

THE IMAGE OF SCIENCE IN *MYTHBUSTERS*

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MASTER OF ARTS

By

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

THE IMAGE OF SCIENCE IN *MYTHBUSTERS*

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The aim of this thesis is to study how the television show *MythBusters* constructs an image of science in terms of its narrative components and connotations. It is argued that, *MythBusters* portrays science as an appealing activity but its way is controversial. While positioning science as a joyful, beneficial and understandable phenomenon, *MythBusters* reinforces its objectivity and patriarchy, associates it with violence and blurs the line between scientific curiosity with any other type.

Keywords: Television science, narrative, myth, popular science, science communication, image of science.

ÖZET

MYTHBUSTERS'DA BİLİM İMGESİ

Fulya Yıkılğan

Medya ve Görsel Çalışmalar Yüksek Lisans

Tez Yöneticisi: Yrd. Doç. Andreas Treske

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Bu tezin amacı *MythBusters* televizyon programının anlatı bileşenleri ve anlam açısından nasıl bir bilim imgesi oluşturduğunu incelemektir. *MythBusters'*ın bilimi çekici bir aktivite olarak gösterdiği fakat izlenen yöntemin çelişkili olduğu tartışılmaktadır. Bilim eğlenceli, yararlı ve anlaşılabilir bir olgu olarak konumlandırılırken, *MythBusters* bilimin objektifliği ve ataerkilliğini desteklemekte, bilimi şiddetle ilişkilendirmekte ve bilimsel merakın diğer merak türlerinden ayrımını belirsizleştirmektedir.

Anahtar Kelimeler: Televizyonda bilim, anlatı, mit, popüler bilim, bilim iletişimi, bilim imgesi.

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INTRODUCTION

Visual media is so powerful that it shapes contemporary Western culture (Rose, 2001). People are surrounded by various types of visual technologies like television, digital graphics, and photography. Gillian Rose (2001) notes: "These images are never transparent windows on to the world. They interpret the world; they display it in very particular ways" (p.6). Because it is powerful, visual media is also used in order to communicate or popularize science. These attempts gain governmental and social support.

Popular science is trying to translate scientific texts produced entirely within a specialist context into an easily understood language (Curtis, 1994). Shows like *MythBusters* are also doing a different kind of translation: the translation of narrative of scientific method to another narrative suitable for television audience. However, these are not one-to-one translations.

As noted before, media does not provide transparent windows.

How various communication channels interpret science, scientific truths, processes, and science professionals is debatable. The focus of this thesis is to study how *MythBusters*, a popular science show, produces an image of science. *MythBusters* is a television show produced by Australian Company *Beyond Productions* for *Discovery Channel*. The show aims to explore the validity of myths including urban legends, rumors, movie scenes and similar widespread beliefs and unusual events by conducting experiments. While several institutions take the show seriously and accept *MythBusters* as a successful channel to achieve public understanding of science; viewers including youngsters, teachers and adults, find a platform for thinking and discussing about science through watching it and joining the discussion groups at several websites about the show. Adam Savage and Jamie Hyneman, the protagonists, were invited to *American Association of the Advancement of Science (AAAS)*'s national meeting as speakers in 2007 (AAAS Annual Meeting, 2007) and *National Science Foundation (NSF)* categorizes *MythBusters* as a scientific documentary at its website (Science programs on television: 2005, 2006).

New York Times gave the headline of the interview with Adam Savage and Jamie Hyneman as "The Best Science Show on Television?" in 2006 (Schwartz, The Best Science Show on Television?, 2006). Furthermore, the show itself triggers this perception by associating the characters with science in several visuals about the show (Cover for "MythBusters" (2003), n.d.) and using some scientific formulae as background at the official website (MythBusters, n.d.).

This thesis argues that *MythBusters* portrays science as an appealing activity however its way is controversial. Appealing here refers to joyful, beneficial and understandable. Controversy, on the other side, results from reinforcing objective and patriarchal image of science, confusion about scientific curiosity and association with violence.

In the first chapter, science communication efforts and governmental support are examined in order to understand the ideology behind. The power of television as a communication channel and the way popular culture produces image of scientist and science are studied.

In the second chapter, the relationship between science and narrative is examined. Vladimir Propp's methodology for narrative analysis is defined: he separates the essential components of fairy tales with special methods to make a comparison in between (Propp, 1968). Levi Strauss' argument which suggests that meaning making process depends on binary oppositions (as cited in Branston & Stafford, 1996) is introduced. The concept of "myth" is discussed as a kind of language (Levi Strauss) and as a mode of signification (Roland Barthes).

The third chapter is reserved for the interpretation of *MythBusters*. The components of the show are studied separately. How specific codes of science are integrated into the narrative development is demonstrated by interpretation of the characters and the flow of the television show. How the title and the general concept of the show suggest a struggle between myths and facts is shown. Furthermore, violence motives, positioning of scientists and scientific curiosity, and the attitude towards objective science are debated to conclude how *MythBusters* construct an image of science in popular culture.

1. SCIENCE COMMUNICATION

1.1. Definition and Necessity

The definition of science communication is: "the use of the appropriate skills, media, activities, and dialogue to produce one or more of the following personal responses to science (the AEIOU vowel analogy): awareness, enjoyment, interest, opinion forming, and understanding" (Burns, O'Connor, & Stocklmayer, 2003, p. 183).

The outcome of an access to scientific information and an understanding of scientific processes is assumed to create benefits for science, national economy, national power and influence, democratic government and society, intellectual, aesthetic and moral situation attitudes of people and person as an individual (Gregory & Miller, 2000).

Obviously, most of the scientific research is conducted by using public money coming from taxes, donations and so on. If people are aware of benefits

of science, then they will probably be more desirous to support it financially and politically.

Public understanding of science is also important for national economy because if people support science financially and politically, scientific developments might be achieved and it directly benefits industry. For a technological product to be sold the potential consumer should be aware of its capabilities; therefore as a second benefit for national economy, science communication supports home market.

Moreover, many of the political discussions involve scientific issues. Informed voters and informed consumers have their power to exert pressure to decision makers in an information society. When someone has scientific information, he or she understands modern world and able to function as a citizen of technological society. These are the benefits for democratic government and society as a whole.

Finally, science is accepted to be beneficial for society and individual, because science has been an inspiring power for artists and assumed to be a

cultural achievement. Knowledge helps individuals to negotiate their ways more effectively in their social environment. Also, being able to use technical equipments and having the ability to think and act systematically makes life easier for them.

1.2. Science Communication Models and Genres

Throughout the history, scientists and communicators have followed different approaches to science popularization and these approaches are still subjects of discussions. Bruce Lewenstein (2003) discusses four science communication models in which these different approaches are summarized and categorized nicely. Deficit Model describes a deficit of knowledge that must be filled, with a presumption that after fixing the deficit, everything will be better. This model tries to increase the scientific literacy of the society by emphasizing information transfer. Secondly, The Contextual Model tries to build a bridge between scientific information and everyday lives. Lay Expertise Model, the third one, aims to increase the awareness about local issues, value local knowledge and trigger a political action. Lastly, The Public Participation Model's target is a more democratic science and it is done by increasing the

interactivity between public, scientists and decision makers through consensus conferences, citizen juries, science shops etc.

Recent television science programs follow threads including a mixture of these models. Shows like *MythBusters* mainly aim to inform the audience about science, make them approach science in a positive way and help them have a scientific look to daily problems. From this point of view, *MythBusters* follows first and second models of science communication that Lewenstein lists.

When it comes to the genres, Cloitre and Shinn suggest that, there is a continuum of genres for scientific communication (As cited in Curtis, 1994). They list four main stages in the science communication process: Intraspecialist Level, Interspecialist Level, Pedagogical Level and Popular Level. Under Intraspecialist level, scientific articles published in scientific journals which include empirical data, references to experimental work and graphics are mentioned. Interspecialist Level includes interdisciplinary articles like ones published in bridge journals like *Nature* and *Science*. Texts like textbook chapters are

categorized in Pedagogical Level. And lastly, popular TV shows of amateur science like *MythBusters* and articles published in the daily press are listed under Popular Level (As cited in Bucchi, 2004).

Cloitre and Shinn categorize TV shows of amateur science at the last level, the peak for popularity. It is obvious that, *MythBusters* is really popular, in the sense of recognition. Many people recognize the hosts of the program, discuss about the show in web pages, and watch the show in a regular basis. The protagonists of the show are like pop stars that they do stage shows. The main purpose of this thesis is not to study the perception of the audience, but the important thing is that, many people watch the show and this makes the show "popular". John Fiske (1991) has a nice ascertainment about popular culture: "Popular culture tends to the excessive, its brush strokes are broad, its colors are bright" (p.109). Animated, excited and entertaining atmosphere of the show is prepared to make it excessive and bright to attract attention of majority of the people.

1.3. Policy

As a national policy, United States of America takes public understanding of science seriously. *American Association for the Advancement of Science (AAAS)*, *the National Academy of the Sciences (NAS)*, and the *National Science Foundation (NSF)* have been leading in increasing scientific literacy and promoting positive image of science in the country. The basic assumption behind their efforts is that all Americans must have an access to science which is a vital endeavor (Maienschein & Students, 1999).

The National Science Foundation (NSF) is an independent federal agency founded with the aim: "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense...". The Foundation serves with an annual budget of approximately six billion dollars (NSF at a Glance, n.d.). "Learning" is listed under the investment priorities of the strategic plan of NSF and "informal education" is a subtitle (Investment Priorities, 2006).

Several surveys are conducted to analyze public understanding of science and the findings of these surveys are subjects of national competition.

Science and Engineering Indicators 2008 Report

states that:

For many, some attitudes might appear problematic, too, such as the sizable parts of the population who express serious reservations about the place of morality in science or the speed of technological change, or who favor coverage of nonscientific material about human origins in public school science classes. When the data are examined using other countries as a benchmark, the United States compares favorably. Compared with adult residents of other developed countries, Americans appear to know as much or more about science, and they express as much or more optimism about technology. (Public Attitudes and Understanding, 2008)

Expressing reservations to science is found to be a threat for scientific development and national competition. Optimistic attitude of people towards technology and scientific knowledge is accepted to be an advantage in this sense.

European Commission also initiates support programs like *Science in Society* of 7th Framework Program with a budget of 330 million Euros. Under this title, the Commission funds informal science education and science communication as well as formal science education and other related issues. (Science in Society, 2007) Many of the European countries also have their own national programs,

campaigns, governmental and nongovernmental organizations to reinforce science communication activities. Like India, South Africa, Japan, Arab Countries, and in general, most of the countries in the world do so. In short, efforts for increasing public understanding of science and promoting a positive image of science are prioritized in national policies.

1.4. What do people think about science?

Merriam Webster Dictionary defines science as: “the state of knowing : knowledge as distinguished from ignorance or misunderstanding”, “a department of systematized knowledge as an object of study”, “something that may be studied or learned like systematized knowledge”. The dictionary gives place to natural science in the same entry because “science” connotes “natural science” for the general public. Natural science is defined as: “knowledge or a system of knowledge covering general truths or the operation of general laws especially as obtained and tested through scientific method; such knowledge or such a system of knowledge concerned with the physical world and its phenomena” (Science, n.d.). In short, science

formally refers to knowledge, systematic approach and general truths and laws.

In the media, which is the primary source of public perception of science, various types of scientist figures have been created. *Frankenstein*, *X Files* and many other popular culture works assigned a role for scientist as a violent figure who rejects the rules of normal society. Scientists are unreliable, irresponsible and inconsistent people, sometimes they are murderers. But their guilt cannot stay hidden; they are destined to be punished. Another image of scientists portrays them as powerless and dominated characters that may do anything dirty if big business or military ask them to do so. In some cases, scientists are described as antisocial people who spend their all time by working and do not have any social lives and friends. On the other hand, scientists are also exhibited as elites and science as the work of privileged groups. With the capability to have an answer for all complex questions and being able to solve complicated problems, scientists are coded as incredibly talented and intelligent people. The common point of these various representations is that, scientists are generally portrayed as unusual

people and science as a mysterious work (Nisbet, Scheufele, Shanahan, Moy, Brossard, & Lewenstein, 2002).

The main idea behind the reservations to scientific research, which is not desirable, is the fear of dangerous results of science. The recent debates on nuclear energy and genetic engineering focus on the danger for natural life. In this sense, Second World War was a turning point for public understanding of science. The atom bomb caused a science anxiety; a strong dislike of scientists appeared in the society. Number of popular science publications rose rapidly to inform people about science and its advantages. The need to scientific information has increased year by year: "in the 60's and 70's, a range of current crises including inflation, unemployment, pollution, environmental disasters, violence and crime are all facets of the same crisis, a crisis of perception" (Broks, 2006, p. 93). Science communication has been considered important and science communicators have become much more visible and organized (Broks, 2006).

It is still unknown how media affects people's perception of science through various scientist

stereotypes and news reports (Gregory & Miller, 2000). However, some survey results draw a picture for public's image of science which gives an idea. People describe scientists as intelligent, educated and dedicated people. Most respondents of a survey conducted in 1963 by Davis, state that scientists spend efforts make the world a better place to live. Another survey conducted with the participation of high school students in 1994 by Potts and Martins suggests that youngsters think that scientists are essential, brilliant and dedicated people and science is a source of unlimited power (Nisbet, Scheufele, Shanahan, Moy, Brossard, & Lewenstein, 2002).

Science and Engineering Indicators 2008 Report also strikes into this subject: "In 2006, more than half of Americans said that the benefits of scientific research have strongly outweighed the harmful results, and only 6% said the harms slightly or strongly outweighed the benefits. Other indicators yield similar results." As a result of the survey, the report states about people's tendency: "On science-related public policy issues (including global climate change, stem cell research, and genetically modified foods), Americans believe that

science leaders, compared with leaders in other sectors, are relatively knowledgeable and impartial and should be relatively influential.” (Public Attitudes and Understanding, 2008)

The current public understanding of science shapes the priorities of the leaders of society and forces them to create alternatives to conventions of popular culture which offers a variety of science and scientist images.

1.5. Primary Source of Scientific Information

Television is found to be a very powerful science learning tool for various reasons. According to Koshi Dhingra (2003), being able to incorporate emotional valence and telling stories with pictures makes television play a fundamental role for achieving complex cognitive tasks and episodic learning. Moreover, the need to revisit the material in different contexts and at different times is fulfilled by television. This need is the claim of cognitive flexibility theory. Television provides various perspectives thanks to its film techniques. Furthermore, television is accessible for the general public and can be used to reach majority of the people.

According to Science and Technology Indicators 2008 Report, television is the primary source of science and technology information for American society. The report states that this reality emphasizes the possibility that Americans are seeking brief and convenient overviews of science and technology issues. Moving to television from magazines may not be moving to a lesser quality of information (Public Attitudes and Understanding, 2008).

Following this assumption, NSF, as the major funding agency of science and technology in the US, funds popular science television programs like *Fetch! With Ruff Ruffman*, *The Elegant Universe*, *NOVA Science NOW*, *When Things Get Small*, and *Zoom* and so forth. There are 22 television series listed in the web site which benefit from government funds through NSF. At the web page, these shows are described briefly. While some have serious tongue, many other target kids and teenagers and have statements like: "What's functional, fashionable, and WAY fun?", "...real kids, real challenges, real science and an unreal animated host...", "An animated series that gives wings to the innovative idea ...", "...through an entertaining mix of science and

humor...". (Film, TV, Museums & More, n.d.)In this way, the government encourages the television producers to create television programs and shows by combining joy and information to reinforce positive image of science.

2. NARRATIVE, MYTH AND SCIENCE

2.1. Narrative

Narrative is everywhere in our lives as well as various genres in media. Roland Barthes (1966) states that, as a primal method of communication and as the expression of experience, narrative exists in all cultures and all historical terms, it is universal. He underlines the variety of narrative and its place for people:

The narratives of the world are numberless. Narrative is first and foremost a prodigious variety of genres, themselves distributed amongst different substances – as though any material were fit to receive man's stories. Able to be carried by articulated language, spoken or written, fixed or moving images, gestures, and the ordered mixture of all these substances; narrative is present in myth, legend, fable, tale, novella, epic, history, tragedy, drama, comedy, mime, painting (think of Carpaccio's Saint Ursula), stained-glass windows, cinema, comics, news items, conversation. Moreover, under this almost infinite diversity of forms, narrative is present in every age, in every place, in every society; it begins with the very history of mankind and there nowhere is nor has been a group of people without narrative. All classes, all human groups, have their narratives, enjoyment of which is very often shared

by men with different even opposing, cultural backgrounds. Caring nothing for the division between good and bad literature, narrative is international, transhistorical, transcultural: it is simply there, like life itself. (As cited in Mcquillan, 2000, p.2)

In general, people go to a movie theatre to see a narrative film, with some expectations and assumptions in their mind. For instance, there will be interacting characters and actions. Series of incidents will be connected; some problems or conflicts will be solved. Watching a film will be a dynamic activity for spectators; the film will be summoning up curiosity, suspense and surprise. At the end, some final state will be achieved. Either these problems and conflicts will be resolved or at least a new light will be cast. The ending will satisfy or cheat estimations (Bordwell & Thompson, 1993).

The agents of cause and effect, the basic elements of narrative, are generally characters. Supernatural and natural causes and effects may occur as well (Bordwell & Thompson, 1993). In Aristotelian narrative form, chronological events in the storyline has the priority for cause and effect

chain. This approach is common for most of classic Hollywood movies; storyline dominates everything else for cause and effect relationship (Chandler, 2002).

Narration is a description of how stories are told and how selection and arrangement of their material is done in order to achieve particular effects (Branston & Stafford, 1996). Bordwell and Thompson (1993) define narrative as follows: "A chain of events in cause-effect relationship occurring in time and space" (p.65). A certain distinction is made between story – the events of the story – and plot – the way these events are told – in classical narratology. Story (or *fibula*) is defined by Bordwell and Thompson (1993) as: "The set of all events in a narrative, both the ones explicitly presented and those the viewer infers, composes the story" (p.66). Their definition of plot (or *syuzhet*) is "Everything visibly and audibly present in the film before us. The plot includes all the story events that are directly depicted and material that is extraneous to the story world" (p.67). Even if these two components of the narrative are vital, it is insufficient to make analysis with only story and plot. By considering the hierarchy of instances,

unfolding the story, and considering implicit vertical axis where stories are constructed on are required for reading a narrative (Mcquillan, 2000).

As a major interdisciplinary field, Narrative Theory (or narratology) is not necessarily framed within a semiotic perspective, but also tends to work on minimal components of narrative (Chandler, 2002). Depending on the assumptions and purposes of the analysis, there are more than one way to name and group elements of narrative (Martin, 1986).

Russian formalist Vladimir Propp introduced a tradition. By examining hundreds of folk tales, and by observing similarities, Propp offers two models in his influential book "The Morphology of the Folktale": seven character roles and thirty one functions. In his powerful method, Propp lists one sentence statements (functions) in the order of occurrence to express the content and sequence of the actions. In order to do this, he makes generalizations and ignores some exceptions. The classification of characters is as follows: villain, donor (provider), helper, princess, dispatcher, hero, and false hero. He also adds connector people

like complainers, informers and slanderers (Propp, 1968).

Propp's contribution to structural analysis has been influential for other scholars: all narratives are open to analysis and formulation (Mcquillan, 2000). Lévi-Strauss, French anthropologist, was less interested in syntagmatic relations than paradigmatic ones. In other words, he was working on a deeper level of arrangements. He thinks that, meaning making depends on binary oppositions (Branston & Stafford, 1996).

In order to express the need for taking the scope of analysis further, Barthes (1974) stresses that it is not always proper to see all stories in a single structure. Because this sometimes erases differences in between and causes to lose significant meanings (As cited in Chandler, 2002). While appreciating the contribution of Russian formalists, Barthes emphasizes the insufficiency of generalization and he thinks that a purely inductive method be applied to narratives within a genre, a period, a society is utopian; linguistics itself cannot manage such a program. Instead, he suggests that a theory is needed (As cited in Mcquillan, 2000). This point of

view is common for many other scholars. Such analysis that follows a reductive strategy, by definition, generalizes not only the structures but also the meanings. It is not always proper to associate a mainstream Hollywood movie or a novel from 21st century with Russian folk tales which make them indistinguishable (Chandler, 2002).

To sum up, in order to make an effective narrative analysis, one should be careful about overgeneralization and question and analyze meanings embedded in the text.

2.2. Science in Narrative Form

In addition to myths, legends, fables, tales, novellas, cinema and other genres that Barthes (1966) mentions; science is also unthinkable without narrative. According to Roald Hoffmann (2005), science and stories are inseparable and compatible. Storytelling is not only for literature, mathematics or physics can be thought in a story. In scientific process there is much about narratives. For instance, hypotheses are tested in paradigmatic science and they look like competing narratives. It is the person to decide what to do in scientific process. Roald Hoffmann (2005) says: "Yes, there are

facts to begin with, facts to build on. But facts are mute. They generate neither the desire to understand, nor appeals for the patronage that science requires, nor the judgment to do A instead of B, nor the will to overcome a seemingly insuperable failure" (p. 308). Story of science is built by human beings. Experiments are seen as more appropriate for storytelling with its natural chronology and an overcoming of obstacles. According to Hoffman, theories also have stories. In the beginning, ideas, models and governing equations are introduced and there is a puzzle to solve. In the development phase, there are consequences of one's approach. And finally, the results occur (Hoffmann, 2005).

Telling a scientific study or theory in a story form to an audience is generally used for the sake of simplicity. By doing this, the author constructs an aesthetic of the complicated and delights in the telling of the story. Storytelling is a joy for him or her. Great scientific discoveries and other scientific phenomena like evolution, Fermat's theorem, and continental drift are told in their stories. These scientific stories have the hallmarks of narratives that literary scholars observe:

temporality, causation, and human interest; the story begins with a peaceful situation, then disequilibrium occurs, and finally resolution comes. In science, like in a literary story, everything has a reason and scientific stories attract people's attention. In this way, reports of curious exploration are clothed with a fabric of narrative. Telling or writing a story of scientific discovery means forming a bond with literature and myth. However this myth is quite different than the myths told in folk tales. Since people seek reliable knowledge about science, every category of folktale may not fit to a science story. Hoffman (2000) underlines the importance of stories for a scientist: "A world without stories is fundamentally inhuman. It is a world where nothing is imagined. Could a chemist be creative in such a world?" (p.310)

According to Burr (1995), narratives are fundamental features of the human drive to make meaning. Some scholars argue that human beings experience their lives by telling stories in narrative terms (As cited in Chandler, 2002). Literarily or pedagogically, narratives are constructed in order to express an information or knowledge, and make

them unforgettable and understandable. Walter Benjamin makes a comparison between information and story in this sense:

The value of information does not survive the moment when it was new. It lives only at that moment; it has to surrender to it completely and explain itself to it without losing any time. A story is different. It does not expend itself. It preserves and concentrates its strength and is capable of releasing it even after a long time." (As cited in Hoffmann 2000, p. 310)

In an alternative way, Jean François Lyotard, in his report *The Postmodern Condition*, declares that since knowledge is stored and exchanged by narratives as a communal method, "they thus define what has the right to be said and done in the culture in question, and since they are part of that culture, they are legitimated by the simple fact that they do what they do" (As cited in Mcquillan, 2000, p.2). The etymological root of the word "narrative" is "gnarus", which means "to know". Thus, etymologically, narrative refers to "a form of knowledge", and a narrator is "one who knows".

In the narrative structure of *MythBusters* a similar pattern is observed. The information is in a fabric of narrative. Curtis (1994) emphasizes the power of

narrative form for promoting a particular normative view of science. He says, at the same time, narrative produces a way to moralize while appearing only to describe. Morality, a much assertive purpose than just description, is an important phenomenon to debate on while analyzing the show's discourse.

For each episode of the show, two or more myths are studied in a narrative. The team makes assumptions, take expert advices, do shopping, produce prototypes, test assumptions, then produce the real experiment. The show has an omniscient narrator with over voice. Myth, as the subject of study, has its own narrative. It is sometimes a historical story, sometimes a scene from a Hollywood movie and sometimes a well known urban legend and so on. The show follows characteristic techniques that Gardner & Young (1981) lists for presenting a scientific topic in television; narrative, linear, expository and didactic styles.

In her post to a website, dated December 27th 2007, Lyle Masaki, a viewer of *MythBusters*, explains why narrative is important for her:

The thing is, even if the most fun part of *MythBusters* is the explosions, there's a lot more to the show. There's a sense of curiosity and camaraderie that lies at the core of

MythBusters. Sure, when the cameras aren't rolling they probably are looking for an excuse to have an explosion in the episode, but in each episode, the explosion is presented as the way to answer a question. The narrative of *MythBusters* starts with the question, then there's a discussion of how to answer it and then it turns out that the best way to get than answer will involve something going boom. Part of the fun of *MythBusters* is that the crew – yes, even Adam and Jaime – come off as people who enjoy working with each other (that might not be the case, but the show makes it seem that way). They crack jokes with each other and, more importantly, they discuss their plans with each other. On *MythBusters*, the narrator adds explanations for the scientific idea behind the current test with a few snarky remarks added for good measure. While *MythBusters* viewers can feel like they're learning something while being entertained. (www.crocodilecaucus.com, 2007)

This view cannot reflect overall reception of the show but just gives an idea about the role of narrative for the show. Just like many other viewer comments on the Internet, she mentions about excitement, humor, curiosity, storytelling, and characters, very similar elements of narrative films watched at theatres. Characters and excitement motives in the narrative are mentioned in addition to the flow of the actions.

Detective stories are good examples for both representation of science in narrative and demonstration of story and plot. For instance, in a story that begins with a murder that has been committed, the effect is known but not the causes. The viewer becomes curious and desires to know prior events: what happened before the plot begins? The detective is in charge to investigate the missing causes. For a detective film, the climax of the plot is a revelation of prior incidents in the story that happened before and viewer does not see (Bordwell & Thompson, 1993).

The traditional narrative has three main parts: beginning, middle and end. In the beginning, anything is possible. As the story moves along, things become more probable. The story limits itself and the last choice becomes inevitable. Maugham states that, this type of story should have completeness so that no more questions can be asked at the end. A scientific story begins with unanswered questions and ends with unquestioned answers. If the detected hypothesis is true, it is verified through a concentrated study of its implications. In the mass media, the stories, fables, myths which are typical parts of popular

science, the most usual examples are detective trail narratives. Roger Silverstone says that, the detective story is recognized as a major form in popular science by many people. He explains why science is the subject of heroic tales and mythic fantasies by emphasizing being benevolent. It is still interesting that the detective story, specifically, is so frequently chosen (Curtis, 1994).

Ellen Harrington (2007) analyses CSI, a drama about a team of forensic investigators who examine the evidence to solve crime cases in a comprehensive way. She approaches the representation of science critically by identifying some patterns in the meaning. According to her, the viewer enjoys a scientific view of the violence, while respecting professional scientist-detectives. CSI, like similar forensic science dramas, "dramatize and glorify science and technology as the premier weapon against inevitably bizarre crimes, using science to enhance the detective's ability to read a body through its traces" she says (p.377). She also mentions about the fantasies: "Detective shows in general dramatize a set of representative committed professionals who effectively maintain law and order, or internal

security, offering a fantasy of the gritty urban metropolis under control and effectively propagating the vision of America as a place that can be resecured" (p.377). She also determines emphasis on morality; the excessive violent crime is generally occurs because of a wrong individual decision. The reason is generally being lack of self-policing or internalizing American values. Furthermore, as an ideological point of view, science is shown like a religious concept that inevitably catches criminals, and like religious faith, "crime will not go unpunished, that good will prevail over evil" (p. 378).

Just like Crime Scene Investigation series, science never comes to television naked for other television programs as well. The characters and incidents in stories are constructed, although they seem to be real (Branston & Stafford, 1996).

2.3. Entertainment and Science

Robert McKee defines to be entertained as: "to be immersed in the ceremony of story to an intellectually and emotionally satisfying end... all fine films, novels, and plays, through all shades of

the comic and tragic, entertain when they give the audience a fresh model of life empowered with an alternative meaning" (p.12). Trying to prove or disprove an urban legend or a myth that is wondered by general public – and achieving in any case – by following a kind of scientific process might be an alternative view for the audience. The story is built on what people want to see, hear and learn by combining information and entertainment.

John Fiske (1989) argues that, television news is the arena of struggle between information and entertainment. According to the familiar division, he says, it is implied that, information is seen as objective, true, educational, and important. Therefore it is something good, accurate, and responsible. But information is unpopular. On the other side, entertainment is subjective, fictional, escapist, trivial, and harmful. Therefore it is something bad, compromised, and irresponsible. However, people want to watch it.

At this point, one can say that, *MythBusters* or other TV shows like French production "C'est Pas

Sorcier", other American productions like "Brainiac" and "Smash Lab" are trying to combine information and entertainment.

"Why people are watching these shows?" might be a starting question of thinking. Relevancy, popular productivity, and adaptability to everyday life are three main criteria that John Fiske (1991) lists to underlie selection process of popular discrimination. According to him, relevance, which is time and place bound, is important for something to be popular. Popular discrimination operates in the identification and selection of points of pertinence between the text and everyday life (Fiske, 1991). He states that, if there is no relevance between a text and everyday lives of its readers, they will have little motivation to read it, and less pleasure to be gained from doing so (Fiske, 1989). According to learning theory, the situation is quite similar: it is shown that people learn best when facts and theories have meaning in their personal lives (Lewenstein, 2003).

Referring Michel De Certeau, Fiske (1991) states that, consumption is an entirely different kind of production and people, as undisciplined readers of popular texts, do not confine themselves to symbolic texts, but extend throughout popular culture. Different than other popular texts, science communication articles and science news have singular meaning for many people. Jacques Rancière (2006) defines ethical regime of the images; from Platonic point of view, in this regime, the content and the purpose are important. The sensible is produced for a certain purpose; there is a message and an address. This is the educative side of the texts. Broks (2006), however, thinks that popular science generates different meanings. He refers to debates on Evolution Theory, technological utopianism, cloning and so on. These popular debates on scientific research prove the productivity of popular texts. On the other side, *MythBusters* is very different than science communication articles or science news. It is a popular TV show and has more – plot, story, characters etc. – to produce a discourse, a “myth” about science.

As the third criterion, Fiske (1991) suggests that, the media that deliver commodities have to have characteristics that are equally adaptable to the practices of everyday life. Fan groups who make hot discussions on web sites, viewers who try to do similar experiments at home and children who attend science lectures with a desire to participate the discussions after watching the show (Savage, 2008) are interested in the television program because they can adapt what they see to their daily life.

Selection of the myths is a major part of the program. For generating news, all news organizations rely on some norms. These norms include prominence and importance, human interest, conflict and controversy (more interesting than harmony), the unusual, timeliness and proximity. These norms are valid for decisions about science coverage as well (Weigold, 2001) and can be nicely matched with the criteria in the list of Fiske.

In another argument, Robert McKee (1998) tells that: "Master storytellers never explain. They do the hard, painfully creative thing, they dramatize.

Audiences are rarely interested, and certainly never convinced, then forced to listen to the discussion of ideas" (p.114). Instead of just talking and explaining, the show puts the myths to the test with several experiments. By doing this, the power of humor and visuality is used.

Reading or watching scientific experiments in a popular culture product is not something new. From *Sherlock Holmes* to *Monkey Business* people have read and seen experiments, their steps and results many times. In addition to these movies that show scientific experiments producing good results, people are also familiar with the stories like *Frankenstein* and *The Island of Moreau* in which the result is bad and unexpected. In order to increase the excitement, protagonists of the show *MythBusters* use their own bodies for experiments. Just like television shows that are being watched by many people like *Jackass*, *Wild Boys* and *Zen*. This auto-experimentation is also common and has attracted a large audience for Hollywood movies like *The Invisible Man*, *Altered States*, and *The Fly*. In addition, films like "*The Nutty Professor*" combine comedy with auto-experimentation (Van Riper, 2002).

Robert McKee (1998) states that, "cliché is at the root of audience dissatisfaction... [audience are] bored by an ending that was obvious from the beginning... seen too many times before" (p.67). He also emphasizes that; story is not about stereotypes but archetypes. Also, in a story, originality should be achieved, rather than duplication. Therefore it is not surprising that *MythBusters* seeks originality. For instance, a stereotype anti social scientist wearing white lab suit as the person who produces hypothesis or assumptions, conducts scientific experiments and tries to explain what a scientific phenomenon means in a boring way is a cliché. On the other side, people with red sneakers who joke about their own awkwardness while trying to find answers to unasked and needless questions is original.

2.4. Myth

For analyzing *MythBusters*, it is inevitable to work on the word "myth" in detail, with both its literary meaning and Roland Barthes' conception.

According to Lévi-Strauss (1972) myths of a culture are derived on oppositions of nature and culture. Myths are messages coming from forefathers about humankind and its relationship with nature. Myths of a culture, in general, produce a meaning when they are thought together. Levi Strauss, calls forms of myths as kinds of language (As cited in Chandler, 2002). Associating urban legends and unusual news reports with myths is an expansion of the comprehension of myth with its modern versions. These short stories and beliefs attract the audience's attention about whose reality they are curious. Possibly less than ancient times, myths are still parts of daily conversations. Patterns underlying the discourse of "myth" of science on *MythBusters* can only be analyzed by debating on significant actions and attributes.

"Myth" in its second meaning is a fundamental concept for discourse analysis. In his influential book *Mythologies*, Roland Barthes (1972) introduces the concept "myth" as "a type of speech", "a system of communication", "a message", "a mode of signification" and "a form" (p.109). According to Roland Barthes (1972), different than theoretical

mode of representation, it is to be dealing with a particular image with a particular signification. In mythical speech, material is already there and made suitable for communication. He tells the reason: "because all the materials of myth (whether pictorial or written) presuppose a signifying consciousness that one can reason about them while discounting their substance" (p.110). Therefore, one should take any kind of speech like a photograph or a newspaper article to have any significant meaning. He states that: "... myth in fact belongs to the province of a general science, coextensive with linguistics, which is semiology" (p.111).

Barthes describes a tri-dimensional pattern in myth: the signifier, the signified and the sign; and he emphasizes the peculiarity of myth. This semiological chain that the myth is constructed from existed before it: "it is a second order semiological system" (p.114) he says. The sign of the first system becomes a mere signifier for the second. Photography or the article that is mentioned before are reduced to a pure signifying function. For myth, they are the same raw material

and they all become a status of a language; a sum of signs as the "final term of a first semiological chain" (p.114). This is the first term for the greater system. This shift is essential for the analysis of myth.

Barthes (1972) calls the signifier of the plane of language as meaning and the signifier of the plane of myth as form. According to him, the signs of the language have already formed the signifier. As the third term, he introduces "signification". He explains the reason as: "This word is here all the better justified since myth has in fact a double function: it points out and it notifies, it makes us understand something and it imposes to us" (p.117).

Roland Barthes (1972) describes how myth works in his essay "Myth Today" as the meaning of the myth belongs to a story. The meaning postulates a kind of knowledge, a past, a memory, a comparative order of facts, ideas and so on. The meaning empties itself when it comes to form. However, the form does not suppress the meaning, but it puts it at a

distance. Meaning keeps life but loses its value. The form is able to hide and it is able to be rooted again in the meaning. "It is this constant game of hide-and-seek between the meaning and the form which defines myth" (p.118).

In order to answer the question: "How *MythBusters* produce its own myth?" one should look for a hidden form and how this form works. In order to analyze this, as Roland Barthes (1972) suggests, the text should be divided into lexias, meanings should be analyzed, and a comprehensive picture should be drawn.

In order to demonstrate his inductive method, Barthes (1981) makes a textual analysis of Poe's "Valdemar" as a case study. He suggests the following steps: 1. cutting up the text into short segments and numbering them. He calls them "lexias" as units of reading. He defines lexia as an arbitrary product in which the meaning is observed. In one single lexia only one, two or three meanings can take place. 2. Observation of the meanings involved in each lexia. By meaning, he refers to

connotation-meanings, in other words implicit ones.
3. Covering all the text step by step in order to unfold it. 4. Showing departures of meaning, not arrivals. Keeping mind that forgetting some meanings makes sense and it is a part of reading (As cited in Mcquillan, 2000).

The important point is that, Barthes emphasizes the implicit meanings involved in the text. In order to make a textual analysis, one should question its meaning by identifying codes and debating on the discourse.

Approaching science communication as a mere translation of academic language into a popular language and assuming that every scientific text has a singular meaning is inaccurate. As an opposite argument to this faulty conscious, Massimiano Bucchi (2004) stresses that any type of scientific information transfer is not a pure translation. She underlines two main ideas behind diffusionist conception of science communication: firstly, science is too complicated to be understood by majority of the people and secondly,

there is a need for mediation – translation – in between scientists and the general public. According to this conception, scientific facts need only be transported from a specialist context to a popular one. This approach belongs to the professional ideologies of two major types of actors. Mediators – popularizers, scientific journalists, etc. – legitimate their social and professional roles. On the other side, scientists are authorized to position themselves out of the process of public communication so that they can criticize errors and excesses. This complicated relationships force the media to be a kind of dirty mirror which is not able to reflect and filter facts properly (Bucchi, 2004).

Here the point is not the accuracy of the scientific information, but the produced image of science, the connotative and hidden meanings behind the story and plot. By following two level analyses, as explained by Roland Barthes, one should understand the meaning, as the first signifier, form as the second signifier and overall signification that is imposed to the audience.

In order to make an analysis of the show through a structuralist point of view, and also to make a discourse analysis that “what type of a myth” this show produce, one should look at all of the elements of the show carefully.

3. CASE STUDY: *MYTHBUSTERS*

3.1. Character and Narrative Analysis

3.1.1. Characters

Characters of the show are the driving forces. The main characters, Adam, Jamie and the Build Team are very popular. They do stage shows (AAAS Annual Meeting , 2007), and their physical appearances make them cartoon heroes (www.deviantart.com, 2007). The story starts with their curiosity, goes on with their performance and ends with their discussion.

Henry James (1888) stresses that, it is impossible to separate functions and characters in a narrative. Because they are in a reciprocal relationship in which one determines the other (As cited in Martin, 1986). Therefore, the characters are important as the executors of the actions and the main sources of the meaning produced.

Vladimir Propp (1968) classifies character types for analyzing folk tales in his influential book *Morphology of the Folktale*. Will Wright (1977) follows him and makes his own characterization for Western films. Roger Silverstone (1987) brings this approach to television science slightly in his work on the documentary "Death of the Dinosaurs". He refers to a number of character types like hero and helper for a few times in his study.

However, it is unnecessary and irrelevant to classify the characters for analyzing the narrative of *MythBusters*. The first reason is that people at this show are members of a team that perform tasks to reach the same goal. An obvious conflict or contrast cannot be observed to classify the characters with their dominant characteristics. It is possible to call Adam and Jamie as heroes and the university professor that gives technical information for the experiment as helper. However, this match does not fit nicely and is not useful to understand the phenomenon. And also, only five main characters and supporters are the subjects of discussion. This is a small number to classify and it is better to leave the characters with their names.

Although people at this show are conducting the experiments as their own personalities and working also for the backstage, they are performing tasks and speaking in a constructed way. This construction is done to produce specific meanings for the selected target group.

Jamie Hyneman and Adam Savage play the key roles and they are special effect artists. There are also three people taking role in "Build Team": Tory Belleci, Kari Byron, and Scottie Chapman or Grant Imahara. After season 2, Scottie Chapman is replaced by Grant Imahara (Meet the MythBusters, n.d.). Moreover, an omniscient narrator who tells the story with voiceover has an important role. In some episodes, scientists, experts, government officers and some other people like shopkeepers who are relevant to the subject are consulted. All the characters of the show have technical background that helps them designing and producing stuff. Their profession and experience is emphasized several times in the show to make it more credible.

The members of the show seem to be risk takers who put themselves in danger easily; being capable of

swimming with sharks and exploding stuff located closely prove their courage. Sometimes they get injured or feel pain, for instance Adam hits his head while trying the treadmill's maximum, Jamie's nose bleeds while exploring superhero myths and so on.

Different characteristics of Adam and Jamie, the protagonists of the show, create some binary oppositions. The first and major opposition is being feverish and being calm. This opposition causes the other binary oppositions listed here. Adam is more excited and energetic than Jamie who preserves calm attitude all the time; Adam is the person who gets surprised and reacts in an exaggerated way. The adventure starts with the first question that comes from Adam; he is the initiator. Jamie supports the idea and accepts to explore what Adam proposes. That talkative attitude of Adam and taciturn attitude of Jamie go on throughout the show; Adam makes long explanations and cracks jokes most of the time while Jamie listens and reacts calmly what his friend does. Jamie's reactions are generally passive; he just smiles or expresses his agreement with a short sentence. This is because Adam is playful while

Jamie is serious; Adam makes imitation of a racketeer or a prehistoric person, talks with two ping pong balls on his mouth, wears strange costumes just for fun and so on. Jamie rarely changes his costume, only if it is an obligation. He avoids making an exhibition of himself. Not surprisingly, Adam is physically more active than Jamie, that he takes more risks. Therefore the audiences usually see him in awkward situations, while they almost never see Jamie like this. The viewer also does not see Jamie doing anything quickly. On the other hand, Adam is faster and patient to achieve a goal; he keeps trying for a long time. Jamie may get bored and leave the place easily. These all oppositions are the results of the first binary opposition that is mentioned before: Adam is feverish and Jamie is calm.

Adam represents the continuous curiosity of scientists. Having an excited, energetic even childish attitude keeps scientists working on clues and asking new questions. Adam's character is also associated with joy of research and learning. On the other side, Jamie represents equanimity, tranquility and calmness that researchers have in order to keep rationality and intellectual. Talking

less and thinking more is the general attitude of Jamie.

Based on the assumption that the audiences include teenagers and young people (Average Age of MythBusters Fans, n.d.), casual wears of the characters, jokes and ridiculous situations help the viewers identify themselves with the characters of this show. Adam and Jamie have their accessories and special styles. Jamie has his beret on his head all the time. He has a big moustache, white shirt and red sneakers. Adam wears large black glasses and has goatee. Their easily noticeable appearances help them distinguish themselves from other television characters.

In order to make a scientific experiment, one is supposed to have at least the basic knowledge of the phenomenon, even if it is done for science class in a primary school. A scientist, on the other hand, is assumed to be an expert of a subject. In order to deserve the title "scientist", one takes education in a specific profession, goes on his or her career by narrowing the field of study in order to be a master of it in a dynamic scientific world. As an alternative to the idea of

science which assumes specialized scientists to spend years for a research to gain a little piece of information that will be used for welfare of the society, like Einstein does for relativity theory for eleven years (HarperCollinsEditors & Travers, 1992); *MythBusters* creates an alternative. They do this by positioning a performance activity which is done by special effect artists who knows or learns any practical information they need but excluding theoretical information which belongs to a regular scientific activity. The association between scientist and the person who conducts experiment by following principles of various branches of science with practical information is problematic as well as coding every trial and error activity as a scientific experiment. A person who has unlimited knowledge from various branches to solve various types of questions is utopian; not a part of science in real world.

Roger Silverstone (1987) defines three ways to characterize specific images of science and he discusses representation of the scientist on television under the title of anthropomorphic images. In this category, he lists different roles that a television documentary provides for

scientists: "a thinker", "a technician", "a laborer", "a demonstrator", and "an interpreter". (Silverstone, 1987, p.317) Protagonists of the *MythBusters*, are on the stage mainly with their technician, laborer and demonstrator roles for approximately 15-minutes myth exploration process. The viewer sees them producing thoughts; but mainly, observes the result of thinking process as a design, a product or a decision. Long interpretations are avoided to keep the dynamism. *MythBusters* does the science as a performance (Rivers, 2008).

Scientists – academicians and researchers– answer the questions when further information is needed. These conversations usually take place in a university campus or laboratory. The viewer rarely sees those making clever remarks, jokes or laughing at jokes. As the experimenters, non scientist protagonists know what they need and able to ask for more. From this point of view, the show strengthens the otherness of the scientist. The word "otherness" is used here in its general meaning; it is not aimed to make a philosophical discussion of the concept. As it was explained previously, "antisocial scientist" who knows the

theory and spend hours in library is a powerful image produced by popular culture.

3.1.2. Functions

The show has motifs from scientific method and scientists. In order to show the relationship between the flow of the television program and scientific method, identifying the codes of science integrated in the actions, demonstrating how humor and entertainment are positioned to create a spectacular show, it is beneficial to separate the flow into functions and examine each in detail.

One episode, Episode 23 called "Exploding House", is selected as a case study. There are two basic reasons behind this selection. Firstly, in this episode, three possible results are seen: busted, plausible and confirmed. These are the possible alternatives defined in the show. If the result is the same or similar with it is told in the myth, then it is marked as "Confirmed". Sometimes some modifications that are not part of the myth are needed to achieve the myth's results, and then the myth is marked as "Plausible". When the team proves that it is impossible to replicate the outcomes of the myth, even if they exaggerate the parameters

reasonably, they mark it as "Busted". Secondly, the myths at Episode 23 contain basic aspects of the show common with other majority of the myths and they are observable.

It is more meaningful to analyze the narrative by working on the myths, not on the episodes. The sequential activities aiming to achieve a goal are edited in the story of the myth. In one episode, one or more myths are studied in parallel.

In this study, a list of functions that describe common actions and situations for myths is prepared. Vladimir Propp (1968) lists one sentence statements as functions that describe a single action in a constant sequence for folktales. Roger Silverstone (1987) gets benefit from Propp's methodology and lists functional elements for the analysis of the documentary *Death of Dinosaurs*. He lists subtitles like: "The initial situation", "Departure", and "Main test" (p. 307).

In this study the functions are edited as one sentence statements that define an action. But their sequence is changeable. Functions are listed in the order in which they are usually observed;

the frequency of occurrence varies as well as their order.

While almost every function is observed for large scale experiments, some steps may be skipped for smaller ones. Some functions repeat; for instance, the characters may discuss with each other about the case more than one time and the narrator explains the situation very often.

The functions are selected and listed by considering their importance for the show. For instance, a function is assigned to the narrator because the voiceover is vital for the narrative. It is positioned as the second function because it is an influential time that the narrator takes role. The narrator does not change the direction of the story but his role is important for the show to achieve its goal.

The list of functions and the way *MythBusters* follows to explore a myth is quite similar to the steps of scientific method. Their attitude, discussions and looking for rational explanations with analytical approach have also traces of scientific study.

Three myths of the selected episode – Episode 23 – are studied: Bug Bomb, Talking to Plants and Finding Needle.

The list of functions is as follows:

1. Someone in the team expresses a curiosity
2. Narrator repeats and explains the case
3. The team discusses the situation
4. A demo is built
5. Experiment is designed
6. Each member gets prepared for the experiment
7. Experiment is done
8. The team discusses the result

Someone in the team expresses a curiosity

For Exploding a House Myth, the case comes from a television news report; a house exploded in San Diego because the owner of the house used too many bug bombs. This case is chosen because it is unusual; an everyday product causes an unexpected explosion that destructs a house. The *MythBusters* team decides to explore the reality of this case.

This type of extraordinary situation triggers a curiosity for most of the people for the conditions

that cause the result: What made the aerosol bog bombs explode? What is the rational explanation behind it? Many others directly believe its reality and do not wonder the reason. Some others do not give credit to such extraordinary situations and just forget them. They do because these unusual events are sometimes unreal.

Here is the most important starting point of the phenomenon: remaining indifferent to the events going on or trying to learn the rational explanation behind. The show elevates the activity of research for chasing the answer to questions in mind. This attitude of the show was discussed while interpreting the title of the show.

Science is always related with curiosity because every scientific study begins with wondering something and asking a question. Therefore the first step of scientific method is defined as "defining the question" (Crawford & Stucki, 1990). Science communication initiatives aim to trigger the scientific curiosity especially for the youngsters with the assumption that, if someone is curious about something, this makes him or her explore and learn something new. When he or she

motivates himself or herself, the desire to learn and think of the rationale takes longer. This desire is required to have an information society which is aimed by the authorities who support science communication field (Broks, 2006).

Narrator repeats and explains the case

The narrator repeats and explains the situation with the help of graphic images. In general, science programs in television use voiceover narration with animations, charts, graphs, lecturer's faces, and model demonstrations in order to guide the viewer's understanding of things and to make complex events and ideas clearer (Gollin, 1992). Roger Silverstone (1987) stresses two major reasons behind the strength of visualization for television science. According to him, the audience has a great anxiety about "talking heads". By "talking heads", he refers to static monologs given by scientists. Also, he argues that seeing is a kind of believing (Silverstone, 1987).

At this part of the plot, the show benefits also from popular culture by using interesting scenes from Hollywood movies, advertisements and so on.

For the Bug Bomb myth, some pesticide commercials are shown.

The narrator takes role very often throughout the episode. He repeats and explains the problem and the process frequently. The reason is that the television show wants the audiences understand each step. The educational purpose of the show is therefore obvious. *MythBusters* assumes that the audience is watching this show to learn something that they did not know or think about before. Otherwise, getting the information more than one time would be a boring activity that any audience of an entertainment show would not like much.

Humor is an inseparable part of all conversations at the show. For instance, the narrator's comment for the explosion is: "revenge of the ultimate cockroaches". The show benefits from entertainment to keep the audience standing in front of the television set and increase the number of people watching. This aspect of the show is observed in the comments written at the websites like www.mythbustersfanclub.com. The audience remembers the comic incidents at the plot after long time watching the show.

The team discusses the situation

The team discusses the situation from time to time. These discussions are generally a mixture of seriousness and humor like the narrators style. The main purpose of these conversations made before the experiment is to define the situation in detail, share information and determine the process to be followed throughout exploration. As the second step of a scientific study, the team gathers the information and formulates the problem statement (Crawford & Stucki, 1990). As the result of their discussions, they build hypothesis to be tested.

A demo is built

A small scale plastic house model is built to make a "miniature experiment" by Jamie for Bug Bomb myth. Four ignition source alternatives of a regular house are designed to be tried.

Demo is used to develop a methodology of the experiment; the team observes if an idea works by conducting little experiments or not. Before going to a larger scale, some trial and error practices are done for time and money savings. They create alternatives at this step in order to increase the

chance for success. Development of the methodology is the next step after forming the hypothesis (Crawford & Stucki, 1990).

Experiment is designed

The house is designed to have the same conditions of the news report; the team builds extra walls to limit the volume of the room for gaining the atmosphere needed for the predetermined amount of bug bomb gas. For Talking to Plants Myth, they create a controlled environment by using greenhouses in which other environmental condition like water and air are constant; they stabilize other variants to observe the effect of just one variable, the music. The heroes, Adam, Jamie and the Build Team, conduct all creativity required tasks.

Here in this part of the show, the importance of new idea generation and creativity in scientific process is emphasized. While producing something new like an instrument required for the experiment, members of the team think of details carefully. In order to make a mechanism work efficiently, they approach to the problem with systematical thinking.

Each member gets prepared for the experiment

The audience sometimes observes the personal preparation of the team members while they are wearing up their costumes. They wear special costumes for various purposes. They sometimes do this for safety like the protection suits that keeps Adam and Jamie from poisonous gas for the Bug Bomb myth. Technical requirement to perform a special task like diving to the sea also makes them wear up in a special way. They also wear special suits just for fun; they get dressed like *James Bond* character even if it is not an obligation for exploration myths of *James Bond* movies.

At this part of the show, the audience gets closer to the characters, because personalities are used for the sake of identification. In this way, the spectator internalizes himself / herself with the people at the show, so that the excitement is increased for especially dangerous situations.

Experiment is done

The team gets excited before doing the experiment in large scale: "Now we go to full scale!" says Adam before exploding the house. This excitement is the representation of their energy and desire to

experience the operation. They first uncap the bug bomb cans, wait till the gas diffuses and then activate different ignition sources through the control panel.

Just like most of other myths, unexpected events occur. Firstly, they forget to plug in the cable of the ignition panel. Then, the house does not explode although they created the same situation with the event in news report. Jamie says: "Blowing a house with bug bombs maybe not quite easiest as we thought." They try again with a longer burning flame and more bug bombs.

It is emphasized that the team takes possible problems into account and they are ready to do modifications; the duration, the complexity degree and the steps to be taken while doing a scientific experiment may not be anticipated correctly in the beginning.

The house explodes; the glasses are broken, the fire occurs. Every explosion is a kind of victory for them. They get so happy: "that's what I wanted to hear! That's what we were talking about." says

Adam. The staff applauds to celebrate the explosion.

The team discusses the result

At the end of each myth, the team discusses the result of the experiment and expresses the rationale behind. In scientific method, the next step after performing the experiment is analyzing and interpreting the data (Crawford & Stucki, 1990). *MythBusters* team sometimes talks with experts like university professors or governmental authorities to take support.

Adam, Jamie and Build Team evaluate the result to determine which alternative is proper: confirmed, plausible, or busted. This is the particular way of the show for drawing conclusions which is the last step of the scientific method before publishing the results (Crawford & Stucki, 1990). The team always succeeds to finish the activity by saying something. They have three alternatives that cover all possibilities. Accepting that the information is not enough to confirm or bust something is also a valid result for the show.

They decide that the Bug Bomb myth is confirmed. Differently, after Talking to Plants myth, they decide that the findings obtained with several measurements are not enough to confirm the myth. In a scientific study, one should collect sufficient proof to generalize the result and publish it (Day, 2005).

The plot of the television program is available to be connected with other classical narratives as well as scientific method. Roger Silverstone (1987) connects the form of the documentary *The Death of the Dinosaurs* with six steps of classical rhetoric. Exordium refers to the introduction of the plot. At the narratio step, the problem is presented. The third step, divisio is for dividing the situation to smaller parts to be worked on. Confirmatio or refutatio are confirming or refusing the hypothesis. The frame is closed with peroratio (Silverstone, 1987). The functions listed here also fit to be classified under the steps of classical rhetoric. The first function "Someone in the team expresses a curiosity" is an activity of exordium. The second "Narrator repeats and explains the case" is for definition and presentation of the problem and listed under narratio step. Division of the

problem into smaller problems is done at the third function "The team discusses the situation" and forms the divisio step. While building demo, designing the experiment, and conducting the experiment, a number of hypothesis are confirmed or refused. The frame is closed with the team's discussion about the results.

3.2. Ideological Analysis

3.2.1. The Title "*MythBusters*"

The title "*MythBusters*" is selected to assign originality to the television show. By the time, the word has become so familiar that "mythbusting" has been used to express any activity undertaken in order to reveal the truth. Here are some examples: "Do you believe online training is better than instructor-led training? We 'mythbust' the common thoughts on online e learning training." (Talbot, n.d.) and "Mythbust: There is no gym/studio that can provide both privacy and guidance." (Mythbust, n.d.)

The word "myth" is defined by Merriam Webster Dictionary as: "a usually traditional story of ostensibly historical events that serves to unfold

part of the world view of a people or explain a practice, belief, or natural phenomenon" and "a popular belief or tradition that has grown up around something or someone... an unfounded or false notion" (Myth, n.d.) By following the second description, the show positions myth as the opposite of fact, by asking the question at their website as: "myth or fact?" (Myth or Fact? Quizzes, n.d.) The question suggest the activity as opening the gate through finding the reality, avoiding misconceptions, cleaning the story by removing the irrational assumptions and getting the accurate knowledge hidden inside. The ideology of the show positions misconception as evil which is the opposition of general truth.

The show names this activity as "busting". The word is defined as: "to break or smash especially with force" and "to bring an end to" (Busting, n.d.). Using this verb at the title of the show brings popularity by referring to a kind of struggle, fight and competition between the researchers of the show and the myth which is coded as unreal, misunderstood and deprived of reason. Therefore the hosts of the show are doing a supreme task, looking for the ultimate universal truth that all

scientific studies seek for. They do this like the team of *Ghost Busters* who fight with ghosts, mysterious and dangerous creators. At the end of each adventure, the *Ghost Busters* team achieves to keep the evil ghost in a little case to end their existence.

MythBusters creates a binary opposition in between "to believe" and "to do research". Accepting a popular belief without questioning is not a prestigious choice; in contrast, if someone wants to reach the truth and looks for rational explanations, he or she finds the answers by only following systematic approach and scientific thinking. A modern citizen should not rely on gut feelings, which are coded as evil; but accurate knowledge is reliable, which never lies.

3.2.2. Gender

MythBusters is a male dominated show. In the first season, the male percentage of characters was 100%. Two male characters: Adam Savage and Jamie Hyneman. When the Build Team enters the show the figure decreases to 60% for 2nd season: two women and three men. Afterwards, Scottie Chapman leaves the Build Team and Grant Imahara enters. As the result

of this change, the figure increases to be 80 %: one woman and four men.

The only woman, Kari Byron posed for *FHM* magazine with her white lab coat. Her body is portrayed as a sexual object also by the show frequently. For instance, her butt was scanned to test a myth. In order to achieve an efficient scan, she wears a costume which shows her like she is naked. She wears a silver bikini and is painted in silver color by Tory and Grant for another myth. "Butt Scan", "Silver Bikini" and "FHM" videos are available through several websites including YouTube. These three videos are the top three for the entry "Kari Byron" for You Tube. "Butt Scan" video has been viewed for about 2,5 million times, "FHM" for about 600 thousand times and "Silver Bikini" for about 400 thousand times(You Tube, n.d.). Most of the entries about Kari Byron to websites are about her physical appearance, not her intelligence or talents. Those entries are generally attached with a photograph or a video of her.

The protagonists, Adam and Jamie are middle aged white males and they are the symbols of

MythBusters. The selection of the members and their roles reinforce the stereotyped image of scientist. A stereotype scientist is often described as white male characters by students of all ages (Losh, 2008). Evelyn Bowtell (1996) lists standard indicators of the stereotype scientist as: lab coat, eyeglasses, facial hair, large amounts of hair on head, symbols of research (scientific equipment, laboratory instruments), pens in the pocket and male. Mark Thomas, Tracy Henley and Catherine Snell (2006) made a Draw a Scientist Test to college students and showed that the situation is similar with elementary school students. 82 % of participants draw a male scientist. 54,5 % of the scientists were wearing lab coats.

The underlying meaning is that technical information, mechanical process and as the umbrella term "science" is associated with males. Being aware of this overriding assumption, Discovery Channel chooses heroes for several science shows and target audience as males (Discovery Channel, n.d.).

3.2.3. Scientific Process

Roger Silverstone (1987) stresses that; an exact replica of a story can never be presented on the television or in any other media. Instead, both form and content of the program – documentary – involve reification of scientific process. Otherwise they cannot be understood by the audience. The order of the actions is constructed to entertain and inform the audience. These series of events are granted the status as real and shown as if they are independent from the narration. To achieve this, some alternatives are excluded and some possibilities are rejected. The viewer is invited to place the program in an extra filmic and ideological location through a complex discourse and rhetorical strategies (Silverstone, 1987).

Nicholas Searle (2008), author of the book *Rock The Body – MythBusters* states that, *MythBusters* does three major things that are fundamental parts of the scientific process. Firstly, mistakes and surprises happen spontaneously and excitement of the process is reflected. Secondly, the viewer observe them thinking and planning. And finally, *MythBusters* build stuff. He emphasizes that plenty of thinking happens behind the scenes that

audiences are not able to see because the show is happening on television.

Some scientists complain that simplification may destroy reality. Simplification like avoidance of technical terms and decreasing the scale (of time, material etc.) is accepted as an obligation to make the phenomena understandable. However, an exaggerated simplification which David Attenborough, British discovery director, calls it as "oversimplification" is a danger that may create a false sense of understanding science (Leon, 1998).

The immediate, dynamic nature of the media is found to be insufficient by some scientists to spread scientific knowledge. It is thought that scientific work is systematic and has a profound nature which is incompatible with mass media like television that is based on haste. Television uses narrative structures which is not convenient to communicate intellectual, theoretical or technical knowledge in a detailed way. In contrast, television is good at building interesting discourses, attracting viewers' attention through practical interest and emotional appeal (Leon, 1998). Some scientists

reject the assumption that sweeping generalizations can be made about science validly. Instead of the notion of “hypothesis-test-verification/falsification” strategy of research, there are a series of “puzzle solving” techniques (Gregory & Miller, 2000).

All of the activities undertaken in order to find an answer to a research question, a myth, are summarized by post production to take about fifteen minutes for *MythBusters*. In this fifteen minutes time period, all the functions listed in the previous chapter are done with little trivial surprises. This is not oversimplification that David Attenborough warns about but a close adaptation in which only spectacular steps are chosen to be emphasized and some other fundamental steps are skipped. This compression appears to be problematic for perception of the scientific process.

3.2.4. Destruction vs. Construction

In order to analyze how myths are selected to be explored by *MythBusters*, an episode list is used. The list which summarizes 280 myths that are subjects of 114 episodes produced since the

beginning of year 2003 till the end of 2008 is studied. Special, best of and pilot episodes are excluded in order to avoid repetition. In this list, every myth is described with a question statement which is the subject of exploration (Details for Mythbusters, n.d.). A content analysis technique which suggests counting repeating words or statements to analyze a text (Stokes, 2003) is followed. In order to achieve the analysis, a significant pattern is determined; episodes frequently contain destruction activities. A list of key words which codes this pattern is prepared. The number of words starting with "explo" like explosion, explosive or explode is 30. The same activity is named as "blowing up" for 8 myths. *MythBusters* explored myth statements containing "bullet" for 22 times, "gun" for 10 times, "bomb" for 2 times and "dynamite" for 2 times. "Fire" takes place in 12 statements. "Survive", "kill" and "death" are enounced for 20 times. In total, these words take place for 107 times in the list.

Some other myth statements which involve explosions, guns, fire and other destruction techniques, do not contain such words like the following ones: "Can a machine designed by Nikola

Tesla actually create a miniature earthquake or collapse a structure?", "If a steel cable under high tension snaps, could it cut a human in half?" and "Can a cell phone cause a plane to crash?". More than two key words in the list are rarely used for one single myth sentence. Also, the destruction vehicles and techniques are rarely subjects of a non-destructive test like it is done to explore the answer of the question: "Can a room be painted with dynamite?"

Based on this information and assumptions, the data shows that more than half of the myths contain a destruction process at least once. This means that the viewers watch a destruction activity at least once when they watch an episode of *MythBusters*.

Hosts of the show accept the fact that: "*MythBusters* is best known for blowing stuff up" (Schwartz, The Best Science Show on Television?, 2006). In an interview dated 8th of April 2008, Adam Savage says they use explosions, like urban legends, to make people watch the show. Explosion is fun and the result is a guaranteed satisfying ending for him. However, he adds that, the most exciting part is not the explosion but telling the

story which is more informative. As an answer to same question, Jamie Hyneman calls explosions and weapons as “gimmicks” that make the show more interesting. He says they prefer to build things rather than destroy things (Koski, 2008).

While the two protagonists are introduced as model makers and stuff makers (Meet the MythBusters, n.d.), they are best known and remembered by their blowing up activities more than construction efforts. Over against the construction which needs passion and effortful niggling work; an immediate, easy and noisy activity, the destruction becomes prominent. The producer’s choice among these two opposite actions, which is also assumed to be the audience’s choice, produces an ideology. By positioning destruction as an inseparable part of the show, perceiving it as a joyful activity like how they do for Bug Bomb myth, *MythBusters* associates a sort of violence with scientific process.

Popular culture, as it was also stated before, codes scientists in various images including sources of destruction in both negative and positive purposes. In a mainstream movie or a

television series, general public observes "scientist detectives" or "mad scientists" in a fiction story. *MythBusters*, on the other side, approaches the phenomenon differently, by taking myths like "Can a bullet fired straight up in the air kill someone on the way back down?", popular people that children and teenagers are watching with admiration, use weapons without difficulty, destroy a dummy which represent a human being and take pleasure by seeing the dummy model destroyed. For instance, in an episode, Adam picks up the bloody head of the dead fish that they destroyed in a minute before and makes fool of the result of the explosion which is death. This kind of representation of violence is special for *MythBusters* and other similar science shows like *Brainiac* which is produced in a similar concept for the same target group. In a familiar scenario of a Hollywood movie or a novel, people with sadistic nature take pleasure after an explosion.

Destruction activities stay in the viewer's minds for long time (Harrington, 2007). This tradition is the continuation of science fiction movies, detective stories, and *Crime Scene Investigation* type television series. The viewers, whatever their

ages, are used to see guns, bombs, various types of destruction vehicles on the scene with their association of science. However, *MythBusters* has a special condition among those by three major aspects: first of all, science, scientific thinking, scientific process and any other science-related phenomena are the main focus of the show, secondly, the show is recommended to school children as an educative source, and thirdly the conductors of the scientific experiment who are not actors but exist as their own personalities take pleasure with the result, the destruction.

As an alternative to the image of science being the reason of enormous disasters that affect masses badly, the destruction power of science is exhibited as the desired end of controlled experiments in which any possible damage to people is prevented. However, destroying a structure, ending the existence of something organic or inorganic and repeating similar destruction procedures for several objects is the opposite of the idea of science which offers a combination of knowledge and technique to produce a symbolic unity which has a meaning by itself. Setting aside detective stories and science fiction, scientist in

real life figure is drawn as the person who works for public good by using several techniques and materials in especially commercials. A doctor who discovers a medicine for a desperate disease, a chemist who finds a new shampoo to make people's hair healthier, or an engineer who designs a new electronic equipment by using cutting edge technology are familiar images. All these people make various combinations and create a complex whole to serve for a better and happier life.

3.2.5. Otherness

Talking with ordinary people and surprising them with interesting questions is a regular part of the plot. For instance, Adam asks a farmer if he ever searched needles in a bay of hay and Tory asks the shopkeeper if he talks with his plants. The audience observes the reactions of those people.

Because the plot is built on an adventure, the audience gets involved in the story as part of the team. Purified from his or her usual situation, the viewer shares the same passion to learn the answer of the research question and he or she desires to watch how the experiment will be done. The audience

wants them to achieve their goal; get the material they need, prepare the ideal place for experiment, and produce the simple device they already design. He or she desires the perfect condition in order to be able to see their performance which promises fun and excitement. Under these circumstances, the man on the street, the shopkeeper, the farmer, the policeman who surprise with strange questions and watch the performance with confused look and smile in an escapade way are the subjects of the camera focus and become unusual. The man on the street is positioned as "other" by his reaction.

This "otherness" normalizes an unusual kind of curiosity and blurs the line between scientific curiosity and any other type. The subjects of the myths are chosen to create spectacular results which need technical approach; this seems to be the only criterion to differentiate a research question than the other. By considering gossip kind of claims worth to conduct research on, *MythBusters* elevates rumors as well as accurate knowledge.

Scientific curiosity is assumed to be the primary reason for a scientist to do science (HarperCollinsEditors & Travers, 1992). Any answer

found for a research question becomes the output of the scientific process and an input of another. Science develops in this continuous manner and humanity benefits from its development. Health issues attract people's attention because of their direct effect to human life. In short, according to the overriding reception, science, especially natural science has pragmatic reasons (Gregory & Miller, 2000). Far from a type of curiosity that seeks the public welfare, the primary reason of the curiosity behind the adventures of *MythBusters* is shown to be fun. One cannot say that fun is something bad or useless, however, the show does not mention about how this information might be useful for any reason; the pragmatic and continuous feature of science becomes ignored.

3.2.6. Objectivity

As it was mentioned earlier, government authorities, scientists and other policy makers support science communication efforts for various reasons. However, as it is suggested, the knowledge level of the society is not always directly proportional to positive attitudes towards science. When people know more about science, they have less reservation on it, but this is valid at a certain

level. Above some degree, criticism and hostility can be the result of greater understanding of science and its social implications (Gregory & Miller, 2000).

Interestingly, this finding of the surveys verifies the approach of the show *MythBusters* in which scientific discourse is decreased to a practical level that involves necessary skills and information required in daily life. The show seeks for participating individuals; however, politically critical approach is absent. *MythBusters* emphasizes accurate knowledge of positive sciences which is a perfect match with what the government asks the communicators and teachers to do.

AAAS initiated *Project 2061* in 1985 to help science education through a set of tools for teachers. *Benchmarks of Scientific Literacy*, a publication of *Project 2061*, defines science as:

Science presumes that the things and events in the universe occur in consistent patterns that are comprehensible through careful, systematic study... Science also assumes that the universe is, as its name implies, a vast single system in which the basic rules are everywhere the same. Knowledge gained from studying one part of the universe is applicable to other parts. (The Nature of Science, n.d.).

The document also emphasizes the possibility of differences in science because of being a human enterprise. However the book approaches the subject of subjectivity deliberately.

In addition to the well known and widely accepted objectivity of science, it is also accepted that science can be biased because scientists, like other people, may be biased for various reasons like personal and community interests. They may not be thinkable without passions (Maienschein & Students, 1999). While AAAS and other institutions accept that science as a "human enterprise", how this should be communicated to people is not a simple subject. If science communication efforts aim to have a democratic society, than science is supposed to be located in a central place in decision making process of the society. It is worthless to code science as "transcendent" to emphasize its importance (Maienschein & Students, 1999).

Scientific television programs usually separate knowledge and technology from the process of origination, prioritization, and the moral values involved in the process. Being kept at the

expository level and not mentioning recent debates make the scientific decisions as inevitable rather than social choices. Over-reliance and belief in the autonomy of knowledge are particularly propagated by television. On the other side, television has the capacity to play a crucial role in the evaluation of science critically (Leon, 1998).

MythBusters aims to encourage people to talk about science. However this aim is kept limited and not sufficient to make people build critical approach. *MythBusters* does not challenge objectivity of science.

3.2.7. Audience

Science broadcasting is assumed to be a way of informal education (Lewenstein, 2003). Depending on its convention, television programs are designed to look like informative lectures, dynamic performances and so on. For any case, the viewer is assumed to be interested, deprived of knowledge and desirous to be sophisticated on a certain subject (Leon, 1998).

Discovery Channel defines its target audience as "adults with the age of 25-54, particularly men" (Discovery Channel, n.d.). While just three shows, *Lived to Well*, *The Haunting*, and *Discovery Daytime*, are listed for adult women; *Deadliest Catch*, *Dirty Jobs*, *Going Tribal*, *Roush Racing: Driver X*, *SOS: Coast Guard Rescue*, *American Chopper*, *American Hot Rod*, *Monster House*, *Monster Garage*, and *MythBusters* are listed as the shows whose target audience is defined as adult men. (Discovery Channel Format, n.d.)

Obviously, Discovery Channel does not want to take responsibility of youngsters and children's possible false conscious about science. However, according to the results of the survey that *tv.com* conducts to report the average age of *MythBusters* fans, majority of the audiences are generally children and teenagers. Depending on the results, 49 % of the fans were born in 1990's or later, 36 % in 1980's, 13 % in 1970's and 3 % before 1970's (Average Age of *MythBusters* Fans, n.d.). This result shows that *MythBusters* is a popular television show among youngsters. Furthermore, Adam Savage claims to be talented to communicate with children and he makes suggestions to teachers who

want to teach science better. He says: "Thursday mornings are productive because students see us doing hands-on science Wednesday nights on our show *MythBusters* and they want to talk about it." Adam Savage makes three major suggestions to teachers: "let students get their hands dirty... spend more money on science... celebrate mistakes" (Savage, 2008). In another article of him, where he announces his plan to "banish boring science education" he acts like a policy maker for science education and advocator of children who wishes more interesting and hands on science class (Sullivan, 2008). Discovery Channel, on the other side, supplies DVD's of the show as educational sources like *MythBusters Bacteria DVD*: "The concepts presented in each video will have students looking at science in a whole new way." (*MythBusters: Bacteria DVD*, n.d.) In short, the target audience of *MythBusters* covers school children as well as adults even if it is not announced so officially.

MythBusters take critics from scientists that they sometimes convey false information to the audience. However, their fault is ignored because as a "more important" effort, the show reflects how scientific methodology works (Koski, 2008). It is debatable

why accuracy of the information is not important for a science show which is watched for several times through internet and DVD's especially by school children. This shows that the level of knowledge is not the subject but a positive attitude towards scientific process is demanded. Adam Savage says that: "Science is a process of figuring things out via a methodical progression of gathering information, and in that regard I think *MythBusters*, while it may not be bona fide science, it is demonstrating the scientific process. That is absolutely what we strive to do, and I think at our best it's what we repeatedly succeed at doing. I will not stand by our results 100% but I will always stand by our methodology" (As cited in Searle, 2008).

In a science class a young pupil is supposed to learn theory as well as practicing. Only questioning, looking for the answer by following technical and fancy activities and ignoring theoretical responsibilities may cause "*MythBusters Effect*" on school children like "*CSI Effect*". Majority of the people watching *Crime Scene Investigation* serials are expecting more than their capacity from police and court. Because of the

utopian image of police-scientist in their mind which is capable of combining all the relevant clues together with their factious talent and knowledge; no case can be stayed unsolved and no guilty unpunished (Harrington, 2007). In a similar manner, the scientific way of *MythBusters* and similar television shows builds a controversy in between school science and television science. While school is supposed to construct a basement for various branches of science by mentioning theory as well, *MythBusters* is the only practical and mechanical implementer of some principles.

3.2.8. Constraints

In real life, science is not very “televisual”. It happens mainly in thoughts or it is usually impossible to observe. Movements of tiny atoms, large galaxies, and gas molecules happen too slowly or fast; the subjects of the movement are too big or too small to be seen. Producers therefore have to find their way to adapt scientific events to the conventions of television. Because of their movement and sound, volcanoes and explosions are nice materials for them to be visualized in a relatively easier way. Producers create computer graphics to speed up slow things, enlarge tiny

particles, and downsize planets in order to make them understandable (Gregory & Miller, 2000). Whatever they do, every scientific phenomenon is not convenient to be the subject of a television program. Producers should keep what it is to be shown simple, brief, interesting and fast. In modern science, the concepts and scientific developments are getting more complicated and it is hard to keep them understandable and fun for a lay audience. This forces the television to recreate an image of science by removing its complexity.

Another constraint of *MythBusters*, which is also caused by visibility need, is that the show rarely covers social science issues. Social sciences are ignored by many of the books and articles written about science and science communication. Authors do not mention about social sciences as much as physics or mathematics. "Science" usually refers to "natural sciences". However, *MythBusters* has an effort to enlarge this scope by testing myths with psychology content like "Does drinking alcohol make people look more attractive?" and "Does a goldfish's memory only last for 3 seconds?" However, inevitably, the show emphasizes the

natural sciences by concentrating on experiments using principles of mainly physics and chemistry.

Consumer demand also shapes the content of the show. The show has been aired since 2003 with no break and the audience's expectations are increasing; they demand more interesting, creative, and dynamic adventures. This forces the producers to seek originality and avoid repetitions in order to keep the popularity of the show.

4. CONCLUSION

The aim of this thesis was to study how the television show *MythBusters* constructs an image of science in terms of its narrative components and connotations. It is argued that, *MythBusters* portrays science as an appealing activity but its way is controversial.

The theoretical framework of science communication field and governmental support for popular science were examined in order to understand the ideology behind. Science communication is assumed to be beneficial for economical, sociological, political aspects and for scientific developments (Gregory & Miller, 2000). Science is found to be a "vital endeavor" (Maienschein & Students, 1999). In order to increase awareness of science, make people interested in science, encourage them to do science and decrease possible reservations; television programs are produced to portray science as a joyful and beneficial phenomenon.

It is argued that the title of the show reflects a very important binary opposition which lies behind the ideology of the show: to wonder or to believe without questioning. While research activities and facts are shown as prestigious, gut feelings and myths are coded as evil.

By referring to the research which proves that most of the people define male stereotype scientists (Losh, 2008), it is discussed that the characters are selected to improve the credibility.

The flow of the show is studied by defining functions in order to identify signifiers of science and debate on relations among the characters and actions. Vladimir Propp (1968)'s technique is followed for separating the basic units - functions - of the narrative. It is discussed that *MythBusters* attempts to encode science as a joyful activity. On the other side, it is argued that the show cannot reflect the real atmosphere of the scientific process because it compresses the mental study.

Because the subjects of research - myths - are selected with their potential to produce spectacular scenes; it is

discussed that *MythBusters* associates a sort of violence with scientific process and creates an alternative to the idea of science which suggests generation of symbolic unities to be used for benefits of life. Although majority of the time is spent for design and construction work; the show is remembered by its destruction activities (Schwartz, 2006). In any episode, the audience observes a destructive activity at least once.

MythBusters does not refer to the depth of knowledge and being specialist in a specific subject. By positioning scientists as people who answer questions in a static environment, the show reinforces their image as unusual and antisocial people (Nisbet, Scheufele, Shanahan, Moy, Brossard, & Lewenstein, 2002). It is suggested that, the structure of the television show causes otherness of both scientist and man on the street. This otherness normalizes an unusual kind of curiosity and blurs the line between scientific curiosity and any other type.

It is found to be problematic that *MythBusters* does not refer to critical approach to scientific issues. Although it aims to encourage the audience to act and talk, the show does not attempt to challenge the image of objective science.

There are technical constraints of the show. While trying to produce spectacular scenes and simplify phenomena to make the science “televisual”, *MythBusters* generally excludes social sciences.

Even if *Discovery Channel* announces the target audience as adults (Discovery Channel, n.d.), the show is popular among children (Average Age of MythBusters Fans, n.d.), which may cause broadly different perceptions of science.

To sum up, while showing science as an appealing activity, *MythBusters* creates a controversial image of science by supporting its objectivity and patriarchy, elevating any type of curiosity and associating it with violence.

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