

北京师范大学
研究生公共英语

Reader
for
Critical thinking
& *English essay writing*

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Unit 1: Writing is a Process¹

The writing process is usually composed of four steps: Pre-writing, writing a first draft, revising, and editing. The following is the writing process undergone by Anne on writing assignment of writing about some annoyance in everyday life.

Step 1: Pre-writing

- Freewriting
- Making a List
- Preparing a scratch outline

Freewriting: a model

There are lots of things I get annoyed by. One of them that bothers me most is people who keep complaining about everything. If you are having trouble, do something about it. Don't just keep complaining and talking. I am really annoyed by traffic. There are too many cars in our block and it's not surprising. Everyone has a car, the parents have cars and the kids have cars, and they're all coming and going all the time and often driving too fast. Speeding up and down the street. We need a speed limit sign. I am really bothered when I have to drive to the movies all the congestion along the way plus there are just so many cars there at the mall. No space even though the parking lot is huge it just fills up with cars. Movies are a bother anyway because the people can be annoying who are sitting there in the theatre with you, talking and dropping popcorn cups and acting like they are at home when they're not.

¹ Adopted from Langan (2013: 22-49). Langan, John. (2013). *College Writing Skills with Reading* (6th edition). Beijing: Foreign Language Teaching and Research Press.

Making a list: a model

Traffic is bad between my house and theater
Noisy patrons
Don't want to run into Jeremy
Hard to be on a diet
Kids running in aisles
I'm crowded into seats between strangers who push me off armrests
Not enough parking
Parking lot needs to be expanded
Too many previews
Can't pause or fast-forward as you can with a DVD
Long lines
High tickets prices
Too many temptations at snack stand
Commercials for food on the screen
Can prepare healthy snacks for myself at home
Tubs of popcorn with butter
Huge chocolate bars
Candy has always been my downfall
Movie may be sold out
People who've seen movie before talk along with actors and give away plot twists
People coughing and sneezing
Icky stuff on floor
Teenagers yelling and showing off

Preparing a scratch outline: a model

- 1 Traffic is bad between my house and theater
- 3 Noisy patrons
- ~~Don't want to run into Jeremy~~
- 2 Hard to be on a diet
- 3 Kids running in aisles
- 3 I'm crowded into seats between strangers who push me off armrests
- 1 Not enough parking
- 1 Parking lot needs to be expanded
- 1 Too many previews
- ~~Can't pause or fast forward as you can with a DVD~~
- 1 Long lines
- 1 High tickets prices
- 2 Too many temptations at snack stand
- ~~Commercials for food on the screen~~
- 2 Can prepare healthy snacks for myself at home
- 2 Tubs of popcorn with butter
- 2 Huge chocolate bars
- ~~Candy has always been my downfall~~
- 1 Movie may be sold out
- 3 People who've seen movie before talk along with actors and give away plot twists
- 3 People coughing and sneezing
- 1 Icky stuff on floor
- 3 Teenagers yelling and showing off

Step 2: Writing a first draft

Writing a first draft: a model

Even though I love movies, my friends have stopped asking me to go. There are just too many problems involved in going to movies.

There are no small theaters anymore, I have to drive fifteen minutes to a big multiplex. Because of a supermarket and restaurants, the parking lot is filled. I have to keep driving around to find a space. Then I have to stand in a long line, hoping that they do not run out of tickets. Finally, I have to pay too much money for a ticket. Putting out that much money, I should not have to deal with a floor seems coated with rubber cement. By the end of a movie, my shoes are often sealed to a mix of spilled soda, bubble gum, and other stuff.

The theater offers temptations in the form of snacks I really don't need. Like most of us I have to worry about weight gain. At home I do pretty well by simply watching what I keep in the house and not buying stuff that is bad for me. I can make do with healthy snacks because there is nothing in the house. Going to the theater is like spending my evening in a 7-eleven that's been equipped with a movie screen and there are seats which are comfortable. I try to persuade myself to just have a diet soda. The smell of popcorn soon overcomes me. My friends are as bad as I am. Chocolate bars seems to jump into your hands, I am eating enormous mouthfuls of milk duds. By the time I leave the theater I feel sick and tired of myself.

Some of the other moviegoers are the worst problem. There are teenagers who try to impress their friends in one way or another. Little kids race up and down the aisles, giggling and laughing. Adults act as if they're watching the movie at home. They talk loudly about the ages of the stars and give away the plot. Other people are dropping popcorn tubs and cups of soda crushed ice and soda on the floor. Also coughing a lot and doing other stuff-bms!

I decided one night that I was not going to be a moviegoer anymore. I joined Netflix, and I'll watch movies comfortable in my own living room.

Steps 3 and 4 : Revising and editing

*Revising and editing: a model***The Hazards of Moviegoing**

I am a movie fanatic. My friends count on me to know movie trivia (who was the pigtailed little girl in E.T.: The Extra-Terrestrial? Drew Barrymore) and to remember every big Oscar awarded since I was in grade school (Best Picture, 1994? Forrest Gump). My friends, though, have stopped asking me if I want to go out to the movies. While I love movies as much as ever, the inconvenience of going out, the temptations of the concession stand, and the behavior of some patrons are reasons for me to wait and rent the DVD.

To begin with, I just don't enjoy the general hassle of the evening. Since small local movie theaters are a thing of the past, I have to drive for fifteen minutes to get to the nearest multiplex. The parking lot is shared with several restaurants and a supermarket, so it's always jammed. I have to drive around at a snail's pace until I spt another driver backing out. Then it's time to stand in an endless line, with the constant threat that tickets for the show I want will sell out. If we do get tickets, the theater will be so crowded that I won't be able to sit with my friends, or we'll have to sit in a front row gaping up at a giant screen. I have to shell out a ridiculous amount of money—up to \$11—for a ticket. That entitles me to sit while my shoes seal themselves to a sticky floor coated with spilled soda, bubble gum, and crushed Raisinets.

Second, the theater offers tempting snacks that I really don't need. Like most of us, I have to battle an expanding waistline. At home I do pretty well by simply not buying stuff that is bad for me. I can make do with snacks like celery and carrot sticks because there is no ice cream in the freezer. Going to the theater, however, is like spending my evening in a 7-Eleven that's been equipped with a movie screen and comfortable seats. As I try to persuade myself to just have a Diet Coke, the smell of fresh popcorn dripping with butter soon overcomes me. Chocolate bars the size of small automobiles seem to jump into my hands, I risk pulling out my fillings as I chew enormous mouthfuls of Milk Dubs. By the time I leave the theater, I feel disgusted with myself. *(continued)*

Many of the other patrons are even more of a problem than the concession stand. Little kids race up and down the aisles, usually in giggling packs. Teenagers try to impress their friends by talking back to the screen, whistling, and making what they consider to be hilarious noises. Adults act as if they were at home in their own living room. They comment loudly on the ages of the stars and reveal plot twists that are supposed to be a secret until the film's end. People of all ages create distractions. They crinkle candy wrappers, stick gum on their seats, and drop popcorn tubs or cups of crushed ice and soda on the floor. They also cough and burp, squirm endlessly in their seats, file out for repeated trips to the restrooms or concession stands, and elbow me out of the armrest on either side of my seat.

After arriving home from the movies one night, I decided that I was not going to be a moviegoer anymore. I was tired of the problems involved in getting to the theatre, resisting unhealthy snacks, and dealing with the patrons. The next day, I arranged to have premium movie channels added to my cable TV service, and I also got a Netflix membership. I may now see movies a bit later than other people, but I'll be more relaxed watching box office hits in the comfort of my own living room.

Unit 2: The Basic Structure of the Traditional English Essay

Read and discuss, trying to get familiarized with the following concepts:

- The traditional English essay structure
- The thesis statement
- The supporting ideas
- The supporting details
- Transitions

Read the following essay with no indentations starting new paragraphs and try to identify the above elements.

Native American Influences on Modern U.S. culture²

Alice Oshima

When the first Europeans came to the North American continent, they encountered the completely new cultures of the Native American peoples of North America. Native Americans, who had highly developed cultures in many respects, must have been as curious about them. As always happens when two or more cultures come into contact, there was a cultural exchange. Native Americans adopted some of the Europeans' ways, and the Europeans adopted some of their ways. As a result, Native Americans have made many valuable contributions to modern U.S. culture, particularly in the areas of language, art, food, and government. First of all, Native Americans left a permanent mark on the English language. The early English-speaking settlers borrowed from several different Native American languages words for places in this new land. All across the country are cities, towns, rivers, and states with Native American names. For example, the state of Delaware, Iowa, Illinois, and Alabama are named after Native American tribes, as are the cities of Chicago, Miami, and Spokane. In addition to place names, English adopted from various Native American languages the words for animals and plants found in the Americas, Chipmunk, moose, raccoon, skunk, tobacco, and squash are just a few examples. Although the vocabulary of English is the area that shows the most Native American influence, it is not the only area of U.S. culture that has been shaped by contact with Native Americans. Art is another area of important Native American contributions. Wool rugs woven by women of the Navajo tribe in Arizona and New Mexico are highly valued works of art in the United States. Native American jewelry made from silver and turquoise is also very popular and very expensive. Especially

² Adopted from Oshima and Hogue (2006: 58-59). Oshima, Alice & Hogue, Ann. (2006). *Writing Academic English* (4th edition). NY: Pearson Education, Inc.

in the western and southwestern regions of the United States, native crafts such as pottery, leather products, and bead work can be found in many homes. Indeed, native art and handicrafts are a treasured part of U.S. culture. In addition to language and art, agriculture is another area in which Native Americans had a great and lasting influence on the peoples who arrived here from Europe, Africa, and Asia. Being skilled farmers, the Native Americans taught the first settlers to place a dead fish in a planting hole to provide fertilizer for the growing plant. Furthermore, they taught the settlers irrigation methods and crop rotation. Many of the foods people in the United States eat today were introduced to the Europeans by Native Americans. For example, corn and chocolate were unknown in Europe. Now they are staples in the U.S. diet. Finally, it may surprise some people to learn that citizens of the United States are also indebted to the native people for our form of government. The Iroquois, who were an extremely large tribe with many branches called “nations,” had developed a highly sophisticated system of government to settle disputes that arose between the various branches. Five of the nations had joined together in a confederation called “The League of the Iroquois.” Under the league, each nation was autonomous in running its own internal affairs, but the nations acted as a unit when dealing with outsiders. The league kept the Iroquois from fighting among themselves and was also valuable in diplomatic relations with other tribes. When the 13 colonies were considering what kind of government to establish after they had won their independence from Britain, someone suggested that they use a system similar to that of the League of the Iroquois. Under this system, each colony or future state would be autonomous in managing its own affairs but would join forces with the other states to deal with matters that concerned them all. This is exactly what happened. As a result, the present form of government of the United States can be traced directly back to a Native American model. In conclusion, we can easily see from these few examples the extent of Native American influence on our language, our art forms, our eating habits, and our government. The people of the United States are deeply indebted to Native Americans for their contributions to U.S. culture.

Unit 3: Thesis Statement

Write, read and discuss, focusing on the following questions:

- What is a thesis statement?
- How to write a thesis statement?

Samples for discussion come from students' in-class and out-class writing.

Unit 4: Supporting the Thesis with Supporting Ideas and Evidence (1)

Read and discuss, focusing on the following concepts:

- Thesis statement
- Supporting ideas
- The use of evidence in essay writing
- The text organization

Read the following article and try to analyze and hence critically appreciate it based on the above concepts.

Why We Should Send a Manned Mission to Mars³

By Melissa Joulwan

Mars has fascinated Earth-bound humans since prehistoric times, due to its captivating red hue and proximity to Earth. The romance of space travel and the exploration of new worlds is a major argument in favor of a manned mission to Mars. Supporters claim that exploring and colonizing the moon and Mars will give us a better understanding of our own home planet, Earth. Other supporters are motivated by feelings of national pride, saying the prestige of the United States is at stake. Still others believe that the research required by such a complex mission will help the United States retain its position as a leader in science and technology.

The success of the Apollo program in the 1960s and 1970s created a generation of astronaut heroes that inspired the nation. “In 1969, America sent men to the moon, not machines,” Ben Wattenberg said on PBS’s *Think Tank*. “[H]uman beings are exploratory creatures ... mankind needs big ideas and big projects to ennoble and inspire society. Don’t our little boys and girls need heroes and heroines to say, ‘Look at him, look at her, she’s there?’” President George W. Bush once said in an address to the nation, “Mankind is drawn to the heavens for the same reason we were once drawn to unknown lands and across the open sea. We choose to explore space because doing so improves our lives and lifts our national spirit.”

Many supporters of manned travel to Mars argue that because of its similarity to Earth, Mars offers opportunities to discover the origins of life and ways to protect the environment on Earth.

³ Adopted from Oshima and Hogue (2006: 151-152). Oshima, Alice & Hogue, Ann. (2006). *Writing Academic English* (4th edition). NY: Pearson Education, Inc.

“We cling to the hope of a neighboring planet that harbors ... at least some primitive forms of life. If Mars contains even nanobacteria—or indisputable evidence of past life of the simplest forms—this will profoundly change our conception of our place in the universe,” wrote Thomas Gangale. “If Mars is dead now, but was once alive, understanding how Mars died may give us a crucial understanding of how close we are coming to killing the Earth.”

The Mars Society [a group that supports Mars exploration] shares that opinion. In its Founding Declaration, the society wrote, “As we begin the twenty-first century, we have evidence that we are changing the Earth’s atmosphere and environment in significant ways.... Mars, the planet most like Earth, will have even more to teach us about our home world. The knowledge we gain could be key to our survival.”

Many scientists assert that the best way to attain that knowledge is with human scientists. “Robots can do a lot,” Chris Welch, a lecturer in space technology at Kingston University, told the BBC. “But having multiple trained human beings there would tell us so much more.” Dava Newman, associate professor of aeronautics at the Massachusetts Institute of Technology, agreed. “It’s risky and it’s also very costly, but there’s just so much humans can do as explorers that we don’t have any other way to accomplish.”

China, Russia, and the European Union have all announced plans to boost their space programs in coming years, including sojourns to the moon and Mars. Some people believe it’s essential to U.S. international status that the United States lead the way in space exploration. “Republican officials said conservative lawmakers who might balk at the cost [of a manned mission to Mars] are likely to be lured by the chance to extend the U.S. military supremacy in space when China is pursuing lunar probes and Russia is considering a Mars mission,” Mike Allen and Eric Pianin wrote in *The Washington Post*.

The European Space Agency (ESA) has developed a long-term plan—known as Aurora—that will use robotics to first explore low-Earth orbit and then move farther out into planetary excursions, including Mars. The ESA intends to send a rover to Mars by 2009 and a manned mission to the moon by 2024 that will “demonstrate key life support and habitation technologies as well as aspects of crew performance and adaptation.” The final step in the Aurora program is a human mission to Mars in the 2030s.

Regaining the top position in science and technology is another reason to support a Mars mission. According to *The New York Times*, the dominance the United States once had in science and innovation has declined in recent years as the number of international prizes and journal publications awarded to European and Asian researchers has increased. Jennifer Bond, vice president for international affairs for the Council on Competitiveness said, “Many other countries have realized that science and technology are key to economic growth and prosperity. They’re catching up to us.” She warned that people in the United States should not “rest on their laurels.” A poll by the Associated Press seems to

indicate that many people in the United States agree with her. Seventy-two percent of respondents in the poll deemed it important for the United States to be the “leading country in the world in the exploration of space.”

“America is not going to remain at peace, and we’re not going to remain the most prosperous nation, and we’re not going to remain a free nation unless we remain the technological leader of the world,” said Representative Dana Rohrabacher, chairman of the House Subcommittee on Space and Aeronautics, “And we will not remain the technological leader of the world unless we are the leaders in space.”

Unit 5: Supporting the Thesis with Supporting Ideas and Evidence (2)

Read and discuss, focusing on the following concepts:

- Thesis statement
- Supporting ideas
- The use of evidence in essay writing
- The text organization

Read the following article and try to analyze and hence critically appreciate it based on the above concepts.

All That Noise for Nothing⁴

By Aaron Friedman

Early next year, the New York City Council is supposed to hold a final hearing on legislation that would silence the most hated of urban noises: the car alarm. With similar measures having failed in the past, and with Mayor Michael R. Bloomberg withholding his support for the latest bill, let's hope the Council does right by the citizens it represents.

Every day, car alarms harass thousands of New Yorkers—rousing sleepers, disturbing readers, interrupting conversations and contributing to quality-of-life concerns that propel many weary residents to abandon the city for the suburbs. According to the Census Bureau, more New Yorkers are now bothered by traffic noise, including car alarms, than by any other aspect of city life, including crime or the condition of schools.

So there must be a compelling reason for us to endure all this aggravation, right? Amazingly, no. Many car manufacturers, criminologists and insurers agree that car alarms are ineffective. When the nonprofit Highway Loss Data Institute surveyed insurance-claims data from 73 million vehicles nationwide in 1997, they concluded that cars with alarms “show no overall reduction in theft losses” compared with cars without alarms.

There are two reasons they don't prevent theft. First, the vast majority of blaring sirens are false alarms, set off by passing traffic, the jostling of urban life or nothing at all. City dwellers quickly learn to disregard these cars crying wolf; a recent national survey by the Progressive Insurance Company found that fewer than 1 percent of respondents would call the police upon hearing an alarm.

⁴ Retrieved from *The New York Times*, December 11, 2003 (<http://www.nytimes.com>).

In 1992, a car alarm industry spokesman, Darrell Issa (if you know his name that's because he would later spearhead the recall of Gov. Gray Davis in California), told the New York City Council that an alarm is effective "only in areas where the sound causes the dispatch of the police or attracts the owner's attention." In New York, this just doesn't happen.

Car alarms also fail for a second reason: they are easy to disable. Most stolen cars are taken by professional car thieves, and they know how to deactivate an alarm in just a few seconds.

Perversely, alarms can encourage more crime than they prevent. The New York Police Department, in its 1994 booklet "Police Strategy No. 5," explains how alarms (which "frequently go off for no apparent reason") can shatter the sense of civility that makes a community safe. As one of the "signs that no one cares," the department wrote, car alarms "invite both further disorder and serious crime."

I've seen some of my neighbors in Washington Heights illustrate this by taking revenge on alarmed cars: puncturing tires, even throwing a toaster oven through a windshield. False alarms enrage otherwise lawful citizens, and alienate the very people car owners depend on to call the police. In other words, car alarms work about as well as fuzzy dice at deterring theft while irritating entire neighborhoods.

The best solution is to ban them, as proposed by the sponsors of the City Council legislation, John Liu and Eva Moskowitz. The Police could simply ticket or tow offending cars. This would be a great improvement over the current laws, which include limiting audible alarms to three minutes—something that has proved to be nearly impossible to enforce.

Car owners could easily comply: more than 50 car alarm installation shops throughout the city have already pledged to disable alarms at no cost, according to a survey by the Center for Automotive Security Innovation.

And there is a viable alternative. People worried about protecting their cars can buy what are called silent engine immobilizers. Many European cars and virtually every new General Motors and Ford vehicle use the technology, in which a computer chip in the ignition key communicates with the engine. Without the key, the only way to steal the car is to tow it away, something most thieves don't have the time for. In the meantime, the rest of us could finally get some sleep.

Unit 6: Supporting the Thesis with Supporting Ideas and Evidence (3)

Read and discuss, focusing on the following concepts:

- Thesis statement
- Supporting ideas
- The use of evidence in essay writing
- The text organization

Read the following article and try to analyze and it based on the above concepts.

Are Colleges Invading Their Students' Privacy?⁵

By Sophie Quinton

At Georgia State University, algorithms alert advisers when a student falls behind in class. Course-planning tools tell students the classes and majors they're likely to complete, based on the performance of other students like them. When students swipe their ID cards to attend a tutoring or financial-literacy session, the university can send attendance data to advisers and staff.

Colleges are analyzing all kinds of student data to figure out who needs extra support and when advisers and faculty should intervene. But as technology advances, and students' offline and online lives become more intertwined, data analytics—particularly, predictive analytics—may raise more ethical questions.

Georgia State started using predictive analytics in 2012. It worked with the Education Advisory Board, a for-profit consulting company, to analyze millions of past course grades and create algorithms that identify signs of academic struggle—from the obvious, like failing a class, to the not-so-obvious, such as barely passing a core class required for a major. The system is designed to predict students' likelihood of success in any major.

The university has since added financial-aid data (and is slated to add card-swipe data) to the predictive model to create a more comprehensive assessment of every student's progress. All the data analysis has reportedly helped the Atlanta university target outreach to its entire population of more than 32,000 undergraduate and graduate students, many of whom are low-income, African American, or Hispanic.

⁵ Retrieved from <http://www.theatlantic.com/education/archive/2015/04/is-big-brothers-eye-on-campus/389643/> on June, 20, 2016.

Supporters say this kind of data analysis is legal and can be performed with students' interests in mind. Timothy Renick, the vice president for enrollment management and student success at Georgia State, said the university is "resoundingly confident" that it's complying with the Family Educational Rights and Privacy Act, federal legislation that addresses the collection and use of student data in higher education. Using information to benefit students, he said, "is exactly why we have access to the data in the first place."

But the practice still raises privacy and ethics concerns, according to Joel Reidenberg, the founding academic director of Fordham University's Center on Law and Information Policy. Even when colleges collect aggregate data and scrub it of personally identifiable information, that still counts as surveillance if they use it to guide individual students, he said: "You have to do the data-mining to be able to profile the individual. And you're taking action based on the data-mined profile."

Renick said that Georgia State has considered whether students should be told that universities are mining their data. If a student were to complain, he said, the university would stop tracking them. But so far, according to Renick, the university's received nothing but positive feedback from students.

It is now routine for all kinds of websites to customize users' experiences based on data analytics. Young people have different expectations of privacy than do older generations; after all, they grew up sharing personal information on social media. "What's happening now with the university's interaction with them is not that different from what's been happening on Facebook and other places—Amazon, and so forth," Renick said.

The average college has nothing close to the analytic capacity of Facebook or Amazon. But colleges in theory could data-mine almost every aspect of a student's life. Institutions can track what students say in online class forums, who downloads the lecture notes, and how long they spend reviewing online material. Institutions can record when and where students swipe their ID cards to follow their physical movements, from the dining hall to the health center.

To engage in these practices, institutions typically build or purchase software—the [Knewton Platform](#), for example—that analyzes every keystroke a student makes to figure out his or her learning style. "The NSA has nothing on the ed tech start-up known as Knewton," *Politico* wrote earlier this year. Some of the data these learning applications collect doesn't fall under the federal government's definition of "[educational record](#)," and thus doesn't fall under laws that restrict the kind of information colleges can and cannot share with third parties.

But some experts are starting to question how this type of universal data collection could affect the educational experience. One of them is Matt Pittinsky, the technology entrepreneur who cofounded the learning-management system Blackboard and currently serves as the CEO of Parchment, another education technology company. Though Pittinsky, who also teaches sociology at Arizona State University, believes that most colleges analyze too little data (and thus fail to address completion and quality issues), he's sometimes troubled by what he hears at ed-tech conferences about the big-data movement. Last year, he even challenged a fellow panelist on comments made about the potential of universal data collection in higher ed: "I just sort of stopped and said, 'I think you're describing a state of education where every interaction a learner is having with a faculty member and with each other

[online] is tracked and used to form judgments about them, to form judgments about people like them, to form judgments about the next group of people like them."

"There's something worth talking about in that," Pittinsky said. He worries that the back and forth of classroom inquiry might be stifled if faculty and students knew every keystroke they made—even every word they spoke—was being recorded and used to make predictions about them.

Predictive tools could convince educators and students that the academic future is predetermined, in the same way that placing students into "honors" or "regular" grade-school classes can end up defining them. "What begins as the notion of pacing education to each learner's abilities at the time can very quickly become a solidified view of what someone is able to do and what someone is not able to do, with very heavy-handed direction given to them about what they then have access to," Pittinsky said.

Universities should be able to navigate privacy and ethical issues: They are, after all, packed with people who conduct research and ponder big questions for a living. With well-trained advisers and well-designed tools, predictive analytics needn't pigeonhole students into one major over another.

At the heart of the debate over predictive technology are two competing visions about the objective of a college education. Should college be a period when students can find their passion, make mistakes and learn from them? Or does that approach doom some students—particularly underrepresented students—to failure?

"What we were doing in the past wasn't working," Renick said. Under Georgia State's former, less proactive advising system, students whose parents had gone to college were fine, but first-generation students floundered. "They left with high amounts of debt and no degree," he said. "That was not an acceptable program."

Unit 7: How to deal with different views (1)—paraphrasing and summarizing

Read, practice and discuss, focusing on the following concepts:

- The skill of paraphrasing
 - The skill of summarizing
 - The use of paraphrasing in academic writing
 - The use of summarizing in academic writing
-

Unit 8: How to deal with different views (2)

Read and discuss, focusing on the following concepts:

- Thesis statement
- Supporting ideas
- Engagement of other views
- The text organization

Read the following article and try to analyze and hence critically appreciate it based on the above concepts

Why We Shouldn't Go to Mars: Someday people may walk on the planet, but not until it makes technological sense⁶

By Greg Easterbrook

“Two centuries ago, Meriwether Lewis and William Clark left St. Louis to explore the new lands acquired in the Louisiana Purchase,” George W. Bush said, announcing his desire for a program to send men and women to Mars. “They made that journey in the spirit of discovery.... America has ventured forth into space for the same reasons.”

Yet there are vital differences between Lewis and Clark's expedition and a Mars mission. First, Lewis and Clark were headed to a place amenable to life; hundreds of thousands of people were already living there. Second, Lewis and Clark were certain to discover places and things of immediate value to the new nation. Third, the Lewis and Clark venture cost next to nothing by today's standards. In 1989 NASA estimated that a people-to-Mars program could cost \$400 billion, which inflates to \$600 billion today. The Hoover Dam cost \$700 million in today's money, meaning that sending people to Mars mission may be the single most expensive non-wartime undertaking in U.S. history.

The thought of travel to Mars is exhilarating. Surely men and women will someday walk upon that planet, and surely they will make wondrous discoveries about geology and the history of the solar system, perhaps even about the very origin of life many times I have stared up at Mars in the evening sky—in the mountains, away from cities, you can almost see the red tint—and wondered what is there or was there.

⁶ Adopted from Oshima and Hogue (2006: 154-155). Oshima, Alice & Hogue, Ann. (2006). *Writing Academic English* (4th edition). NY: Pearson Education, Inc.

But the fact that a destination is tantalizing does not mean the journey makes sense, even considering the human calling to explore. And Mars as a destination for people makes absolutely no sense with current technology.

Present systems for getting from Earth's surface to low-Earth orbit are so fantastically expensive that merely launching the 1,000 tons or so of spacecraft and equipment a Mars mission would require could be accomplished only by cutting health-care benefits, education spending, or other important programs—or by raising taxes. Absent some remarkable discovery, astronauts, geologists and biologists once on Mars could do little more than analyze rocks and feel awestruck beholding the sky of another world. Yet rocks can be analyzed by automated probes without risk to human life, and at a tiny fraction of the cost of sending people.

It is interesting to note that when President Bush unveiled his proposal, he listed these recent major achievements of space exploration: pictures of the rings of Saturn and the outer planets, evidence of water on Mars and the moons of Jupiter, discovery of more than 100 planets outside our solar system, and study of the soil of Mars. All these accomplishments came from automated probes or automated space telescopes. Bush's proposal, which calls for "reprogramming" some of NASA's present budget into the Mars effort, might actually lead to a reduction in such unmanned science—the one aspect of space exploration that's working really well.

Rather than spend hundreds of billions of dollars to hurl toward Mars using current technology, why not take a decade—or two decades, or however much time is required—researching new launch systems and advanced propulsion? If new launch systems could put weight into orbit affordably, and if advanced propulsion could speed up that long, slow transit to Mars, then the dream of stepping onto the red planet might become reality. Mars will still be there when the technology is ready.

Space exploration proponents deride as lack of vision the mention of technical barriers or the insistence that needs on Earth come first. Not so. The former is rationality, the latter the setting of priorities. If Mars proponents want to raise \$600 billion privately and stage their own expedition, more power to them; many of the great expeditions of the past were privately mounted. If Mars proponents expect taxpayers to foot their bill, then they must make their case against the many other competing needs for money. And against the needs for health care, education, poverty reduction, reinforcement of the military, and reduction of the federal deficit, the case for vast expenditures to go to Mars using current technology is very weak.

The drive to explore is part of what makes us human, and exploration of the past has led to unexpected glories. Dreams must be tempered by realism, however. For the moment, going to Mars is hopelessly unrealistic.

Unit 9: How to deal with different views (3)

Read and discuss, focusing on the following concepts:

- Thesis statement
- Supporting ideas
- Counterarguments and rebuttals
- The text organization

Read the following article and try to analyze and hence critically appreciate it based on the above concepts

Why Lawrence Summers Was Wrong: Culture Rather than Biology Explains the Underrepresentation of Women in Science and Mathematics

By Jolee Christianson

In 2005, Harvard University's president, Lawrence H. Summers, gave a controversial speech that suggested that the underrepresentation of women in tenured positions in math and science departments is partly caused by biological differences. In his address, Summers proposed three hypotheses explaining why women shy away from math and science careers. First, he gave a "high-powered job hypothesis" that stated that women naturally want to start a family and therefore will not have the time or desire to commit to the high-stress workload required for research in math and science. His second hypothesis was that genetic differences between the sexes cause more males than females to have high aptitude for math and science. Lastly, he mentioned the hypothesis that women are underrepresented because of discrimination, but he dismissed discrimination as an insignificant factor. It was Summers's second hypothesis about biological differences that started a heated national debate. The academic world seems split over this nature/nurture issue. Although there is some evidence that biology plays a role in determining math ability, I argue that culture plays a much larger role, both in the way that women are socialized and in the continued existence of male discrimination against women in male-dominated fields.

Evidence supporting the role of biology in determining math ability is effectively presented by Steven Pinker (2005), a Harvard psychologist who agrees with Summers. In his article "The Science of Difference: Sex Ed," Pinker focuses extensively on Summers's argument. According to Pinker, "in many traits, men show greater variance than women, and are disproportionately found at both the low and high ends of the distribution" (p. 16). He explains that males and females have similar average

scores on math tests but that there are more males than females in the top and the bottom percentiles. This greater variance means that there are disproportionately more male than female math geniuses (and math dunces) and thus more male than female candidates for top math and science positions at major research universities. Pinker explains this greater variance through evolutionary biology: men can pass on their genes to dozens of offspring, whereas women can pass on their genes to only a few. Pinker also argues that men and women have different brain structures that result in different kinds of thinking. For example, Pinker cites research that shows that on average men are better at mental rotation of figures and mathematical word problems, while women are better remembering locations, doing mathematical calculations, reading faces, spelling, and using language. Not only do males and females think differently, but they release different hormones. Those hormones help shape gender because males release more testosterone and females more estrogen, meaning that men are more aggressive and apt to take risks, while women “are more solicitous to their children” (p. 16). One example Pinker uses to support his biological hypothesis is the case of males born with abnormal genitals and raised as females. These children have more testosterone than normal female children, and many times they show characteristically male interests and behavior. Pinker uses these cases as evidence that no matter how a child is raised, the child’s biology determines the child’s interests.

Although Pinker demonstrates that biology plays some role in determining math aptitude, he almost completely ignores the much larger role of discrimination and socialization in shaping the career paths of women. According to an editorial from *Nature Neuroscience* (“Separating,” 2005), “[t]he evidence to support [Summers’s] hypothesis of ‘innate difference’ turns out to be quite slim” (p. 253). The editorial reports that intercultural studies of the variance between boys’ and girls’ scores on math tests show significant differences between countries. For example, in Iceland girls outscore boys on math tests. The editorial also says that aptitude tests are not very good at predicting the future success of students and that the “SATs tend to underpredict female and overpredict male academic performance” (p. 253). The editorial doesn’t deny that men and women’s brains work differently, but states that the differences are too small to be blamed for the underrepresentation of women in math and science careers.

If biology doesn’t explain the low number of women choosing math and science careers, then what is the cause? Many believe the cause is culture, especially the gender roles children are taught at a very young age. One such believer is Deborah L. Rhode (1997), an attorney and social scientist who specializes in ethics and gender, law, and public policy. Rhode describes the different gender roles females and males are expected to follow from a very young age. Gender roles are portrayed in children’s books and television shows. These gender roles are represented by male characters as heroes and problem solvers, while the female characters are distressed damsels. Another example of gender roles is that only a very small number of these shows and books portray working mothers or stay-at-home fathers. Rhodes also discusses how movies and popular music, especially rap and heavy metal, encourage violence and objectify women. As girls grow up, they face more and more gender

stereotypes from toys to magazines. Parents give their boys interactive, problem-solving toys such as chemistry sets and telescopes, while girls are left with dolls. Although more organizations such as the Girl Scouts of America, who sponsor the Website (Girls Go Tech.org) are trying to interest girls in science and math and advertise careers in those fields to girls, the societal forces working against this encouragement are also still persuasive. For example, magazines for teenage girls encourage attracting male attention and the importance of looks, while being smart and successful is considered unattractive. Because adolescents face so many gender stereotypes, it is no wonder that these stereotypes shape the career paths they choose later in life. The gender roles engraved in our adolescents' minds cause discrimination against women later in life. Once women are socialized to see themselves as dependent and not as smart as males, it becomes very difficult to break away from these gender stereotypes. With gender bias so apparent in our society, it is hard for females to have high enough self-confidence to continue to compete with males in many fields.

The effect of socialization begins at a very early age. One study (Clearfield & Nelson, 2006) shows how parents unconsciously send gendered messages to their infants and toddlers. This study examined differences in mothers' speech patterns and play behaviors based on the gender of infants ranging from six months to fourteen months.

Although there was no difference in the actual play behavior of male and female infants, the researchers discovered interesting differences in the way mothers interacted with daughters versus sons. Mothers of daughters tended to ask their daughters more questions, encouraging social interaction, whereas mothers of sons were less verbal, encouraging their sons to be more independent. The researchers concluded that "the mothers in our study may have been teaching their infants about gender roles through modeling and reinforcement.... Thus girls may acquire the knowledge that they are 'supposed' to engage in higher levels of interaction with other people and display more verbal behavior than boys.... In contrast, the boys were reinforced for exploring on their own" (p. 136).

One of the strongest arguments against the biological hypothesis comes from a transgendered Stanford neurobiologist, Ben A. Barres (2006), who has been a scientist first a woman and then as a man. In his article "Does Gender Matter?" Barres states that "there is little evidence that gender differences in [mathematical] abilities exist, are innate or are even relevant to the lack of advancement of women in science" (p. 134). Barres provides much anecdotal evidence of the way women are discriminated against in this male-dominated field. Barres notes that simply putting a male name rather than a female name on an article or resume increases its perceived value. He also describes research showing that men and women do equally well in gender-blind academic competitions but that men win disproportionately in contest where gender is revealed. As Barres says, "The bar is unconsciously raised so high for women and minority candidates that few emerge as winners" (p. 134). In one study reported by Barres, women applying for a research grant needed more than twice the productivity of men in order to be considered equally competent. As a female-to-male transgendered person, Barres has personally experienced discrimination when trying to succeed in the science and math fields. When

in college, Barres was told that her boyfriend must have done her homework, and she later lost a prestigious fellowship competition to a male even though she was told her application was stronger and she had published ‘six high-impact papers,’ while the man that won published only one. Barres even notices subtle differences, such as the fact that he can now finish a sentence without being interrupted by a male.

Barres urges women to stand up publicly against discrimination. One woman he particularly admires as a strong female role model is MIT biologist Nancy Hopkins, who sued the MIT administration for discrimination based on the lesser amount of lab space allocated to female scientists. The evidence from this study was so strong that even the president of MIT publicly admitted that discrimination was a problem (p. 134). Barres wants more women to follow Hopkins’s lead. He believes that women often don’t realize they are being discriminated against because they have faith that the world is equal. Barres explains this tendency as a “denial of personal disadvantage” (p. 134). Very few women will admit to seeing or experiencing discrimination. Until discrimination and sexism are addressed, women will continue to be oppressed.

As a society, we should not accept Lawrence Summers’s hypothesis that biological differences are the reason women are not found in high-prestige tenured jobs in math and science. In fact, in another generation the gap between men and women in math and science might completely disappear. In 2003-2004, women received close to one-third of all doctorates in mathematics, up from 15 percent of doctorates in the early 1980s (“American Mathematical Society,” 2005). Although more recent data are not yet available, the signs point to a steadily increasing number of women entering the fields of math, science, and engineering. Blaming biology for the lack of women in these fields and refusing to fault our culture is taking the easy way out. Our culture can change.

References

American Mathematical Society. (2005, July 6). *Women in Mathematics: Study shows gains*. Retrieved from http://www.ams.org/news?news_id=489

Barres, B. A. “Does gender matter?” *Nature* 44.7 (2006): 133-36. Doi: 10.1038/442133a

Clearfield, M. W. and Nelson, N. M. (2006). Sex differences in mothers’ speech and play behavior with 6-, 9-, and 14-month-old infants. *Sex Role* 54.1-2: 127-137. Doi: 10.1007/s11199-005-8874-1

Pinker, S. (2005 February 14). The science of difference: Sex ed. *New Republic*. 232, 15-17.

Rhode, D. L. (1997). *Speaking of sex: The denial of gender inequality*. Cambridge, MA: Harvard University Press.

Separating science from stereotype. [Editorial]. (2005). *Nature Neuroscience* 8(3) 253. Doi: 10.1038/nn0305-253.

Summers, L. H. (2005 January 14). Remarks at NBER conference on diversifying the science and engineering workforce. Retrieved from

<http://desinintelligences.word-press.com/lawrence-h-summers-remarks-at-nber-conference/>