

What Influence Can The General Public Have Over Issues of Climate Change?

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Introduction

American society is generally ignorant to the effect of climate change on the world. Its ignorance stems from both public disinterest, and governmental wishes to prevent wide spread fear. Despite this, the public should be granted a greater stake in scientific debate, with the help of the government and scientific authorities. Scientific experts' are portrayed in the media, as providing sacrosanct views on science, which are unequivocal, creating a societal hierarchy of expertise. Experts become authorities at the top, leaving the general public as subservient bystanders, who cannot positively affect scientific debate, due to their lack of specialized knowledge. The problem of climate change is universal, and something which cannot be solved in the laboratory, it affects all citizens, and therefore deserves opinion from all layers of society.

C.S Peirce's (1877) complained that it is unacceptable for politically and religiously driven authorities to fix the belief of a society. He believed a non-human enterprise such as science, which could give impartial facts about the world, was more beneficial to society. In modern society science is itself a manufactured authority enforcing the policies of whoever wishes to use it, instead of the unbiased evidence based discipline it is professed to be. It becomes no better than the "method of authority" and is no less coercive than any religious dogma which may be manipulated similarly to dictate the general public's actions and beliefs. However, science can still operate as the principal provider of knowledge in society, as long as it is not manipulated by the authorities which run society, to control its people. It can still work if there is an element of honest interaction on every level of society with it.

J. Dewey's (2006) work demonstrates that anybody in society may be part of scientific debate. He provides a different view of scientific progress, to that espoused by T. Kuhn's (1962) seminal work. The strength of Dewey's position is his idea that science has progressed as a cyclical process, rather than by incommensurate paradigm revolutions, which Kuhn espouses. Dewey demonstrates that science and common sense are commensurate ideas which perpetually inform each other. His idea allows for the integration of the general public as a result, because science isn't too value laden for the general public to understand.

K. Bäckstrand (2003) supports Dewey's assertions by declaring the out datedness of Kuhn's idea of scientific progress, by categorizing climate change as a, "post normal science" problem. One which does not operate in the same way as Kuhn's practice of "normal science" does. His view is that in some way the public may be able to engage with science, and positively affect what science is practiced.

Role of Public and Government

It cannot be argued that the lack of scientific interaction by the general public, is solely down to the government wishing them to keep their distance. Weinberg (2012) points

out that there is significant public disinterest in learning what the government uses their tax dollars for. Public lack of knowledge on this topic, as well as about the inner workings of the government, who are there to serve them, demonstrates that not all individuals want to play an extra part in scientific debate. The extent of the claim that the public can have interactions in scientific debate relies on their willingness to do so, science will never be straightforward enough to be comprehended by all in a completely common sense way, there needs to be effort on the public's part in order for understanding. There will always be context related issues which need to be understood, but these are not restricted to scientific experts.

Despite the lack of interest in scientific issues from some citizens, due to their reluctance in having an increased involvement in scientific debate, there is also blame to lay on the government. The government censor much media' coverage concerning issues such as climate change. The issue has become an irrefutable fact of science, which has been warned against for the past three decades by climate change scientists, who seek to identify the effects it will have on the world in the near future (Kitcher 2010). Despite this significant warning, according to Oreskes & Conway (2010) "as of 2009, a significant percentage of Americans (43%) continued to dissent from the minimal claim that there is "solid evidence the Earth is warming." Whilst during the same time, many countries consented not only to the claim, but also to the fact that it is in some part human induced.

The work of Oreskes and Conway (2010) highlight the main ways the government censor the issue. They point out that, "balanced coverage" has become normal practice of American news shows, who enlist the help of "experts," to portray climate change as a debatable topic. Censorship occurs in well regarded newspapers such as "New York Times," and "Wall Street Journal" who go to lengths to disregard the words of climate change experts attempting to "set the record straight." The American governments' censorship is detrimental to a society considered the most influential in the world today; it creates public disinterest when they believe the issue to be debatable and possibly unfounded.

There are some members of society who are interested in the effect of climate change, and these individuals can have a stake in science. If individuals are both interested and conscientious citizens who want to help scientific debate become a fairer exercise, where the concerns of the public are taken into account, then these people can help in scientific debate. The role of the government should be to encourage individuals of this sort, to prevent a segregated society where the public become out of touch with what is happening in the world.

Climate change debate in recent years, as a result of media censorship, has occurred because the government wishes to protect its people, rather than an aim to create wide spread fear about the future of the earth. The American government is working hard to have an impact on science, with the proposed 2013 defence budget allocating \$70 billion to scientific research. Weinberg (2012) notes this to be the governments' significant involvement in science, and demonstrates their commitment to scientific progress.

The result of a high proportion of public disinterest about what the government does, leads to a problem for democracy when the general public are ignorant to what their government is doing, especially when they are meant to be in control of what the government does. Weinberg (2012) highlights the key problem, namely that if the general public are not interested in finding out about the inner workings of the government, then the government can continue to detach itself from the public.

Differing Expert Roles

Scientific experts influence society from the top-down, most significantly by informing the views of policy makers, and establishing a recurrent relationship with politics. The conclusions of “experts” cannot be challenged by “non experts,” as they do not boast the necessary skills to do so; science is therefore seen as an unequivocal voice of truth, which can only produce facts about the world. As Jemison (2012:132) states, “science should be apolitical, acultural, and asocial, but it can’t be, because it’s done by people who are all those things.” Her view contests the conceptual view of science, which presents experts in an impartial light, where scientists do not manipulate science. This conception does not hold true in modern day science as it is affected by many different parties with differing agendas.

Scientific results can be easily manipulated by big businesses wishing to carry out socially irresponsible actions which yield large profits. Steel (2012) points out that there are many occasions when different parties with different priorities lay claim to “expert” knowledge in order to further their ideologies legitimately. This is problematic for a society which holds scientific knowledge in the highest esteem. Companies which benefit economically from manipulating the name of science for personal gain continue to do so, as long as what they do is defined as being scientifically credible.

Science’s responsibility to giving impartial facts about the world is warped when it is used by corrupt scientists and companies looking for economic gain. What arises is a view of science as an impure discipline, which is shut off from the world of individuals with non-expert knowledge. Science becomes the work of corrupt organizations and scientists, who are able to completely detach themselves from the general public, and therefore escape the criticism they would have to endure, if the public could understand what they are doing.

Reports which significantly affect the general public of a certain area are prime examples of the conflicting statements of differing parties. Steel (2012) gives a report of the UCC and UMass study to demonstrate the games which are played in order to push a particular economic agenda. The UMass studies results and methods were brought into question against the UCC study, and were met with general scepticism by environmental justice activists, who knew that it was funded by Waste Management, Inc. An issue such as climate change or environmental social responsibility does not affect the pushing of economic and political agendas by big businesses who wish to maximize profit, even if it is at the risk of people and of the planet.

The case of the UMass study shows that there is often conflict between socially irresponsible and socially responsible groups. In this case environmental activists have their own set of knowledge on how to be socially responsible, and therefore can detect immediately when an organization may not be. Their interest is a sort of expertise in its own right, but expertise which is very relatable to all people in society. It allows them to immediately see discrepancies between the two studies which both try to push their own conclusions, and means that they are not easily convinced of dubious and unethical results, which is positive for society.

The general public who do not have specialized interest in a particular issue, are easily convinced by scientific results, if they are presented to them. The general public who do have some expertise, such as environmental activists on different levels, are able to help and give an informed opinion on the science which is practiced and effects the world. There is a need for individuals such as this to bridge the gap between scientific expertise and the general public, allowing more individuals like them to become involved in

science.

If the work of scientific experts was impartial and free from any human impurities which change the outcome of scientific inquiry, then there would be no need for the general public to have a stake in the scientific process. Their abilities would not add anything significant to scientific debates, because science would be a pure discipline, its results would be incontestable, as they would not be affected by political or social agendas. However science isn't free from human manipulation and there is a need for the public to be aware of what the experts are saying, preventing being taken advantage of.

Whilst there is room for organizations to manipulate science, as well as the thoughts of the public who know no better. There are also many influential figures who seek to set the record straight with issues such as climate change in order to best equip the public with the information they need. Al Gore, most notably (2006, 2009) is a particularly influential figure who seeks to offer a view to the public on climate change which is truthful and understandable. As a respected figure in the United States his lectures, conferences and activism all increase the general public's knowledge of the real issues in climate change, and lets them know that the information he is giving can be trusted. His interaction with the public shows the ethical side to expertise which has no agenda other than truth. Influential figures similar to him will be able to help the public in becoming interested in the topic, and will do away with the manipulated or censored version of truth the public are used to receiving.

There has been much action regarding setting the record straight in America. There now exists a vast amount of literature to support the claims of climate change, as well as to demonstrate that there is government censorship which does not allow the truth to come out (Oreskes & Conway 2010, Hulme 2009, Hansen 2009) The emergence of literature such as this in recent years, allows the public to see for themselves how science and politicians work, and that what they are fed by the government might not necessarily be true. Whilst simultaneously preventing the censored media from reporting incorrect facts about what climate change is.

The literature is the work of experts who are able to describe the drawbacks of science and politics, in a way which can be understood by the general public. Their actions show the realism of scientific results in modern day society, and create awareness within the general public that, irresponsible politically based science and policy making is forced upon them. The public are then able to stand up for themselves to issues with the help of these experts, and are able to effect the policy makers, who have to take into account the public's viewpoint when they know more.

The discipline which has most power and immediate effect on the public's view of climate change is through film. Films such as "Odyssey 2050", "The Day After Tomorrow" and "The Age of Stupid" to name a few, begin to get the public interested in climate change issues, and motivate them to read literature and listen to speakers who have expert knowledge on the topic.

The role of technology in modern society allows the general public quicker and greater access to information. This allows them to find a vast amount of material on topics, and means that the public are more greatly aware of issues and problems than they used to be. This means that censorship by the American government cannot continue in the same vein, whilst individuals are able to find out for themselves what climate change is really about, leading the American people to be far less naïve about the subject.

C.S Pierce

The democratic view of society shows that the public should be allowed to comment on scientific issues which most affect them. However, this would be fruitless if the public had the power to influence, yet did not have the relevant knowledge to make a considered choice. The pragmatic conceptions held by C.S. Pierce (1877) and J. Dewey (2006) demonstrate the role science has in modern society, and demonstrate how it has progressed over the centuries. Their ideas prove that if the public did have more power to influence, then they would be able to positively affect scientific debate.

C.S Pierce (1877) seeks to assert that science is the ultimate discipline which discovers truths about the world. Science in Pierce's account is free from authoritative coercion and is non human, it is empirically verifiable and is uncensored. What Pierce espouses is a pure view of science which cannot be tampered with, it's a truth which isn't dictated by certain powers, and is available to all.

The success and recognition of science in modern day society, sees it as a discipline which results in truth about the world. Meaning, if something is classified as "science" it is granted a higher degree of importance within society. It becomes harder to argue against, and is easily manipulated to suit the purposes of whoever needs it.

What Pierce's view of sciences teaches us, is that it should be free from censorship and coercion. However, it can never be this. A more realistic view of modern day science and society dictates that there needs to be a degree of censorship from political and scientific authorities towards the general public because of the authority science itself has become. Science cannot be a non human discipline to the same extent as Pierce wishes it to, as the advances in modern day technology and lifestyle makes the world a much more open place than when Pierce was writing. The general public have the ability to learn things without the help of authorities and are freer to do so in most countries in the world.

The authority science is awarded over lesser disciplines which seek to describe the history and future of the world, leads it to be viewed as an unequivocal voice of reason. This authority is justified, and continually grows, as science is the foremost discipline which supplies truths about the world and humans interactions within it. Its authority in society is justified although it differs from the Piercian conception. However, this does not mean it cannot produce unbiased empirically accurate results about the world. The core of something being science is empirical verifiability which cannot be changed, and although it is manipulated, this is not always to the detriment of the discipline or of society as a whole.

The Piercian view must be modified to work in modern society. Science in the recent past has been no more unbiased and impartial than the "method of authority" Pierce mentions. Science is still capable of being impartial, if every layer of society has an honest stake in it. If science is free from manipulation by corrupt organizations to con the general public, and if it is made understandable to the general public, then it loses its negative authoritarian characteristics, making it a more democratic enterprise. The emergence of literature, films and influential figures who disregard the previous views of climate change begin to allow the public an understanding of the real issues.

J. Dewey

The need for the public to have a bigger influence in scientific debate relies on science becoming more democratic. Pierce is correct when he states that science is the best way

for belief to be fixed, but only if there is interaction from all levels of society; otherwise science is just an authoritarian discipline which works against the public's interests. Dewey's (2006) conception of scientific progress shows that there can be an understanding by non-experts about scientific views.

Dewey espouses a view of science as desegregating common sense and scientific knowledge, which are cyclically connected. The circularity allows both types of knowledge to aid and inform each other, making the process of knowledge a perpetual one. The success of his position is to show that scientific knowledge is not distant from common knowledge, rather it is constantly informed by it. His position directly clashes with Kuhn's (1962) acclaimed view of scientific progress, but is a more accurate version of how knowledge is gained.

Kuhn's argument rests on the idea that science makes continual paradigmatic shifts which radically effect the progress of science. Within a paradigm, the science is principally a puzzle-solving activity which evolves into "normal science" where the habits of scientific endeavour are set. For a paradigm shift to occur, a set of anomalous results is necessary, undermining the "normal science" of the paradigm at its foundations. The paradigm is then shattered; a new one is formed and irrevocably changed.

Kuhn's conception of scientific progress, asserts that the history of science is far from linear, it is a map like structure of paradigms which supersede one another incommensurately. Kuhn asserts that incommensurability occurs due to the value-ladenness language, references points and type of practice which occur in the "normal science" of each specific paradigm. Paradigms cannot relate to one another as a result of the difference in "normal science" for Kuhn.

Kuhn believes that value laden ideas can't be understood by individuals operating in different paradigms. His example of the "duck-rabbit" gestalt shift seeks to prove that scientists brought up in different paradigms will see either a duck or a rabbit because they have been conditioned to do so. Value laden ideas do not work in Dewey's view as knowledge for him is circular, meaning there is a commensurate path you can track back from the latest ideas to the first ones, which occurs in both scientific and common knowledge. Dewey's view rejects the "normal science" of a paradigm, as he does not endorse the revolutionary model which Kuhn does. He basis his idea on a more simple premise, which is harder to contest.

The recognition Kuhn has gained for his seminal work shows that he has ideas of great merit, however his conception of incommensurability falls short. Value laden ideas are said to cause trouble for scientists operating in different paradigms, yet there are many examples of when differing paradigms may inform each other to the benefit of science. Most notably, the framework of the Copernican revolution relied almost exclusively on the endorsement of Pythagorean Aristarchus' first documentation of the heliocentric universe. The importance of the revolution arguably started modern science, but would not have been possible if it were not for pre-Socratic philosophers (Africa 1961). There is a constant referral from one paradigm to another, meaning that there may be commensurate claims from seemingly incommensurate disciplines, and this constantly happens.

The problem with Kuhn's claims of incommensurability is contested by Feyerabend (1975) who accuses Kuhn's position of entailing a "professional stupidity." Feyerabend's idea of incommensurability is a much more closed idea than that of Kuhn, believing it exists only between completely comprehensive accounts of nature, such as quantum mechanics and classical mechanics. Feyerabend argues that Kuhn's notion of "normal

science” is introduced as descriptive but also includes a normative aspect. His philosophical anarchism makes him critical of all types of scientific dogma, believing that the idea of, “normal science” being conducive to ‘progress’ is nonsense.

Kuhn’s notion of paradigmatic incommensurability is incorrect in most cases, as it would not have allowed science to progress as it has to this point. The example of Copernicus being influenced by Pythagorean ideas demonstrates how different paradigms can be commensurate. The anarchism and relativism of Feyerabend wants science to always look in places where it might not necessarily, in order to produce the best type of science possible. If incommensurate claims existed between all paradigms then this could not happen, there are many different paradigms which are commensurate, and this is where Kuhn’s idea falls down. Feyerabend’s view is nearest to the pragmatic view of science which Dewey espouses, as it does not rule out gaining scientific knowledge from anywhere, it merely accumulates.

Feyerabend and Dewey’s accounts show that the progress of science has not been hampered by incommensurability, and that science can be relatable and inform other types to create progress. Their accounts show that science isn’t too value laden for other scientists to be able to understand and pick up from it. It is the most intuitive version of scientific progress, demonstrating that science has and always will be a cyclical process of information being shared and discovered in differing times.

The common sense knowledge which is part of the process of gaining scientific knowledge is possessed by all individuals in society to differing degrees. The fact that Dewey proves that common sense knowledge is consistently formed by scientific knowledge shows that scientific knowledge is not out of reach for the general public. What is important is that the public have an interest in the issues of climate change which face them. The literature and media attention which seems to have become less censored allows them to do this and works as the basis for their involvement in scientific debate.

Civic Science

Bäckstrand (2003) believes the idea of Kuhn’s normal science is outdated when referring to issues such as climate change. He categorizes it as a “post normal-science” problem which cannot be solved by the puzzle solving dynamic which Kuhn describes. His idea again demonstrates the out datedness of Kuhn’s view, whilst at the same time ushering in a democratic view of science in society which would be equally unachievable with Kuhn incommensurate value ladenness claims.

Post normal science requires self-reflexivity and reflection, something which Feyerabend champions in his philosophical anarchism. For Bäckstrand this is the best way for a post normal science problem to be solved, and demonstrates that there is commensuration between different fields of science which may inform each other. The scale of climate change as a factor which affects the planet is so large that this is the only real solution to provide ideas about actions to take, to best deal with its consequences.

Bäckstrand seeks to discover the best way that citizens can interact with science. Although there is censorship by authorities, which may not always occur through malicious means, there is a role which the public can play in scientific debate as a whole. The current void may be filled to a certain extent, by demonstrating that the general public can have a positive influence on the issues surrounding climate change, whilst maintaining the hierarchical purity of society. The historically cyclical nature of scientific progress enhances this view as it presents science as an impure authority in its own right, one which isn’t exclusive to those “in the know,” and can be analysed by those who

are outside of scientific circles.

The cyclical nature of science allows commensuration between different types of science as well as different levels of expertise in some way. Civic science allows for the public to have an interaction within science but does not state to what extent the general public may influence scientific debate. It is possible that the general public can have a larger impact than they currently do on debate as a result of this type of science.

Bäckstrand proposes a triangular interaction between scientists, policy makers and the general public. He believes the citizen to not just be the recipient of policy, but also an actor in the policy nexus. What civic science affords the public is a greater understanding of what happens in science, and how it is practiced. “Negotiated science” which concerns climate change is a diplomatic way to view the issue where there is involvement internationally. This “negotiated” view also relates to the democratic view of scientific debate which should involve the input of as many different individuals in society.

The civic science movement occurs due to the public distrust in the knowledge they are fed by science, and allows them to have their say in it. Bäckstrand believes that what civic science may achieve is a “dethroning” of current scientific authority, because of the amount of participation the general public may have in it. Bäckstrand (2003:35) stresses that civic science will not be appropriate for all endeavours, and that there needs to be an “appropriate balance between technical and communicative rationality [which is] a pragmatic and context dependant judgement.” In the case of climate change it fits, as there is sufficient room for citizen participation.

The relativist approach of civic science both in regard to the post normal science problem in climate change, and the range of individuals which could potential be involved in its debate, means that science will become a more transparent discipline. This stops the public from fearing or resenting science as they know that they are part of its process. Science has slipped away from the public sphere in terms of interaction and this needs to be remedied.

Bäckstrand (2003:37) believes that, “global knowledge about the environmental degradation has to be coupled with local knowledge to produce sustainable solutions in the quest for sustainability.” Just as Dewey’s conception of scientific progress integrates common knowledge with scientific, Bäckstrand shows that universal knowledge and “place based” knowledge must also work together for the benefit of democratic science. The idea is a shake up of the way science operates, but is necessary to make science more democratic and to integrate policy making with representative participation.

The drawbacks to civic science are that it hasn’t been implemented in wide spread issues, and has only been used in a limited way. There are also issues with how far civic science should go into the heart of science. Some science is too complicated to be explained in a common sense way, and it most often does not need to be, yet if civic science is going to be a serious discipline which works, surely there will be a want from the public to get right to the heart of science which is practiced without knowing exactly what they are looking for or at. The understanding can only go so far without specialised expertise needed; lay-knowledge and semi expert knowledge of something which the public are interested in can work. However, the public may go too far and negatively affect what science is practiced. If civic science were to be implemented there would need to be specified boundaries which kept the public from completely controlling science. Democracy should be equal, as should scientific debate and endeavour, any sort of pressure of groups is detrimental to the execution of science.

Civic science needs to adopt a corollary view which encourages participation from all layers of society. Bäckstrand develops the points of objectivist epistemology which argues that there is incommensuration between value laden science, indigenous knowledge and western knowledge. For an issue such as climate change this is not a problem as there can be steps towards understanding from seemingly incommensurate societies. There can be a use of mediatory individuals who can translate from one side to another, meaning that incommensuration again does not effect it.

Conclusion

Climate change is an issue which affects the whole of society. Dewey, Pierce, Feyerabend and Bäckstrand all demonstrate that the general public may have a stake in scientific debates, and most notably in climate change. The work of experts who seek to divulge the truth about climate change to the general public allows the public to find out what climate change is really about. They can enlist the help of semi-experts or experts whose points are at least understandable by individuals with lay knowledge. If there is increased interest on the public's part, as well as science becoming more transparent and politics becoming more democratic, then the general public can have influence of scientific debates such as climate change, and they should do.

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