke to an adequate number of females. In previous research, women have been found to be less likely to support fracking (O’Hara et al., 2016). These attitudes were found amongst our sample and in our reporting we draw on the full range of responses received, not only the most common themes.

Each focus group was semi-structured, lasted between 30 and 60 minutes, and consisted of questions, a decision-making task, an energy preferences card sort and a question prioritisation task. The same set of questions guided the interview process, but there was some deviation depending on responses. Tasks and questions were designed to elicit young people’s experiences and perspectives on unconventional shale gas development and its impacts, their knowledge, and what they thought was important to know in order to inform their positions. Where possible (in all but one case), focus groups were limited to six participants in order to generate a rapport and ensure that everyone could participate. There is always a risk that, in a focus group situation, participants might feel pressure to agree with the dominant view or present demand characteristics. To avoid this, we encouraged disagreement in the introduction of each focus group and used the question ‘would anyone like to disagree?’ and ‘what would make you change your mind?’ to facilitate the discussion. We also made it clear that we were not looking to find any particular view; that our interest was in their experiences and views, and in accurately presenting these. We also avoided asking reductive questions such as ‘do you support fracking?’ which would risk young people feeling pressure to defend a declared position. Rather, we focused on experiences, opinions and feelings, and reasons for holding these. McNally, Howley and Cotton (2018) found lower levels of support when ‘fracking’ rather than ‘unconventional shale gas development’ was used, so we introduced the session using the latter term, but also used ‘fracking’ as this is the term that young people were likely to be familiar with. We also sought to find out what young people knew about the process at the outset in order to understand whether their views were based on sound understandings of the process.

These are the specific perceptions and experiences of young people near fracking sites. We do not seek to generalise to the population more broadly. However, the findings are likely to be relatable to youth in other areas where energy or extractive interventions bring industrial development to rural areas.

Focus groups were audio-recorded and transcribed *verbatim*, with transcripts imported into NVivo for analysis. Reflexive thematic analysis (Braun and Clarke, 2019) was used to interrogate the data and identify patterns and trends. On the first run through focus group transcripts, notes were taken and impressions shared within the research team. Themes were identified through reflexive discussion at this stage. A second run through the transcripts involved coding data under the themes agreed. The third round involved organising themes under three dimensions of environmental justice identified by Schlosberg (2004): distribution, recognition and participation. The final content and discussion of these themes was agreed through discussion amongst the project team. Once the data had been coded independently by two members of the research team, all researchers met for reflexive discussions about the meaning of the themes and to draw out the key threads in the stories of young people as told to us through the focus groups.

# Findings

We present the findings of young people’s perceptions and experience of fracking using recognition, participation and distributional elements of justice as a framework through which the data could be interpreted, before discussing how these dimensions relate to each other and to political and educational processes. Young people had been affected by fracking to varying degrees. Before discussing their experiences of recognition, participation and distributive justice, it is important to note a taken-for-granted assumption upon which focus group discussions were based, namely the assumption that energy needs at current and growing levels should be met. There was an absence in the discussions of energy security based on reducing demand. Young people recognised the interaction between energy and geopolitics, and perceived a need for domestic energy production and security, although they wanted this to be derived from investment in renewables. However, some saw reduced reliance on energy imports as a reason to support fracking.

I quite like the idea of us having independent – obviously ideally a renewable thing – but actually if for the time being we have some non-renewables but we become more independent I think I quite like us standing on our own two feet…the country being a bit more independent rather than relying on foreign imports. Respondent 2, Group 2B

Whilst this view reflects discourse around nationalism as a simple explanation for problems caused by complex economic, social and political issues, most young people recognised complexity and a need for more knowledge, particularly about where energy comes from and how much is produced by different methods, as critical for shaping their views. This is discussed further in the section on the distribution of knowledge after the recognition and procedural dimensions of justice are discussed below.

## Justice as recognition

Recognition relates to the question who is ignored and how the ignored can be recognised (Jenkins *et al.,* 2016). Young people discussed their experiences both as youth, and as ‘locals’ to the fracking site, and described how industry and government acknowledged them. Young people reported being acknowledged by industry, but not fully recognised (which implies paying attention to the aims, values and projects of a community and incorporating them into decision-making processes). Similarly, they reported not being recognised by national government. Young people in our sample perceived that energy was needed, and that energy needs were likely to grow. They expressed the preference for energy needs to be met by renewables, and for this to be the focus of economic and industrial development, universally expressing preference for wind farms over fracking operations. They had a desire to maintain their landscape and rural practices, to have access to clean water and to minimise air pollution. They wanted to be able to move freely and without disruption to work, education or health services. Young people felt a right to be recognised, yet these desires were recognised to a very limited extent by government and industry:

It’s just frustrating because you feel like you’ve got all the answers and no-one’s listening…the people that are making the decisions about it aren’t going to be directly affected by it; it’s going to be us that are affected, and I think they might have sort of the attitude that, “Well, it’s not going to affect us; why should I care?” But it’s our future, and it’s our kids’ futures, and yeah, it is quite angering, and you want to do something about it, but it sort of is, like, “What can I do that’s going to affect that?”…You feel quite helpless. Respondent 4, Group 1B

Young people reported little interaction with industry. Some suggested a degree of acknowledgement by industry, through compensation mechanisms and the offer of large sums of money for farmland. One participant described this as beneficial to their family:

They have been very nice…they said that they were going to give money to people in the area if their house has been damaged by it, if you owned your house, then you get money off it..” Respondent 2, Group 5B

This suggests that youth felt partially acknowledged. There was no suggestion from this participant that these practices might be coercive. Even where there was recognition, youth felt that their interests would be subordinate to those of shareholders:

A big company [with influence and backing] that would be fracking, you can't exactly bargain with them like you could a small business...they are not going to bargain with you, they have got shareholders to think about. Respondent 3, Group 3B

Some young people quoted a lack of recognition of international agreements (the Paris Climate Accord) by government, and interpreted lack of recognition as not caring, which was also evident in the lack of reasoning to the community about why the government supported fracking.

I’ve never seen it explained why it’s gone through, I just know it goes through and it kind of shows the power of money really. They can do what they want when they want. Respondent 4, Group 1C

In terms of their local, rural identity, participants felt ignored by national government, describing how the desires of the community were recognised through local democratic decisions, which were later overturned, not recognised, by the national government in order for fracking to proceed.

We had Sajid Javid…he accepted some sort of appeal to overrule the vote we had, which was quite a clear, “No, we don’t want it,” yet we still have it anyway.Respondent 2, Group 4B

These responses correspond to anti-political sentiments: negative attitudes towards formal politics and lack of trust in government. The young people saw power and money as driving forces in their local area, and the source of their experiences of injustice in terms of lack of recognition by national government and limited (financial) acknowledgement by industry.

Participants identified that their (rural, youth) needs were pitted against national energy demand, and that there was a need to understand the answers to some questions, including why here, who benefits, and what the government could, would or should do about preventing environmental harms. They felt that the evidence suggested that fracking was harmful, but that this was not recognised by government, which in turn was seen as ‘scary’:

I feel that it probably is hard for everyone, while democratically being overruled in the 21st century, but there is also overwhelming evidence stacked against fracking, yet our government still pushes it despite…I feel that’s quite a scary world to live in.Respondent 2, Group 4B

Participants referenced being ‘*only young*’ as a limitation in terms of being recognised. Powerlessness was evident in their responses.

Because we are only young there’s not necessarily much you can do because usually it’s like the adults that are in power so you don’t really get as much of a voice unless you have lots of people come together and you kind of work that way. Respondent 1, Group 2A

These young people's perceptions of limitations due to their age sits within a wider understanding of recognition of fracking as being an issue with longer term effects and impacts. Participants acknowledged that some impacts of fracking, including climate change, will not be evident for many years ahead, beyond the scale of a political term.

It does have a lasting effect, even if in the short term you get something good out of it…It just feels like [the government] just think, “Oh, we can get away with it for now. We’ll let the next government deal with it.” Respondent 3, Group 3B

Other participants, however, highlighted the importance of recognising the immediate impact on the community:

I suppose the impact it has on the communities has the effect that we will immediately feel...does it have a positive effect on the community, does it bring business which might distract us from any more negative matters it has in the long-term?Respondent 5, Group 6B

Given the importance of recognition for participation, the data suggests a lack of recognition of young people and their concerns, resulting in feelings of powerlessness. It also demonstrates young people’s concerns with the timescales that are considered during decision-making. Whilst rule-based and institutional depoliticisation processes might be considered to release decision-making from short-term political considerations, these processes tend to deal with known risks (such as increased seismicity associated with fracking) and are less able to deal with unknown risks and associated concerns of youth. We turn now to opportunities for young people to participate in decision-making.

## Justice as participation

Data were coded as participation where they related to young people being involved in, or being able to influence, decision-making. Youth discussed different forms of participation, from writing to MPs, social media campaigns, posting signs outside houses, peaceful protest and raising awareness amongst friends and family. Young people held both ambivalent and antipathetic views about fracking, but also about anti-fracking protests.

Formal participation follows from recognition, and the young people in this study perceived that formal political methods are the most desirable way to participate in decisions. They had trust in institutions, and when they felt that the principle of freedom from harm was in place, they were supportive of government.

whatever the government decide is right, then it is right and as long as it’s safe, then it’s fine. Respondent 2, Group 5B

Other forms of participation such as protest were seen as undesirable but necessary in order to have their voice heard when this had not happened through other more formal mechanisms.

I would personally say, “Yeah, of course, we go down the political route,” but I don’t really think it would have gotten the momentum that it needed, so it’s a difficult one…I don’t think anyone really wants to be standing in the road with a sign, you know, but it’s almost as if it’s a necessity to get it into the public eye. Respondent 1, Group 5B

Trust in government had been challenged by young people’s experiences in relation to fracking, and tensions were evident in discussions among the young people. They felt that their democratically expressed desires had been over-ridden in decision-making about fracking. There was a sense that government sided with industry, with economic demands being prioritised over environmental justice and democratic decision-making. For example:

The whole situation just to me and everyone I know, it just links to this idea of the state sticks up for business and the public outcry against it, the public pressure against it is so large, and it has had no effect, just it gives this idea that we don’t have very much power as people of the country of the land, so on principle it makes me want anti-fracking protests to succeed and make something see them be pushed further to demonstrate to the bodies that the population at large is not docile. It cannot simply be walked all over. Respondent 5, Group 6B

The lack of recognition in formal political processes was seen as a sign that something was wrong with political processes, and here we see evidence of anti-political sentiment.

Not specifically, it’s just, like, we try to, like, vote against it and then nothing actually happens, like, we tried a vote and we tried protesting, but if there’s nothing actually coming out of that, then something’s gone wrong somewhere. Respondent 1, Group 4B

This was connected to feeling that people in rural areas, through lack of numbers, were lacking in ‘social power’:

It’s like they value the money over what it’s doing to the areas that it affects. But I suppose the people with money wouldn’t be affected by it unless it’s on a more global scale then they would do something about it. Respondent 1, Group 4B

Youth connected participation with lack of recognition, and with feeling unvalued and voiceless. We observed two different responses to these feelings: protest (active anti-political sentiment) and disengagement (passive anti-political sentiment):

I feel like people don’t listen, and especially if you’re so young, people won’t listen, that you’ve got to do something extreme to be heard. Respondent 4, Group 1B

I guess the effect of feeling helpless is, like, means you can’t…because you don’t feel like you can have an impact so you don’t really try to have an impact*.* Respondent 3, Group 4B

As well as being seen as extreme, protest and other forms of opposition were seen to have a detrimental impact on local people by stopping them working or going to school or college, and were also perceived to be ineffective:

You’re not going to make as much of an impact as someone which is in the industry or, do you know, has a position of power such as an MP. Respondent 2, Group 3A

However, some felt that protest had been successful in obtaining information from industry, and others felt that regardless of whether or not it was successful, it was a way of being heard. There was a recognition that there was a need to be difficult:

I think protests are quite a good thing to do, because when something as extreme as, you know, your future, and the future of the world…I feel like people don’t listen, and especially if you’re so young, people won’t listen, that you’ve got to do something extreme to be heard and then you get onto the news and then you get more attention from it… if you start causing a disruption, that’s when people start listening to you. Respondent 4, Group 4B

Young people discussed a range of ways of participating in decision-making, but all of these were seen to be limited because of the ability of central government to exert power over the decision-making process. This raised questions and concerns about how justice was distributed.

## Justice as distribution

Distributive justice refers to how environmental goods and harms are shared. We coded data as relating to distributional justice when young people discussed how decision-makers decided who gains and loses what (e.g. gas, energy, money, disruption, pollution), and how. In this section, we organise by the goods and ills identified by the young people, and explain how they demonstrate distributive justice or injustice. We begin with profit before considering youth perceptions and experiences of the distribution of knowledge, water, quality landscape, seismicity, air quality, and disruption and protest.

### Profit

Distribution of economic gains and losses was central to young people's attitudes and feelings around fracking. The youth saw economic gains to be at odds with environmental justice. Profit was considered by young people to be the driving force behind fracking, and the environment was considered to be sacrificed for profit.

…look at the economic side of it [fracking in the USA] where people who have seen a lot of firms making a lot of money and then a lot of the locals are being left hard done by. Respondent 2, Group 1C

I get why people want to use it, because companies can make money; it gives them energy straight away but it’s not worth… the risk of ruining the environment for the future generations and putting your profit ahead of people’s lives. Respondent 6, Group 6A

Young people considered their own limited financial power to contribute to their lack of recognition by government and industry. Some participants linked this to political processes, arguing that once power (in the form of licences) was handed over to the private sector, it is hard to reverse, and also that it is harder to hold industry than government to account, reflecting concern with post-political processes which position decision-making outside areas of direct accountability.

..the main reason people in fracking ignore all these protestors is because once they’ve got the site they’ve got the site and as soon as they’re making money they couldn’t care less about anything but if it’s nationalised, if the government decide to do wrong, they will get exposed for it because there is a lot more pressure towards the government than there are just individuals businesses.Respondent 3, Group 1C

This position echoes the attitude of other young people who favoured formal methods of participation over informal approaches including protest, calling into question the desirability amongst youth of post-politics, where there has been a shift from state-planned and publicly funded large-scale to privately funded energy infrastructure projects where regulation operates at arms-length from government (Drake, 2018).

This research took place in a socio-economically disadvantaged area (according to indices of multiple deprivation) in the northwest of England, and unjust economic distribution was reported at a household level with house values depreciating as a result of concern over property integrity and location.

I know a few people who’ve been trying to sell up from where they are near … fracking sites, and they’re finding it quite difficult to sell because nobody wants to buy near a fracking site. Anybody that doesn’t risks losing money, and possibly at some point, even their property or the integrity of it.Respondent 2, Group 4B

Young people feel the foundations shaking beneath them in terms of feeling that their homes are at risk, yet they are unable to escape their surroundings, which have changed around them.

Whilst young people were able to identify potential economic benefits that *could* be experienced in their communities as a result of unconventional shale gas industry, most notably employment opportunities, but also financial incentives from industry to ‘distract from damages’, they questioned where profit was going and were sceptical about the extent to which they would feel this benefit:

Probably quite good for the economy I would guess. It’s generating revenue although I don’t know who it goes to. I don’t know if it creates jobs. Do they need to hire people to build the fracking facilities or do they just bring all these fracking specialists inhouse?Respondent 5, Group 6B

I would imagine that means the company is benefiting the most off fracking because they’ve got like all the equipment and then they can sell the natural gas for a good price, so the local economy, I don’t think it would really benefit. Respondent 6, Group 6B

Equally participants recognized that these jobs may not necessarily be suitable for local people and that the industry might exacerbate economic exclusion and unjust distribution. Youth voice on the distribution of profit is possibly best represented in the question that participants considered to be of a high priority to know about fracking: who benefits? This question is rooted in acknowledgement of the impacts, both negative and positive of fracking. The need to know *who* benefits, rather than what is the impact and who it impacts, speaks of injustice which is being experienced.

### Knowledge

The distribution of knowledge around fracking was felt to be unequal by participants, and they wanted to know more. Participants spoke confidently about the process of fracking, but were less confident when talking about the effects of fracking in terms of both why and how these occur, and what measures can be taken to minimise risk to people and environment.

For a lot of people it’s about is that…it’s water and sand or is there more involved to get as deep down as they need to get? And a lot of companies would say they’re doing this and that to ensure safety but why is still happening like? To know how it works basically is quite simple but to know how it’s really working is a different story. Respondent 3, Group 1C

The infancy of the industry was seen as being a problem when trying to find out impacts of fracking.

I think a lot of people’s problem might be just not knowing what it could cause, like they haven’t done enough like research, they don’t know enough about it, so even if they can’t explicitly see things massively going wrong they might think it could lead to … I think it’s just the uncertainty of it. Respondent 3, Group 5A

These concerns went hand in hand with the perceived power and influence of the companies involved in hydraulic fracturing, with discomfort expressed about companies being able to provide their own water monitoring data. Indeed, some described the situation where people use information from companies involved in fracking as ‘compromised’. This reflects concern with depoliticisation processes, in this case through the creation of institutions and processes at arms-length from ministers.

Much of the concern evident in news and in the announcement of the moratorium by the government relates to seismic activity. Whilst this was identified as a risk for the young people, they were much more concerned with ensuring supply of water and minimising pollution of water and air. Young people could describe the regulatory environment in relation to earthquakes, but not that relating to water monitoring, and they repeatedly highlighted that one of the most important things they wanted to know about fracking was ‘who benefits?’ Young people feel that they need more knowledge and are sceptical of knowledge which they identify as being biased. They generally trusted their schools and teachers and felt that they were able to present arguments in a more nuanced way than other sources.

### Water

Scarcity and pollution associated with water extraction for use in fracking was one of young people’s main concerns about the process. Participants described a number of impacts of the fracking industry that put water at risk, most notably the composition of fracking fluid when it returns to the surface. Young people thought that it was important for people to be informed about how water would be used and how their water supply could or would be affected:

And the water, like how much water it uses, like not even just pollutes, just like the amount of water it uses. Respondent 3 Group 1D

Young people linked concerns about pollution and environmental impacts to personal health and effects of exposure to chemicals used in fracking fluids.

They put sand down as well because they drill a hole all the way down and they put a mixture of chemicals into it, and once they move inside it can spread to the water table which again gets into the drinking water*.* Respondent 1, Group 6A

I think it’s benzene….it’s a known carcinogen, so if that leaks then there’s a lot of implications caused by that. Respondent 2, Group 1B

Whilst young people had access to some information about the impact of fracking on water security, young people saw knowledge about fracking as unevenly distributed, and contributed to a lack of trust in the industry.

It’s so close to where I live and especially the chemicals that they’re using, a lot of it is described as water…but the 5% of chemicals they are using, they’re not announcing, we don’t actually know what they are…Respondent 2, Group 4B

The issue of access to information, and how fracking was reported, was raised by several participants with many noting the dominance of news about anti-fracking protests, and the focus on seismicity (reflecting a focus on known risks) rather than what they considered the more pressing concerns of water security.

I don’t think that’s [impacts on groundwater] reported on as much because I think people are less aware that that is a problem. They know geologically that tremors and earthquakes can happen and they know how gases can affect the atmosphere but they don’t know how it can poison water supplies. Respondent 2 Group 3D

Participants felt that the human and community impacts of environmental pollution were often absent in discussion about the impacts of fracking, for example:

I feel like not many people focus on the people that live right there and are seeing all of this, it’s more, like, just what fracking is doing, just the, “Oh, it’s contaminating water, or it’s causing earthquakes,” but then it’s the effect on the actual people that live there, like, they’re the ones that have to live with tremors and their water needs to be cleaned and they can’t just drink out of the tap of their waters, because they’re scared of it being contaminated, they wouldn’t know if it is contaminated or not. Respondent 1 Group 1B

The concern about drinking water was linked to cost of living and quality of life that would be lost if people paid for necessities, and also to the farming community who might experience additional costs associated with access to water, or losses associated with the use of polluted water on farms. As a result, young people believe that they live in a sacrifice zone, highlighting the uneven distribution of environmental injustice:

There’s no way that you could stop the water being polluted or little earthquakes that can happen because of it. So, it’s a sacrifice zone … there’s a point where it goes too far just to get some gas which can be replaced by more green ways of energy. Respondent 5 Group 2B

Indeed, Cotton’s (2017) discussion of fair fracking observes that Lancashire was described as ‘desolate,’ ‘unloved’ and ‘not environmentally sensitive’ in the House of Lords, suggesting that the area was treated or at least recognised as a sacrifice zone by those in positions of power.

### Quality of landscape

Connected to the view of their communities being seen as sacrifice zone was the view that unconventional shale gas development had an impact on an area of outstanding natural beauty and associated industry (agriculture and tourism were named concerns), and the knock-on effect on other industries. Whilst young people noted that the low population meant that fewer people would be affected than if it was located in a city, they felt that the aesthetic of their locality was being destroyed, along with agricultural ways of life and their experience of living there:

It’s just that our community’s been put in a negative light because…it’s in our area and the bad aspects of it being like an eyesore, causing tremors, things like that, possible like pollution of the water…we can’t sort of see what the positives could be. Respondent 3, Group 1C

Lancashire’s very country-based, like a local friendly place, and it makes it look more urbanised, more like a big city. Respondent 2, Group 1B

Young people were concerned not just for the present, but also for how wells and other infrastructure associated with unconventional shale gas development would be left when they were no longer productive, and the visual and environmental impact on their communities as a result, reflecting temporal as well as spatial concerns.

### Seismicity

Another, physical, manifestation of this ‘sacrifice zone’ is the increase in seismic activity linked to fracking. Most participants described earthquakes as minor (although they recognised the potential for injury and damage to property), but also undesirable, largely because of the impact that it has on the lives of people in the community unable to move house because of devaluation linked to structural integrity and the changed landscape.

I’d say there’s like social impacts because people generally don’t want to live round the area if there’s drilling going on nearby…. it’s the drilling, the tremors…sinkholes as well. Respondent 2, Group 2A

As with other environmental impacts, the impact of increased seismicity was connected to community well-being by participants. Young people highlighted that physical impacts have social repercussions that greatly impact the community and the feeling of those living in it.

### Air quality

Pollution was an environmental ill that was considered by young people to have an uneven distribution globally and locally. In global terms, the production of greenhouse gases from fracking was considered to have an impact all over the world, with some places more susceptible to the impacts.

The direct impacts are, like, earthquakes and contaminating the water, but then, like, secondary effects would kind of be the gas escaping into the atmosphere and causing climate change and then everybody suffering from climate change. Respondent 4, Group 1B

Reference was made to the contribution of carbon dioxide and methane to climate change, with concern expressed that methane is a more potent greenhouse gas than carbon dioxide. In addition to concerns about global climate change, local air quality was a concern in terms of pollution and diminished air quality associated with industry.

Day to day life like obviously you’ve got air pollution, you’ve got traffic pollution because of the more people, noise pollution. Respondent 2, Group 3D

While acknowledging both local and global impacts, perhaps unsurprisingly given the immediacy of the impacts, participants tended to focus on the effects of noise and traffic.

### Disruption and protest

At a local level, young people saw disruption and protest as disproportionately affecting them. Young people recognised that protest goes hand in hand with the unconventional shale gas industry. When young people talked about disruption, they spoke about two aspects: disruption associated with protest and disruption due to increased heavy traffic associated with the industry. Participants presented frustration and tended not to be supportive of the disruption caused by protesters, although they recognised that it was a necessary aspect of protest. Young people believed that protest had a negative impact on local access to education, employment and healthcare, and even where they were supportive of the aims or methods of protesters, they saw the disruption as problematic, for example:

If I didn’t live near it, I’d be really pro the protestors, because there’s nothing that I can see that they’re doing that’s a problem, but because I live there, it is sort of a problem.Respondent 2, Group 5B.

There was a tension associated with protest, with it being seen as a participative method of last resort when all other attempts to be heard had failed, but with dissatisfaction that it disproportionately affected local people, who were also those who were disproportionately affected by the industry they were protesting against.

# Discussion and limitations

This study is novel in the presentation of youth perspectives and experiences of fracking which have hitherto been under-discussed in the literature. Young people’s experiences are especially significant because of the possible long-term, intergenerational effects of fracking. We discuss young people’s experiences in terms of their responses to fracking, and their responses to anti-fracking through political and non-political participation in relation to recognitional, procedural and distributional components of justice. We find that lack of recognition of youth and procedural injustice, alongside poor distribution of environmental goods and ills as conditions which create anti-political sentiments amongst youth.

The emphasis for youth was in securing energy rather than managing energy demands: there was no suggestion of reducing energy use. Fracking was seen to have a potential place in meeting energy needs, although young people were unanimous in their preference for these needs to be met by renewable resources.

Young people’s experience of the fracking industry was that of being acknowledged but not fully recognised. We found no experience of provision for young people to participate in formal political decision making. The fracking industry acknowledged disruption through financial recompense, and local aspirations were reflected in planning decisions against fracking in the area. However, these were not recognised by national government, which was seen to act in the interests of industry and the national economy.

Through lack of recognition, young people were therefore unable to participate in formal political processes. There was little expectation that industry would include them, but young people expected more from government. They described the exclusion of the community from decisions about fracking *despite* the existence of formal processes, and a mandate from residents to not allow fracking operations in the area. These concerns are common to those shared by anti-fracking protesters in other counties in England (Drake, 2018). There was a tension between the desire to trust government and political processes, but at the same time, upset and anger about how formal political processes had been used to act in the interests of industry over local people. Young people do not feel recognised within formal political processes, yet protest is positioned as ‘extreme’, unlikely to be effective, and an act of last resort. Young people preferred ‘dutiful dissent’ over ‘disruptive’ or ‘dangerous’ dissent (O’Brien *et al.*, 2018). Whilst dutiful dissent allows young people to express and act on their discontent with the status quo, it does not challenge or change the logic of systems that here have been found not to work. As a result of feelings of powerlessness, anti-political sentiments were observed. These were both active (in terms of supporting or participating in protest movements) and passive (in terms of disengagement and disaffection from politics). Anti-political attitudes are considered to undermine democracy (Mete, 2010). As a youth concern, the existence of anti-political attitudes is problematic as it risks their participation in formal political processes when they reach voting age.

Post-political planning reforms have positioned fracking as a simple problem which can be solved using technocratic means with minimal participation, and whilst rule-based depoliticisation has resulted in the current moratorium, there is a need to reconsider the place for debate in relation to fracking.  Young people in this study see fracking as an unstructured problem and lack trust in government, suggesting the need for higher levels of participation and adaptive governance. They also note problems with the post-political condition, describing difficulties in obtaining information and influencing decisions. This can be attributed to the shifting arena of decision-making (from local to national), where fracking was placed in the ‘realm of necessity’ (Hay, 2007), where fracking itself is non-negotiable; the only questions that can be asked are how to manage associated processes such as regulation and compensation. This corresponds to forms of depoliticisation present in advanced liberal democracies according to Hay (2007), particularly institutional and rule-based depoliticisation (Flinders and Buller, 2006). This left young people feeling powerless, which turned variously into anger, apathy and frustration.

Limited recognition and participation resulted in what young people perceived to be unjust distribution of environmental and economic impacts. Specifically, they experienced disruption, concerns about water supply and quality, air pollution, noise, and the industrialisation of their landscape which they felt degraded the lives of people in the community. These findings add to the body of evidence of the impacts of fracking, with concerns common to those identified by Partridge et al. (2017) and Thomas et al. (2017) in the UK and USA, and O’Connor and Fredericks (2018) in Canada. These impacts were experienced in travel disruptions, days lost to education and employment, and devaluation of property. Young people perceived the economic distribution favouring industry and decision-makers rather than the local community, at the same time as seeing the need for local investment to replace struggling industries.

Youth in this study had limited knowledge of energy and resource supply chains connected to the fracking industry, but they reported concerns about the connection of fracking to global climate change. Indeed, the scale of impacts of fracking is not just felt in the local community where shale gas is extracted. Underpinning these perceptions of environmental and economic injustice was a concern about what knowledge existed, and who had access to this. These questions related to the efficiency of fracking, the distribution of benefits, local impact on the environment, most significantly in relation to water quality, questions about regulation and monitoring and how to influence decision-making. These findings add to the weight of evidence about public concerns, and commonalities across different national contexts. In common with Partridge et al. (2017) and Thomas et al. (2017), who drew on data from participants in deliberative workshops in the UK and USA, we found concerns about fracking in relation to energy futures, the transition to renewables and the contribution of shale gas extraction and combustion to climate change. We also found concerns about fracking governance, safety and regulation, and impacts on communities.

Young people were sceptical about how the perceived economic benefits of fracking would be distributed, believing that industry would be the principal beneficiary, with few financial benefits being passed on to energy consumers and the local community. At the same time, they felt that they would experience the negative environmental impacts of fracking. They viewed the local community and landscape as being sacrificed for the benefit of industry. In that sense, in common with the participants in Willow’s (2016) study of anti-fracking activists, non-profit affiliates, and community leaders in Ohio, young people challenged the neoliberal discourse that promises and prioritises economic wellbeing from fracking. In common with the anti-fracking protesters in Yorkshire, (Drake, 2018), we found that young people in Lancashire perceived that (national) politicians put their health, local community and the environment at risk. Furthermore, whilst government discussions of fracking safety focus on seismicity, young people were as concerned with other environmental impacts.

The empirical data demonstrates young people’s experience of fracking as unjust in terms of recognition, participation and distribution. They experienced the environmental and economic impacts of the quest for affordable energy to meet current demands. In line with Gonzalez (2019), we find that there is little opportunity for local youth, as powerless members of society, to obtain meaningful environmental justice. We found the young people’s identity as ‘locals’ to be important in their responses to fracking, as recipients of unjust distribution of the environmental impacts of fracking. To achieve distributional justice it is imperative to ensure recognitional and participative justice at a local level, at the same time as recognising that ‘local’ provides only partial insights (Beebeejaun, 2019). There is a need to consider both spatial and temporal concerns associated with intergenerational justice.

A range of stakeholders have been included in studies of fracking, but this study is the first to focus exclusively on youth. Whilst correlational studies of general populations (Choma et al., 2016; Sarge et al., 2015) have found support or opposition for fracking to be associated with political ideology and prioritisation of either economic or environmental concerns, our study finds that regardless of support or opposition for fracking, young people have a range of economic and environmental concerns about the process and its impact on their communities and their future, and there is a need for greater sharing of information and research to address these concerns of youth. Whilst we found some evidence of the three perspectives identified by Cotton (2015): don’t trust the fossil fuel industry; shale gas is a transition fuel; and proactively legislate in the public interest, these represent fixed positions, and we found that young people were open-minded to changing their positions in light of further information and research, but that attitudes towards fracking had been marred by the action of national government.

This study was limited to young people in only one geographical area, and we relied on voluntary participation mediated by teachers and tutors in schools and colleges. Our methods of data collection are susceptible to demand characteristics, and do not provide independent measures – only perceptions and beliefs based on reported experiences – of environmental and other inequalities. A focus on fracking justice as perceived by young people, however, has generated insights into the concerns that span disciplines and geography, and which suggest different concerns, and a different emphasis to those presented in government responses to fracking. Where development is to be sustainable, there is a need to incorporate these voices of youth into decision-making.

# Conclusions and future work

We set out to answer the question *how do young people perceive and experience justice in relation to fracking?* We found that youth experience fracking as unjust through limited recognition and participation which contribute to inequitable distribution of energy and environmental goods and harms including energy and water security, quality of landscape, seismicity, air quality, knowledge, profit, and disruption and protest. We found that fracking decision-making and associated depoliticisation processes contributed to anti-political sentiment amongst youth, which manifested in different ways. The study has contributed knowledge about the experiences and responses of an under-recognised group to fracking in their local community and pays attention to the voices of youth which have hitherto been neglected in research on fracking.

Young people presented their perceptions and experiences of distribution of the impacts of fracking in terms of global, national and local interests. Schlosberg’s (2004) plural theory of environmental justice draws attention not only to how justice is distributed, but also how people are recognised and are able to participate. Fracking is a political issue, in the sense used by Hay (2007): a social activity based on deliberation that happens in situations of choice where there is capacity for agency. We observed political disenchantment in relation to fracking amongst the young people, with formal political processes seen as ineffective, and disconnected from local needs and desires, leading to anti-political attitudes and reported behaviours. Young people wanted to trust both government and political processes, and this shaped their views towards dissent, with dutiful dissent preferred. Whilst expectations of political processes were low, formal political processes failed to meet even these expectations, in particular with the failure of national government to listen to local communities and local government. The young people’s perspectives indicate a lack of agency through limited recognition and opportunity to participate.

What can the international community learn from this case? Where young people are unable to participate in political decision-making, and where their aims, needs, interests and values are not recognised in political processes, there is a risk of making decisions which result in the poor distribution of environmental goods and ills. Where this happens, there is a risk of fuelling anti-political attitudes which undermines democracy. There is a need for young people to be included in research and policymaking on issues that will affect them. The findings raise a number of implications for policy makers.

Following recognition that young people have a stake in intergenerational decisions, and that they are excluded from electoral processes, it is incumbent upon decision-making authorities to devise suitable ways in which young people, and local communities more broadly, can be recognised and enabled to take part and influence their own future. Recognition begins with decision-makers going to places where young people can be found in order to speak to them and better understand their aims, values and projects.

Participation (which requires recognition) is the foundation for environmental justice. Without recognition and participation of youth, environmental justice is unlikely to be achieved. Models for involving young people include citizens’ assemblies and citizens’ forums, but given that young people might not feel empowered in these structures (Percy-Smith, 2010), there may be a case for rethinking how existing institutions (schools and colleges, for example) might be used to make decision-making more inclusive and might bring benefit to young people, not just the organisations seeking their participation. Schools and colleges have the potential to be more inclusive than alternatives. This might be achieved by holding dialogues (such as might be achieved with focus groups, with the emphasis on young people talking) about those unstructured policy problems (Hulbert and Gupta, 2015) with intergenerational consequences. Most schools have timetabled space for Personal, Social, Health and Citizenship Education (PSHCE), where this could be put into effect. A tangential impact might be more detailed understandings amongst decision-makers of current issues in education. Other models of addressing participation is the greater use of place-based pedagogies which have “direct bearing on the well-being of the social and ecological places people actually inhabit.” (Gruenewald, 2003, p.3). The views of young people in this study suggest a need for reflection on how protest is positioned in education, and to consider opportunities, whether through citizenship, geography, history or science to include more explicitly political education covering the merits and demerits of different forms of dissent and specifically to reflect the legitimacy of peaceful protest and the role that dissent plays in democracy.

Finally, in terms of distributional justice, the data supports, in common with Cotton (2017), the need to relocalise the scale of fracking decision-making in order to reach more just, and more justly distributed, environmental outcomes. Knowledge is needed to inform decisions, and for young people there was a need first of all to obtain greater knowledge about how energy and water are distributed and regulated and secondly to understand how knowledge and evidence were used in decision-making. Thus when political decisions are communicated about fracking there is a need for these to address the actual concerns (relating for example to the issues around water, economics, air quality and so on identified in the findings on distributional justice) rather than on perceived concerns about seismicity.

Future work is needed to examine youth perceptions and experiences of other energy interventions, including more sustainable energy resources such as biofuels and wind turbines, and also on environmental interventions such as geoengineering, which have intergenerational consequences. Recently, Griffiths (2019) has argued for the place of capabilities in considerations of justice. The capability approach (Sen, 2009; Nussbaum, 2011) suggests that injustice occurs when there are limits to the fulfilment of basic capabilities – the freedoms people have to do and to be what they value. An empirical application of the capabilities approach is likely to draw on attempts to identify and classify central capabilities (Nussbaum, 2011; Walker, 2005) of youth, and to consider the interaction between capabilities, and recognition and participation in achieving a just distribution of outcomes of fracking.

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