Community Problem Report of “Space Exploration”

Rodolfo Rubio

University of Texas at El Paso

**Space Exploration**

Space has been humankind’s final frontier for a long time, and now space exploration can also be seen as a key to the survival of humans. Some argue that the governments should stop funding the space programs because they believe that the money is needed more so on Earth. However, as the increases and resources are diminishing; space might be the only answer. Whether or not humankind continues to explore space; this issue will be scrutinized in terms of why it has come to exist, what the societal impact of exploring space is, how it is viewed between nations (not only the citizens of the United States), and what NASA is doing to prepare for it.

**What is space exploration and how was this concept developed?**

Astronomy is the oldest of natural sciences, dating back to pre-history with mythological and religious practices, but it was not until the twentieth century that man was able to view space with their own eyes. During the presidency of George H.W. Bush, he mentioned three purposes space reconnaissance: scientific discovery, economic benefit, and national security. President Bush says “I am convinced that if NASA were to disappear tomorrow, if we never put up another Hubble Space Telescope, never put another human being in space, people in this country would be profoundly distraught” (Griffin, 2007). Unfortunately, the public does not care about nor miss the space program unless it benefits them individually, but knowingly people strive to accomplish such things. The individual has three motives towards what they do, Griffin (2007) exclaims, “They’re exactly the opposite of acceptable reasons;” humankind wants to be the best at anything; second, humans are naturally curious; and finally, mankind wishes to leave a legacy.

According to others though, there are other ideal reasons for space exploration, one being food production. Dixon (2013) states, “The supply of food is the main limitation to the long-term exploration of places like Mars and even the Moon” (p.9). Since the trip takes a long time, it would be ideal to grow food on the moon or Mars with the exception of contaminating the atmosphere. The challenges of exploring space have brought new technological solutions to common problems on Earth. Another aspect of space exploration is the radiation environment; solar energy is the most beneficial energy source for the growth of food through the process of photosynthesis, but out in space, it can be harmful. Finally, the challenge of maintaining oxygen in a tight environment in space is crucial to anyone. Some people restrain the idea of spending the money on Earth, but Dixon (2013) explains, “With increasingly adaptable and efficient technologies for food production in controlled environments, stimulated by the requirements of space exploration initiatives, we are getting closer than ever to solving some of the pressing problems of feeding our growing population on Earth.” These difficulties for space benefit the planet by producing new innovative ideas for growing food on Earth and space can be a possible place to count on.

**What is the societal impact of exploring space?**

Space exploration has always been an expensive endeavor that requires much research and vast resources. The government has been the only organization, so far, to have the funds and power to accomplish this. Around the world, only three nations have successfully sent a human into space. Why? “One of the biggest challenges to space exploration is the public and politics” (Jessa, 2009). Tega Jessa (2009) from *Universe Today* mentions that anything having to do with government spending gets involved in politics, such as health care reforms. Many Americans express, “Why waste the money on space when we can use it down here?” But the question has a two part answer and the public does not have the entire story behind space exploration. The truth is money goes to hard workers and scientists under NASA, just as if you were working for another company. Jessa (2009) further explains how the issue benefits the economy, “It also goes to pay major private companies and corporations that play important roles in major sectors of the US economy.” The fact is that every step humankind takes to explore space not only advances the technology, but also human knowledge. Jessa (2009) exclaims, “So the next time you wonder if it is a waste of time and money to explore space remember that it is actually an investment that improves the quality of our lives.” Money can always be a reason humanity does not accomplish things, but it is not that governments does not have it, instead it is because they do not like spending it.

 However, the National Aeronautics and Space Administration disregard the societal impacts. NASA is planning to send a satellite to orbit Mars in the months of November and December of this year, but the government shutdown delayed everything having to do with the launch. A journalist from the *New York Times* states, “NASA’s next Mars mission is getting to the launching pad, government shutdown or not” (Chang, 2013). The satellite, Maven, would have to wait until the year 2016 for launch and that would impact the missions of Curiosity and Opportunity which are mass rovers on the planet of Mars. The mission’s principal investigator, Bruce Jakosky (2013) says, “Launching Maven in 2013 protects the existing assets that are at Mars today.” NASA knows that although they do not have the funds to launch or because the government is shutdown, they cannot let this opportunity go regardless of what the society has to do or say.

**What are some international opinions?**

Between 1957 and 1975, the Soviet Union and the United States were in a conflict known as the Cold War where the two nations viewed space exploration as necessary for national security and technological advancement. See the image below detailing how space exploration benefits mankind. The image comes from *Planetary Resources;* it gives an overall portrayal of the benefits of space exploration such as: water on asteroids, fuel, making the planet greener, and many other things.



The image analyzes the vast majority of things humans can do with the resources found in space.

The image has a text box which explains that the population is growing and the need of natural resources fuel exploration and prosperity on Earth. The image continues explain the benefits of space, not necessarily planets. The use of water coming from asteroids helps with rocket fuel, breathable air, and drinkable water. However, other rich minerals come from the asteroids that can reduce the cost of electronics, provide better transportation, and create a greener Earth. This single image portrays the benefits of just “near Earth” space exploration, but they can push on further.

In 1967, the United Nations deduced a treaty called the *Outer Space Treaty*. This treaty states that no nation can be prohibited from exploring space or space resources. According to Marian (2012), “Any use of space should not be to the detriment of any nations and space should be within the scope or jurisdiction of the entire human race” (p. 258). However, reviews note that the treaty does not forbid appropriation from a nongovernment group, and the United States has provided the most services and products to undergo space exploration. Marian also states (2012), “The developing nations favor an interpretation that makes the common heritage an equitable distribution not based on contribution or effort” (p. 258). After much discussion between nations; there is a cooperation internationally to revolutionize the U.S. space program for the harmony of space tourism.

After the landing on the moon and the new space station on the moon, technological advances have helped revolutionize the planet in many ways that even save lives. However as Plait says (2007), “Many people dismiss space exploration as a luxury, but this attitude is not only wrong, it’s dangerous.” Since the majority of nations have accomplished great things to learn more about the universe, such as, how the Sun affects humans or how humans affect the planet, space travel is tied to the future. There is one more important reason why nations view space exploration as critical if done in the correct manner and that is, “Humans strive to learn, to explore, to push boundaries, to see what’s around the corner” (Plait, 2007). People from this planet, not just Russia or the United States, have a common goal, “accelerating the process of reform” (Plait, 2013) because there is a fundamental need of the universe.

**What are some recent activities enacted by NASA?**

Since the twentieth century, space has been the final frontier for mankind; however, the “space race” began between the United States and Russia. The U.S. created the National Aeronautics and Space Administration (NASA) in the early 1950s in preparation to send men to the moon. As stated in the *Air & Space Magazine*, “The space program satisfies the desire to compete, but in a safe and productive manner, rather than in a harmful one” (Griffin, 2007). Michael Griffin introduces the concept of the United States as of now and back then, which is, competition of nations to produce the ideation and technology to explore space. As of now, the twenty-first century; different countries have started working together to provide the planet with the “International Space Station” on the moon. The United States supports the interrelationships with other nations, “The greatest strategy for national security, more effective than having better guns and bombs than everyone else, is being a nation that does the kinds of things that make others want to do them with us” (Griffin, 2007). The United States agency, NASA functions better by working with other great minds from other countries because of the ability to create new concepts. Before there was competition and grievance between nations, however, now collaborate towards a common goal.

In the early 2000s, NASA began making plans to send humans to the planet Mars; however, currently, the next “baby” steps for NASA are to aboard an asteroid. It seems that there are a lot of things to do prior to sending men to Mars and a team of astronauts are preparing for human exploration on an asteroid as early as 2025. CNN news’ John Zarrella reports that the space agency, NASA, is transitioning to deep space exploration. With the end of the shuttle program, NASA’s next step is to further explore the moon and the solar system. In order to do so they prepare by creating a similar situation on Earth. Beneath the surface, “They have created an asteroid proving ground in the near weightless environment of water” (Zarrella, 2011). A group of astronauts practice underwater by climbing walls, attaching themselves to anchors, and many other similar situations to space because of the zero gravity. The asteroid exploration is the “baby step” for NASA before approaching Mars. However, CNN also reports that NASA may have the technology for this mission, but they don’t have the funds. The Mars mission has always been a myth to them, but China is doing everything they can to go back to the moon and set foot on Mars. NASA views this as a benefit because if China is to fail, NASA can learn from the mistakes of China and better prepare for shot at reaching Mars.

**Conclusion**

The proposed community problem of space exploration has had many advocates attempt to convince the public of its benefits, and why it must be done in the near future. The need of exploring space began as a competition for scientific knowledge, but now the resources are the priority. Some view the needs on Earth as far more important; however, they do not see the greater picture because the needs are not as great at the moment. Even nations have fought for the control of space, but they now work together to accomplish the goal of deep space exploration. As of now, each space program has its way of getting ready for the future of space exploration; for example, NASA is functioning, despite any obstacles such as the government shutdown. This issue may not be a great impact now, but in the next few decades there can be a problem regarding the population and resources, therefore, the community cannot overlook this matter.

References

Chang, K. (2013, October 4). NASA to proceed with Mars mission. The New York Times. Retrieved from: http://www.nytimes.com/news/fiscal-crisis/2013/10/04/nasa-to-proceed-with-mars-mission/?\_r=0

CNN (2011, July 6). American morning: CNN: NASA to board an asteroid? Retrieved October 26, 2009, from http://www.youtube.com/watch?v=8XI7GCW0mOI

Dixon, M. (2013, March-April). The Case for space. Engineering & Technology for a Sustainable World, 20.2. Retrieved from: http://go.galegroup.com/ps/i.do?id=GALE%7CA323661038&v=2.1&u=tlc199025597&it=r&p=GPS&sw=w&asid=6ddb4e5e5ca9e6df99fa315093715e32.

Griffin, M. (2007, July). The real reasons we explore space. Air & Space Magazine, p1-3. Retrieved from: http://www.airspacemag.com/space-exploration/Uncommentary.html.

Jessa, T. (2009, August 24). Benefits of space exploration. Universetoday.com. Retrieved October 26, 2013, from http://www.universetoday.com/37079/benefits-of-space-exploration/

Marian, I. (2012, December). Controversial features of international space law. Economics, Management, and Financial Markets, 7.4, p258. Retrieved from: http://go.galegroup.com/ps/i.do?id=GALE%7CA325360814&v=2.1&u=tlc199025597&it=r&p=GPS&sw=w&asid=e0374128147025b2ce5520f14322ff33

Plait, P. (2007, November 28). Why explore space? Discover. Retrieved from: http://blogs.discovermagazine.com/badastronomy/2007/11/28/why-explore-space/#.UmXTafmkqWk

No Author. Planetary Resources. Image retrieved from: http://www.planetaryresources.com/2012/04/the-space-economy-a-modern-day-gold-rush-2