

Commonwealth Honors Program Middlesex Community College

How to prepare a poster board presentation?

This presentation offer suggestions on how to create a poster board as well as provides twelve poster examples from past Honors Conferences.

Please work closely with your professors as you develop your research/poster projects.

Tri-fold poster boards are supplied by the Honors Program and are available at two locations: Bedford: Commonwealth Honors Office, Building 9-107, or Lowell City Campus: 5th Floor, Admin Assist Area.

POSTER TITLE

The title reflects the purpose (thesis/research question) of your project and should inform the viewer of what will be learned from your poster presentation. Here are some title examples:

The Influence of Buddhism on Central Asian Art

The Development of Memory in Individuals with Downs-Syndrome

The Music and Culture of Byzantium

The Amazon Rainforest: Nature's Pharmacy

The Cultural Legacy of Asoka: a Buddhist Convert

Applications of the Derivative: The Maximum and Minimum

The Tri-fold Poster

What to put on the poster panels?

Use images and text that support or explain your thesis/question on each panel of the tri-fold poster. The images and text boxes must illustrate your theme as well as capture the attention of viewers. Do not overwhelm the poster with text or image boxes, but strive to create a visually inviting presentation with the objective of explaining your research project as well as attracting people to visit your poster.

When someone arrives at your poster, it is your job to engage the viewer with a lively presentation where you explain the poster and offer information and answer questions in no more than a five minute presentation.

What should you say to the viewer?

In a lively manner, explain/describe the following as part of your five minute oral presentation. It is best to rehearse this aloud before the April Conference.

- What is your thesis or research question?
- Why did you select the topic?
- What did you learn?
- What sources were used to do the research?
- What conclusions did you reach?
- What is the overall significance of your project?
- Ask the viewer(s) if they have any questions?

DOCUMENTATION

List your sources on the lower right hand corner of the poster board so that everyone can see where you collected your information. Please use the proper documentation format relevant to the academic discipline of your research project.

Proof Reading ~ The Look of the Poster Board

All the carefully selected images, important text explanations, quality source materials, and excellent oral presentations will not be impressive if you have misspellings, improper grammar/syntax, or crudely prepared materials on your poster. Any of these errors will make your poster look sloppy, so please be sure to proof read and offer a quality finished product that you and your professors will be proud to display. Thank you!

Criteria – Rubric – for Evaluating Poster Boards

1. Clarity of thesis statement/research question: did it inform the viewer about the purpose of the poster board?
2. Visual presentation of the poster: did the selection and quality of images capture the attention of the viewer and help contextualize - explain the thesis/research question?
3. Documentation and use of sources: was it clear from the poster board that you used a variety of sources to support your research project?
4. Oral presentation: was it well rehearsed and did it include an explanation of the thesis, the key points that support your project's theme, and a brief review of your conclusion?

What follows are some examples from previous Honors Poster Conferences. For more examples, please review slide shows of previous conferences available at this website.

SERGEI NIKOLAYEVICH WINOGRADSKY

- Born Sept. 1, 1868, Kiev, Russian Empire
- Died Feb. 21, 1953, Bio-Centre Robert, France
- Russian microbiologist
- proposed new methods of studying soil microorganisms (Winogradsky Columns)
- discovered the microbial agents responsible for nitrification (the oxidation of ammonium salts to nitrites and nitrites to nitrates)

WINOGRADSKY COLUMNS ILLUMINATED: THE EFFECT OF DIFFERENT LIGHT ON BACTERIA



GOAL

TO OBSERVE THE EFFECTS OF DIFFERENT LIGHT ON SELF-CONTAINED AEROBIC AND ANAEROBIC ORGANISMS

HYPOTHESIS

EACH DIFFERENT TUBE WILL EXPERIENCE DIFFERENT REACTIONS. IF THE COLUMNS ARE EXPOSED TO HARMFUL CONDITIONS, THEN THE ECOSYSTEM WILL FALL APART. THE COLUMN EXPOSED TO U.V. LIGHT SHOULD SUFFER THE WORST OF THE EFFECTS.

THE WINOGRADSKY COLUMN

AEROBIC ZONE

WATER AND OXYGEN
FROM ABOVE ARE AVAILABLE
AT ALL TIMES. MICROBIAL LIFE IS
AT ITS MOST DIVERSE.



MICROAEROBIAL ZONE
WATER OXYGEN IS LIMITED
AT ALL TIMES. MICROBIAL LIFE IS
AT ITS MOST DIVERSE.

ANAEROBIC ZONE

WATER IS OXYGEN
FREE. ANAEROBIC BACTERIA
PROLIFERATE. SULFIDE IS
PRODUCED AND AVAILABLE AT ALL
TIMES.

ORGANISMS SEEN UNDER THE MICROSCOPE

CYANOBACTERIUM



PROTISTS



OTHER ORGANISMS OBSERVED

GREEN SULFUR BACTERIA CHLOROBIUM (GENUS)



PURPLE NON-SULFUR BACTERIA RHODOSPIRILLUM (GENUS)

METHODS

1. To create Winogradsky Columns:
 - Add about 40g of "pond" mud to each of 4 test tubes.
 - Add about 2g of Calcium Sulfate and Sodium Phosphate, and 1g of cellulose to each tube and stir.
 - Add about 10mL of "pond" water.
2. Expose to light sources- Natural (control), Incandescent, Fluorescent, and Ultraviolet
3. Observe changes in color and size of layers
4. Observe content of columns under a microscope

REFERENCES

BOOKS FROM

<http://www.winogradsky.com>

RESULTS

Incandescent

- cyanobacteria and purple sulfur under the microscope in large quantities
- microbial mat formed in aerobic zone
- mat had layers clearly visible in sections

Fluorescent

- cyanobacteria and purple sulfur under the microscope in large quantities
- microbial mat layer visible but not defined

Natural Light

- cyanobacteria and purple sulfur under the microscope in small quantities
- no visible mat layer

UV Light

- cyanobacteria under the microscope
- no cyanobacteria under the microscope
- no visible mat layer

CONCLUSIONS

The results support the hypothesis that bacterial communities select the growth of the organisms, and that the column exposed to UV light suffered the most effects.

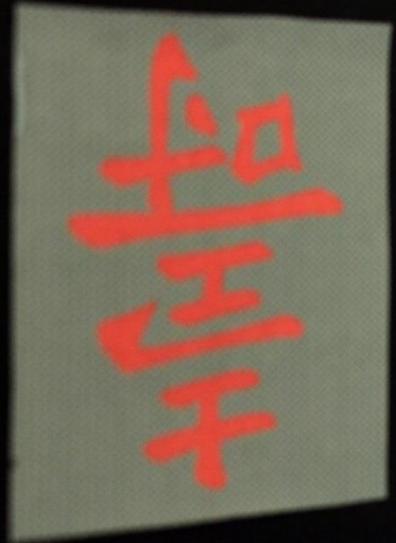
Possible factors affecting the results:
pH
Temperature
Difference in time of exposure to light



RELATIONSHIPS



The Influence of Confucianism on Eastern Asian Families



CONCLUSION

The teachings of Confucius changed the way people in Eastern Asia viewed family structure and relationships. Confucius taught that respect for elders was essential. Obedience is a characteristic that was emphasized in Confucianism. In a Confucian family the younger siblings were expected to obey any of their elders. Confucius stated that a daughter should obey her parents, a wife should obey her husband, and a widow should obey her eldest son. He allowed people to impose their views on their husbands and in turn, the husband was considered the head of the family. Confucianism focused on family relationships and how people conduct themselves in society. The social hierarchy of the roles they had within a family. The social hierarchy was based on precedence. Confucianism became popular in Eastern Asia and influenced the countries' culture. As a result, many families desired to continue their family's lineage. Confucianism focused on family relationships within a family and society.

OBEY?

Should children obey their parents whether or not children should obey their

REFLECTION

"Even though you sleep intimately in the same bed and

New research offers a compelling case for music as an innate biological function

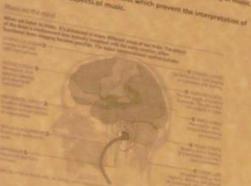
MUSIC

A Cultural Human Universal
Samuel B. Litin

The meaning conveyed by music is not necessarily culturally dependent

The Adapted Brain

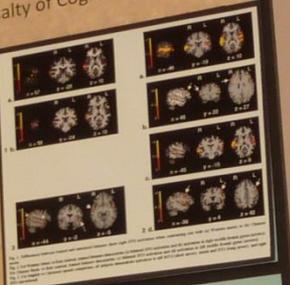
• Certain physical structures of the brain are used solely for the processing of music and not for speech or other auditory input.
• Neurological deficits, known as amusia, exist which prevent the interpretation of melody, rhythm, and other aspects of music.



Music is used throughout the world as a means of understanding, respecting, and bridging cultural differences.

Universality of Cognition

Advanced medical imaging techniques such as fMRI (functional magnetic resonance imaging) allow the activation patterns of the brain to be studied in real time as stimulus is applied. Such brain scans show that the areas of the brain of both musicians and non-musicians which were active when listening to music was the same without regard to the cultural familiarity of the subject in the area of music. This finding is particularly interesting in contrast to research that has identified differing brain activation patterns based on familiarity with a particular spoken language.



Cross-Cultural Meets Popular

Paul Simon's Grammy winning 1986 Album Graceland sold over 14 million copies, introducing the world to the music of African musicians such as Ladysmith Black Mambazo pictured below.

PAUL SIMON
GRACELAND



The popular group Baka Beyond Tunes Camero music with sounds of the Baka Rainforest Tribe of Cameroon and other influences from around the world. Going far beyond music, the group works to promote broader cultural exchange and to improve the living conditions of the Baka.

Orchestras Bring People Together

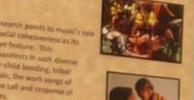
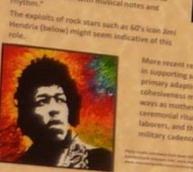
The West-Eastern Divan Orchestra brings musicians from Israel, The Palestinian Territories, and several Arab youth groups in Spain where they prepare for touring the world together. As the Orchestra's website explains: "Music grants the individual the right and obligation to express himself fully while listening to his or her neighbor."



Founded in 1987 as the American Soviet Youth Orchestra, this rotating group of musical ambassadors has played the most prestigious venues in major cities all over the world. Before embarking on their tour, each new crop of musicians spend several weeks learning about each other's language and culture.

Natural Selection

Darwin believed that music's adaptive merit lied in its role in sexual selection. "It appears probable that the propensities of man, either the male or female on both sexes, before acquiring the power of expressing their mutual love in articulate language, endeavored to charm each other with musical notes and rhythms."



More recent research points to music's role in supporting social cohesiveness as its primary adaptive feature. This cohesiveness manifests in such diverse ceremonial rituals, tribal war songs of warriors, laborers, and the call and response of military cadences.

Non-Musicians Sure Are Musical

Some of the best evidence for musical innateness is the relative musicality of non-musicians:
• Studies have documented the developmental effects that music has on fetuses and infants.
• Young children have musical ability with no training whatsoever.
• Adults may have no formal musical education, and yet are able to identify and reproduce simple melodies and rhythms.



World Music Crosses Borders

Numerous groups work to facilitate the diffusion of world music. Examples include:

- In the Boston area, the non-profit company WorldbeatUSA brings music and dance groups from all over the world to perform on Boston's stages. Since its founding in 1980, musicians from over 70 countries (literally from Afghanistan to Zimbabwe) have performed to over 1 million people.
- Based in New York with offices in 20 countries, and sales in excess of 200, the Pottery Project label has produced over a hundred world music releases. With many thematic compilations to their credit, Pottery provides the curious but unknowledgeable listener with an entrée to exploring new cultures.
- Public Radio's The World features interviews and news stories about world music on its regular feature Global MS.



Asian music in general is often considered to be among the least accessible forms to western audiences. The 12 Girls Band is a creation of the Chinese government with the specific mission of spreading Chinese music and culture around the world. Merging traditional instrumentation with western pop elements, modern production values and live appeal, the group has put China squarely on the world music stage.



Music and the Deaf



A two-time Grammy award winner, Evelyn Glennie is widely considered to be among the very best percussionists in the world. She is also profoundly deaf. Her stardom in both classical music as well as popular music spheres has brought significant awareness to the "normalcy" of deafness.



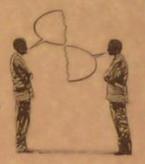
Many music festivals including the Lowell Folk Festival (right) and the Falcon Ridge Folk Festival (bottom) are ASL-interpreted so that the deaf can follow the lyrics as they "listen" to the music.

Musical Communication

A fascinating theory suggests that the power and true universality of music lies not in its ability to convey denotative meaning, but rather in its ability to do precisely that. Music is a mode of communication which "... tends to promote the likelihood of a sense of affiliation and joint action but that lacks language's potential for specificity of meaning." Music speaks through the union of three distinct dimensions of meaning:
- Culturally-embedded, the qualities attributable to a specific cultural perspective.
- Motivational-structure, the qualities emanating from biological imperatives.
- Socio-intentional, the qualities that stem from the complexities and peculiar demands of human social interaction.

These three aspects of musical communication allow for a highly subjective experience for a given listener while still bounding their interpretation of the music's intention and meaning.

A main focus of this argument is that the socio-intentional dimension reflects how human expressions in general are "... concerned as much with making mutually manifest the assumptions that underlie the act of communication - with sharing intentionality - as they are with conveying specific information."



MUSIC

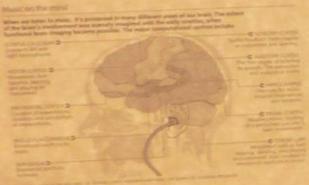
A Cultural Human Universal

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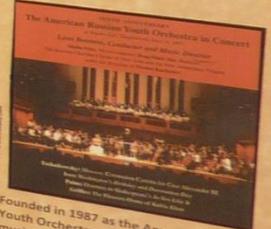
Paul Simon's Grammy-winning 1986 Album *Graceland* sold over 14 million copies, introducing the world to the music of African musicians such as Ladysmith Black Mambazo (pictured below).



The popular group Baka Beyond fuse Celtic music with sounds of Cameroon and other influences beyond the world. Going far beyond music, the group works to aid to improve the living conditions of the Baka.

Orchestras Bring People Together

The West-Eastern Divan Orchestra brings musicians from Israel, The Palestinian Territories, and several Arab countries to Spain where they prepare for touring the world together. As the Orchestra's website explains: "Music grants the individual the right and obligation to express himself fully while listening to his or her neighbor."



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World Music Crosses Borders

Non-western genres work to facilitate the diffusion of world music. Examples include:

- In the Americas, the new genre cumbia arose as a fusion of the folk music and the group dance of the north with the Batafon and the merengue of the Caribbean.
- In Europe, the new genre cumbia arose as a fusion of the folk music and the group dance of the north with the Batafon and the merengue of the Caribbean.

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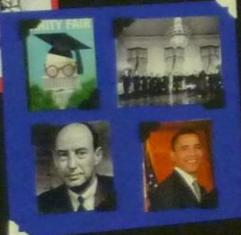
Music and the Deaf



A two-time Grammy award winner, Glennie is widely considered to be the very best as she is...

A Long History of Distrust

Since it is seldom clear whether intellectual activity denotes a superior mode of being or a vital deficiency, opinion swings between considering intellect a privilege and seeing it as a handicap. — Jacques Barzun



U S A intellectual state of America

Who are these women?

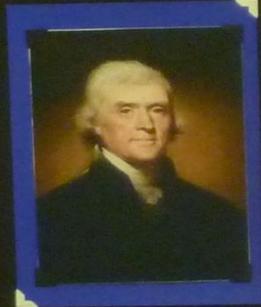


Sarah Taylor Adams
Should be honored for her noble life.



Palin
Should be censured for many worse things.

What about T.S.?



Egghead: "A person of spurious intellectual pretensions, often a professor or the protégé of a professor. Fundamentally superficial. Over-emotional and feminine in reaction to any problem. Supercilious and more sound and able men contempt for the experience of more sound and able men. Essentially confused in thought and immersed in mixture of sentimentality and violent evangelism. A doctrinaire supporter of Middle-European democracy and liberalism. Subject to the old-fashioned philosophical morality of Nietzsche which frequently leads him into jail or disgrace. A self-conscious prig, so given to examining all sides of a question that he becomes anemic bleeding heart..."



The great people of the State of Texas have decided to remove Thomas Jefferson from their children's textbooks thereby removing Jefferson's contribution to Texas' historical history. The Board of Education of the State of Texas has had the greatest wish expressed by other conservative States to follow suit. In general, America's culture heroes are lauded and some view of the country's greatest heroes to be dangerous to their lives. What does this say about our American way and should look up to, and what the purpose of American life are we?

Anti-intellectualism in America

A history of policies and attitudes toward intellectualism, in an attempt to define qualities of modern American culture

Americans are in serious intellectual trouble - in danger of losing our hard-earned cultural capital to a violent storm of anti-intellectualism, anti-intellectualism and low expectations...

The triumph of video culture over print culture (and by video, I mean every form of digital media, as well as other electronic media) is a disaster for Americans living levels of formal education and their shaky grasp of basic geography, science and history, and the future of anti-intellectualism with anti-intellectualism.

First and foremost among the victims of the new anti-intellectualism is video. The decline of book, newspaper and magazine reading is by now an old story. The decline of mass professional reading is the story, but it continues to accelerate and affect Americans of all ages and education levels.

Reading has declined not only among the poorly educated, according to a report last year by the National Endowment for the Arts. In 1982, 82 percent of college graduates read novels or poems for pleasure; two decades later, only 67 percent did. And more than 40 percent of Americans under 18 did not read a single book. (Source: *Forbes*, 1998, the volume of a year. The proportion of 17-year-olds who read nothing (titles required to do so for school) more than doubled between 1994 and 2004. This time period, of course, encompasses the rise of personal computers, Web surfing and video games." — Susan Jacoby

- 1914 - National Jefferson program funding public schools America declines for awhile...
- 1917 - Post-World War I government control/supervised public high schools open in Boston, MA
- 1920 - Child labor - National Labor Relations Act
- 1921 - Advertising Address
- 1924 - Department of Education for consolidation Office of Education (123 years after Jefferson's inauguration)
- 1926 - Address to the Board of Education
- 1928 - House of Representatives (Department for Export)
- 1930 - National Education Act (National Education Act)
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- 2019 - National Education Act (National Education Act)
- 2020 - National Education Act (National Education Act)
- 2021 - National Education Act (National Education Act)
- 2022 - National Education Act (National Education Act)

Conklushun



President Obama once said he wants everybody in hard every day, and women who go out and work trying to understate them. Oh, I understand why people can't make their children into their image...





China History and Culture

- China's philosophies have centered around the family and respect for elders.
- In earlier times, the younger generations cared for their parents and grandparents. The elderly were considered to have a connection to the ancestors and were very wise.
 - As in India, the practice of using an elder care facility has been rising, but there are still 37 percent of adult children that will and want to take care of their parents. (Hong Kong)
 - "Chinese culture has been heavily influenced by Confucian traditions, which place great emphasis on parent-child relationships" (Tang)



- The modernization of the urban Chinese culture has changed the living arrangements for the elderly
 - In 2009, about 5% of the elderly were in elder homes or nursing homes. That percent has been rising because of both partners (the elder's son and wife) are getting jobs that are full time (Tang)
 - They have had to take on more work because of the current economic stress.
 - There are 212 million people over the age of 65 in China (Spa) and not living with their children.
- The elderly are discovering self-reliance through pensions and not living with their children.
 - Pensions will cover basic living expenses and they have health insurance.
 - Without having to worry about food and shelter, elders have found new meaning in their life when given the free time to explore the world.



Caring for the elderly in India, China, and the United States of America

Socioeconomic factors are fundamental to the care of the elderly in India, China, and the United States of America.



China



India



U.S.A



United States of America History and Culture

- 1650-1850- Less than 2 percent of the population was considered elderly. They were revered for their wisdom.
- The American Revolution started a culture where the youth were more cherished than the old. This led to old age being called a disease (Fleming).
- In the 20th century, the elderly were seen as a burden on society because they could not contribute as much to medical and business advances.

- After the Great Depression, President Franklin D. Roosevelt signed the Social Security Act.
 - Safety net for poor and elderly
 - Questioning if some people deserve benefits or not
 - Some of the younger members of the population do not want to pay for the baby boomer generation. They believe that some of the money is unfair (Shvertman)
- President Lyndon B. Johnson passed the Medicaid and Medicare programs to help the elderly and poor populations.
- Poorhouses in the 1900's, provided shelter for the elderly, but since the passage of Medicare and Medicaid, nursing homes have been used to shorten hospital stays and subsequently cut costs for the government.
- 1987-Nursing homes began to have stricter regulations to insure safety
- 30 million people over the age of 65 in 2012 (CIA)



India History and Culture

- The most popular form of elderly care is living with multiple generations in one household.
 - "The quality of care depends on the family's economic capacity" (Vera-Sanso)
 - "The joint family is a healthy institution if it generates emotional links among members of different generations, but it can create social and psychological problem for elders" (Vera-Sanso)
 - Focus is on the well being of the Children.
- Only 1 percent (about 650,000) of India's elder population lives in a senior residence (Liebig).
 - Mostly in urban areas (50 percent of the 1 percent) where the husband and wife both work for the family.
 - 25 percent (of the 1 percent) each- suburban and rural
 - India does not have regulations for group homes- "HelpAge India" is an organization that have light for the rights of the elderly.



- Although senior housing has been around for over 300 years, Indians still live in a co-generational household.
 - When reaching the milestone of marrying their last child, the man gives up everything he owns (property, crops, house) and is a lot of pressure, on the elder to pass on his responsibility. There whether he is ready or not.
 - The elders stay with the family and live with less.
 - Some will get abandoned.
- The role of the household head and his wife is to 'settle' their children, by arranging their marriages and providing depends on socioeconomic position" (Vera-Sanso).
- "Unlike the United States, where 'programs for the poor' are poor programs, many of the homes for the poor people were well-constructed and well-maintained" (Liebig).

Conclusions

- Socioeconomic factors are vital to how the elderly population are treated in China, India, and the United States of America.
- The elderly should be treated in a manner that values respect and love. Elders should ideally never be an issue, but all three countries have issues with abuse, especially India. Funding, education, and good healthcare are needed to help give a voice to the silent elderly.
- Indians and Chinese have to make sure that they do not lose the connections with their parents if their time is to end here. This is part of their culture.

Reflections

I was surprised to learn that India and China were adopting some "Western" culture aspects. They have homes and day centers for the elderly to leave their active and give them a chance to get the most out of the rest of their lives. My caution would be to make sure that living in a home does not change the parent-child relationship and that the person must be best organized. This project was inspired by my grandmother who lives in a independent Living Facility. She goes to spend time with people her own age and state level local. Meals, laundry, and house cleaning are done for her and all she needs to do is relax. Finally!!



The Seattle Alter-Globalization Protests

A protest that laid the ground for Occupy Wall Street in the United States was the "alter-globalization" protests of 1999 in Seattle.

The target of the protests was the opening conference of the World Trade Organization, which was issuing rulings that would force member countries to repeal certain laws that protect the health of the public and the environment and limited the freedom of the countries to regulate foreign investors.

The mainstream media "treated protesters' concerns with indifference and often contempt." Attempts at describing the goals of the protesters were only in the vaguest of terms, "and often at a level of generalization that rendered the descriptions inaccurate or meaningless."



The Financial Crises and Bailouts of 2008

Significant civil unrest stirred in the United States as the financial institutions that tanked the economy were bailed out with taxpayer funds.

Follow the \$8.5 trillion: Breakdown of the government's rescue bank

Company	Amount
Bank of America	\$150 billion
Wells Fargo	\$150 billion
Citigroup	\$150 billion
JP Morgan Chase	\$150 billion
Other	\$100 billion



The Occupy Movement and Globalization

By Eve Lenker

OCCUPY TOGETHER HAND SIGNALS



Occupy is Deeply Democratic

- Occupy Wall Street and other occupations that have sprouted in other cities around the United States and around the world are deeply democratic — they run peoples' assemblies — a "participatory decision-making body which works towards consensus" using a system developed by the Commission for Group Dynamics in Assemblies of the Puerta del Sol Protest Camp in Madrid.
- Each Occupy branch uses the system to make decisions and to create statements that reflect the consensus opinion of the whole group.
- The General Assembly of New York City has released several living documents: "Principles of Solidarity", "Declaration of the Occupation of New York City", and their "Statement of Autonomy".

The Global Financial Crisis

By 2011, the effects financial crisis were being felt around the world.



Top: Unemployment in select developed countries, September 2010-February 2012, adjusted by the Bureau of Labor Statistics. Bottom: Unemployment in select developed countries, September 2010-February 2012, adjusted to US Concepts.

Globalization and Austerity

- Globalization comes into play as a vector of inequality as much as it goes hand in hand with neoliberal policies and ideologies.
- Governments "around the world have embraced an economic model that involves much more than opening borders to goods and services."
- In order to be hospitable to investment, global economic entities bully governments into accepting a package of "transformative political policies" that include "cutting taxes, privatizing services, liberalizing regulations, and busting unions."
- Naomi Klein suggests in her 2001 piece "Reclaiming the Commons", that vague notion of globalization into a specific debate about democracy "This is what has transpired in these long overdue uprisings."

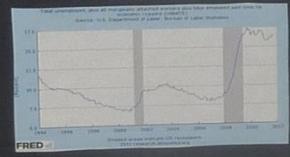
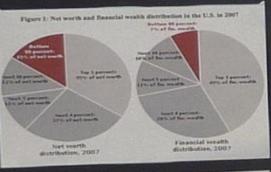
Occupy Frankfurt, Germany

In Frankfurt, the center of "Occupy Germany" activities, several thousand Occupy supporters have taken over a small park located directly in front of the European Central Bank in the German financial district.

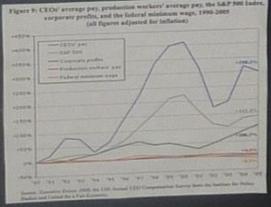
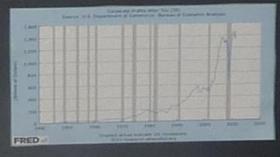
Although Germany wasn't hit as hard as other countries in the global financial crisis, they converge together in solidarity with the global occupy movement.



Why So Angry, Occupy Wall Street?



Today, it is highly visible to the public that we have a profoundly unjust system that is "careening out of control."



Spain The "Indignados"

23% unemployment rate, and 4.9 million jobless. On MAY 15th 2011, displaced Spaniards call for a day of action for people to "express their dissatisfaction with the status quo" and to "join together the complaints of society at large."



Occupy is Changing the Face of Protest

"The dynamics of protest have changed as new technologies are made available.

Social media such as Facebook, Twitter, Livestream, and Youtube have made more information available to a broad, global audience. The speed of communication with the internet allowed for word of these protests to go "viral" globally.

Occupy Wall Street, 15-M (Spain), and the alter-globalization protests were all leaderless, decentralized, and non-hierarchical. Because of their internet based organizing, these modern protests resembled a web more than a pyramid, like earlier movements, "with leaders up on top and followers down below."

A difference between the occupations, in particular Occupy Wall Street, and the Seattle protests is that Seattle chose summits as their target, which are transient in nature, only lasting a week. The summits end and so do the protests. There is no end date for Occupy Wall Street.



THE WORLD HAS SPOKEN 1,039 Occupation Events in 87 Countries

Protests in Paris, France

"They take money, we'll take the street." A French group named after the Spanish "No Democracy Now" movement said on its website. "We're being strangled by these austerity plans that are multiplying throughout Europe."



Protests in Rome, Italy

Among 7.5 million Italians, or 13% of the population, are living below Euro 5 a month.

Thousands showed up to the October 15th march in Rome, but dispersed by hundreds of police and rioted protesters who hurled rocks and bottles at the police.

Protests in Athens, Greece

Allegiance or Solidarity in Greek protesting the social cuts and taxpayer demands of their financial unemployment "ransack"

Protests began on May 5, 2010. They have resurged their solidarity with the Occupy Wall Street Movement and other protests.

Abdusters

"On September 17, we want to see 20,000 people flood into lower Manhattan to set up tents, billboards, makeshift barricades and occupy Wall Street for a few months. Once there, we shall incessantly repeat one simple demand in a diversity of voices."





APPLICATIONS OF THE DERIVATIVE

MAXIMUM AND MINIMUM



DEFINITION

In mathematics, the maximum and minimum of a function, known collectively as extrema, are the largest and smallest value that the function takes at a point either within a given neighborhood (local or relative extremum) or on the function domain in its entirety (global or absolute extremum).

• More generally, the maximum and minimum of a set (as defined in set theory) are the greatest and least element in the set. Unbounded infinite sets such as the set of real numbers have no minimum and maximum.

• To locate extreme values is the basic objective of optimization.

LEONHARD EULER

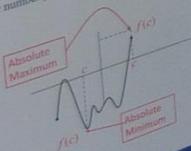


One of the first mathematicians who found and theorized applications for Maxima and Minima was Leonhard Euler. He made important discoveries in fields as diverse as infinitesimal calculus and graph theory. He also introduced much of the modern terminology and notation, particularly a mathematical analysis, such as the notion of a mathematical function. He is also renowned for his work in mechanics, fluid dynamics, optics, and astronomy.

"For since the fabric of the universe is most perfect and the work of a most wise Creator, nothing at all takes place in the universe in which some rule of maximum or minimum does not appear."

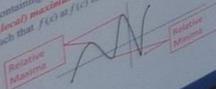
ABSOLUTE EXTREMA

A function f has an **absolute (global) maximum** at $x=c$ if $f(c) \geq f(x)$ for all x in the domain D of f . The number $f(c)$ is called the **absolute maximum** value of f in D . A function f has an **absolute (global) minimum** at $x=c$ if $f(c) \leq f(x)$ for all x in the domain D of f . The number $f(c)$ is called the **absolute minimum** value of f in D .



RELATIVE EXTREMA

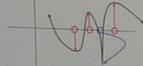
A function f has a **relative (local) minimum** at $x=c$ if there exists an open interval (r, s) containing c such that $f(c) \leq f(x)$ for all $r < x < s$. A function f has a **relative (local) maximum** at $x=c$ if there exists an open interval (r, s) containing c such that $f(c) \geq f(x)$ for all $r < x < s$.



CRITICAL POINTS OF f

A **critical number** of a function f is a number c in the domain of f such that

- $f'(c) = 0$ (stationary point)
- $f'(c)$ does not exist (singular point)



CANDIDATES FOR RELATIVE EXTREMA

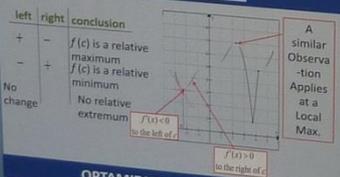
- Stationary points:** any x such that x is in the domain of f and $f'(x) = 0$.
- Singular points:** any x such that x is in the domain of f and $f'(x)$ is undefined.
- Remark:** notice that not every critical number correspond to a local maximum or local minimum. We use "local extrema" to refer to either a max or a min.

FERMAT'S THEOREM



If a function f has a local maximum or minimum at c , then c is a critical number of f . **NOTICE** that the theorem does not say that at every critical number the function has a local maximum or local minimum.

FIRST DERIVATIVE TEST



OPTIMIZATION PROBLEMS

A rectangular plot is to be bounded on one side by a straight river and enclosed on the other three sides by a fence. With 800 m of fence at your disposal, what is the largest area you can enclose?

$$x + y + x = 800 \Rightarrow 2x + y = 800 \Rightarrow y = 800 - 2x$$

$$A = xy = x(800 - 2x) = 800x - 2x^2$$

$$A' = 800 - 4x = 0 \Rightarrow x = 200$$

$$A'' = -4 < 0 \Rightarrow \text{Therefore a max}$$

$$A = 200(800 - 2(200)) = 80000$$

OPEN BOX PROBLEM

An open-top box with a square bottom and rectangular sides is to have a volume of 256 cubic inches. Find the dimensions that require the minimum amount of material.

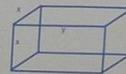
$$V = x^2y = 256 \Rightarrow y = \frac{256}{x^2}$$

$$S = x^2 + 4xy = x^2 + 4x \left(\frac{256}{x^2}\right) = x^2 + \frac{1024}{x}$$

$$S' = 2x - \frac{1024}{x^2}$$

$$0 = 2x - \frac{1024}{x^2} \Rightarrow 2x^3 = 1024 \Rightarrow x^3 = 512 \Rightarrow x = 8$$

$$y = \frac{256}{8^2} = 4$$



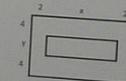
$$S'' = 2 + \frac{2048}{x^3} > 0$$

therefore a min

MARGIN PROBLEM

(calculator required) A poster is to contain 100 square inches of picture surrounded by a 4 inch margin at the top and bottom and a 2 inch margin on each side. Find the overall dimensions that will minimize the total area of the poster.

$$A(POS) = (y+8)(x+4) = 100 + 4x + 8y + 32 = 132 + 4x + 8y$$



MIN	10000
MAX	10000
MIN	10000
MAX	10000
MIN	10000
MAX	10000
MIN	10000
MAX	10000
MIN	10000
MAX	10000

$$A(PIC) = xy = 100$$

$$A(POS) = (x+4)(y+8) = 100 + 4x + 8y + 32 = 132 + 4x + 8y$$

$$y = 14.142$$

$$11.1071 \times 22.142$$

MAXIMIZING PROFIT

Suppose that the revenue of a company can be represented by the function $r(x) = 48x$, and the company's cost function is $c(x) = x^3 - 12x^2 + 60x$ where x represents thousands of units and revenue and cost are represented in thousand of dollars. What production level maximizes and what is the maximum profit to the nearest thousand.

$$P = r(x) - c(x) = 48x - (x^3 - 12x^2 + 60x) = -x^3 + 12x^2 - 12x$$

$$P' = -3x^2 + 24x - 12 = 0 \Rightarrow -3x^2 + 24x - 12 = 0 \Rightarrow x^2 - 8x + 4 = 0$$

$$x = 0.54, 7.46$$

MIN	10000
MAX	10000
MIN	10000
MAX	10000
MIN	10000
MAX	10000
MIN	10000
MAX	10000
MIN	10000
MAX	10000

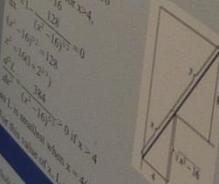
WINDOW PROBLEM

A Norman window has the outline of a semicircle on top of a rectangle as shown in the figure. Suppose there is 8 + π feet of wood trim available for all 4 sides of the rectangle and the semicircle. Find the dimensions of the rectangle (and hence the semicircle) that will maximize the area of the window.



PIPE PROBLEM

A concrete sewer pipe whose cross section is an isosceles tri-angle runs parallel to a wall. The height of the sewer is 3 ft, the width of the base of the pipe is 8 feet, and the sewer is positioned on level ground with its base 8 feet from the wall. An arc will be used to support the pipe. The arc will rest on the wall, the other end against the pipe, and touches the top of the sewer. What is the maximum length the rod can have?



CONCLUSION

ACKNOWLEDGEMENTS

BIBLIOGRAPHY

Empire of the Sword



- Seeking to expand his Maurya Empire, Asoka initiated a war of conquest against the neighboring kingdom, Kalinga
- By Asoka's own accounts on his Rock Edicts, 100,000 Kalingans died and 150,000 were deported

The Cultural Legacy of Asoka

"...more living men cherish [Asoka's] memory today than have ever heard the names of Constantine or Charlemagne" —H. G. Wells

Missionaries as a Vehicle for the Spread of Buddhism



Revelation of Grief



"Now the Beloved of the Gods regrets the conquest of Kalinga, for when an independent country is conquered people are killed, they die, or are deported, and that the Beloved of the Gods finds very painful and grievous. And this he finds even more grievous — that all the inhabitants — Brahmins, ascetics, and other sectarians, and householders who are children, servants, payees, and others, who treat his superiors, acquaintances, companions, relatives, friends, and servants with respect, and are free in their jobs — all suffer violence, murder, and separation from their loved ones."

...essing the tremendous
...struction of his war,
...eror Asoka was filled
...grief

...eaction was written in
...hiteenth Rock Edict:

Religious Conversion

...ntime I embraced
...ality out of
... convenience
... a war and only
...nd, if at all, late in



• Asoka, on the other hand, made a true conversion of the soul to Buddhism, after he had already won the war in Kalinga

• Maintaining tolerance for all of India's faiths, he nonetheless spread the philosophy of his philosophy of leadership throughout his empire through his Rock Edicts.



Shaper of the World

- Emperor Asoka's reign, 273-232 B.C.E., saw Buddhism's rise from a minor religion in northeast India to the dominant faith of the Subcontinent and beyond
- Asoka wrote his history and codified his commands on his **Rock Edicts**, spread over his expanding "conquest by Dharma"
- Asoka's name is revered in local writings throughout South and East Asia
- The largest religion in the world until the spread of Asian Communism, Buddhism now has between 500 million and 1.5 billion followers



Empire of the Dharma



- As written on his Rock Edicts, Emperor Asoka abandoned violence as a means of conquest and instead mandated "Conquest by Dharma" for all his descendants
- Asoka claimed to send missionaries to spread the word of the Buddha in all directions
- During and immediately following Asoka's reign, Buddhism spread from his capital, Pataliputra (Patna)
- It grew to cover all of India, Sri Lanka, as far west as Afghanistan and far east as Burma

Truth or Fiction?

- It is difficult to corroborate all of Asoka's proscribing claims, for example:
 - Asoka claimed to have sent missionaries to many Greek kings, but there is no evidence other than Greek carvings in Afghanistan
 - Sri Lankan writings, such as the Mahavamsa, claim Buddhism arrived through Prince Mahinda, the son of Asoka, but Asoka's Edicts make no mention of his sons serving as missionaries



Lasting Legacy



• From Sri Lanka, he Burma, to China, communities claim to have received Buddhism from Asoka or his descendants

Imperialism & Conquest Blood Exchanged for Gold

Religious Justification
How could anyone treat another human being in such a manner? In every case of imperialism and conquest, religious or the indigenous people was heralded as the grounds that they were pagan, uncivilized, or in need of "salvation."



Imperialism is a country's government sending out control over lands to strengthen the rights of its people.

Imperialist activities of the 17th through 19th centuries include:

- The conquest of the Aztec Empire by the Spanish Colon of Spain
- The conquest of the African Empire for the benefit of Britain
- The Atlantic Slave Trade
- The conquest of the Indian subcontinent by the British Empire

All of these activities involved government violence, particularly systematic extermination of indigenous people, and a constant need for resources to every man, woman and child eventually traded for monetary gain.



King Leopold II of Belgium
The Belgian colonial government was the first to be established in Africa. King Leopold II of Belgium was the first to establish a colonial empire in Africa. He was the first to establish a colonial empire in Africa. He was the first to establish a colonial empire in Africa.



Native American Reservations
From the mid-1870s to the early 1900s, Native Americans were forced to live on reservations. The government took away their land and their way of life. They were forced to live on reservations and to work for the government. This was a time of great hardship for the Native American people.



Map of the Americas showing the locations of various Native American reservations.



Manifest Destiny
The belief that the United States was destined to expand across the continent from the Atlantic to the Pacific Ocean. This belief was used to justify the acquisition of new territories and the displacement of Native American people.

Atlantic Slave Trade
Being shipped from their homes with little hope of seeing family members again. The Atlantic slave trade was the largest and most profitable trade in the history of the world. It involved the transport of millions of African people to the Americas to work on plantations and in mines.



Though slavery has been abolished, the economic system of slavery persists in the form of indentured servitude and other forms of forced labor. The economic system of slavery persists in the form of indentured servitude and other forms of forced labor.



Indentured Servitude
A system of forced labor where people were bound to work for a certain period of time in exchange for passage to a new country. This system was used by European colonial powers to exploit the labor of people from the Americas and the Caribbean.



Year	Country	Population	Area	Capital
1492	Spain	46,000,000	5,096,000	Madrid
1492	France	20,000,000	2,031,000	Paris
1492	England	5,000,000	128,000	London
1492	Portugal	2,000,000	77,000	Lisbon
1492	Italy	25,000,000	148,000	Rome
1492	Spain	46,000,000	5,096,000	Madrid
1492	France	20,000,000	2,031,000	Paris
1492	England	5,000,000	128,000	London
1492	Portugal	2,000,000	77,000	Lisbon
1492	Italy	25,000,000	148,000	Rome



The Influence of Buddhism on Wang Wei's Poetry and Art



Snow over Xian and Mountzang
(Wang Wei's reproduction of Wang Wei's original)

鹿柴
空山不見人
但聞人語響
返景入深林
復照青苔上

Thesis

Wang Wei's painting and poetry reflect his Chan Buddhist philosophy, the belief that words alone cannot adequately explain the true state of enlightenment. The natural world is the only reality; a person should live a life without deliberate effort or purpose. The influence of Chan Buddhism is exhibited in Wang Wei's sparseness of words and the minimalism of his paintings.

Deer Park

Hills empty, no one to be seen
We hear only voices echoed —
With light coming back into the deep woods
The top of the green moon is lit again
— translated by C.W. Robinson, 1997

Deer Park

In the Wang Wei poem "Deer Park" the landscape tells the story. Wang is just a silent observer of the sounds and sights of nature. In reading the words, one can visualize the shape of the mountain, hear the echo of a voice blowing through the wind, and feel the sun on the moss. His poems are calligraphy of shapes, words, and texture that are simply told in a few words.

Western translations of classical Chinese poetry can be attributed to Ezra Pound's landmark anthology *Cathay*, published in 1915. This was the first time Chinese poems had been translated into English. Since then, many others have added their interpretations of Wang Wei's poem "Deer Park."

Character by Character translation

Chinese	phonetic	English	Word	Meaning
鹿柴	lù chái	deer park	deer	park
空山	kōng shān	empty mountain	empty	mountain
不見人	bù jiàn rén	no one seen	no	see
但聞人語響	dàn wén rén yǔ xiǎng	only hear voices	only	hear
返景入深林	fǎn jǐng rù shēn lín	reflected light enters deep woods	reflect	enter
復照青苔上	fù zhào qīng tāi shàng	again shines on moss	again	shine

Deer Fence

Empty hills, moon is light,
only the sound of someone talking
late twilight enters the deep woods,
shining over the green moss again.
— translated by Burton Watson, 1987

The Deer Park

An empty hill, and no one is sight
But I hear the echo of voices
The slanting sun of evening penetrates the deep woods
And shines reflected on the blue lichens
— translated by James Hargett, 1984

The Form of the Deer

No fence where the hills there is no one to sight them
But whence is the echo of voices I hear?
The rays of the sunset pass sparing the forest,
And in their reflection green mosses appear
— translated by W. J. B. Fletcher, 1920



Development of Memory in Individuals with Down Syndrome

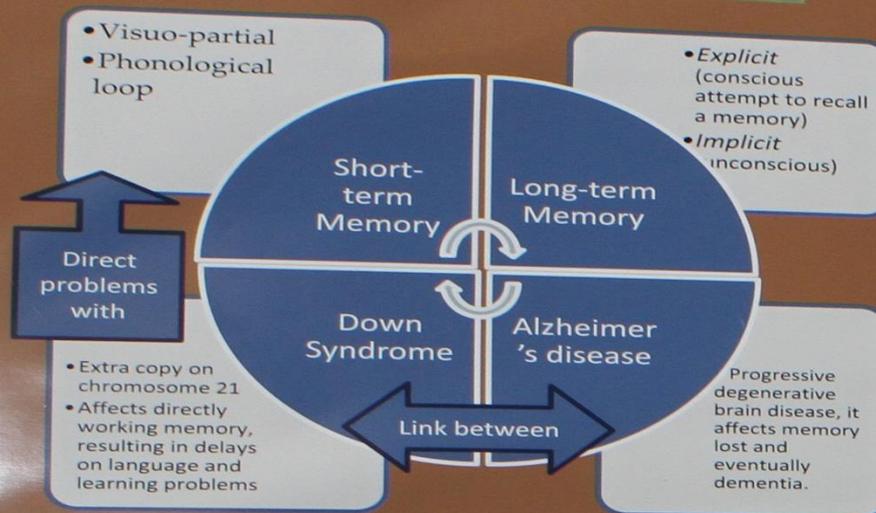
Francisca Palacios, Middlesex Community College



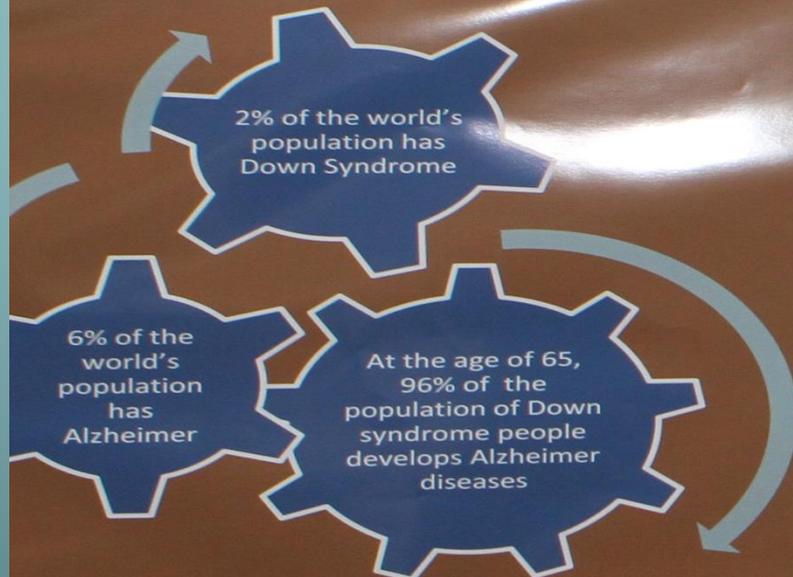
Introduction

How do we recall situations of our past? How can we grow and learn based on past experiences? How does this ability develop in people with Down syndrome?

Memory is the ability to remember situations as well as the capacity of remembering. Down Syndrome is a genetic disorder that affects directly the part of the brain that is involved with memory. Studies had shown that there is a link between Down syndrome and Alzheimer's disease, that is a type of dementia causing the degeneration of memory.

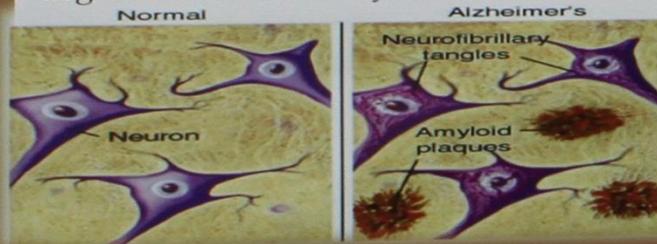


Statistics



Conclusion

Memory develops differently in down syndrome individuals because of the basic impairment in the phonological loop of the brain. The link between Alzheimer disease and Down Syndrome is that both individuals have shown a great amount of beta-amyloid plaquets in the brain which causes the degradation of memory.



EV

STRING THEORY

WHY STRING THEORY?

Because it does not include gravity, the standard model cannot describe the behavior of a black hole or the Big Bang. It cannot predict the results of some experiments. String theory can explain several patterns of particle behavior. String theory solves these problems and unifies the forces by replacing particles with minuscule vibrating strings.

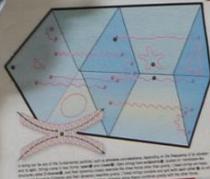
THE KEY QUESTIONS IN STRING THEORY:

What are the fundamental components of the universe?

Is there a unifying theory that can explain all physical phenomena?

SUPERSYMMETRY

Most versions of string theory require supersymmetry, the idea that for every particle of matter is a corresponding force particle, and vice versa. Next generation particle accelerators such as the large Hadron Collider at CERN in Switzerland, could discover some of these supersymmetric particles by smashing together high energy protons.



PARTICLES AND FORCES

The universe is made of two groups of tiny fundamental particles: fermions and bosons. Fermions are all observable matter while bosons transmit the four known forces in nature: electromagnetism, gravity, the strong nuclear force, and the weak nuclear force. Physicists have discovered a framework that successfully incorporates all the forces except gravity, which is curiously weaker than the other forces. Called the Standard Model, Experiments reveal it is the most accurate scientific theory ever devised.

THE BIG AND THE SMALL

In physics, the description of our universe is divided into two realms: the quantum world of the very small, and the macroscopic world where gravity reigns. String theory, attempt to unify the two domains into a single theory of everything.