



Bay Honors Consortium Honors Research Symposium 2016

Student Presenters: **Janette Bustos Barocio,
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Mentors: **Briana McCarthy & Jennifer Saito**
Los Medanos College

Invasion of the Oxygen Snatchers: The Effects of Phosphate Levels on *Elodea Canadensis* Growth.

A scientific study to determine conditions promoting the growth of a dangerous invasive species

Abstract

Elodea canadensis is an invasive aquatic macrophyte posing significant threats to global freshwater ecology because it creates dark, anoxic conditions leaving little opportunity for other life. Our two-part study examined this dangerous plant's growth potential. Initial results showed that growth significantly changed based on the type of water we used; notably it grew best in a sample taken from a local regional park. Further research indicated that waters with high phosphorous levels promote *elodea* growth; could this explain our findings? To test this, we have collected more water samples from locations within Contra Costa County and are growing *elodea* (which flourishes, even when uprooted) in test tubes. By chronicling the plant's development, along with regular testing of the phosphorous concentration in the tube, we will determine whether our hypothesis was correct. Understanding the conditions under which an invasive plant can colonize large environments is crucial to long term ecosystem stability.

Methodology

After collecting freshwater samples from six local sites, we are growing *Elodea* plants in different test tubes at our college. Qualitative and quantitative data, such as plant morphology and phosphorous levels, are being collected. Using characteristics such as color and deterioration, we will determine whether the water with more phosphorous indeed yielded superior growth.

References

- Baldy V, Thiebaut G, Fernandez C, Sagova-Mareckova M, Korboulewsky N, et al. (2015) Experimental Assessment of the Water Quality Influence on the Phosphorus Uptake of an Invasive Aquatic Plant: Biological Responses throughout Its Phenological Stage. *PLoS ONE* 10(3): e0118844. doi: 10.1371/journal.pone.0118844
- Thiebaut G. Does competition for phosphate supply explain the invasion pattern of *Elodea* species? *Water Res.* 2005 Sep;39(14):3385-93. PubMed PMID: 160
- Huotari T, Korpelainen H (2013) Comparative Analyses of Plastid Sequences between Native and Introduced Populations of Aquatic Weeds *Elodea canadensis* and *E. nuttallii*. *PLoS ONE* 8(4): e58073. doi: 10.1371/journal.pone.0058073
- Riis T, Lambertini C, Olesen B, Clayton JS, Brix H, Sorrell BK. Invasion strategies in clonal aquatic plants: are phenotypic differences caused by phenotypic plasticity or local adaptation? *Ann Bot.* 2010 Nov;106(5):813-22. doi: 10.1093/aob/mcq176. Epub 2010 Sep 7. PubMed PMID: 20826438; PubMed Central PMCID: PMC2958791.
- Scheffer M, Szabo S, Gragnani A, Van Nes EH, Rinaldi S, Kautsky N, Norberg J, Roijackers RM, Franken RJ. Floating plant dominance as a stable state. *Proc Natl Acad Sci U S A.* 2003 Apr 1;100(7):4040-5. Epub 2003 Mar 12. PubMed PMID: 12634429; PubMed Central PMCID: PMC153044.



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Student Presenter: **Bryan Dean**
Mentor: **Christopher Sleeper**
MiraCosta College

A Dangerous Departure: The Loss of American Radicalism

The loss of American radicalism has presented a threat to the continuity of classical ideals of republicanism in the United States.

Abstract

American Liberty owes much to the efforts of radical behavior. Analyzing this behavior historically, radical behavior encompasses those individuals who presented unique and persistent actions for ideological change. Radicalism was a necessary component that birthed the concept of liberty and was also present in its preservation. Harvard Professor Bernard Bailyn suggests that we recognize “the radical tradition as the prophetic memory of American experience.” Using a dialectical model to study the Revolutionary era animates Bailyn's statement, demonstrating that radicalism is central to American liberty. By examining radical behavior found in the Enlightenment and Revolutionary eras, the dialectic will serve as a theoretical framework to illustrate how radicalism was a necessary element for Americans to obtain religious, economic and political liberty. This presentation will also highlight how these foundations of radical behavior have faded from contemporary American politics, endangering the political liberties of its citizens.

Methodology

I examined primary source materials from the 18th century to gain a comprehensive view of the political environment. I also contacted UCLA historian Margaret Jacob on advice toward my research, since her work was heavily utilized. The breadth of my research was fulfilled with academic journals and primary source material.

References

Bailyn, Bernard. *Political Experience and Enlightenment Ideas in Eighteenth-Century America*. Vol. 67. Oxford: Oxford University Press, 1962.

Diggins, John. *Republicanism and Progressivism*. Vol. 37. Baltimore: John Hopkins University, 1985.

Jacob, Margaret. *The Enlightenment: A Brief History with Documents*. Boston: Bedford/St. Martin's, 2001.

Wood, Gordon. *Rhetoric and Reality in the American Revolution*. Vol. 23. Williamsburg: Omohundro Institute of Early American History and Culture, 1966.

Jacob, Margaret. *The Radical Enlightenment*. Lafayette: Cornerstone Book Publishers, 2006.



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Student Presenter: **Taylor Gonzalez**

Mentors: **Curtis Corlew & John Schall**

Los Medanos College

Sign of the Times: Symbols as Social Justice Movement Tools

An analysis of social justice iconography to determine characteristics of effective movement emblems.

Abstract

Social Justice Movements fight for equitable distribution of opportunities and privilege in society. Whether it's Kurdish independence, anti-Apartheid struggles or today's Black Lives Matter movement, these groups rely on a sense of unity. In order to build a sense of camaraderie successful movements often choose a symbol, such as the rainbow flag or the raised fist, to rally behind. What makes a symbol successful? Why do some stand the test of time, while others fade? My research explores these questions to establish guidelines for successful social justice symbols, notably those for movements centered on racial or ethnic inequalities. I demonstrate how color theory, functionality and other graphic design principles can be applied to predict which symbols attain universalized meaning and wide-spread recognition. Understanding how to design and propagate effective symbols, along with a historical understanding of common themes and images, will help new movements continue the cause of universal human rights.

Methodology

First I catalogued international social justice emblems. I noted their lifespan and pervasiveness with historical research to understand their universal appeal. Using graphic design theory I analyzed the characteristics of the most successful symbols. The work of scholar Thomas Olesen, whose research explores global injustice symbols, greatly influenced my analysis.

References

Evans, Poppy, Irina Lee, and Aaris Sherin. *The Graphic Design Reference & Specification Book*. Beverly, MA: Rockport Publishers, 2013. eBook Collection (EBSCOhost). Web. 15 Feb. 2016.

Jackson, Ben. "The Conceptual History Of Social Justice." *Political Studies Review* 3.3 (2005): 356-373. Academic Search Complete. Web. 15 Feb. 2016.

Olesen, Thomas. *Global Injustice Symbols and Social Movements*. New York: Palgrave Macmillan, 2015. Print.

Olesen, Thomas. "The Uses And Misuses Of Globalization In The Study Of Social Movements." *Social Movement Studies* 4.1 (2005): 49-63. Academic Search Complete. Web. 12 Feb. 2016.

Schnapp, Jeffrey T. *Revolutionary Tides: The Art of the Political Poster, 1914-1989*. 1st ed. Milano, Italy: Skira, 2005. Print.



Bay Honors Consortium Honors Research Symposium 2016

Student Presenter: **Bailey Johnson**

Mentor: **Ilana Johnson**

Sacramento City College

From Sword to Chrysanthemum and Back Again

An examination of the political and cultural struggle to preserve an antimilitarist national identity in contemporary Japan.

Abstract

Japan's Prime Minister Shinzo Abe sits nearby, his eyes cast straight ahead, unwavering, betraying no emotion as Sumiteru Taniguchi – an eighty-six year old survivor of the atomic bombing of Nagasaki, Japan – warns him against meddling with Japan's pacifist constitution, prompting thunderous applause. Occurring during last year's seventieth annual remembrance ceremony in Nagasaki, this scene encapsulates the stark dichotomy developing between a large section of the Japanese populace, which continues to identify with Japan's post-war antimilitarist policies, and a government determined to fundamentally transform Japan's role in East Asian relations. With an emboldened China exerting its dominance in the South China Sea, and with a rapidly aging population, Japan understandably finds itself vulnerable to sociopolitical dissonance. In examining these phenomena, I question the continued applicability of Japanese pacifism in a turbulent East Asia. Therefore, I hypothesize that pacifism cannot survive as a central feature of Japanese culture in the twenty-first century.

Methodology

The theories of International Realism and International Liberalism inform my analysis. I examine Japanese government statistics and peer-reviewed research on Japanese antimilitarist culture to evaluate how dramatic demographic, economic, and strategic changes signify a potential development of public support for a reinterpreted Japanese role in world politics.

References

Japan. Ministry of Internal Affairs and Communication. Statistical Yearbook 2016. Statistics Japan, January 2016. Web. 9 February 2016.

Oros, Andrew. *Normalizing Japan: Politics, Identity, and the Evolution of Security Practice*. Stanford, CA: Stanford UP, 2008. Print.

Coulmas, Florian. *Population Decline and Ageing in Japan - The Social Consequences*. 1st ed. London: Routledge, 2007. Print.

Izumikawa, Yasuhiro. "Explaining Japanese Antimilitarism: Normative and Realist Constraints on Japan's Security Policy". *International Security* 35.2 (2010): 123–160. Web. 7 February 2016.

Seig, Linda, and Takenaka Kiyoshi. "Japan Takes Historic Step from Post-war Pacifism, OKs Fighting for Allies." Reuters. Thompson Reuters, 2014. Web. 9 Feb. 2016.



Semantic Processing for Enhanced Learning: If We Do Not Encode, We Do Not Learn
Linking the importance of semantic processing on a student's assimilation of new information

Abstract

Research on memory performance suggests that people can improve on their typical method of recall and learning. Studies show that we can recall a new topic or concept effectively later on, and fully grasp new information, only if we process it through relation, consider its meaning, and prioritize its importance. This process, according to Craik and Lockhart's (1972) model, is known as semantic processing. According to Craik and Lockhart, there are two types of processing: shallow and semantic. Shallow processing involves encoding new information structurally and phonemically, while semantic processing has been deemed superior because it involves deeper levels of processing that promote longer-lasting memories. Through research and experimentation, I examine how students tend to utilize lower levels of processing new information through memorization and monotonous repetition; therefore do not yield quality recall or comprehension. I also demonstrate how students can instead utilize semantic processing to achieve meaningful learning.

Methodology

Performed a partial replication of Craik and Tulving's (1975) experiment. Participants were randomly split into an acoustic group and a semantically tasked group and were shown impassive words during a given time frame. Afterwards they were asked to perform a free recall task. Results supported my hypothesis.

References

- Moscovitch, Morris, and Fergus IM Craik. "Depth of processing, retrieval cues, and uniqueness of encoding as factors in recall." *Journal of Verbal Learning and Verbal Behavior* 15.4 (1976): 447-458.
- Forcato, Cecilia, Rodrigo S. Fernandez, and María E. Pedreira. "The Role And Dynamic Of Strengthening In The Reconsolidation Process In A Human Declarative Memory: What Decides The Fate Of Recent And Older Memories?." *Plos ONE* 8.4 (2013): 1-12. Academic Search Premier. Web. 15 Feb. 2016.
- Yonker, Julie E. "The Relationship Of Deep And Surface Study Approaches On Factual And Applied Test-Bank Multiple-Choice Question Performance." *Assessment & Evaluation In Higher Education* 36.6 (2011): 673-686. Academic Search Premier. Web. 14 Feb. 2016.
- Lynn, Steven Jay, et al. "What Do People Believe About Memory? Implications For The Science And Pseudoscience Of Clinical Practice." *Canadian Journal Of Psychiatry* 60.12 (2015): 541-547. Academic Search Premier. Web. 15 Feb. 2016.
- Craik, Fergus I.M. "Levels Of Processing: Past, Present ... And Future?." *Memory* 10.5/6 (2002): 305-318. Academic Search Premier. Web. 14 Feb. 2016.



The New Rainbow Flag – On Brony Identity and the Construction of Non-Normative Masculinity

An ethnographic analysis of the individual neurocognitive effects and culture-level sociological implications of hegemonic masculinity for participants in My Little Pony: Friendship is Magic fandom.

Abstract

Scholarly research concerning “bronies”—adult male fans of My Little Pony: Friendship is Magic—focuses largely upon non-heteronormative behavior (Silverstein, 2013) and cultural perception (Kozlovská, 2015). This study directed existing research at determining why culture continues to conflate “bronyhood” with homosexuality despite actuarial contradiction, hypothesizing that brony and LGBTQIA+ identification share similar social consequences. 106 randomly-sampled individuals and 71 active bronies completed nearly-identical surveys. Additionally, three and five respective respondents to each survey were interviewed using the online video-conferencing service “Zoom.” Three populations were compared using qualitative data and quantitative metadata—heterosexual non-bronies, LGBTQIA+ non-bronies, and bronies of any sexual identity. Three areas were evaluated: feelings of shame, retaliation (subdivided into hatred, discrimination, and violence), and thoughts of self-harm relating to either non-heteronormative sexual or brony identity. Preliminary analysis strongly supports the hypothesis that bronies and LGBTQIA+ individuals share many psychologically-detrimental experiences, particularly social rejection, behavioral minority pollution, and pathologization.

Methodology

I distributed two nearly-identical surveys within LGBTQIA+ and brony-emphatic social media platforms. Three and five respective respondents to each survey additionally participated in a video-chat interview. I utilized consequent qualitative information, quantitative metadata and text comparison results to identify and evaluate relationships between group characteristics, demographics and experiences.

References

- Almeida, J., Johnson, R. M., Corliss, H. L., Molnar, B. E., & Azrael, D. (2009). Emotional distress among LGBT youth: The influence of perceived discrimination based on sexual orientation. *Journal of Youth and Adolescence*, 38(7), 1001-1014. doi:10.1007/s10964-009-9397-9
- Gilbert, A. (2015). What we talk about when we talk about bronies. *Transformative Works and Cultures*, 20. Retrieved September 27, 2015, from <http://journal.transformativeworks.org/index.php/twc/article/view/666/549>
- Kozlovská, K. (2015). Bronies: A discourse analysis of the paradoxical nature of gender-stigmatized identity (Unpublished master's thesis). Masaryk University. Retrieved September 27, 2015, from http://is.muni.cz/th/209491/fss_m/Kozlovska_Thesis.pdf
- Langley, J., Griffin, J., & Edwards, P. (2014). Brony fans vs. non fans: Comparing individual differences and beliefs. Tenth Annual SC Upstate Research Symposium, 199-201. Retrieved December 9, 2015, from http://www.uscupstate.edu/uploadedFiles/Academics/Undergraduate_Research/Symposium/Symposium%202014.pdf#page=199
- Silverstein, A. (2013). My little brony: connecting gender blurring and discursive formations. *Colloquy*, 9, 98-117. Retrieved September 27, 2015.



Bay Honors Consortium Honors Research Symposium 2016

Student Presenter: **Margaret Patterson**

Mentor: **Eva Mo**

Modesto Junior College

Illicit Sex: The hidden affairs of elite slave holders

Investigating the dynamics of the master/slave relationships within the context of socially acceptable behavior in 19th century America.

Abstract

Nineteenth century US history of interracial sex focuses on the rape of slave women, but fails to look at the long term interracial relationships, especially those between prominent white masters and their mulatto slaves. In part, this failure is due to the well-deserved critique of slave rape, but in so doing, the stories of empowered slave women are ignored. The system of slavery provided men like Jefferson, Wayles and other wealthy plantation owners the means to indulge their fantasies, while creating a surrogate for lost intimacy with their white wives. Within the violent context of slavery, interracial rape was deemed acceptable; amorous passionate interracial sex was not. It was in fact, deemed the “vilest” form of taboo. Despite this, these privileged men created private spaces such as Tawawa Resort House, where they could assert their freedom through the exploitation of slavery, while being exempt from societal judgement and internal guilt.

Methodology

I grounded my historical and theoretical understanding of interracial sexual interactions with Gordon-Reed’s Pulitzer, *The Hemingses of Monticello: An American Family* and Perkins-Valdez’s novel, *Wench*, an historical interpretation of Tawawa House. I then analyzed and incorporated slave testimonies regarding the gamut of sexual experiences.

References

Gordon-Reed, Annette. *The Hemingses of Monticello: An American Family*. 11th ed. New York, New York: W.W. Norton, 2008.

Perkins-Valdez, Dolan. *Wench: A Novel*. New York: Harper Collins Publishers, 2009.

Jacobs, Harriet A., and Lydia Maria Child. *Incidents in the Life of a Slave Girl: An Autobiographical Account of an Escaped Slave and Abolitionist*. 2015 ed. New York, New York: First Skyhorse Publishing, 2015.

Douglass, Frederick, and David W. Blight. *Narrative of the Life of Frederick Douglass, an American Slave*. Boston: Bedford Books of St. Martin's Press, 1993.

Howell, Donna Wyant. *I Was a Slave, Chapter 3: The Lives of Slave Women: True Life Stories Told by Former American Slaves in the 1930's*. 1st ed. Washington, D.C.: American Legacy Books, 1995.



Spurious George

On behalf of Thomas Paine, George Washington was a fraud.

Abstract

The 1776 letter by Thomas Paine, the author of *Common Sense* and, perhaps, a rightful founding father, indicts George Washington as a fraud. The letter stems from Paine's belief that Washington was culpable in Paine's French prison sentence and evolves to expose Washington as self-serving and corrupt. Furthermore, Paine contends that the government that Washington set up and led was less about freedom than it was about attaining power for an American ruling class. Paine wrote the letter from the position of wounded friend who believed that his life was held in the balance by a man who betrayed him. There is bias that is central to the genesis of the letter, however; that bias transforms one of the most important, and often overlooked, figures of the American Revolution into an ardent whistleblower whose pen was more feared than any army that Washington faced.

Methodology

The presentation takes points made in Paine's letter and, through primary sources consisting of contemporary analysis, supporting letters, documentation, and peer-reviewed papers, builds plausible support or denial for the actions Paine accuses Washington of undertaking.

References

Billias, George Athan. "George Washington's Generals and Opponents: Their Exploit and Leadership." Google Books. 1994. Accessed December 1, 2015.

Blakemore, Steven. "Revisionist Patricide: Thomas Paine's 'Letter to George Washington'" *Clio* 24, no. 3 (1995): P.269. doi:Spring 1995.

Ingersoll, Robert G.. 1892. "Thomas Paine". *The North American Review* 155 (429). University of Northern Iowa: 181-95. <http://www.jstor.org/stable/25102425>

Paine, Thomas. "Constitutional Reform." In *The Complete Writings of Thomas Paine*, edited by Philip S. Foner, 992-1007. Vol. II. New York, New York: Citadel Press, 1945.

Paine, Thomas. "Letter to George Washington." In *The Complete Writings of Thomas Paine*, edited by Philip S. Foner, 691-723. Vol. II. New York, New York: Citadel Press, 1945.

