

How Do Members of the Allegheny College Community Develop Their
Perceptions of Fracking and What Role Does Media Play in Influencing Such
Perceptions?



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Abstract

The dependence of the United States on foreign fuels has resulted in an increased desire for domestic sources of energy. Through the process of hydraulic fracturing, harvesting natural gas has become the most effective bridge fuel that could lead America to a more sustainable future powered solely by renewable energy. As a result of residing on top of the Utica Shale, the Allegheny College community has become subject to debates surrounding this issue. With large media influence as well as constructed community perceptions on the issue, students are subject to a variety of pressures when determining their stance on hydraulic fracturing. Through this research, it can be seen that the media does indeed play a role in the manipulation of student perceptions on the issue at hand, particularly with regards to Allegheny's environmental reserve, Bousson. Furthermore, the grounding of this research in political ecology, particularly the subjects and identities thesis, has led to a multitude of findings. Three major themes have emerged: *The Power of the Media*, *Style of Defense in Media*, and *Education as an Important Factor*.

Key words: Political ecology, hydraulic fracturing, media influence, Allegheny College, social constructions

Introduction

For many individuals, media outlets act as the primary source for obtaining information about a variety of subjects prevalent in today's society. When controversial issues arise, media is often used by supporters and oppositionists on the issue in order to influence public perceptions. The delivery, tone, length, and sources, among many other factors, play a major role in the effectiveness of persuasion tactics on viewers. Before reaching the public, news stories from across the world are filtered through mass media news outlets such as Fox News, CNN, MSNBC, and many more. Almost every business, social organization, non-profit, and entrepreneur has a message they wish to deliver; however they are all delivered in a different ways. For example, during President Obama's second inaugural speech prime news networks MSNBC and Fox News were often found depicting the same event in different manners. After the speech MSNBC analysts wrote "To a greater extent than he did in his first inaugural address

four years ago, in his speech Monday President Barack Obama made a point focusing attention on issues vital to specific constituencies within his winning coalition” (Curry, 2013). Whereas a Fox News analyst wrote, “The evidence from the last four years gives ample reason to be discouraged at this point and to consider today’s speech just another piece of rhetoric” in regards to the same speech (Schoen, 2013). Although both comments pertained to Obama’s second inaugural address, their illustrations of the topic were vastly different.

This disagreement between media portrayals can be commonly be seen between two competing ideas. Particularly, environmentalist and economists often exchange views through media in regards to the process of natural gas extraction across the United States. As one of the largest consumers of fossil fuels, the United States relies heavily on foreign sources to meet its ever growing demand for energy. This dependence is a significant issue; however the discovery of the Utica Shale and a number of other natural gas basins has sparked a domestic energy revolution in America. In order to extract this cleaner resource, companies use a controversial process known as hydraulic fracturing. Economist’s often view the extraction of natural gas as a necessary action to ensure energy security, job creation, and overall prosperity for local regions across the country (Stateimpact, 2012). However, environmentalists often portray the practice as dangerous to human health, water supplies, and thriving ecosystems (EarthWorks, 2013). Then there is the group in the middle; those who have not yet chosen a side and rely on the opinions of their peers, media outlets, and educational sources to understand the impact of the process.

In the current society, environmental and energy issues receive significant media attention in order to influence individual perception on pressing issues. However, the impact of such subjugation by the media is often gone unrecognized. One study conducted in locations on top of the Utica Shale, examined the influence of the tonality (positive or negative) and the

references to scientific research in media found that individuals recognize and are influenced by television, radio, newspaper, and online campaigns. Since the media in this area was predominantly negative, the study found that individuals' perceptions were as well. In this same study, a survey was released throughout counties in Texas above the Barnett Shale. The results of the survey indicate:

a generally positive attitude toward hydraulic fracturing, with more favorable responses for the following descriptors: good for the economy, important for US energy security useful, important, effective, valuable, and productive. There was a more negative attitude, however, about environmental concerns. Hydraulic fracturing was felt to be bad for the environment by about 40% of the respondents. Another 44% were neutral and only 16% were positive (Grimshaw & Groat, 2012)

These results also correlated with individual perceptions on the topic in the area. They show that media sources play a large role in forming specific perceptions on an issue. This statewide research suggests that media influence has a similar impact on local communities as well.

The Allegheny College community often questions the process of hydraulic fracturing because of the possible negative environmental and social effects it may cause. The process of hydraulic fracturing, more commonly known as "fracking," is a technology used to extract natural gas and oil from underground shale rock (EarthWorks, 2013). Although this method of drilling is increasing in popularity, the process itself has both positive and negative aspects.

Similar to the broader views, arguments at Allegheny College for fracking practices suggest that this technology will create jobs and increase domestic economies while also acting as a "bridge fuel" towards relieving American dependence on fossil fuels and powering the future with

renewable energy. The main argument against this form of energy extraction is that it may lead to groundwater contamination and the presence of chemicals in local soils.

Allegheny is also widely praised for the success of its Environmental Science and Studies programs. These recognitions along with the popularity of the majors and the support of active environmental groups on campus foster a prevalent sentiment among the students that is primarily “anti-frack.” As a result, Allegheny students are regularly subject to a variety of “anti-frack” sentiments. While the Allegheny community relies heavily on community perceptions for information on fracking, this view does not take into account the impact and influence media may have on these perceptions. Therefore, research will be conducted to answer the question: “How do members of the Allegheny College community develop their perceptions of fracking and what role does media play in influencing such perceptions?”

Literature Review

Political ecology is a contextual tool used to approach an environmental or ecological problem and it recognizes that environmental issues are a result of societal changes, processes, and power relationships (Barnhart 2013a). This stance puts great emphasis on the connections between people, places, and power as the root to these problems.(Barnhart 2013b). More precisely, however, political ecology is “a field of critical research predicated on the assumption that any tug on the strands of the global web of human-environment linkages reverberates throughout the system as a whole” (Robbins, 13). To help explain political ecology, a popular strategy is to juxtapose it with apolitical ecology. Apolitical ecology fails to address political, economic, and social aspects when discussing or dealing with ecological problems (Barnhart 2013c). Robbins explains that wherever there is a political ecology there most often is an apolitical counterargument. An apolitical approach commonly takes the form of an “eco-

scarcity” and “modernization” account that often blames local people and institutions for the ecological problems that arise (Robbins, 14). This approach fails to admit that local ecological problems can be rooted in a more complex global web of actors and subjects. Ecoscarcity is a concept that originated in an essay by Thomas Malthus in the 1700’s (Robbins, 14). In his essay Malthus proposed,

as human populations grow out of proportion to the capacity of the environmental system to support them, there is a crisis both for humans, whose numbers fall through starvation and disease-based mortality, and for nature, whose overused assets are driven past the point of self-renewal (Robbins, 14).

Malthus suggests that environmental and ecological problems are natural and there is very little that can be done to fix said problems aside from letting the cycles of life circle through. The modernization approach to apolitical ecology is used as a solution to the ecoscarcity approach explained above.

It is commonly argued, for example, that ecological problems and crises throughout the world are the result of inadequate adoption and implementation of ‘modern’ economic techniques of management, exploitation, and conservation (Robbins, 18).

This westernized notion of “modernization” falsely asserts itself based on the premise that with the proper management and economic approach there can be a win-win scenario with which resources can be exploited and the environment can be conserved (Robbins, 18). The apolitical attitude simply falls short when it comes to fully understanding problems that should be examined on a global scale. In summation, political ecology attempts to see the “big picture” of an issue and recognizes the effects on broader systems as opposed to apolitical ecology which blames those in the immediate proximity to the issue.

While apolitical ecology uses “ecoscarcity” and “modernization” to explain the interactions between the different actors in the world, political ecology uses five theses to explain popular trends that occur. These theses include degradation and marginalization, conservation and control, environmental conflict, environmental subject and identities, and political objects and actors. Each thesis is dependent on a specific set of assumptions to make it true. However, every ecological problem that occurs can be categorized under one of these five theses.

The degradation and marginalization thesis starts with state intervention and/or a scaled up market integration. This is then applied to some sort of sustainable production system or communal management of a resource by enclosing collective property, imposing new institutions, or taking a modernist development approach. These actions result in over exploitation of natural resources, decreased sustainability of local practices, and/or decreased inequity of resource distribution. All of these foster increased poverty and accentuate the effects of the resulting actions, thus creating a cycle of degradation (Barnhart 2013d). This thesis relies on the assumptions that reversing degradation takes significantly more time, money, and effort than the original worth of the resource. It also suggests that using scaled up market integration will consistently lead to degradation and marginalization (Barnhart, 2013d).

An example of this thesis is increased amount of contract agricultural systems in global food and cash crop markets. Robbins (2012) uses this thesis to explain how large firms get local producers into contracts that reduce them to the level of “wage laborers.” He explains that,

The pressures that such contractualization places on producers to grow specific kinds of products in specific quantities can be predicted to give rise to marginalization, since the grower loses control of labor-time allocation and autonomy (Robbins, 167).

Robbins in saying that because local producers sign contracts with large firms it forces them to meet the terms outlined in the contract. This pressure to meet contract standards often creates monoculture fields and forces producers to use otherwise non-traditional practices to meet yield standards. This leads to the degradation of land. Robbins suggests, “It might also be predicted to lead to land degradation, since the intensity of cropping and inputs are set by off-farm interests with little direct knowledge of farm-level conditions” (Robbins, 167). The large firms often overstate the amount of crops one is allowed to grow; marginalizing the farmers and causing them to work frantically in order to meet the quota set forth by the contract requirements. This practice then overworks the land, leading to further degradation.

The next thesis, conservation and control, is slightly more complex and is based upon four different assumptions. First, under this thesis, conservation is part of a hegemonic governmentality; meaning that state knowledge is being used to take control of a resource and change behaviors resulting in a specific environmental outcome. Second, local systems have been shown in the past to be sustainable even though the state may show it to be otherwise. Third, state officials believe that true nature can only exist without the presence of people. The last assumption is that drawing a line on a map to create this separation between nature and people, in order to conserve a resource, is problematic because humans and animals co-exist interdependently. Based on these assumptions the conservation and control thesis can be constructed.

Conservation and control begins with having local producers/producer groups using local systems, productions, and social-political organizations to control resources and landscape in a way that creates sustainable livelihoods. Then, state officials/NGO’s use governmentality, the social construction of nature, and technologies of the state to disrupt the local systems that are

being used to control resources and landscapes. The state officials/NGO's use this to achieve the control of resources and preserve and control nature independent of human influence. This thesis leads to the overlooking of local knowledge of local systems and ignores the roles of non-human nature breaking down sustainable livelihoods and leaving people without jobs or homes (Barnhart 2013e).

As an example, to help explain conservation and control, take into account the use of fire as a tool for land management. The native peoples of places such as Madagascar and Southeast Asia, "use fire to produce and maintain pasture, to turn cut plant material into nutrient mulch, to control invasive species and insects, to clear crop waste, to aid in irrigation management, and to encourage the growth of selected species" (Robbins, 185). It is a natural system that native peoples have used for decades. Now, in an attempt to prevent deforestation and protect endangered animals, NGO groups and the local governments are claiming that this burning, coupled with an increase in population of the native people, is preventing the recovery of the forests and fauna of the region. The failure to acknowledge the history of the area before human settlement, filled with thriving diverse landscapes that did not contain such rich forest cover, has caused the misunderstanding about the use of fire as a tool and leaves the native people in a tough position. Paul Robbins notes,

By placing the burden of protecting the world's lemurs and other flora and fauna on the backs of the Malagasy producers, while simultaneously removing important tools they traditionally use to make ends meet, this conservation regime has created tensions between rural people and the state (Robbins, 186).

The third thesis of political ecology, environmental conflict, begins with two parties; local groups and state and private development agencies. Both of these groups try to leverage changes

in systems in order to change conservation methods, resource access, or development policies in order to enclose or appropriate resources or property. The change in resource management often leads to scarcity of that resource and often excludes and marginalizes other parties. This is where the conflict occurs. Everyone wants to have a piece of the resource, and then local groups along with the state/private developers attempt to change policies in order to exclude parties. This causes conflict and leaves less privileged parties marginalized. This thesis rests upon three assumptions. First, social structure is used to control resources and creates differential action to conserve and maintain the resource. Second, property is a complex idea based upon rights and is often not exclusive to the property owner. Finally, categorizing people and creating assumptions about them can lead to poor management. Basing decisions on stereotypes can influence the designs of resource management (Barnhart 2013f).

Some evidence of the environmental conflict thesis can be also found in United States. In California, there was a planning regime proposed by the County Board of Supervisors that pushed an initiative to encourage people of the community to have a part in deciding about the loss of “natural and scenic qualities of that region. Despite the beliefs of the initiatives supporters there was a huge backlash against the proposal. As Robbins describes it, “in a tightly argued cases of political ecology in the exurban west, this effort to introduce landscape aesthetics and environmental principles into county planning resulted in conflict because it drove a wedge into a fault line between the aesthetics of recent immigrants and long-term residents” (Robbins, 2006). The people that recently had moved into the area came for the scenery, but the residents that had been there awhile were more interested in harvesting the resources from the land they owned. “New residents, largely consumers of an imagined idyllic western landscape, ran directly into ranchers and loggers, whose production priorities were threatened by restriction on land use”

(Robbins, 2006). This is where the conflict arises. The county board was trying to change conservation policies to save the scenery precious to the new residents. The older residents also wanted to be able to take the resources off their property causing zoning and other land law conflicts.

The fourth thesis in political ecology is political objects and actors. This thesis is used to explain the interactions between human and nonhuman nature, outlining human environmental interactions. It is based upon the assumption that non-human nature has effects on humans as well as their actions. As a result, these human interactions can foster change in institutions. Some examples of this would be diseases and pathogens changing health regulations and hygiene behaviors. It falls short in identifying the signs that non-human nature has affected human interactions and institutions. It begins with non-human nature and objects that interact with humans in one form or another. This interaction then has two effects. First, it can cause collaborative enrollment, meaning the interactions end up being symbiotically helpful for both parties. Second, it can lead to mutual resistance between parties, thus barriers are established to limit the effects of such interactions. An example of this would be vaccines for diseases and the stages of viral evolution that have occurred because of them. These two outcomes are then the cause for the creation of a larger spanning political or economic outcome. Continuing to use pathogens as an example, this resulted in the creation of the CDC and the regulation of pathogens within the human population (Barnhart 2013h).

The final thesis of political ecology is environmental subjects and identities. This thesis assumes that people act in accordance with a certain idea and as a result create a new identity. It also assumes that these changes can lead to the consolidation of diverse groups of individuals. The third assumption is that there are different environmental truths. These truths create new

collective ideas and at times choices that force people to act in ways that resemble their altered identities. The fourth assumption of this thesis illustrates the existence of a hegemonic force that constructs new ideas of what is “normal.” As Robbins explains, “people’s beliefs and attitudes do not lead to new environmental actions, behaviors, or rule systems; instead, new environmental actions, behaviors, or rules systems lead to new kinds of people” (Robbins, 216). With this said, the thesis begins with new environmental actions, behaviors, or rule systems that cause changes in ideas and ideologies. These changes can result in two ways. As previously stated, they can cause a change in identity, thus forming “new kinds of people.” They can also generate opportunities for socio-political movements through collective awareness and action. These changes in ideals and identities result in changes in environmental conditions (Barnhart 2013g).

After examining these various theses, it has been concluded that the research conducted best falls under the environmental subjects and identities thesis and is the conceptual basis for the research thus far.

One good example of environmental subject and identities can be found in a political ecology done by Farhana Sultana pertaining to arsenic in groundwater wells in Bangladesh. In her research she explains that people are dependent upon one another for water. However, as a result of the unknown geology of the region, the wells were found to contain arsenic and were tested. In many cases, even some villages are left with very few potable wells. As Sultana explains, “arsenic has helped create a situation where safe water control has become both a status symbol and a source of power” (Sultana, 165). Another point that is brought up is that the division of labor leaves women responsible for obtaining water. As wells continue to decrease, the time women spend retrieving water increases, thus they have less time to devote to their other chores and risk taking water from a contaminated well. If the women do not have a connection

to the well owner, they work and sacrifice to create one to ensure access to a potable water source. Therefore, as a result of the government drilling contaminated tube wells, the availability of water has decreased and forced people to form new social identities and build relationships with the people that control the potable water supplies. This creates an environmental condition in which people are either forced to drink contaminated water or exchange goods for safe water.

To further the explanation of political ecology as an approach to understanding the complicated interactions between across scale actors and more specifically through the lens of the environmental subjects and identities thesis research has been found and explained that pertains to the topic. Take for example water, it is essential for life, everyone needs it, yet humans pollute fresh water sources at an alarming rate. Currently, “water related disease kills more than 5 million each year- ten times the number killed in wars” (Johnston, 75). In places where hydraulic fracturing occurs, there is a potential threat to the fresh water supply. With the increase in fracking practices comes an increase in potential water contamination. Therefore, with the rise in potential water contamination as a result of hydraulic fracturing, the number of water-related issues, similar to that in Sultana and Johnston’s political ecologies of water, will continue to increase. Examples of alleged water table contamination can be found all over the internet and in popular media, such as the movie “Gasland.”

In an essay conducted by Barbara Rose Johnston on the political ecology of water, she explains the complex interactions that surround water as a resource that is becoming scarce. She uses several different examples to explain these connections and acknowledges the conflict as one of extreme complexity. She lays the base of her argument by saying,

“Water scarcity not only reflects the relative aspects of supply (the conditions and actions that affect quantity and quality) and demand (intended and projected use), but the relative

aspects of how water is valued (the cultural meanings as well as economic values), relative levels of access and patterns of use, and the relative degrees of control over water resource management and distribution” (Johnston, 74).

She acknowledges that because water is becoming scarce, new groups are emerging to take over the management of water. This is similar to the previous example of Bangladesh, where people were forced to make connections and form new groups in order to ensure a potable water source. In many cases these groups are governments or government agencies. In her research Johnston also stated that,

“Perceptions of water scarcity typically emerge when ecosystemic factors and processes fail to produce customary supplies; when human actions and activities influence supply and/or increase demand; when changes in power and economy affect access; and, when valued human uses conflict with valued ecosystemic needs” (Johnston, 81).

This is clearly shown in an example given by Johnston in her essay about a salmon kill in 2002 on the Klamath River in Northern California. In 2001 the Bush Administration reversed water management priorities assigned during the Clinton administration to protect endangered species that local Native American tribes rely on for their livelihoods. This was done to meet the cries of farm and property rights lobbyists during the drought in 2002. The Klamath River was diverted strictly for agricultural purposes and in mid-September of 2002 “twenty-five percent of the salmon run had died because of a virus that was easily spread through areas of heavy fish concentration due to low water levels” (Johnston, 81). Johnson claims, “the loss threatens the future viability of salmon on the river, the socio-economic health of coastal fishing communities, and the health and socio-cultural integrity of Klamath River area tribes” (Johnston, 82). The people of these native tribes, because of the reverse in water management priorities and change

in environmental rule systems, are forced to move elsewhere and change their identities.

Similarly, if Allegheny College decides to drill on Bousson, students will be forced to go elsewhere for research facilities and be part of an institution that has gone against its long lived reputation.

The Sultana and Johnston examples are parallels to this research with regards to hydraulic fracturing in Bousson and the perceptions of this practice throughout the Allegheny College community. While Johnston's political ecology chooses to look at how political forces influence people and Sultana chooses to look at the relationships between humans for resources, this study examines the effects of media on the individual's ability to make decisions. As apparent in the results section, many students do not have an opinion on the topic, but are being pressured into choosing a side due to the importance of the issue to the college community. Therefore, the research conducted can be categorized as environmental subjects and identities. The threat of new environmental actions by the college has influenced and changed students' views on hydraulic fracturing or forced them to create a position absent proper education on the topic. However, with increased conversation around the topic, ideas about hydraulic fracturing are becoming more popular in the student body, which has led to an increase in awareness about the issue.

In the past Bousson has been mainly used for research purposes and not a means for income. The prospect of drilling on Bousson, as presented by the hydraulic fracturing company, has created an atmosphere where members in the Allegheny College community are being forced to alter their environmental behavior and identify as "pro" or "anti" frack. This is creating a collective action by people with strong beliefs to influence other's opinions. It is apparent that the influence of media plays a crucial role in shaping the opinions of individuals. Therefore, it is

important to be cognizant of the influence of media and its relationship with people. Previous studies suggest that media can have an influence on individuals' decisions. When dealing with controversial issues it is often beneficial to expand upon the larger context of the situation in order to understand how and why conflicts arise.

Background

The process of hydraulic fracturing, or more commonly known as fracking, is an industrial drilling operation that injects water and chemical fluids deep underground in order to crack natural rock formations that trap gas (Hayden et al, 2005). The most common rock formation associated with natural gas drilling is named the Utica Shale. Through the process of fracking, the gas trapped inside of this non porous rock is released and transported to the surface for human use and consumption. In order to properly extract the gases while simultaneously keeping the drill from malfunctioning, water is used as a lubricant and fracturing substance (EarthWorks, 2013). Solid materials, such as sand or fine rocks, are also added to the fracking fluid to keep the fractures open and permeable after the pressure is released (Hayden et al, 2005). Chemical additives are additionally used in the operation, yet each well pad's chemical substances are dependent upon the particular well. For example, some chemicals allow pumping at a higher rate, some help dissolve hard minerals, and others prevent hazardous bacterial growth (EarthWorks, 2013).

As a result of the Energy Policy Act in 2005, hydraulic fractured wells were exempted from regulation under the Safe Drinking Water Act (Department of Environmental Conservation, n.d). Because of this legislation, the disclosure of fracking fluid to environmental agencies or health officials became dependent upon the State's legislation. Essentially, even if a state requires the disclosure of chemicals they remain largely unregulated throughout the industry because mining companies have their own proprietary formulas (Department of Environmental

Conservation, n.d). Although many of these chemicals can be found in common cleaners and detergents, the tremendous amount of chemical material used in the fracking process can be toxic to humans and the environment (Hayden et al, 2005). Millions of gallons of water are typically used to drill a well and the water is additionally mixed with a large amount of chemicals. This mixture ultimately results in thousands of gallons of chemicals that have the potential to infiltrate ecosystems and water sources that will impact human health and the environment (EarthWorks, 2013).

Because limited knowledge is available regarding the chemical composition of the fracking fluids it is difficult to draw a connection to health problems. Even if a company discloses the chemicals it uses, the exact concentrations of chemicals may not be known or made public (Department of Environmental Conservation, n.d.). Until more is known about the effects of the hazardous chemicals contained in fracking fluids, controversy surrounding the issue will continue to rise. What is certain is that hydraulic fracturing can affect people, the economy, and the environment both negatively and positively, and the people who choose to support the industry have validity behind their means.

With such apparent hazards resulting from hydraulic fracking, it is questionable as to why people would advocate for hydraulic fracturing. The answer lies within the economic benefits associated with fracking. For small towns struggling to be economically prosperous, such as Meadville, revenue received from the fracking process can boost the economy of the town. When the gas company draws a contract with a landowner, the owner receives royalty benefits from any profit made off of wells placed on their property. Wells can be fracked multiple times and the possibility to make a substantial sum money is often likely (Finewood and Stroup, 2012) However, as the number of drilling attempts increases, the amount of gas extracted from the

well and the profits it produces decreases over time. Additional beneficiaries from the fracking procedure include local business and industries that would see economic gains from the increased labor and business as a result of fracking in the area (Finewood and Stroup, 2012) .

Waste management companies, transportation firms, and cement and steel mills are all required for the process of hydraulic fracturing to take place and are hired for labor in order to procure a well pad. Although many towns see benefits, it is not uncommon for people who are unaccustomed to leasing their land often get swindled by the gas companies for lower prices (Finewood and Stroup, 2012).

Besides economic prosperity and job rejuvenation, fracking does not have many other social benefits for local community members. From an environmental stance, the process has the capacity to be very destructive to natural ecosystems and human health. A recent case study concluded that residents living less than a mile from wells are at greater risk for health effects from natural gas development than are residents living more than a half mile from wells (McKenzie et. al, 2012). Residents of the town were exposed to air pollutants from the initial well completion activities as well. These pollutants are responsible for many cancer causing carcinogens. An additional case study also discovered that contaminates from methane were found in nearby wells of local homeowners. The amount of methane in the wells rose directly in relation to distance to the natural gas drilling pads in the region (Holzman, 2011). This particular study analyzed 68 wells in the northwest regions of Pennsylvania and New York, yet no fracking fluids were found in the well which resulted in no direct accusations of the fracturing firms (Holzman, 2011).

Due to this controversy, many are uneasy with fracking and the effects it has upon natural environments and human health. At Allegheny College, a debate has emerged concerning the

opportunity to frack on the college's environmental research reserve. Many are in favor of the economic properties that are apparent from the wells, yet the environmental activists are strongly opposed to the consequences that can be felt by the local ecosystems.

The Bousson environmental research forest is a 283-acre plot of land owned by Allegheny College. The land is comprised of woodlands, streams, ponds, and diverse habitats populated by native wildlife. Under the college's ownership, Bousson has served the school as an unmanaged forest providing research and limited recreational activities to students and faculty (The Bousson Advisory Board, n.d). But like many sites in western Pennsylvania, Bousson lies atop the Utica Shale geological formation, the underground rock type that is used for natural gas extraction. This has many large implications for the college and its reputation. With a projected revenue stream reaching multi millions of dollars, fracking on Bousson property could result in many beneficial economic gains for the college. However, the notorious nature of fracking, and its effects upon health and the environment, could result in irrevocable damages to the ecosystems of Bousson, and could tarnish the reputation of Allegheny College as a "green institution".

Emerging as a result to contest fracking in the region is the Allegheny College Bousson Advisory Board. This body acts to protect the land while holding an open discourse with the community members as a way to ensure that all voices are heard equally. The board functions as a resource that allows for the facilitation of an open discourse on campus, which will ultimately lead to a more well informed community regarding the consequences and benefits of natural gas exploration (The Bousson Advisory Board n.d). Additionally the group is responsible for the compilation of opinions and survey data that will ultimately be reported to the Board of Trustees, the party responsible for the ultimate decision to go forth with natural gas exploration in

Bousson. The Bousson Advisory Board will undoubtedly lead to a stronger voice of the weaker actors in the Allegheny community in hopes of equally translating opinions surrounding natural gas exploration on Bousson (The Bousson Advisory Board, n.d).

Debates and protests surrounding controversial topics are not a new experience at Allegheny. Ranging from women's equality to environmental and global justice, Allegheny students have been vehement in their desire to openly voice their opinion. As a liberal arts institution, students are challenged to think critically and speak out against injustices that they feel are inadequate in the current society and students are encouraged to create organizations, such as Students for Environmental Action, to most effectively initiate change and voice opinions. In addition, it is important to note that students also have the opportunity to work with faculty on committees such as the Bousson Advisory Board. The Advisory Board has currently conducted four discussions on campus that address the main issues of Hydraulic fracturing in Bousson.

These open forums are not new to Allegheny College. The prestigious Environmental Science department of Allegheny has many students at the forefront of many environmental debates and controversy. Collectively students work with faculty members on committees such as the Bousson Advisory Board. Drawing a parallel to the current debate, one can look at Allegheny's history and discover numerous amounts of forums and boards that have resulted as the need for a more well-informed community arose.

Contested in Erie Pennsylvania, the tires-to-energy plant was relocated to the poorer Crawford Country where laws and regulations are weaker in terms of environmental protection. With the possibility of not only damaging the biodiverse wetlands, but risking human health from air pollutants associated with the incineration of tires, Environmental Science students

organized protests and discussions on and off campus in order to stop the construction of the plant until more information was gathered. “We want to give our community a scientific foundation against which to frame and assess the discussion.”- Amara Geffen, CEED director (“Allegheny College to Host Panel Discussion on Proposed Tire-to-Energy Plant”, 2011). The panel consisted of many notable speakers in environmental academia and opened the floor to the general public and students at the conclusion of the discussion. The main idea of the panel was not to force an opinion upon the community members, but rather to provide scientific evidence regarding environmental impacts, that would allow citizens to come to their own conclusions on the subject.

Media that is received by many individuals does not often function in the didactic fashion that has been conducted by the Allegheny panels. Traditionally media is used to convey a concrete idea without presenting an objective view of the situation. When discussing fracking and the public perception of the process, media is often the largest influence on peoples’ opinions. When presented with a very subjective and biased presentation of information, consumers of such media often fall victim to mislead conclusions. In order to exemplify this, research was conducted using focus groups that assess the influence of media upon an individual and how current media has led to determined viewpoints.

Methods

In order to collect the data necessary to obtain results for our research, focus group discussions were held. The participants in this study were chosen via convenience sampling methods. Researchers asked for volunteer participants from each of their organizations with the hopes of acquiring 50 participants dispersed equally among five focus group meeting times. All participants were students with various majors, minors, and backgrounds. The individual

participants signed up voluntarily and were sent a reminder email the Sunday prior to the commencement of focus groups. Upon the completion of all focus group meetings, the study had 38 participants with an unequal distribution amongst the five meeting times. Focus groups 1-3 were conducted in Carr Hall room 239 and focus groups 4 and 5 occurred in Carr Hall room 238. Although not all focus groups occurred within the same room, the two rooms are essentially mirror images of each other with similar structures and atmospheres. With that being said, there is no reason to believe that the change in rooms played any significant role in participant responses.

When the participants arrived for their designated focus group session, they were first asked to read and sign a consent form which detailed the purpose of the research and the risks and benefits associated with it (Appendix A). They were then given two surveys and asked to write “before” at the top of one of the surveys and “after” on the other (Appendix B). Both surveys presented to the participants contained the exact same questions in precisely the same order. The questions asked included: demographics; personal stance on hydraulic fracturing in general; importance of social constructs/community perceptions, education, media and peers influencing their stance on hydraulic fracturing; and the community perception of Allegheny with regards to fracking.

Each participant was then given a number that they were asked to write at the top of both surveys. This was to ensure anonymity of the participants while still allowing the researchers to compare their before and after responses. They were then asked to independently complete the survey they had previously labeled “before”. Once all participants had finished, one pro-fracking and one anti-fracking video was shown back to back with no discussion in between.

The order of the videos alternated per group in order to determine if the order in which participants had viewed the videos played a role in their perceptions of hydraulic fracturing.

Once both videos were shown, a semi structured focus group commenced. Three questions were posed to the group pertaining to their thoughts on the media’s portrayal of hydraulic fracturing and the effect it had on them. The semi-structured style allowed for the easy flow of conversation between participants and facilitators. Once the three questions had been touched upon in some regard, the floor was then opened up for ten minutes of unstructured discussion on the topic. The researchers took detailed notes based on responses generated during discussion. The notes that the researchers recorded were then coded in order to obtain qualitative data for analysis. The following table illustrates the focus group, the number of participants, which video that they first viewed, and the date the focus group occurred. This table can also be found in the appendix (Appendix E).

| Focus Group | Number of Participants | Video First Viewed | Date |
|--------------------|-------------------------------|---------------------------|---------------|
| 1 | 12 | Anti Video | 4/1/13 |
| 2 | 5 | Pro Video | 4/2/13 |
| 3 | 4 | Anti Video | 4/2/13 |
| 4 | 4 | Pro Video | 4/3/13 |
| 5 | 6 | Anti Video | 4/3/13 |

Once discussion had closed, the participants were asked once again to independently complete the survey that they had labeled “after”. Both surveys were collected and coded with the focus group number (1-5), group letter (A – anti, P – pro), and the participant number, followed by whether it was the first survey (1) or the second survey (2). For example, if an individual participated in focus group 1, saw the anti-fracking video first, and was participant 7,

their code for the initial survey would be 1A71. For the closing survey, the same individual would be coded 1A72.

The survey responses were then put into the Google Form (one before and one after). The Google Form then compiled all of the responses into a spreadsheet which was later used to analyze the data. This spreadsheet could then be used to create graphic representations of the data (pie charts and bar graphs). With these illustrations, the data from the before and after surveys can be compared and analyzed to show the effect that the media and focus group discussions had on participants. These comparisons led to generalizations that were made based on the data we collected. The open ended focus group responses were coded in order to organize the participants' opinions into broad categories. These broad categories were then used to help construct the three main themes gleaned from this research.

This study allows for a greater degree of understanding of how information is spread throughout Allegheny's campus and how students feel about hydraulic fracturing as a means for energy production. It also can give insight as to how the students can be better informed on important topics, such as hydraulic fracturing, so that they are better equipped to respond to future problems surrounding the topic. This research will also help the participants to become better informed citizens in order to make responsible decisions based more on understanding than emotion. Finally, this research can be used to educate the Allegheny College Bousson Advisory Group about the opinions of the students and how the social media may or may not influence their perceptions on hydraulic fracturing which can eventually be translated to the board of trustee's; the group responsible for the ultimate decision on Bousson.

Findings

The Power of the Media

From the research conducted, it can be concluded that the media did in fact have an influence on participants. This can be seen by the increase of median media importance from 22% to 28% of participants. It can also be seen by the increase of participants that indicated media as important from 13% to 19%. Additionally the exposure to the media also forced participants to pick a side on the issue. Participants that were slightly opposed jumped from 38% to 53%; participants that had no opinion drastically decreased by more than half from 34% to 13%; and participants who identified as slightly in favor of hydraulic fracturing in general increased from 9% to 16% (Appendices C and D).

The most profound data change is the percentage of participants that went from having no opinion to actually picking a side on the issue. This decision, one can conclude, was due in large part to the influence of the media. There was also a change in opinion in individual participants based on their media exposure. One participant changed their opinion from no opinion to slightly opposed after watching the anti-fracking video last. Additionally, two participants changed their stance from no opinion to slightly in favor after watching the pro-fracking video last. This evidence shows that the order in which the videos were shown made a difference, especially the one that was shown last. As a result of their media exposure, participants regarded media as more important following the focus group. This can be seen in the increase of participants that regarded media as most important factor (an increase from 3% to 7%) (Appendices C and D).

With regards to media influence on individuals' stances on the issue, much can be concluded. Participants from all focus groups, discussed and concluded that they were able to agree with the positions put forth in both of the videos. One participant in Focus Group 3 stated "I agree that fracking goes on day by day in harmony. The second video was talking about how fracking occurs every day without any major issues on a day to day basis. But I also agree with the first video also where they are saying that fracking is happening everywhere and there are all of these environmental impacts that can be linked to fracking" (4/2/13).

It was also concluded, as a result of focus group discussion, that the media has the power to solidify a viewpoint that already exists. This was exemplified best when one of the participants claimed that she was anti-fracking before because she had seen the movie Gasland, however, the movie trailer compared to the pro-fracking commercial by the natural gas company helped to solidify her view. Finally, one of the participants from Focus Group 2 expressed that both of the videos had an influence on her, however, the combination of both videos put her back at a neutral stance.

Style of Defense in Media

As a result of our research, it can be concluded that people do not succumb to media as much as the media producers think that they do. The students of Allegheny College easily picked up on the shortcomings of the media portrayal of hydraulic fracturing.

The first shortcoming that they observed was that both of the videos were extremely biased towards hydraulic fracturing. They felt that the trailer for Gasland, while it did bring up some valid points, was merely used to promote the movie as opposed to accurately depicting the issue at hand. Similarly, they felt that they were unable to believe the video in favor of fracking

simply because it was produced by a natural gas organization. They realized that this commercial would not be unbiased because this company is out to make a profit, thus they would only depict the information that would help them to garner support.

Additionally, in the pro-fracking video created by a natural gas company, sources were given to “back up” the claims they were making. One of the participants noted that “the video gave a fact and then told you exactly which source they got it from” (4/1/13), which this participant found to be quite beneficial. However, the groups quickly determined that while they gave sources, these sources lacked credibility, thus diminishing the quality of the information they were sharing altogether. It was noted that “some sources may be more credible than others” (4/3/13). One interviewee bluntly stated: “If you can’t back up your claims, then the message is not conveyed as effectively as it could be” (4/1/13). Prime examples of this argument of credibility are the use of The Huffington Post, which many participants did not believe was a reliable source and the claim of a “leading environmentalist” which is not followed by a name. Both of these “sources” can be found in the pro-fracking video made by America’s Natural Gas Alliance.

They participants also picked up on the use of emotions in either video to pull in supporters for the cause they were portraying. The anti-fracking video made viewers feel remorse and sympathy for the people who had to live in these conditions. This was the complete opposite in the pro-fracking video which portrayed the individuals as happy, especially with their portrayal of the young child bouncing on the bed. This happy depiction, however, was quickly picked up on by the participants in Focus Group 2 who stated that “The pro-fracking video shows children jumping on beds in an attempt to distract you from picking their video apart and finding their sources unreliable” (4/2/13)

Finally, there was a debate within the first focus group centered around the voice of the woman in the pro-fracking video. One participant saw it as comforting thus making him want to support her position. He stated that “[he] liked her voice and [he] thought it was very nice” (4/1/13). On the other hand, another participant thought the voice to be condescending thus making him not want to support the pro-fracking video. He supported his stance quite effectively by stating “I didn’t like the second video. I thought it was condescending. I felt like I was being treated like an idiot and talked down to” (4/1/13).

Education as an Important Factor

Over the course of all five focus groups, a very prominent theme surfaced: the importance of education when deciding one’s stance on hydraulic fracturing. It is important to note that halfway through the focus groups, it was gathered that participants did not truly understand the fracking process and that it proved helpful to explain it to them. This brief education module was started during the second focus group when participants asked for clarification. Their wish was granted and this education seemed to encourage and propel discussion for future focus groups as they could reference the diagram and what they had just learned to support their opinions. This basic education also gave them the tools necessary to make more educated claims in response to the media portrayals of the issue.

The participants were practically begging for information on the process as well as the pros and cons of hydraulic fracturing in order to make a more well-educated decision on the matter. Some of the participants thought it would be beneficial to have information portrayed of only the facts in order to determine which video was supporting its stance more effectively. Additionally, the desire for unbiased information was also a highly repeated phrase within the focus groups. This was clearly evidenced when a participant of Focus Group 4 summed up

many of the comments of other interviewees in stating that she “needed a list of both sides with the facts listed evenly, not just a list with opinions thrown on top of the facts” (4/3/13). Across the board, participants thought it would be beneficial to have more information in order to more accurately determine their personal stance with regards to hydraulic fracturing.

Similarly, this trend was seen when comparing the before and after surveys. First off, the percentage of participants that indicated education as the most important factor when determining their stance increased from 61% to 63%. Additionally, and perhaps most profoundly, the percentage of participants that indicated education as having “neutral” importance decreased from 13% to 0%. The percentage of individuals who believed education to be “important” rose from 22% to 25%. Similarly, the participants that indicated that education was “highly important” rose from 63% to 72%, approximately $\frac{3}{4}$ of all participants (Appendices C and D).

As one can easily see, the need for education on the issue has increased as a result of focus group participation. The issue then becomes how this information will be best presented in order to educate citizens while remaining unbiased. This is such a difficult task because, as expressed within the focus groups, there are downfalls to every approach. The main concern of this proposal would be deciding who would be responsible and able to make an unbiased portrayal of the facts of hydraulic fracturing. In the midst of video portrayals of the issue, it was suggested that an educational video on the matter be constructed. However, like many of her fellow participants, one individual in Focus Group 5 stated that “the only problem with that is that it would be boring” (4/3/13). She furthered her argument by stating, “I would want more facts, but I would totally lose interest if a video just started listing facts. The reason I liked these videos is because biased videos are interesting, not necessarily because I thought they were

correct or fair” (4/3/13). She brings up an excellent point: would people watch media if it were not biased or do they thrive on the differences portrayed by different producers?

Discussion

Throughout the study, all of the focus group meetings, with video presentation, were conducted in Allegheny College’s Carr Hall. This location is the home of the Environmental Science/Studies Department on campus and is commonly known by Allegheny Students as the “E.S. building.” After examining participant responses, there is reason to believe that this location may have influenced participants to answer survey questions and participate in discussion in a specific manner that would not be replicated if the meetings had taken place in a neutral location. Students automatically affiliated the focus group as biased because of its location and affiliation with the Environmental Science Department. When one student in Focus Group 3 was asked by a fellow participant why he adopted a pro-fracking stance, he responded “It doesn't really matter anyway, this is all for an E.S. class” (4/2/13). In future experiments, a more ideal location would be in a common public space that has no affiliation to certain ideals, such as The Campus Center at Allegheny College.

The students also discussed a bias found in both the “pro” and “anti” fracking videos posed to the focus groups. It was discussed by students in various Focus Groups that the source of these videos provided much bias in their portrayal of the issue. Participants felt as though they were unable to trust the information presented to them promoting natural gas drilling when the commercial was created by the America’s Natural Gas Alliance. Similarly, participants were aware of the bias presented through the Gasland trailer as it was being used to promote a motion picture and cannot necessarily be relied upon for unbiased facts. Due to the bias evident in both videos, they found that neither could be considered a source of legitimate information. From

here, it was evident that participants desired unbiased, un-opinionated facts. This soon proved to be difficult, however, when a participant from Focus Group 5 pointed out that they “would want more facts, but [they] would totally lose interest if a video just started listing facts. The reason [they] liked these videos is because biased videos are interesting, not necessarily because [they] thought they were correct or fair” (4/3/13).

The participants want unbiased facts in order to educate themselves on the matter; however, due to the responses of the participants, it is unclear which path should be taken in the future with regards to unbiased education on hydraulic fracturing. The problem with this is the lack of clarity in choosing which medium would be most effective in order to meet their desires for such information. Based on the results of this study, it can be seen that media would not be an appropriate avenue for unbiased education. Biases are one of the main components of multimedia; people watch media and are interested in it because of the dramatic approach it takes to seemingly mundane subjects. Therefore, it is essential to find a way to present unbiased information to the student body. This has the possibility to be achieved through a variety of mediums, such as a flyer, forum, presentation, or email that simply outlines the arguments presented by either side or an in depth explanation of the process of hydraulic fracturing.

With the biases made evident as a result of this research, it can be seen that this situation can be related to the broader context of political ecology. As mentioned in the Literature Review the research outlined above falls under the subjects and identities thesis as outlined by Robbins. By observing and examining the results of the research conducted, it can be more clearly seen how it can be related to the thesis suggested. As stated previously, hydraulic fracturing is becoming an issue of great focus within the Allegheny College community. With relation to the subject and identities thesis, hydraulic fracturing would be considered the new environmental

system introduced to the area. Its introduction has changed many students' views on fracking due to the different sources of influence students are being exposed to; one example of such exposure would be media. During research, it was found that many students desired unbiased information about the topic in order to make a more informed decision for themselves and the college. This shift in ideology was in direct correlation to their media exposure. Also, as the focus of the research, it was found that many students believe contemporary media relies too much on emotions and falls short in presenting people with cold, hard facts, which is precisely what people are looking for. The education that students are yearning for has caused new groups to form on Allegheny's campus. Examples of such groups would include the Bousson Advisory Group. It was formed in an attempt to foster conversation on hydraulic fracturing between college administrators and students. Through the Bousson Advisory Group as well as the numerous other groups with stake on this issue, a collective awareness for the lack of student education on the issue is recognized. As a result, students are turning everywhere to inform themselves on the topic. This research has brought to the forefront the shortcomings of the media's portrayal of the issue; primarily it's lack of unbiased information on the issue. This has left students with a desire for such information. In the future, should unbiased facts come available, the students will be educated on the issue, and thus they will be able to work towards environmental change of one kind or another. With educated students comes educated citizens, thus more educated decisions will be made with regards to environmental problems in the future.

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We want to thank Professor Shaunna Barnhart for all of her time and dedication towards this research project. Without your guidance, especially with the IRB, it would not have been possible.

We also want to thank all of our participants who took part in this study. Without your generous time and effort this study would not have been possible.

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Appendix A

Research Participant Consent Form Media Influence on Hydraulic Fracturing

Josh Paradise, Jessica Stickel, Pasquale DiFrancesco, Jenna Smith ES-490 Political Ecology

Purpose of Research:

The purpose of this research is to understand how social media influences opinions on hydraulic fracturing.

Specific Procedures:

I understand that I will be asked to complete a written survey and participate in a focus group about media constructions of hydraulic fracturing.

Risks to the Individual:

I understand that the risks of participating in this study are no more than I would experience in everyday life.

Benefits to the Individual or Others:

I understand that the primary potential benefit of this research study will be obtained by other researchers studying media and hydraulic fracturing and the benefit to me is minimal.

Compensation:

I understand that I will not be compensated for participation in this study.

Confidentiality:

I understand that the data I provide today are completely confidential and that my name will never be associated with the data I provide. I understand that the researchers are not interested in any single person's data and will combine the data I provide with all other participants' data to look for general patterns. Any reports made based on this study's data will focus only on general patterns. The consent forms are stored under lock and key in the Environmental Science Department at Allegheny College. I understand that my survey responses will be saved in password-protected computer files. The researchers will never use my name nor any other identifying information in publications or other materials. All identifying information (i.e. your name and contact information) will be destroyed before May 2013.

Voluntary Nature of Participation:

I understand that I am at NO time required to participate in this study. I understand that if I agree to participate, I may withdraw my participation at any time without penalty. I understand that I may skip any question that I wish not to answer on the surveys or during the focus group.

Contact Information:

For any questions or concerns about this research project, please call Professor Shaunna Barnhart at 814-332-2797 or email her at sbarnhart@allegheny.edu. For any questions or concerns about the treatment of research participants, including yourself, please call **Dr. Rich Bowden**, Chair of Allegheny College Institutional Review Board (IRB) at **(814)-332-2869** or email him at rbowden@allegheny.edu.

Participant's Signature _____ date _____
Researcher's Signature _____ date _____

Appendix B

Fracking Survey

The purpose of this survey is to gauge media influence on members of the Allegheny College community with regards to hydrofracking.

Gender

- Male
- Female
- Choose not to identify
- Other:

Class year.

- 2013
- 2014
- 2015
- 2016

Major(s)

Minor(s)

Are you involved with environmental groups on campus?

Check all that apply.

- Students for Environmental Action
- EcoReps
- ASG Sustainability Committee
- Bousson Advisory Group
- ES Club
- None
- Other:

What is your stance on fracking in general?

- Strongly opposed
- Slightly opposed
- No opinion
- Slightly in favor
- Strongly in favor

Which factor is most important to you in determining your stance on hydraulic fracturing?

- Social Constructs/Community Perceptions
- Peers
- Media
- Education
- Other:

How important are each of the following in determining your stance on fracking?

Community perception/social construct of the issue.

1 2 3 4 5

Little Importance Very Important

Peers' views and ideas of the issue.

1 2 3 4 5

Little Importance Very Important

Media portrayal of the issue.

1 2 3 4 5

Little Importance Very Important

Personal education level on the issue either through self-education or formal education.

1 2 3 4 5

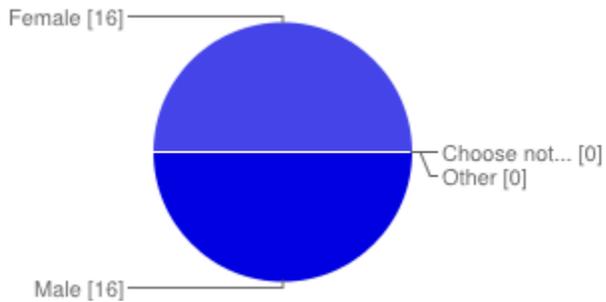
Little Importance Very Important

What do you believe to be the social construct or overall attitude of the Allegheny College Community with regards to hydraulic fracturing?

- Anti-Fracking
- Pro-Fracking
- Neither
- "On the Fence"
- Other:

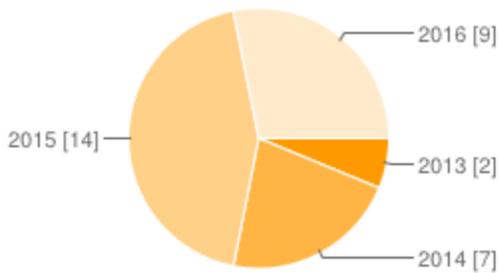
Appendix C (“Pre” Survey Results Illustrations)

Gender



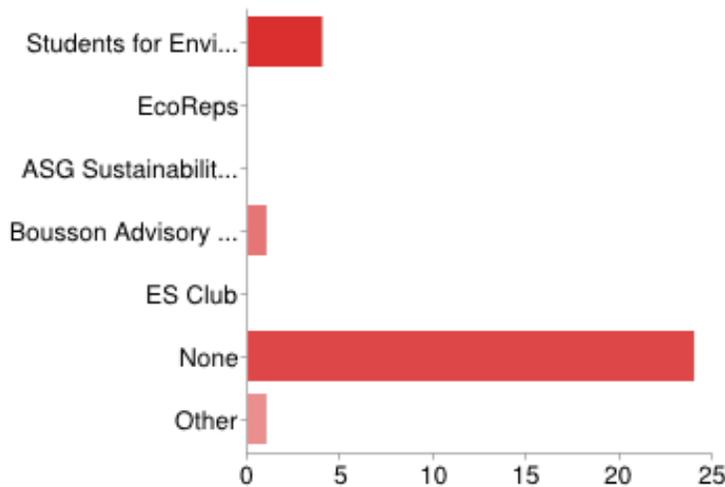
| | | |
|------------------------|----|-----|
| Male | 16 | 50% |
| Female | 16 | 50% |
| Choose not to identify | 0 | 0% |
| Other | 0 | 0% |

Class Year



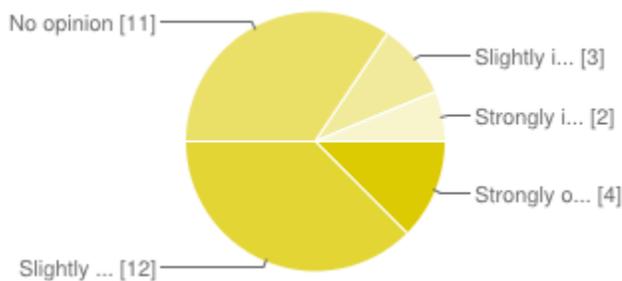
| | | |
|------|----|-----|
| 2013 | 2 | 6% |
| 2014 | 7 | 22% |
| 2015 | 14 | 44% |
| 2016 | 9 | 28% |

Are you involved with environmental groups on campus?



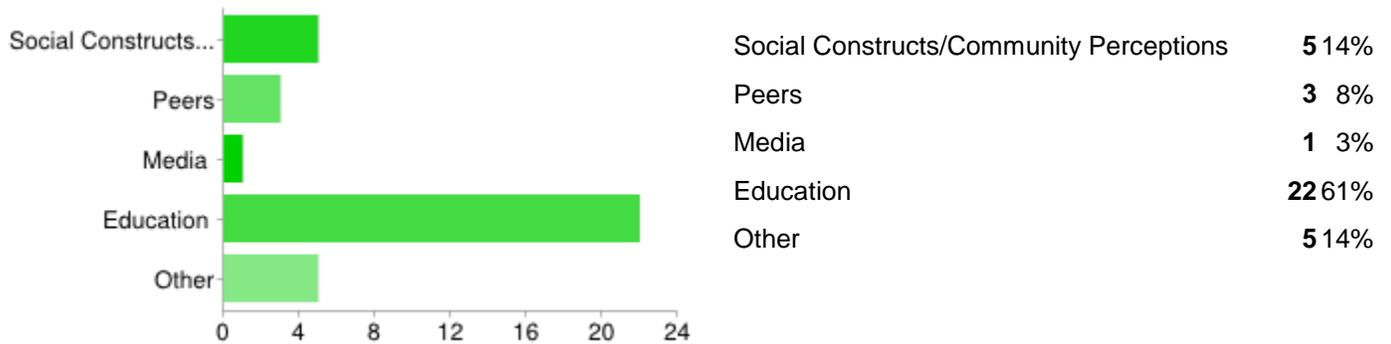
| | | |
|-----------------------------------|----|-----|
| Students for Environmental Action | 4 | 13% |
| EcoReps | 0 | 0% |
| ASG Sustainability Committee | 0 | 0% |
| Bousson Advisory Group | 1 | 3% |
| ES Club | 0 | 0% |
| None | 24 | 80% |
| Other | 1 | 3% |

What is your stance on fracking in general?



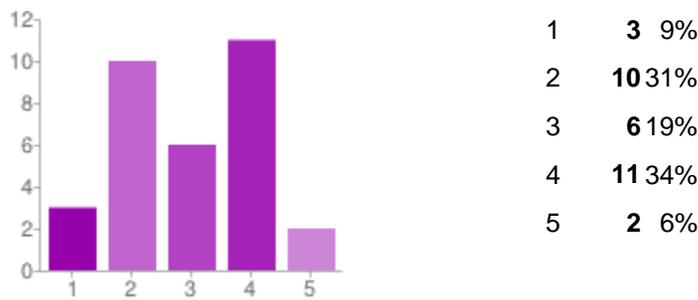
| | | |
|-------------------|----|-----|
| Strongly opposed | 4 | 13% |
| Slightly opposed | 12 | 38% |
| No opinion | 11 | 34% |
| Slightly in favor | 3 | 9% |
| Strongly in favor | 2 | 6% |

Which factor is most important to you in determining your stance on hydraulic fracturing?

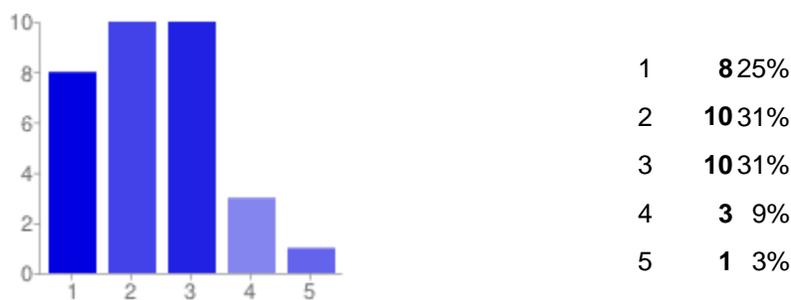


How important are each of the following in determining your stance on fracking?

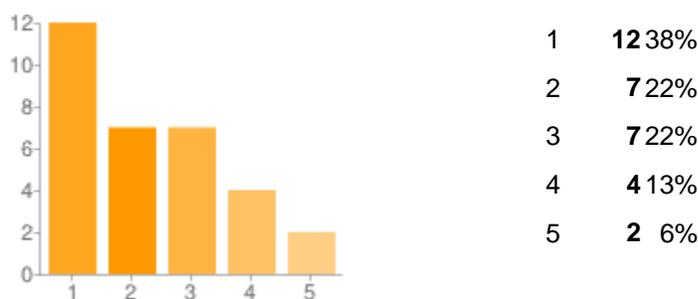
Community perceptions/social constructs of the issue.



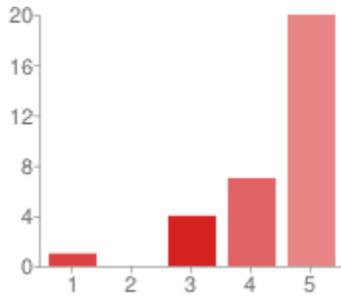
Peers' views and ideas of the issue.



Media portrayal of the issue.

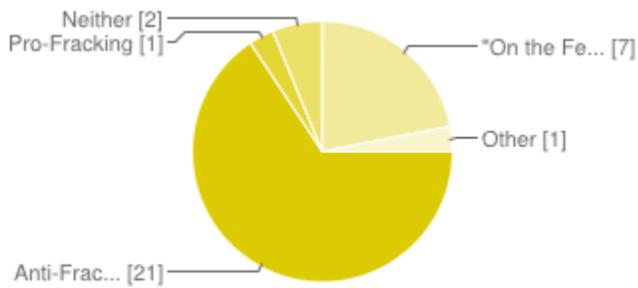


Personal education level on the issue either through self-education or formal education.



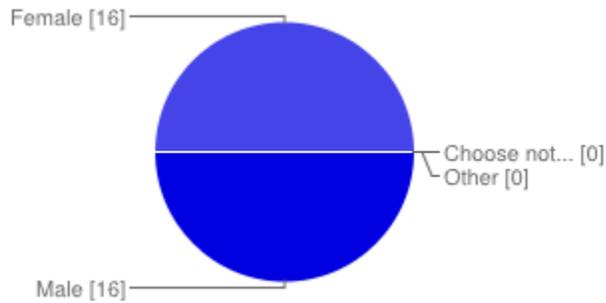
| | | |
|---|----|-----|
| 1 | 1 | 3% |
| 2 | 0 | 0% |
| 3 | 4 | 13% |
| 4 | 7 | 22% |
| 5 | 20 | 63% |

What do you believe to be the social construct or overall attitude of the Allegheny College community with regards to hydraulic fracturing?



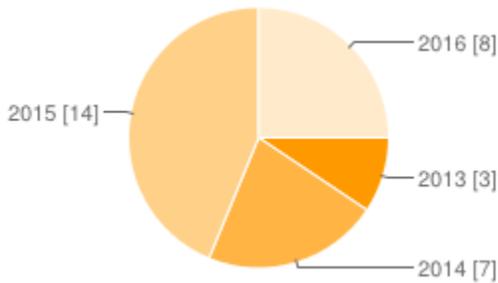
| | | |
|----------------|----|-----|
| Anti-Fracking | 21 | 66% |
| Pro-Fracking | 1 | 3% |
| Neither | 2 | 6% |
| "On the Fence" | 7 | 22% |
| Other | 1 | 3% |

Appendix D (“Post” Survey Results Illustrations) Gender



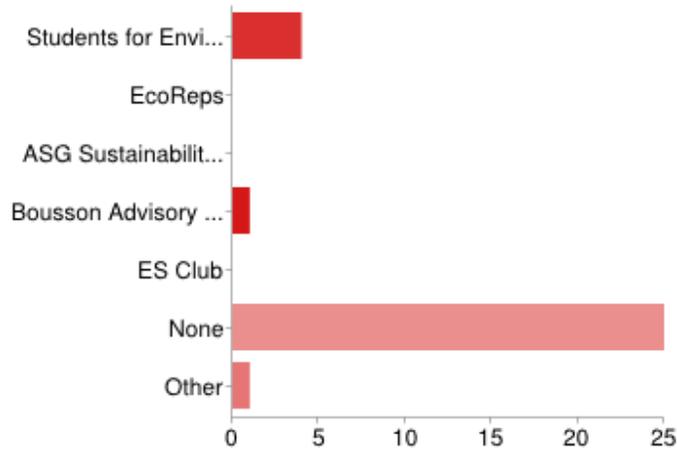
| | | |
|------------------------|----|-----|
| Male | 16 | 50% |
| Female | 16 | 50% |
| Choose not to identify | 0 | 0% |
| Other | 0 | 0% |

Class Year



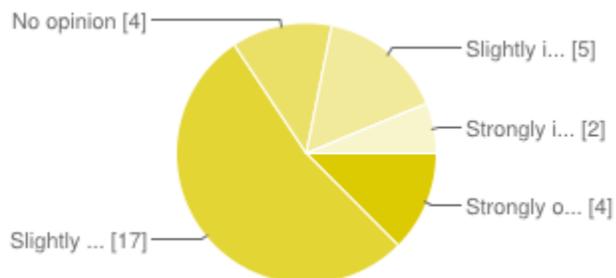
| | | |
|------|----|-----|
| 2013 | 3 | 9% |
| 2014 | 7 | 22% |
| 2015 | 14 | 44% |
| 2016 | 8 | 25% |

Are you involved with environmental groups on campus?



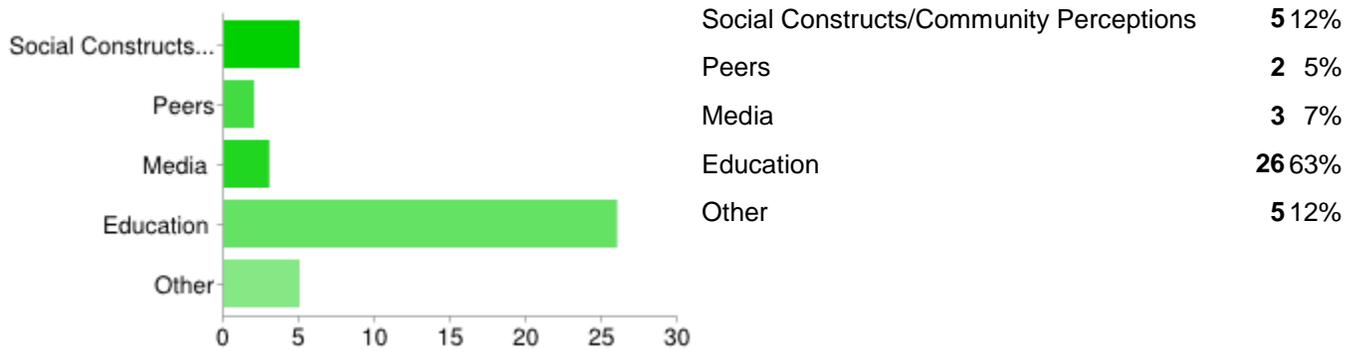
| | | |
|-----------------------------------|----|-----|
| Students for Environmental Action | 4 | 13% |
| EcoReps | 0 | 0% |
| ASG Sustainability Committee | 0 | 0% |
| Bousson Advisory Group | 1 | 3% |
| ES Club | 0 | 0% |
| None | 25 | 81% |
| Other | 1 | 3% |

What is your stance on fracking in general?



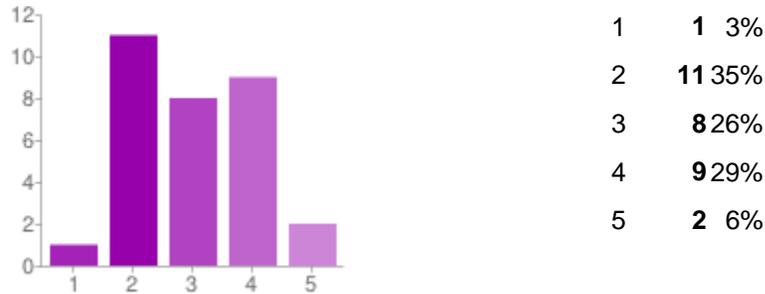
| | | |
|-------------------|----|-----|
| Strongly opposed | 4 | 13% |
| Slightly opposed | 17 | 53% |
| No opinion | 4 | 13% |
| Slightly in favor | 5 | 16% |
| Strongly in favor | 2 | 6% |

Which factor is most important to you in determining your stance on hydraulic fracturing?

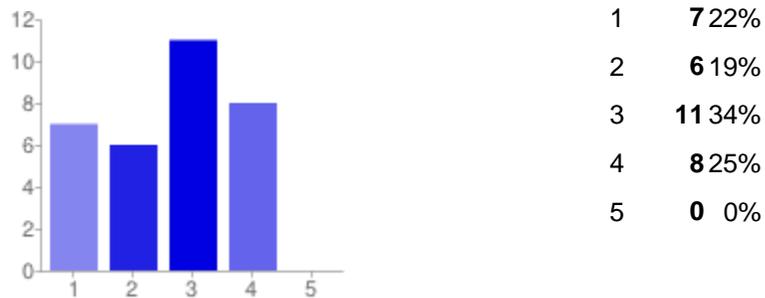


How important are each of the following in determining your stance on fracking?

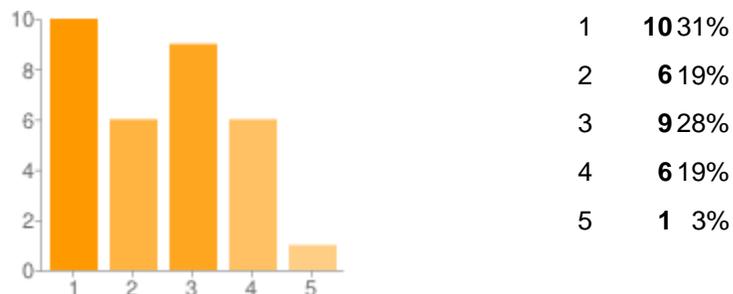
Community perceptions/social constructs of the issue.



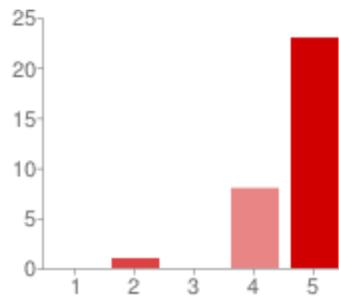
Peers' views and ideas of the issue.



Media portrayal of the issue.

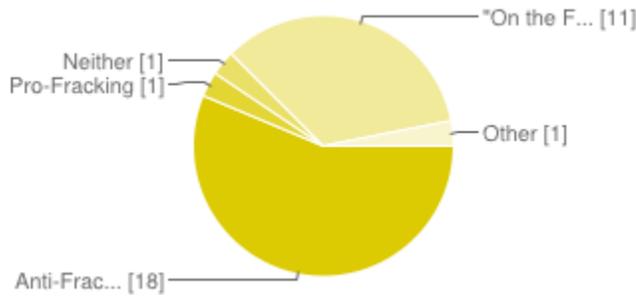


Personal education level on the issue either through self-education or formal education.



| | | |
|---|----|-----|
| 1 | 0 | 0% |
| 2 | 1 | 3% |
| 3 | 0 | 0% |
| 4 | 8 | 25% |
| 5 | 23 | 72% |

What do you believe to be the social construct or overall attitude of the Allegheny College community with regards to hydraulic fracturing?



| | | |
|----------------|----|-----|
| Anti-Fracking | 18 | 56% |
| Pro-Fracking | 1 | 3% |
| Neither | 1 | 3% |
| "On the Fence" | 11 | 34% |
| Other | 1 | 3% |

Appendix E

| Focus Group | Number of Participants | Video First Viewed | Date |
|-------------|------------------------|--------------------|--------|
| 1 | 12 | Anti Video | 4/1/13 |
| 2 | 5 | Pro Video | 4/2/13 |
| 3 | 4 | Anti Video | 4/2/13 |
| 4 | 4 | Pro Video | 4/3/13 |
| 5 | 6 | Anti Video | 4/3/13 |