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Paper title: *'Qualitative methods in transport research: the 'action research' approach*

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Abstract

This paper explores the potential of 'action research' as transport survey method, with particular emphasis on critically assessing its utility in the resolution of major transport policy challenges, such as the mitigation of climate change and environmental impacts, transport-related social exclusion and intergenerational equity issues. Although not particularly novel within the social sciences, it is an approach that has been largely overlooked within the field of transport studies to date.

Action research has a long history within the social sciences, dating back to practical problems in wartime situations in Europe and the United States (Reason and McArdle, 2004). It has only recently emerged within the literature as a transport survey method (e.g. Uteng, 2009; Porter et al., 2010). The method is specifically designed to support and actively engineer behaviour change as an integral part of the research process (Robson, 2002). It is inherently collaborative, involving repeated knowledge interactions and exchanges between the researcher and the 'researched'. It can be applied at either the level of individuals, small groups and/or 'communities' and organisations, with the expressed aim of bringing together research inquiry and future policy or planned actions (ibid).

The paper presents some practical examples of where action research has been used to illicit information about people's travel experiences and behaviours and asks whether, and in what way, these have achieved different outcomes from other qualitative transport survey methods. It seeks to identify the most appropriate contexts for action research and to explore the skills and techniques which researchers need to develop if they are to overcome some of the main criticisms of the method. It then evaluates some of the critical challenges of applying an action research approach and identifies potential ways for overcoming these. Finally, it discusses the key challenges which action researchers are likely to encounter in the analysis, presentation and dissemination of their action research 'data' and identifies some potential ways of overcoming these.

1. Introduction

Qualitative research methods are increasingly recognised as valuable for understanding the underlying motivations behind people's travel behaviours and for teasing out their more hidden attitudes and perceptions (Grosvenor, 1998). Qualitative research refers to a wide variety of different fieldwork approaches, including interviews, role play, focus groups and other dynamic and deliberative methods that can be conducted with either transport decision-makers and other professional stakeholders or the end users and recipients of transport interventions. The specific aim of this paper is to explore whether 'action research' as specific approach can be used to as to complement this wider suite of qualitative methods in instances where the desire is to record the change processes that occur from small scale transport projects, particularly those that aim to directly influence the behaviours of individual travellers. This can be seen as a particularly important issue in light of the growing academic and policy recognition of the need to more actively engage citizens in the environmental and social consequence of their travel behaviours decisions, in response to 'wicked problems' such as climate change and social exclusion. The complexity of these questions inherently requires the development of more innovative and interpretive data collection methods than have been previously witnessed within the field of transport studies, but which maybe borrowed and adapted from other areas of the behavioural sciences.

I begin by outlining a few of the key principles of action research and describe how it has been generally applied within social science research. I then identify why it might be appropriate as a method within the field of transport studies and offer some practical examples of some UK projects that have successfully adapted the approach for this purpose. I then explore some general criticisms concerning the validity of the action research approach and how these might affect the outcomes of successful enquiry in the area of transport studies. I conclude by offering some solutions for overcoming such methodological challenges through further potentially complementary avenues of research and analysis.

2. Background: What is action research?

Broadly speaking, action research describes a hugely diverse set of methodological practices and so there is no short answer to or necessarily general consensus about the question of what exactly constitutes an action research approach. Reason and Bradbury's handbook of action research (Reason and Bradbury, 2001:1) identifies it as 'a participatory and democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes, grounded in a participatory worldview'. It has its roots in 'political activism' and so generally seeks 'transformative and emancipatory goals', which are based on the 'lived experience' of the researchers and research subjects who collaboratively participate in its activities.

Fundamentally, it aims to bring together action and ongoing reflection through theory and practice. The primary role of the academic is to engage the necessary 'actors' in order to facilitate a process of learning and reflection in relation to a set of practical challenges, in particular those which are considered to be complex and 'messy'. Good examples of this would be the delivery of sustainable development, social equity or community wellbeing. Touraine, who is often cited (alongside Castells) as one of the key originators of the social

action research method, argues that it is the ethical responsibility of researchers who engage in social research, not only to recommend changes for the improved welfare of their research participants and others, but to actively engage in:

"... an intensive and in-depth process during which sociologists lead the actors from a struggle they must carry on themselves to an analysis of their own action."

(Touraine, Dubet & Wieviorka, 1982: 280)

In fact, an action research approach has been applied to a wide range of policy-relevant contexts (including political protest, education and health promotion, environmental behaviours, local regeneration and community development). This has most usually been with the specific aim of encouraging the active engagement of previously excluded, marginalised or disempowered populations (such as children (e.g. Porter et al., 2010), people with disabilities (e.g. Danieli and Woodhams, 2005) and minority ethnic or faith groups (e.g. Harris et al., 2005), etc.). The engagement and participation of these hitherto overlooked and marginalised communities is generally seen as important to successful the (re)development and (re)design of new policy delivery systems, processes and/or stakeholder practices (Reason and Bradbury, 2001). At the organisational level, the method has mostly been used to interact with employers and employees about changes to their current behavioural and/or institutional practices (e.g. Khisty and Arslan, 2005) and/or with policymakers and their target audiences (e.g. Seyfang and Smith, 2007).

The family of methods that have most usually been adopted by action researchers embrace some core features, but can vary greatly according to the individual nature of the research enquiry and the skills and needs of its participants (this will be explored in greater depth in later sections of the paper). Some studies are led by researcher or practitioner-led enquiries, whilst others are generated by 'activist' communities themselves. Whoever leads, however, there should be an emphasis on partnership, collaboration and empowerment through participation (Todhunter, 2001). The spectrum of involvement will generally differ according to the pre-existing capacities of the actors involved, as well as the specific circumstances of the project. Cornwall (1996) identifies six main stages of involvement from 'co-option' at the lowest level of engagement (where communities are only token representatives but have no real power or input as to the design of the research process), through 'compliance' where tasks are given to participants but outsiders decide the agenda and direct the process), through 'consultation' (where communities are asked their opinions but outsiders decide the appropriate course of action, to 'cooperation', 'co-learning' and 'collective action' (where there is gradually greater involvement of communities along the spectrum and eventually communities enact their own agendas).

In practice, many projects often start out at the bottom end of this spectrum and move towards the top-end of it over time, as community skills and capacities increase overtime, and/or their tolerances for being the mere subjects of research enquiry decrease. In this way, action research can be described as highly 'path dependant' in that what happens at any one stage of the research process is determined by the earlier choices and experiences of the

research participants themselves, as well as by other actors outside their direct field of influence. Nevertheless, it does have at its core an iterative methodological pathway. There are identified as involving i) opening opportunities for dialogue between the various actors; ii) experimenting with different cycles of action and reflection; congruence (checking if what is claimed has actually happened); iii) reframing the issues in the light of new social learning; iv) seeking ways of acting through inner and outer arcs of attention; v) developing dialogue and participation skills; vi) developing design and facilitation skills; vii) validating processes.

As there is a strong emphasis on experiential and social learning, there is also a tendency towards the use of narrative and discursive methods, such as open forum discussions, focus groups, citizens' juries and learning histories. One key challenge for such approaches, as I shall explore more fully later in the paper, is a) how to practically capture these rich but often fragmented sources of 'data' and b) how to critically analyse and evaluate them once you have done so. Similar to most qualitative methods, an action research approach can, of course, be combined with quantitative data collection methods at any point in the overall study process. In this way, it can be used to inform the design of questionnaires or as an explanatory tool for interpreting the outcomes of statistical survey analysis. Perhaps a more unique application, however, is in helping those who are tasked with the delivery and monitoring of travel behaviour intervention projects, such as travel awareness programmes and cycling and walking promotion projects, to better understand the dynamic processes that are involved in shaping and reshaping everyday travel habits.

In following sections of the paper, I identify three example studies that have employed an action research approach, in which I was myself involved as a researcher. I do this to both offer the reader a flavour of the type of methods and tools that were used and to draw attention to some of the methodological challenges that arose and were sometimes addressed (and sometimes not) as part of these research processes. I then use these examples as a basis of a critical evaluation of the potential of action research as an applied methodological approach for the transformation of travel behaviours. I first discuss why such an approach might be desirable for the more effective delivery of transport policy and transport systems planning, not only in the UK but also internationally and perhaps more importantly for this specific conference, what implications the implementation of an action research has for the collection and analysis of travel behaviour data.

3. Why action research for transport?

There is little argument that transport delivery worldwide is in something of a state of crisis. This is despite considerable innovation in the ways in which we now plan, deliver and manage our transport systems. There is also widespread evidence that the way in which most people currently chose to travel and how our goods and services are delivered is environmentally unsustainable, socially unjust and economically non-viable over the longer term. Both are impelling reasons for transformative, rather than incremental, changes in these processes; and (arguably) neither governments nor the market are delivering these changes rapidly enough to avert the simultaneous crises of global economic meltdown, climate change, peak oil and the ensuing civil unrest that will in all likelihood follow should our transport

systems fail us in the future. There is an argument, therefore to think and act differently at every level of our individual and collective travel behaviours.

Whilst action research with communities and businesses cannot hope to deliver all the changes that would be necessary to resolve these crises, it may be a way to promote technological innovation and social learning about what needs to be done. It may also identify new and more politically acceptable pathways for change. Egmore (2011) identifies a lack of public trust in scientific, technological and policy solutions for more sustainable lifestyles, which cannot be simply explained by a public knowledge deficit. He suggests that this is because many of the 'solutions' that are on offer fundamentally interfere with the perceived life-world needs of most ordinary citizens, i.e. their need to secure a reasonable quality of life for themselves and their children in an increasing uncertain and unstable world. It is this impasse that action research might most usefully seek to address, through a collaborative process of problem and identification solution pathways between scientists, policymakers and citizens themselves through 'grounded democratic deliberations' (Egmore, 2011, 28).

The question remains as to how to capture and robustly evaluate the impact of these very micro and often ephemeral local 'action' initiatives on the travel preferences and choices and longer-term social norms for travel demand amongst the population at large.

4. Three short case studies of action research

In this section of the paper I describe three example case studies of action research transport initiatives in the UK. They have been chosen less because they are 'best practices' of an action research approach (although they might demonstrate this in some respects) and rather because they are projects in which I have been directly involved as a researcher. The advantage of this is that I am able to more effectively reflect on their merits and shortcomings than I would otherwise be able from merely scrutinising the reports of similar projects in which I have not been directly involved. I personally find that one of the major challenges we face as action researchers is how to effectively evaluate and communicate many of the more subjective aspects of such projects to the outside world, a point that I will pick up on and elaborate further in a subsequent section of this paper.

All three projects were externally identified and funded by actors outside the community that was the 'subject' of the enquiry and thus fell short of the aim of 'collective action' within the action research philosophy. In this respect, at their inception at least, all three studies reside somewhere between 'co-option' and 'cooperation' in their design within Cornwall's spectrum of participation (Cornwall, 2001). Nevertheless, a strong element of co-learning between the researcher and researcher subjects was an identified aim within the research design as integral to the methodology, as well as a planned opportunity for local agenda setting and collective responses at the output stages of each project.

The first example is the Citizen's Science for Sustainability (SuScit) project www.suscit.org.uk, which took place in the London Borough of Islington between September 2006 and July 2009. It brought together researchers, policy makers and members of the local

communities to identify local priorities for sustainable urban living on the Mayville Estate, a recognised area of economic deprivation, social exclusion and environmental degradation.

The second example is that of an EU-funded project, OPTIMUM2 (Optimal Planning through Implementation of Mobility Management) http://connectedcities.eu/downloads/conferences/london_optimum2.pdf, which centred on a local business, rather than resident community in London. It aimed set up and facilitated a travel plan group to identify practical initiatives to encourage local employees to cycle or walk to their place of work as part of the wider redevelopment business plan for London's South Bank.

The third example, and one I have often used in my previous publications (e.g. Lucas, 2004), is the Braunstone Bus project, which evolved from a Department for Transport funded research study to identify ways to address social exclusion through improved local transport planning. The project was one of six case studies across different deprived urban communities and focused on the transport and accessibility needs of low income populations living on the Braunstone Estate in Leicester. The study involved researchers, officers from the local transport authority and the regeneration partnership, which included resident representatives from the local community.

4.1. The SuScit project

The project was funded by the UK's Engineering and Physical Science Research Council to identify new research ideas to support community-based initiatives for sustainable urban living. It sought to actively promote a process of mutual learning between scientists, policy makers and lay citizens about how to formulate 'a community-led research agenda for urban sustainability research'. In stage one of the project, local residents were engaged in a six-week filming project to explore and share their experiences of life in their local area. Stage two, shared their films with researchers and policy makers in a series of workshops to engage them in active three-way dialogue, which sought to propose ways to needs and concerns that were raised. These discussions were supported by analysis of local datasets and other background research to provide the participant with the information they required to explore these issues in the full knowledge of state-of-the-art technical innovations and policy and planning frameworks.

Transport (among other issues such as housing supply and access to community space) became a key focus for debate within the research process. Young people in particular noted that they felt unable to participate as much they would like in employment, education and social activities due to their inability to travel. It was clear from analysis of the local travel datasets that were available that this suppressed travel they experienced, as well as its negative consequences in terms of their social exclusion was largely unrecorded. This was for a variety of reasons, but mostly because:

a) The geographical data was not sufficiently refined to differentiate between the travel behaviours of people living on the Mildmay Estate and the rest of the (fairly affluent) Islington population as a whole, and so masked their much lower levels of travel activity; and

b) GIS-based accessibility analysis of the public transport system serving the area did not provide information about its level of connectivity with the places local residents wished to get, the times they needed to travel, the cost of getting there and other barriers to travel such as fear of crime, which was high amongst both the older and younger resident population.

Perhaps more fundamental to debates about sustainability, was the fact that many participants did not wish to travel far and preferred to act locally, but were prevented from doing so due to a loss of local facilities and the difficulties of walking or cycling due to high level of heavy traffic on local roads. Although not an intended outcome of the research process, one interesting issue that emerged and was partially addressed through the shared workshops was the huge deficit in local knowledge about the activities and facilities that were available to them locally, as well as some of the concessionary travel passes that were being offered to people on low incomes by Transport for London.

Another issue that was raised in terms of transport was the huge complexity of the public transport system in London and the difficulties of navigating it, especially for people with low literacy levels or physical mobility and mental disabilities. Journey planners were seen as useless to people if they didn't already understand the system or know exactly where they were going or have access to ICT technologies. In research terms, the need to develop better low-end technologies was identified as a key challenge, better communication of how to reach key services was seen as an important priority for the providers of services.

4.2. The OPTIMUM2: Better Bankside Travel Planning Group

OPTIMUM2 was a European Union funded project that has as its primary aim the improvement of the accessibility of busy locations in urban areas, with a focus on the three case study areas of South East London, the City of Edinburgh and the Province Noord-Holland. The Better Bankside elements of the project focused on the redevelopment of London's South Bank, which involved 272 businesses located in the area paying a compulsory Business District Improvement (BID) Levy of £570,000 p.a. to contribute to its physical uplift. Initially travel and transport was not a feature of the BID campaign, but was identified as a key problem for the area.

The project aimed to increase and improve travel options for all those working in, living in and visiting Bankside and act as a forum for the exchange of ideas on existing travel solutions and the development of workplace travel planning tools. The Better Bankside Travel Planning Group (BBTPG) was established to identify a number of collaborative projects and to seek funding from Transport for London, the London Borough of Southwark and other bodies to deliver these joint ventures. The main focus of the initiative was on improvements to the walking and cycling environment and on public transport links.

The BBTPG achieved regular attendance of 6-12 businesses at 6 weekly meetings, 'in kind' support for projects (design work etc.) and was the first travel plan group in London to develop its own Master Travel Plan. The group was able to initiate a number of new projects including two area-wide Travel Surveys, a cycle parking audit and subsequently improved cycle parking facilities, a pool bike scheme for Southwark businesses, a series of health travel lunchtime events and walks and an interactive map and web-based travel site. It was also

winner at the Transport for London Sustainable Transport Awards 2007 for 'Innovation in Promoting Travel Plans to Business'). A follow-up survey of local businesses conducted in May – July 2006 received responses from over 100 businesses (from both larger and smaller employers), with a total of 626 individual responses from employees. It reported a 10% increase in the share of people walking or cycling to work. However, there were some issues regarding the robustness of this finding due to the comparability of the survey sample and survey design in the before and after waves of the monitoring.

4.3. The Braunstone Bus project

Unlike the previous two examples, the devising, design and delivery of this project came about through the direct collaborative efforts of researchers working with communities and policy makers. It evolved from a prior project in the area, which was funded by the Department for Transport in an attempt to improve the social inclusion of local communities in the transport planning process (Lucas et al., 2002). This earlier study identified that people living on the Braunstone Estate in the urban periphery of Leicester City felt that they had been systematically excluded by the public transport system in their area and this were unable to reach key destinations such as the new retail park, the two hospitals serving the city and other colleges and schools proximal to their locale.

A follow-up action research project was then used to work with representatives of the local community and the local regeneration partnership to identify a set of public transport routes and operating schedules to link residents to these identified activities. It then facilitated a series of exchanges with the local transport authority and two of the larger public transport operators to secure the 'pump-prime' funding from national government, via a bidding challenge, to tender these service and to train local residents to operate them as a social enterprise.

A process of continuous data collection, funded by the regeneration partnership and undertaken under the supervision of the research participants, was then used monitor the performance of the service and to feedback suggested improvements to the operators. The information that was gathered was also used to evaluate the service in terms of its contribution to social inclusion outcomes, including local job uptake, reduced school truancy and college attendances. The research was able to demonstrate that patronage had increased beyond the usual levels of uptake that is generally expected from new or improved transport services and demonstrated significant results in terms of indices of social inclusion (Lucas et al., 2009).

5. The strengths and challenges of action research: creating the reflective research practitioner

One of the cited often key strengths of action research is that it produces outcomes that are both useful for the participants (in that it encourages and supports further courses of local action) and the researcher (in that its findings are more grounded and robust). Involving communities in the analysis and interpretation of research findings can improve the quality and accuracy of the findings and fosters community learning as communities are more likely to 'own' findings if they have helped interpreted them. It can also enable a more reflexive

approach for researchers, who can consider how the context and engagement of specific participants might influence some of the data generated. As well as understanding why and how certain transport behaviours are constructed, it is possible for both the participant and the researcher to interactively explore what might change a given behaviour and the dynamic and social consequences of that change. The focus is far more on understanding detailed processes at the individual level rather than gross behavioural outcomes, but nevertheless understanding this can lead to the development of more effective survey and policy instruments and grounded interpretations of modelled outcomes.

One of the key issues with transport behaviour change programmes in the UK has been the very localised and micro nature of such projects and the difficulties, therefore, of capturing their impact on people's travel behaviours in a meaningful way. Whilst national travel surveys do a very good job of capturing and communicating changes in travel behaviours at the aggregate national level (as is their intended function), they are much less able to demonstrate this at lower levels of geographical specification, and especially at the very micro level of travel activity. Although some local transport authorities will run their own supplementary surveys to understand patterns, many communities are left to undertake their own evaluation studies. Action research can help in this respect because local people can be directly engaged in the survey design and data collection process and their local knowledge is often invaluable for identifying a suitable sample population and in the contextual interpretation of results. Local people can be trained to undertake interviews themselves and in some areas have set up their local survey enterprise companies with often far greater demonstrable success at securing survey respondents than traditional transport consultancies.

Arguably an even greater contribution of the action research approach is that it encourages the development of the 'reflective research practitioner' (Schon, 1983). The researcher is encouraged to enter the field of study without a preconceived notion of what s/he will find and to constantly develop ideas from their field observations and interactions with the community of interest. This is designed to encourage them to think creatively 'outside the box', to critically reflect on their research practices and thus develop more innovative and productive ways to engage and reengage with the everyday experiences of their participants. Whilst this might seem an irrelevance to some aspects of travel behaviour research, this learning-in-action approach can be invaluable where the researcher is unacquainted with the social and cultural practices of their community of interest. For example, it is often very difficult for a highly-educated research professional to appreciate the barriers to travel or challenges of behaviour change of a car-reliant single mother who lives on a peripheral housing estate several miles from her work, her child's school and the local shopping centre. Undertaking a programme of action research with her (perhaps getting her to record her own travel experiences and emotional responses to those experiences on a video as she travels and then presenting the recording to local policy-makers), can not only help to empower the participant but also enhances the impact of research message.

On the down side, one commonly expressed critical view is that it is inappropriate for researchers to actively direct the research process and its outcomes in this way and that they should be more impartial if they are to 'objectively' report their results. Such critics (for

example see Danieli and Woodhams, 2005) point to the problems of 'insider' bias, inconsistency, contradiction, selectivity and non-replication, as well as the failure of researchers to recognise the influence of important power differences between themselves as the research inquirer and the subjects of their research inquiry. However, it is possible to control for most of these side-effects within a carefully considered study design and tightly monitored programme.

For example, Smith et al. (2010: 423) argue that whilst researchers might get placed in the 'expert role', they must be open about what they bring and how they are perceived, and '*must* approach the Participatory Action Research endeavour as people with knowledge to share who are also sincere learners, and whose knowledge is not automatically privileged over others'. This is reinforced by others (e.g. Stoecker 2009) who urge academics not to sell their skills and insights short, but to help document and share the processes of the groups they are working with to enable further learning. It is the responsibility of the researcher to make the multiplicity of their roles clear (e.g. Rogers et al., 2012; Charles 2011), a useful tool being a memorandum of agreement which outlines the roles and responsibilities that the researcher brings and what is expected in return from the research participants.

It is also possible to refute accusations of lack of objectivity and reduced analytical rigour that is often levelled at qualitative research with the now well-worn adage that all research includes the in-built biases of its architects but that qualitative research is more open and explicit about these subjectivities. Action research should be no exception to this general rule. Participative data collection exercises should be tape and video recordings, fieldwork diary and meeting notes and other detailed record-keeping tools.

At the analytical stage of the research, it is important to move beyond simple descriptions of what has been observed and recorded to explore deeper underlying trends within the data. This can be approached using an analytical framework that has been developed from existing theories within the literature as a baseline, first grouping the collected observations according to key emergent themes and then cross-examining these themes (or dependent variables) with core attributes of the research participants, such as by age, gender, income (or independent variables) in much the same way as a statistical analysis is undertaken. Where sub-themes and narratives can be seen to emerge, they may be correlated with key episodes, places or events, thus building up a rich contextual explanation of the experiences or behaviours of different groups of participants in the study. The picture or narrative emerges as the researcher stands back from his/her own involvement in the 'action' elements of the research and allows the data itself to 'speak'.

However, rigorous the analytical process, it remains a truism that the type of data that is produced through the application of an action research approach is difficult to incorporate in any meaningful way within mathematical transport models, although it may help to inform their conceptual design. As Grosvenor (1998) has previously noted, this difficulty may lead the policy maker to enquire how its results can be usefully employed within their high-level and strategic decision processes and may ultimately lead to the undervaluing of research outcomes. On the other hand, it may be seen as an opportunity for the action researcher to

work on projects in close collaboration with quantitative data analysts and modellers to assist in the explanation of some of their more 'black box' outputs.

6. Conclusion

The qualitative method of action research has been widely applied in the social sciences to bring about the engagement of local citizens in the transformation of their attitudes, behaviours, patterns of activity and social norms. This paper has explored whether it is a methodology which could usefully be adopted by transport studies, particularly within the context of the travel behaviour change agenda. The paper identifies that monitoring the outcomes of micro-level transport behaviour change programmes often present a significant challenge for more traditional travel survey methods. In these instances, action research can be particularly useful for developing more collaborative data collection methods with the participants of our research enquires and thus enable us to capture their underlying motivations, intentions, perceptions and negotiations, as well as the micro-level impacts of smaller scale transport initiatives.

The benefits of iterative cycles of planning, action and reflection and sharing emergent findings with research participants and their wider stakeholder networks can be helpful for organisational learning, in aiding reflexivity, testing assumptions and biases, and for helping us to collaboratively develop new resources and strengthen the existing skills and capacities of both the researcher and community participants. These types of process outputs can provide theorists and practitioners with rich contextual understanding of how travel behaviours are constructed by individuals, which can in turn serve to improve our theoretical framings, data collection tool and models and policy instruments. Whilst it may not be possible to incorporate these less tangible factors within mathematical models, these understanding can help transport decision-makers considerably in the interpretation of modelled outcomes.

Action research can also be a useful tool for empowering communities to participate in the transport decision-making, infrastructure design and transport planning processes. This could help to make schemes more sensitive and reactive to local needs and concerns and plans more transparent and publicly accountable. It can also be used in conflict resolution between actors with different interests, offering the potential to explore the circumstances of conflicting views and helping to identify pathways to consensus.

7. References

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