

DISCOVER U_{OF}SC

Tips for Successful Posters

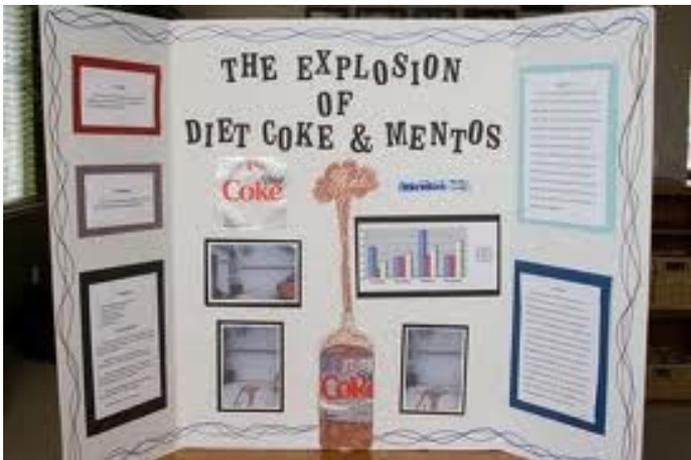


What do we mean by
POSTER SESSION?



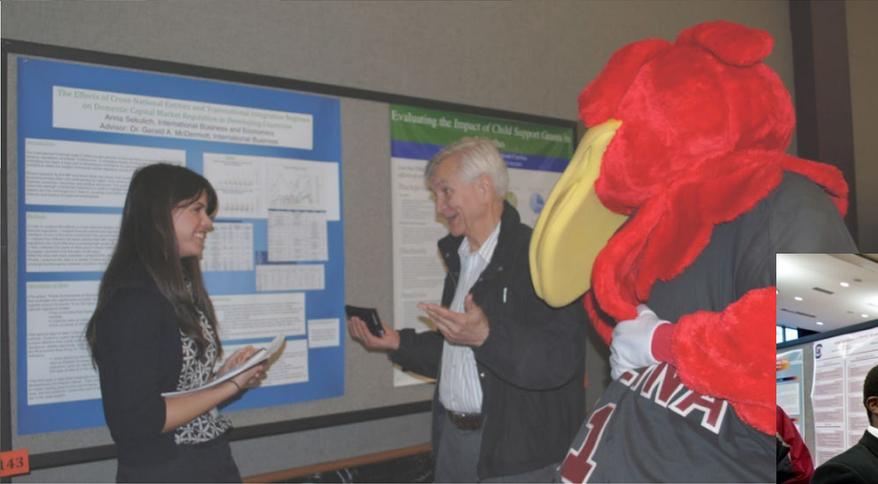
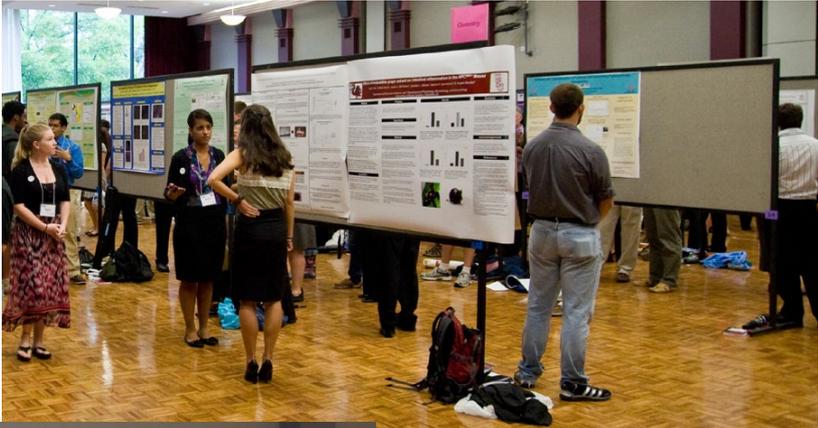


NOT this...



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But THIS...



See it for yourself:

These videos and articles are from Discovery Day, which transformed into **Discover UofSC** in 2017 – bigger & better but at its heart, still the same 😊

1 2 3



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Logistics



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Review presenter
guidance at
Discover USC

sc.edu/DiscoverUofSC



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Event date and schedule

https://sc.edu/about/signature_events/discover_uofsc/schedule/index.php



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Logistics

- Posters are the primary form of presentation
- Notification on timing/format: early April by email
- Find your presentation format, time and room location on [webpage](#) under “[Find a Presenter](#)”
(NOTE: this will not be active until early April!)
- Know your poster number; signs will be posted in hall to direct you



Logistics

- 2 posters per side of display board
- Poster dimensions:
 - Max: 4 ft high x 3.5 ft wide
 - Min for GLD: 2 ft x 3 ft (vertical or horizontal; [templates on GLD website](#))
- 4 t-pins provided to hang
- Angle pins DOWN not straight through
- Nametags at registration; Bring Carolina Card



Logistics

- Posters sub-divided into categories
- Categories based on topic/mentor department
- Judged within categories (IF selected yes on abstract submission; can only change to NO)



Logistics

- Judging guidelines on webpage and guidance
- Judges: faculty, staff, and grad students
- Judges: 2-3 per section
- Judges are NOT experts in field
- No judging if NOT present at poster



Logistics

- Awards:
 - *Will be listed on the [Discover UofSC](#) website the Wednesday after the event*
- Award certificates:
 - Emailed as a PDF attachment to each awardee by the *end of May*



How To: General Overview



A successful poster...

- conveys a **clear message**,
- by **high-impact** visual information,
- with **minimum** text

...grabs attention!



A great poster is...

- **Readable** – use clear language and good grammar in all poster text
- **Legible** – all poster text should be readable from 5 feet away
- **Well-organized** – group items logically and visually for maximum impact
- **Succinct** – you have 10 seconds to grab your audience's attention



Remember: Do **NOT** duplicate the full text of your work **on** your poster.

Hit the high points!

Provide handouts for more information.



Overview: Content - *OPTION 1*

Sections you may wish to include:

(will vary depending on your desired message)

- Introduction, background, or overview
- Hypothesis (Question you explored)
- Motivation or purpose (Why you did it)
- Methods (How you did it)
- Results (What you found)
- Conclusions (What you learned)
- Significance (What it means)
- Future plans or next steps
- References (Works cited)
- Acknowledgements



Overview: Content - *Option 2*

Sections you may wish to include:

(will vary depending on your desired message)

- Introduction, background, or overview
- Activity/Event description (What you did)
- Motivation or purpose (Why you did it)
- Reflection (What you learned; What was the impact on you)
- Significance (What it means; what you want others to learn/know from your experience)
- Future plans or next steps
- References (Works cited)
- Acknowledgements

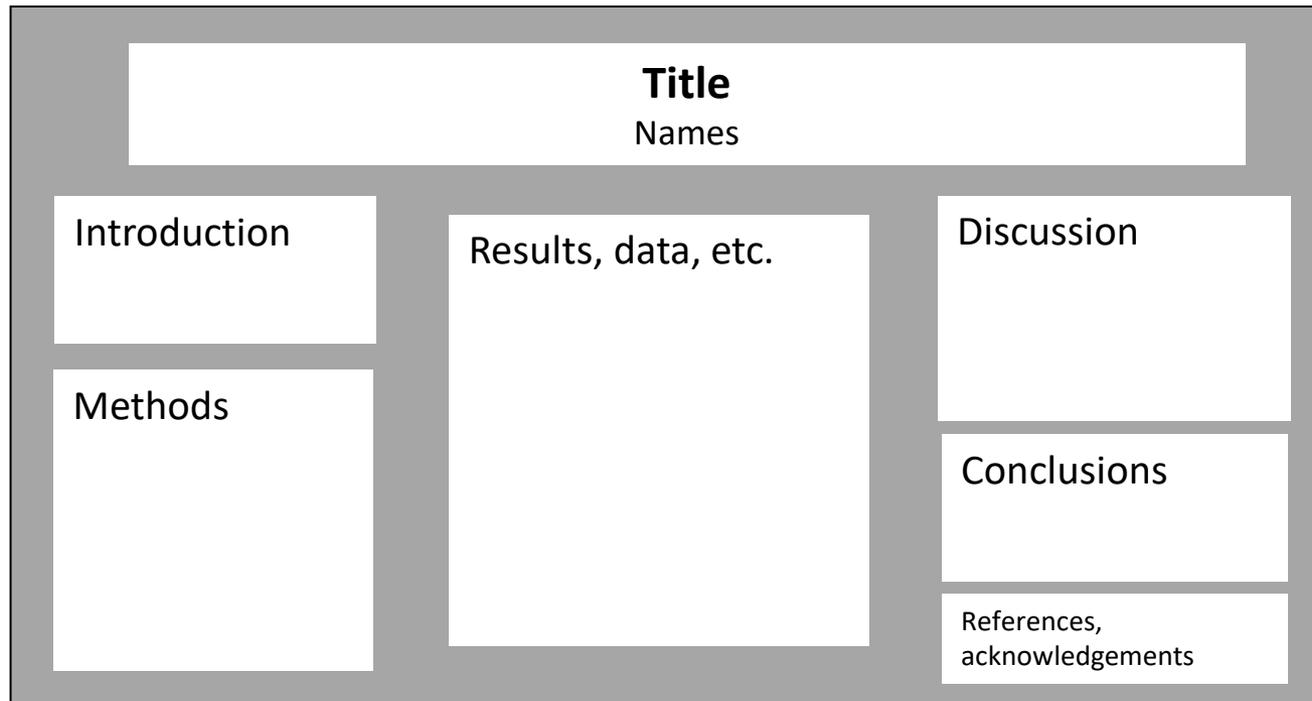


Overview: Layout

People take in information according to a known spatial sequence.

Capitalize on this and use it effectively!

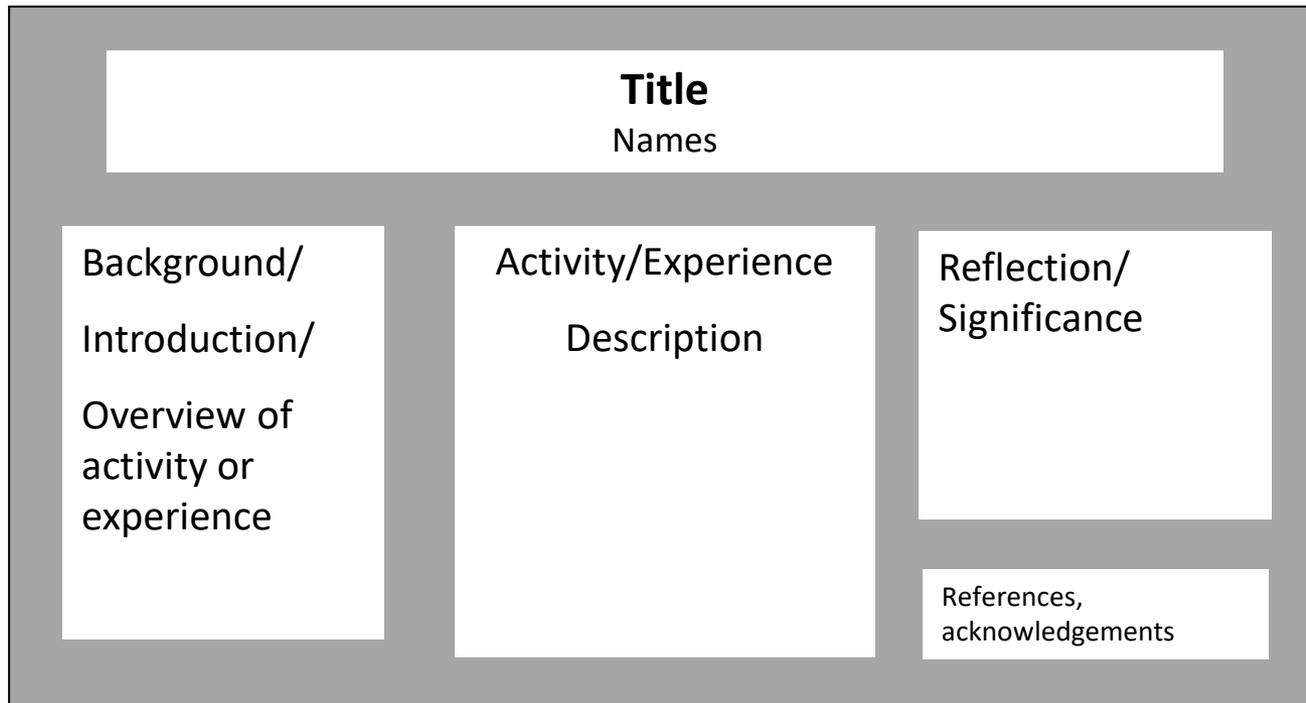
Expected layout (3-4 columns of information):



Overview: Layout

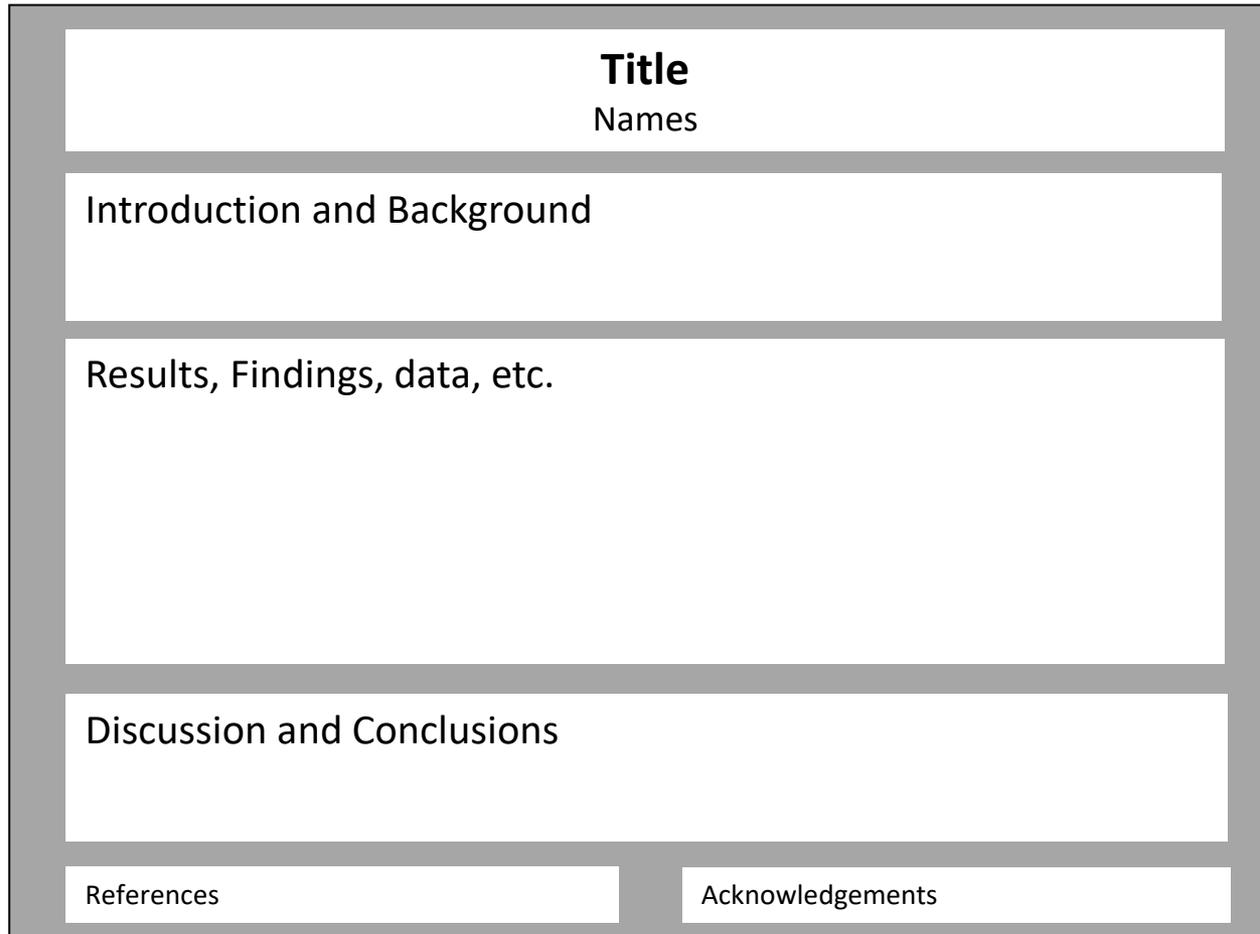
Activity or Experience

Expected layout (3-4 columns of information):



Overview: Layout

Alternative layout: Progression of information
(less common)



Overview: Layout

Activity or Experience

Title Names	
Background/Introduction/Overview of activity or experience	
Activity/Event Description (what did you do)	
Reflection/Significance	
References	Acknowledgements

Overview: Layout

YES!!!

You can use a different format than “expected.”

- The key is to make the flow of information logical.
- Be sure your chosen layout emphasizes your message!

See examples in the next section



How To:

Examples





“Expected” layout

Title

Names, departments

Introduction: Chemical Hydride Hydrolysis

Chemical hydrides are a means of storing hydrogen.
 Sodium borohydride (NaBH_4) undergoes hydrolysis to produce hydrogen as follows:

$$\text{NaBH}_4 + (2+x) \text{H}_2\text{O} \rightarrow \text{NaBO}_2 \cdot x\text{H}_2\text{O} + 4\text{H}_2$$

 The coefficient x represents the hydration state of sodium metaborate (NaBO_2).
 Minimizing x minimizes the total weight in the hydrogen delivery system while maximizing the efficiency.
 Four stable hydration states exist and the formation of these states is temperature dependent and shown below:

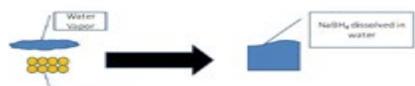
Hydration State	Temperatures Where Stable
Tetrahydrate ($x=4$)	$< 54^\circ\text{C}$
Dihydrate ($x=2$)	$54^\circ\text{C} - 110^\circ\text{C}$
1/3-hydrate ($x=1/3$)	$110^\circ\text{C} - 350^\circ\text{C}$
Anhydrous ($x=0$)	$> 350^\circ\text{C}$

Water Usage and Reaction Pathway

First attempted to hydrolyze sodium borohydride with liquid water.
 Required approximately 30 times more water than stoichiometric feed.
 Experimental conditions were limited to below 100°C , yielding low reaction rates.
 Experimental temperature range increased with steam hydrolysis reactor.
 Steam would adhere, or deliquesce, to the surface of sodium borohydride.
 Expanded temperatures to over 140°C .
 Low relative humidities prevent reaction at high temperature conditions.

Deliquescence

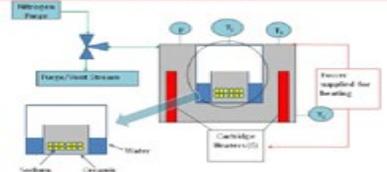
Sodium Borohydride undergoes deliquescence in the presence of water vapor.
 Deliquescence is the process of water vapor in the air adhering to the surface of a solid.
 Water vapor goes to the liquid phase while in contact with the solid during deliquescence.
 Deliquescence usually ends with too much water surrounding the solid, in which case the water will dissolve the solid.
 Water vapor uses as little as 10% of the liquid water needed to pre-dissolve the NaBH_4 .
 As less water is needed to dissolve the NaBH_4 , the necessary weight of the reactor lessens which, in turn, increases the efficiency.



Hypothesis and Objectives

Construct and utilize a high pressure batch reactor to hydrolyze solid sodium borohydride with water vapor.
 Predict the reaction progress as a function of time using the pressure profile.
 Determine the amount of NaBH_4 conversion using Boron-11 Nuclear Magnetic Resonance ($\text{B}^{11}\text{-NMR}$).
 Determine the water content of the final product using Thermogravimetric Analysis (TGA).

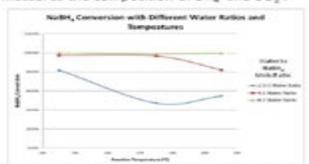
Apparatus



Sodium borohydride and water are separated initially.
 Nitrogen originally pressurizes the bomb reactor.
 Heat is supplied to the reactor using six cartridge heaters.
 Thermocouples measure three temperatures at different points to ensure gradient.
 Pressure measurements were recorded by a pressure transducer.

NaBH_4 Conversion Measured with $\text{B}^{11}\text{-NMR}$

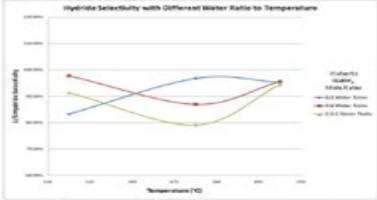
$\text{B}^{11}\text{-NMR}$ analysis measures the composition of BH_4^- and BO_2^- .



Hydrolysis goes to completion when a slight excess of water is introduced to the system.
 Reactions running only the stoichiometric water feed had approximately 50% conversion.
 Higher temperatures generate a faster reaction but at the cost of lower conversions.

Water Content of Product Measured by TGA

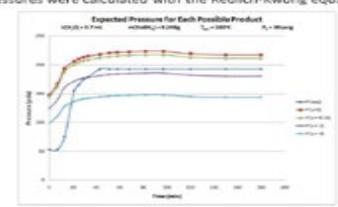
The TGA quantifies the water of hydration in the NaBO_2 products.
 A mass loss of 8.4% indicates 1/3-hydrate form.
 A mass loss of 35.4% indicates dihydrate form.



Higher selectivity of 1/3-hydrate is correlated to a lower water content in the final product.
 TGA analysis suggests that the mass lost lies somewhere between 8.4% and 35.4%, consistent with the idea that a mixture of 1/3-hydrate and dihydrate would be formed.
 Runs with higher feeds of water favored the formation of the 1/3-hydrate form.
 At lower temperatures, 1/3-hydrate selectivity decreases with the water ratio.
 The effect of water to NaBH_4 feed ratio is minimal at higher pressures.

Pressure Profile

Experimental pressures were recorded using a pressure transducer.
 One expected pressure can be calculated for each of the four possible hydration states of NaBO_2 .
 Expected pressures were calculated with the Redlich-Kwong equation of state.



Temperature [°C]	Molar Ratio of Water to NaBH_4	a^*	High-T Experimental Pressure (psia)	Theoretical Pressure (psia) $x=0$	Theoretical Pressure (psia) $x=1/3$	Theoretical Pressure (psia) $x=2$	Theoretical Pressure (psia) $x=4$
350	6:1	4	352.0	222.3	215.9	184.2	144.0
350	4:1	2	344.0	188.9	182.4	149.1	120.5
350	2.5:1	0.5	303.0	155.9	149.2	115.1	87.7
340	6:1	4	352.7	234.8	231.9	197.9	154.8
340	4:1	2	372.7	243.8	236.8	201.4	158.2
340	4:1	2	364.7	205.6	198.5	162.6	131.6
340	4:1	2	388.7	204.0	196.9	161.2	130.6
280	2.5:1	0.5	86.7	168.7	161.5	125.1	80.5
280	2.5:1	0.5	94.7	167.5	160.3	124.8	80.8
200	6:1	4	297.7	249.3	242.3	206.2	161.2
200	4:1	2	345.0	212.0	204.6	167.2	135.1
200	2.5:1	0.5	315.0	178.9	168.4	128.2	109.0

From TGA, it is expected that the actual pressure will be between the 1/3-hydrate and dihydrate estimations.
 Few experiments had a pressure profile precise enough to give expected pressures.

Conclusions

The batch reactor was successful in that the steam hydrolysis reaction went nearly to completion for runs with only a slight increase of water over the stoichiometric ratio.
 A stable 1/3 hydrate form of sodium metaborate was produced under the reaction conditions, significantly reducing the amount of water tied into the solid product.
 The decreased water in the solid product increases the efficiency of hydrogen delivery.
 The stable hydration states did not appear to change with pressure.
 Although the pressure measurements were not as precise as desired, new reactor designs are being examined to address any potential problems.

Acknowledgements

NSF Grant # CBET 0756089
 University of South Carolina Magellan Scholarship

References

1. Liu, Hong; Boyd, Christopher M.; Beard, Amy M.; and Matthews, Michael A. "Vapor phase batch hydrolysis of NaBH_4 at elevated temperature and pressure." *International Journal of Hydrogen Energy*. February 2011.
2. Marmore Alfonso, E. T.; Gray, J. R.; Davis, T. A.; and Matthews, M. A. "Hydrolysis of sodium borohydride with steam hydrate." *International Journal of Hydrogen Energy*. December 2007. 32 (16): 4717-4722.
3. Beard, Amy M.; Davis, Thomas A.; and Matthews, Michael A. "Deliquescence in the Hydrolysis of Sodium Borohydride by Water Vapor." *Industrial and Engineering Chemistry Research*. 2010. 49 (26): 9596-9599.



“Expected” layout

Program. No. 611.7



Expression of Lipocalin-2 in Colorectal Cancer Metastasis to the Liver

Student name; Mentor name



¹ASBMB UAN at USC ²Department of Biological Sciences, ³Center for Colon Cancer Research, University of South Carolina, Columbia, SC 29209

ABSTRACT

Metastasis, frequently from the colon to the liver, is the major cause of death with colorectal cancer, reducing the five-year survival to less than 12%. Metastasis occurs due to productive collaborations between tumor cells and host-derived cells in the tumor microenvironment, where a pre-metastatic niche is created to prime for cancer cell invasion into the target organ¹. In a highly metastatic colorectal cancer cell line implanted into the caecum of Balb/c mice, microscopy analysis showed LCN2 is the most highly expressed protein in the liver of tumor-bearing mice prior to metastasis. Western blot analysis and examination of blood serum by ELISA illustrated increased levels of LCN2 as tumors progressed into metastasis, with similar results when RT-PCR was performed, as greater levels of LCN2 mRNA were found in highly metastatic cells. In contrast to less metastatic cells, it has been found that LCN2 is highly associated with the promotion of colorectal cancer metastasis to the liver, with increased levels connected to the advancement of metastatic progression.

INTRODUCTION

Colorectal cancer is the third most common cancer, accounting for approximately 650,000 deaths per year worldwide². In the United States, it is the second leading cause of cancer-related fatalities³. When patients are treated for colorectal cancer prior to metastasis, the survival rate is high. Unfortunately, those affected do not typically express outward symptoms of metastasis and it is often diagnosed when very little can be done. More research must be pursued on the biological and molecular hallmarks that direct the early stages of metastasis, which can provide the best opportunity for therapy to block its progression. Lipocalin-2 (LCN2) is from a family of proteins associated with cell regulation, specifically in differentiation and proliferation⁴. There is conflicting evidence on their role in cancerous growth; some evidence suggests that lipocalins can inhibit the proliferation of cancer cells⁵, while others suggest that they promote its progression⁶. These studies examined LCN2 expression in cancer cells, but not in the target organ microenvironment, thus, further studies must be undertaken to determine the role of LCN2 in establishing and promoting metastasis.

HYPOTHESIS

Increasing presence of LCN2 is positively associated with progression of early colorectal cancer metastasis to the liver.

OBJECTIVES

- To assess LCN2 protein levels in isogenic colon cancer cell lines with different capabilities to metastasize
- To determine whether increasing levels of LCN2 coincides with the progression to early colorectal metastasis to the liver

METHODS

- Western blotting to verify presence of LCN2 protein
- ELISA (Pierce Systems) and qRT-PCR (BioRad IQ3) were performed on these cell lines to determine varying levels of LCN2 concentration

PRELIMINARY DATA

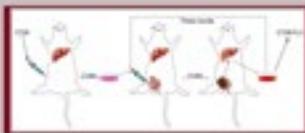


Figure 1. Mouse model on colon cancer metastasis to the liver⁷. CT26 cells with low metastatic capabilities are educated to become highly metastatic CT26-FL3 cells.

PRELIMINARY DATA



Figure 2. Frequency of liver metastasis in mice bearing tumors from two isogenic cell lines. Mice bearing tumors from the less metastatic CT26 parental cells had 10-fold less frequency of liver metastasis compared to mice with tumors from CT26-FL3 cells.

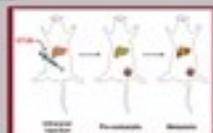


Figure 3. Microarray analysis of mRNA expression in tumor-bearing mice before and after the arrival of metastatic cells. LCN2 is over-expressed by 34 fold in a pre-metastatic liver versus a sham control liver.



Figure 4. Immunoblot analysis of sera from tumor-bearing mice at various stages of metastasis. In mice with CT26-FL3 cells, the circulating LCN2 levels increase with tumor progression.

RESULTS



Figure 5. LCN2 protein levels in CT26 and CT26-FL3 cells stably expressing high levels of LCN2.

LCN2 protein secreted by transfected CT26 Cells



Figure 6. LCN2 protein levels secreted into the media by over-expressing cells.

RESULTS

LCN2 protein secreted by transfected CT26-FL3 Cells

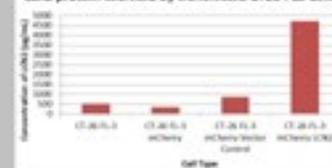


Figure 7. Concentration of LCN2 (ng/ml) secreted by stably transfected CT26-FL3 cell lines.

LCN2 Expression Levels in CT26 Derived Cell Lines

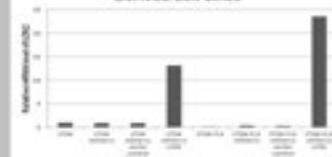


Figure 8. Relative levels of mRNA transcripts in CT26 derivative cell lines using real time PCR against beta-actin.

CONCLUSIONS AND FUTURE DIRECTIONS

- LCN2 is positively associated with colon cancer cells with greater ability to metastasize.
- LCN2 is upregulated in the pre-metastatic niche after implantation of colon cells shown by real time PCR.
- The impact of manipulating LCN2 levels both by gene suppression and overexpression in vitro, and especially in vivo, must be assessed to additionally determine the role of LCN2 in early colorectal cancer metastasis to the liver.
- The results of this further experimentation may provide significant support for the possibility that LCN2 is a biomarker for the event of metastasis to the liver.

REFERENCES

1. Stetson M, et al. (2010) Liver Metastasis. *Metastatic Disease: Molecular Biology, Pathogenesis, and Treatment*. Springer, New York, NY, pp. 100-110.
2. American Cancer Society. (2012) *Cancer Facts and Figures*. Atlanta, GA: American Cancer Society.
3. American Cancer Society. (2012) *Cancer Facts and Figures*. Atlanta, GA: American Cancer Society.
4. Kishimoto A, et al. (2007) Lipocalin-2: A Novel Biomarker for Cancer. *Cancer* 101: 100-110.
5. Kishimoto A, et al. (2007) Lipocalin-2: A Novel Biomarker for Cancer. *Cancer* 101: 100-110.
6. Kishimoto A, et al. (2007) Lipocalin-2: A Novel Biomarker for Cancer. *Cancer* 101: 100-110.
7. Kishimoto A, et al. (2007) Lipocalin-2: A Novel Biomarker for Cancer. *Cancer* 101: 100-110.



"Expected" layout

Impacting Communities, Changing Lives: Diabetes Education in Columbia, SC

Student name, Senior, Department of Anthropology

Free Clinic of Columbia, SC

Mentors: Names

Background

Diabetes is currently ranked 7th in terms of leading cause of death of most South Carolinians [2]. In addition to poor overall health in South Carolina, it makes sense that health education is not as heavily promoted in the state as it should be. When diabetes can cause the loss of limbs, energy, and a gamut of other health problems in combination with hypertension, education is a necessary in trying to limit the risk exposed of South Carolinians to this growing epidemic. This is exacerbated in disadvantaged communities where a nutrient-poor diet may be the only diet available to them. In terms of education in South Carolina, 83% of high school students drop out between the ages of 16 and 19. This is incredible in comparison to the fact that 17.9% of high school students will not graduate with a high school diploma as a result of mixed factors [1]. With such alarming statistics (South Carolina is currently 47th in the nation in terms of quality public education [2]), it makes sense that such trends in terms of health education are also as low and unhelpful.

Results

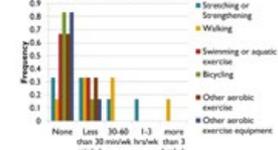
How Physical Health Was Affected

	Blood Pressure	Blood Sugar	BMI
Blacks	132.86	188.84	33.72
Whites	111.71	200.36	32.45
Hispanica/Other	131.77	255	45.72
Normal Range	120/80	120	18.5-24.9

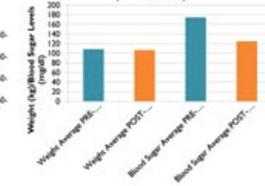
*Only one patient self-identified as Hispanic

How Were Behaviors Affected?

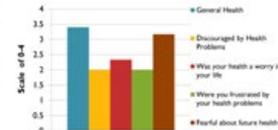
Frequency of Time Spent on Exercise



Weight and Blood Sugar Averages (Pre vs. Post)



Assessment of Overall Health/Worry Levels



Conclusions

Based on our results, we can effectively see the need of this program in the community. The data illustrates correlations in ethnicity and in education levels with behavior and physical illness. Problems with promotion through the clinic and the restrictions in regards to assessments of patients after the sessions also presented us from gathering a true picture of another confounding aspect of our project showed that individuals were more confident after the sessions yet still did not alter their behavior enough to show any significant changes. Ways to improve the project consist of monitoring the program over a longer length of time and analyzing different educational models for recruiting patients.

Acknowledgements

Special thanks to the Carolina Leadership Institute for the grant that allowed for the completion of this project. I would also like to thank the Free Clinic of Columbia, SC for allowing my staff and myself to utilize their facilities for this project. I would also like to thank my team consisting of Stephanie Crawford, Philip Robb, Philip McCas, Haley Grimes, Christiana Mera, Amanda Saut, Wrenna Phoenix, and Kristina Mullan. I would also like to personally thank Drs. Seniors and Chung for their continued mentoring through this project.

Methods

Acquiring Patient Information (Pre-meet level): Before patients enter the program, they must sign a waiver in order for their health information to be used. Their health information will be used for the purposes of quantifying the impact of this project on the Columbia community. This must be done in accordance with HIPAA law as information is considered case-sensitive.
Course Register: The course took place once a week on Fridays at 1PM-4 PM. A total of two classes were taught in regards to the disease and meal management. Each patient will be required to sign in before the commencement of the class and be given pamphlets at the conclusion of each class. After the conclusion of the patient's second class, the patient will be rewarded with a glucose meter and testing strips. Patient files were examined to indicate which patients were able to return for a follow-up with their appropriate biophysical assessments recorded. This will allow us to track the changes patients that participated in the education programs. All information will be recorded in a notebook and electronically. This will be staggered as patient intake is tracked.

BMI Difference



Role of P-glycoprotein in the Transport of Amyloid-β Protein in Cerebral Amyloid Angiopathy

University of South Carolina, Biomedical Engineering Program, Columbia, SC 29208

ABSTRACT

Cerebral amyloid angiopathy (CAA), a neurodegenerative disorder of the elderly, is characterized by amyloid-β (Aβ) deposits in the brain. Aβ is a peptide hormone that is secreted by neurons and is involved in the regulation of synaptic transmission. Aβ is also a component of the amyloid plaques that are characteristic of Alzheimer's disease. Aβ is secreted by neurons and is involved in the regulation of synaptic transmission. Aβ is also a component of the amyloid plaques that are characteristic of Alzheimer's disease.

RESULTS

1. Characterization of Human Brain Microvascular Endothelial Cells (HBMEC) Monolayers

2. Transport assay of different Aβ₁₋₄₂ assembly states through HBMEC monolayers

3. Aβ₁₋₄₂ P-glycoprotein activity

4. Confocal Microscopy

DISCUSSION

HBMECs form an endothelial monolayer that can be used as a model of the blood-brain barrier in Alzheimer's patients. This model can be used to study brain-related pathologies such as cerebral amyloid angiopathy.

HBMEC monolayers were formed after 5-7 days, when the cells showed an increase in TEER values, expression of tight junction proteins (ZO-1 and occludin), and diffusion of FITC-dextran at the expected range.

HBMEC monolayers did not show expression of a cell, only find in smooth muscle cells such as pericytes. This corroborates the purity of the monolayer.

HBMEC monolayers showed higher expression of P-gp than HBEC and plasma membrane localization of ZO-1.

Aβ₁₋₄₂ mixture and Aβ₁₋₄₂ monomer are being transported from the basolateral to the apical side of the endothelial monolayer.

Treatment of monolayers with Aβ₁₋₄₂ mixture causes a significant release of phenolphthalein indicating increased function of P-gp.

Treatment of endothelial cells with glutamate causes an over-expression of P-gp.

FUTURE WORK

Test Aβ₁₋₄₂ on possible substrates.

Test Aβ₁₋₄₂ different species in cells that overexpress P-gp.

Test Aβ₁₋₄₂ different species in cells where P-gp has been inhibited, siRNA can.

Test selected Aβ₁₋₄₂ isoforms.

Possible synergistic role.



"Expected" layouts with height greater than width

Title Names, departments

University of South Carolina, Columbia, SC



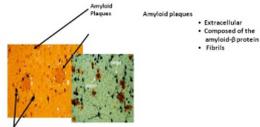
Abstract

Description of amyloid plaques within the neurobiology, consisting mostly of insoluble fibrillar amyloid-beta protein (Aβ) aggregates, is a pathological feature in 82-90% of Alzheimer's disease (AD) brains. Pathways such as neuronal, synaptic and synaptic, have been considered promising in disease modifying therapy for AD as they are results of inhibiting formation of Aβ or dissolving preformed Aβ. In this study, we tested the effects of a new group of polyphenols – augustin, luteolin, 3',4'-dihydroxyflavone, and 5,7,3',4'-pentahydroxyflavone – on Aβ dissociation.

Thioflavin T (ThT) is a fluorescent dye that gives a characteristic fluorescence emission and excitation when attached solely to the cross-β-sheet conformation of Aβ, as opposed to Aβ monomers, dimers, or oligomers. Therefore, fluorescence changes are often used to detect changes in Aβ morphology upon the addition of polyphenols. A significant drop of ThT fluorescence, not consistent with the stable structure of Aβ, was observed in the presence of polyphenols. However, further testing by our lab through circular dichroism (CD) and transmission electron microscope (TEM) imaging showed that Aβ was actually not dissociated by these polyphenols. These results suggest that polyphenols do not actually dissociate Aβ, but do bind them. This binding action of polyphenols may have implications in disrupting Aβ induced cellular damage in the AD brain.

Background and Significance

Neuropathological Properties



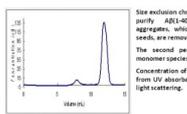
Aβ Protein
Aβ protein is a small peptide composed of 40-42 amino acids. It is a proteolytic product of amyloid precursor protein (APP) and has a beta-sheet conformation.



Methodology



Aβ Monomer Purification



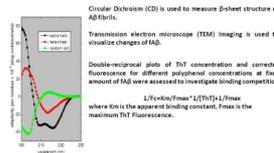
Size exclusion chromatography (SEC) is used to purify Aβ(1-40) peptides. Pre-existing aggregates, which can serve as aggregation seeds, are removed from the sample. The second peak represents the isolated monomer species. Concentration of Aβ monomers is determined from UV absorbance at 280 nm corrected for light scattering.

Aβ Fibril Preparation

Isolated monomeric Aβ(1-40) was incubated with 150 mM NaCl at 25°C and then agitated on a vortex at 500 rpm to promote assembly. Aβ was isolated by centrifugation.

AB Fibril Measurement

Thioflavin T (ThT) fluorescence was used to monitor the quantity of amyloid material. ThT binds the β-sheet structure of amyloid fibrils, giving a characteristic shifted fluorescence emission and excitation. Measurements were taken to correct fluorescence changes caused by the inner filter effect.

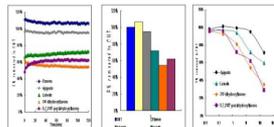


Aβ Fibril Dissociation Assay

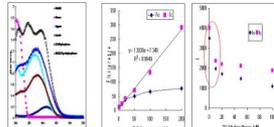
Aβ were diluted to 20μM in 40μM ThT with 150mM NaCl in presence or absence of 200 μM polyphenol. Reaction solutions were incubated without agitation at room temperature for at least 2 hours. Then samples were tested for ThT fluorescence, CD and TEM.

Results

ThT fluorescence change by adding polyphenols

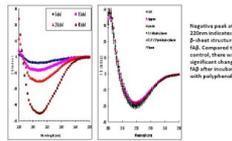


Fluorescence correction for inner filter effect

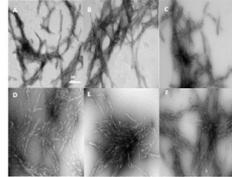


Strong optical absorption of polyphenols overlaps ThT emitting wavelength range. In the inner filter effect only accounts for a small portion of this fluorescence drop after correction.

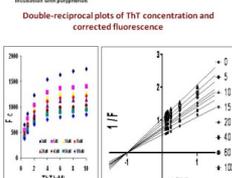
CD spectra of Aβ incubated with polyphenols



TEM imaging of Aβ incubated with polyphenols



Double-reciprocal plots of ThT concentration and corrected fluorescence



Conclusions

- Augustin, Luteolin, 3',4'-dihydroxyflavone and 5,7,3',4'-pentahydroxyflavone decrease ThT fluorescence associated with Aβ.
- The inner filter effect alone does not explain the large amount of fluorescent drop.
- Based on CD and TEM imaging evidence, polyphenols do not dissociate Aβ.
- Double-reciprocal plots of ThT concentration and corrected fluorescence indicate that polyphenols and ThT may noncompetitively bind to Aβ.

Future Work

- Screen these polyphenols to understand oligomer and association mechanisms, to determine if binding effect other aggregation mechanisms.
- Determine whether polyphenol binding to Aβ can alter cell responses elicited by Aβ.

Acknowledgements

- Dr. Miss Research Group
- NSF CAREER Award (SES-0644826) to MAM
- Magellan Scholar Undergraduate Research Award
- South Carolina Undergraduate Research Funding (SURF) through the South Carolina Honors College
- Pilot Study Grant, University of South Carolina, Complementary and Alternative Medicine Center

Marketing Health: Communication about the Right Choice, Fresh Start Farmers' Market among Low-income Customers



Names

University of South Carolina College of Social Work, South Carolina Cancer Prevention and Control Research Network, Family Health Centers, Inc.

Background

- The Right Choice Fresh Start (RCFS) Farmers' Market at Family Health Center was established to increase availability of healthy produce and provide economic opportunity for small-scale farmers in Orangeburg, SC (3).
- In 2012, RCFS introduced a food assistance matching program (called "Shop N' Save") (SNS) to increase the use of federal food assistance at the market.
- RCFS and SNS were advertised through flyers, signs at the market, newspaper advertisements, and six outreach events in Orangeburg.
- The purpose of this study is to identify who participated in the "Shop N' Save" program and how they heard about the RCFS market.
- Matching programs can help address economic barriers associated with farmers' markets (2). Knowing how participants receive information about the market is key to engaging customers with food assistance and sustaining a matching program.

Shop N' Save Intervention

- The market was open one day per week (Friday) for four hours per day for 20 weeks (June through October, 2012) at the health center site in Orangeburg.
- RCFS is authorized to accept SNAP/EBT, and most vendors at the market were authorized to accept Women, Infants, and Children Program (WIC) as well as Senior and WIC Farmers' Market Nutrition Program (FMNP) vouchers.
- Customers enroll in the SNS program after making a purchase of \$5 or more with their own food assistance (SNAP/EBT, WIC, WIC, FIC or Senior FIC vouchers). Transactions were documented on sales receipts.
- Future SNS coupons were redeemed on subsequent market dates when SNS participants spent \$5 or more in food assistance at the market. Participants could receive up to one coupon per week, and SNS coupons could only be used at the RCFS mark etc. Coupons expired on the last day of the market season.
- Demographic information on all participants, including how they heard about the RCFS market, was collected through enrollment surveys.



Use of Shop N' Save

- Of 336 total participants, 465 returned to the market at least once.
- SNS coupons were used most frequently on June 22nd (the week Senior and WIC FM vouchers were distributed in Orangeburg) and October 12 (final market day).
- Of 3600 total market transactions, 16.4% involved Shop N' Save coupons. (Figure 1)
- Total revenue at the end of the market season was \$15,719.73. Total food assistance revenue was \$3921.45 (37.7%). Total revenue from SNS coupons was \$2071 (16%).

Transactions per week

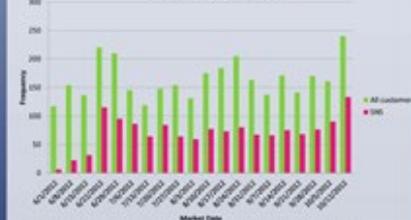


Figure 1. Total transactions per week compared with transactions involving Shop N' Save participants.

Shop N' Save participants

Table 1. Characteristics of Shop N' Save participants

Variables	Frequency	Percent
Gender (missing data on 1 person, % based on total person)		
Female	204	60.7
Male	21	6.3
Race		
African American	302	88.9
White	24	7.1
Other (Hispanic or Latino, Asian, Native American, or other)	11	3.3
Parent of FIC		
Yes	180	53.6
No	156	46.4
Type of household food assistance plan select more than once		
SNAP	174	50.8
WIC	77	22.9
WIC Farmers' Market Nutrition Program	56	16.7
Senior Farmers' Market Nutrition Program	174	50.8

How did you hear about the RCFS market?



Figure 2. Chart comparing how SNS participants heard about the market (could select more than one category). Percentages are calculated from N=136. Categories with a response of 6% or less are not included in this comparison.

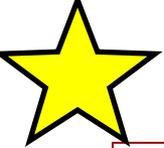
Conclusions

- The majority of SNS participants are African American, female, and parents at Family Health Center. SNAP/EBT and Senior FM vouchers are the most common forms of food assistance used at the market.
- Word of mouth was the most significant means of communicating RCFS and SNS among participants. Friends, family and fellow community members are trusted sources of information in the community and should be considered when marketing an intervention (3).
- Voucher distribution centers (SNAP/WIC offices) are also important sources of information for food assistance recipients. Markets should provide information about incentive programs at these locations.
- Formal methods of advertising outreach events, newspaper ads) brought in less than 10% of participants and were least significant in recruiting participants.

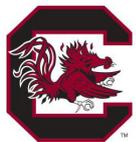


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1. Friedman, D. (2012). African American men's perspectives on promoting physical activity: "We're not that difficult to figure out!" *Journal of Health Communication, 17*(10), 1155-1170.
2. Freedman, D., Hebert, J. "Double down on obesity with double bucks at farmers' markets" [Letter to the editor]. (2012) *The State Newspaper*. Retrieved at <http://www.thestate.com/story/2012-09-10/obesity-double-bucks-at-farmers-markets/200309>
3. Freedman, D. A., Whiteside, T. O., Brandt, H. M., Young, V., Friedman, D. B., & Hebert, J. R. (2012). Assessing readiness for establishing a farmers' market at a community health center. *Journal of Community Health, 37*(1), 80-88.



“Expected” layout when few pictures available



Title
Names, departments



Introduction

Wireless Networks

- Wireless networks are expected to be available and reliable at all times and all locations
- Environmental conditions like walls, weather, and large crowds cause problems

Smartphones

- Smartphones have a variety of sensors built into them that can gather information about the surrounding environment
- These sensors include accelerometers, compasses, light detectors, and proximity detectors
- They also have wifi radios and GPS

Goals

- This project aimed to use the readings from the sensors to detect situations that will cause reduced signal strength
- It may be possible to predict when the user is going to have poor reception so the phone can plan accordingly

Other Work

- A number of other projects are underway that also make use of the sensors available on smartphones
 - Mobile Assistant for Inattentive Drivers (MAID)
 - Increasing the reliability of natural interaction systems such as Microsoft's Kinect

Methods

Android App

- An app was developed for Android phones that would automatically collect data every 15 minutes
- This interval was chosen to balance frequency of collection with battery life
- The app was allowed to run constantly on the user's phone to collect data in real world situations
- The app uploaded data after each collection to a MySQL database

Data Collected

- Data collected included: time, proximity, battery level, location, cellular signal strength, and wifi signal strength
- The data were downloaded from the database into an Excel spreadsheet
- The correlation function in Excel was used to determine if acceleration, magnetic field, proximity, battery charge, or light appeared to have an influence on cellular and wifi signal strengths
- The data points corresponding to wifi signal strength were plotted on a map and color coded to indicate the signal strength of the University wireless network, “uscstudent” at that location.

Results and Discussion

Accelerometer

- Cellular Strength: 0.146
- Wifi Strength: 0.069
- These low correlation values indicate the absence of a relationship between acceleration and both cellular and wifi signal strengths

Magnetic Field

- Cellular Strength: -0.123
- Wifi Strength: -0.022
- These correlation values were even smaller than the ones for acceleration, so there is again little evidence to suggest a relationship between magnetic field and the signal strengths

Proximity

- Cellular Strength: -0.302
- Wifi Strength: -0.289
- These values are much stronger than the previous two and are the strongest observed.
- There is a possibility of a slight negative correlation
- The relatively strong correlation could also be explained by the phone being in a pocket versus in the open

Battery Charge

- Cellular Strength: -0.291
- Wifi Strength: -0.193
- These values are weaker than the proximity values and slightly negative
- There may be a negative correlation between battery change and the signal strengths

Light

- Cellular Strength: 0.205
- Wifi Strength: 0.017
- These values were opposite the proximity values and much weaker
- This difference supports the possibility of being in the pocket reducing signal strength and being in the open increasing it

Figure 1: Wifi Map

- The map reveals the clustering of the data points
- As the project continues, a more even distribution of data points will be collected
- Wifi signal strength appears to be stronger inside than outside



Arena for Research on Emerging Networks and Applications

Wifi Map



Figure 1: Map of Wifi Signal Strength

Detail of Swearingen

Ongoing and Future Work

Signal Correlations with Other Sensors

- Use newer sensors such as gyroscopes, barometers, and thermometers
- Collect data in diverse scenarios using multiple phones

Mobile Assistant for Inattentive Drivers (MAID)

- Link the phone to the car's diagnostics port to get real-time data from the car's sensors
- Identify the fingerprint for each event and create the abstract sensor modules
 - *Reckless*: detect reckless driving
 - *Speed*: detect when the driver is going too fast
 - *Turn signal*: detect if the driver properly signaled before turning
 - *Stop*: detect if the driver obeyed a stop sign
 - *Lost*: detect when the driver appears to be lost
 - *Yield*: detect if the driver properly yielded at a yield sign
 - *Clag*: detect if the driver is causing traffic to back up behind him
 - *Drunk*: detect drunken driving
 - *Lane change*: detect lane changes
- Identify additional situations that might be detectable using the phone's sensors

Enhancing Kinect with Smartphones

- Wii uses accelerometer and gyroscope to detect motion
- Kinect uses video and depth cameras to detect motion
- Combine the two methods together to make a more robust system
 - Use the phone in the packet in place of the Wii remote
 - Use its accelerometer/gyroscope sensors to aid Kinect
 - Allow players Kinect cannot see to interact with the system
 - Help the system identify players from a crowd



“Expected”
layout with
great image
use

Motivation:

- World-wide potable water crisis needs affordable treatment technologies
- Nanomaterials have promising capabilities (sorption/filtration)
- Lack of strategy for useful application



Results:

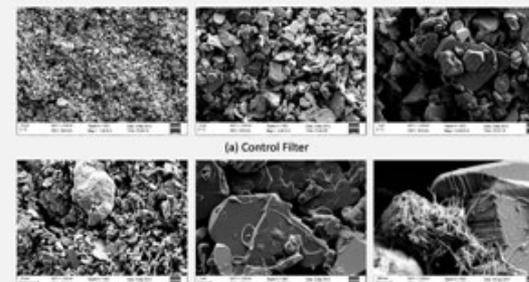


Figure 1: SEM Images

Objectives:

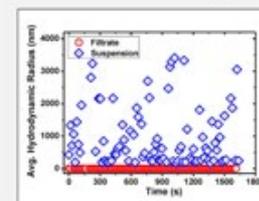
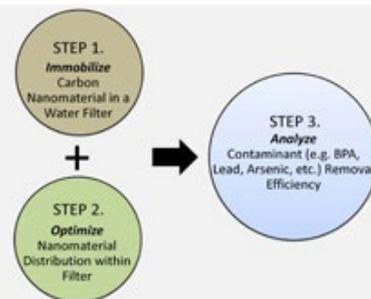


Figure 2: Hydrodynamic Radius

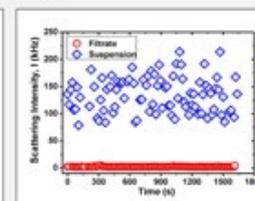
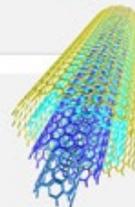
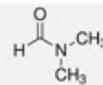


Figure 3: Scattering Intensity

Materials:

- Carbon Nanotubes (CNTs)
- Organic Solvent: N,N-Dimethylformamide
- Commercial Water Filter

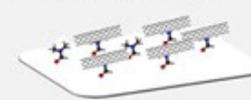


Underlying Mechanism:

Untreated Filter Surface
(No Affinity)



Chemically Treated Filter Surface
(Thermodynamic Affinity)



Methods:



Conclusions:

- CNTs can be deposited on functionalized surfaces
- The attachment is irreversible thus results in immobilized CNT coated surfaces





Non-traditional layout

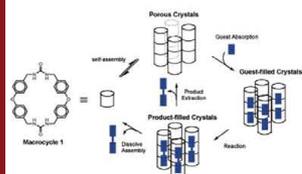


Title
Names, departments



Introduction

How are certain photochemical reactions influenced by being carried out in a confined environment?



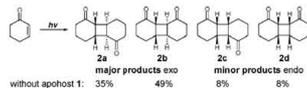
Macrocycles

- Porous self-assembling monomers
- Form tubular crystals
- Can increase selectivity of certain reactions
- Reusable

2-Cyclohexenone

- Phenylether macrocycle used as host

- Increased selectivity

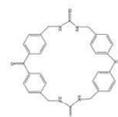


without aphost 1: 35% 49% 8% <1% 8% 1%

with aphost 1: 96% 3%

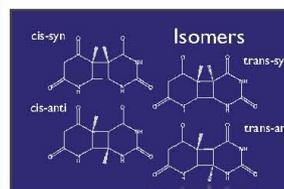
Background

Chemists are always looking for ways to make reactions more efficient. That is, they are always asking, "How can we attain a higher yield of our target product quicker, with less reagents, and with minimal environmental impact?" One possible solution can be found in running reactions in a confined environment. By restricting the reaction site, we not only can increase the selectivity of the product of the reaction, but also reduce the use of expensive, harsh chemical reagents. This concept is analogous to the use of enzymes in biological systems, where enzymes drive reactions by fitting substrates together and thereby reduce the activation energy for those reactions.



Benzophenone Macrocycle (BPMC)

One type of confined environment that is currently being studied employs the use of a porous crystalline tube-like structure known as a macrocycle that is composed of identical monomers. The size of these macrocyclic monomers that compose the macrocycle can be adjusted, allowing for control of the overall size of the macrocycle. This in turn provides for a wide range of molecules to react within the macrocycle.



Thymine

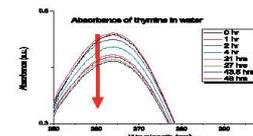
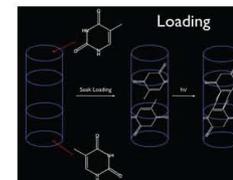
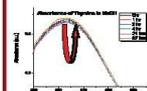
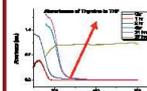
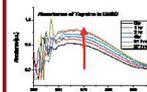
- Structure is similar to 2-Cyclohexenone
- [2+2] photodimerization under UV irradiation
- Thymine photodimers cause kinks during DNA replication; can lead to melanoma

Methodology

Testing for the best solvent for soak loading

In which solvent does thymine absorbance decrease?

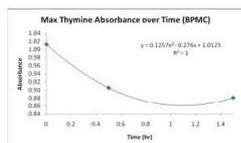
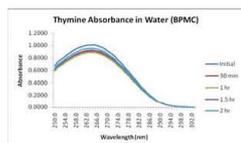
Initial Studies



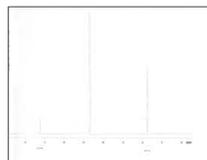
Water was found to be the best solvent candidate for soak loading.

Data & Discussion

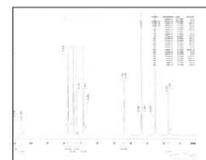
Loading



Irradiation

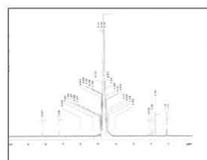


Thymine in D2O



Thymine Loaded in BPMC

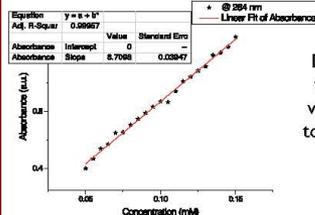
1H-NMR Spectra



Extracted Thymine and Photoproducts after Irradiation

Preliminary results indicate two things. One, the guest molecule certainly loaded into the macrocycle. As is evident on the 1H-NMR spectrum, peaks for both thymine and the benzophenone macrocycle are present. The other finding is that irradiation of thymine in the host macrocycle produced peaks on the 1H-NMR spectrum different from that of just thymine. This indicates that irradiation inside of the macrocycle produced some unspecified products. Future work on this study must consist of producing a more specific identification of the irradiated products of thymine inside of the macrocycle.

Analytical absorbance study



Beer's Lambert Plot for Thymine in Water

Decrease in absorbance was used in conjunction with Beer's Lambert plot to determine a host : guest ratio of 2.38:1

References

1. Dewal, M. B.; Xu, Y.; Yang, J.; Mohammed, F.; Smith, M. D.; Shimizu, L. S. "Manipulating the cavity of a porous material changes the photoactivity of included guests." *Chem Commun.* **2008**, 3909-3911. Highlighted by *Nature Chem.*, July 11, 2008, doi:10.1038/nchem.36
2. Yang, J.; Dewal M.B.; Shimizu L.S. "Self-assembling bis-urea macrocycles used as an organic zeolite for a highly stereoselective photodimerization of α , β -unsaturated ketones." *J Am. Chem. Soc.* **2006**, 128(25), 8122-8123.
3. Origins of Selectivity for the [2+2] Cycloaddition of α , β -unsaturated Ketones within a Porous Self-assembled Organic Framework
Jun Yang, Mahender B. Dewal, Salvatore Profeta, Jr., Mark D. Smith, Youyong Li, and Linda S. Shimizu
Journal of the American Chemical Society **2008** 130 (2), 612-621

Acknowledgements



I would like to thank Dr. Linda Shimizu for the wonderful opportunity to conduct undergraduate research during the Summer of 2010. I would also like to thank the entire Shimizu Group for their complete support and hospitality during my time as an undergraduate researcher. Finally, I would like to give very special regards to my Graduate Mentor, Michael Geer, who guided me through every step of this fantastic journey.



Non-traditional layout

Title

Name, Department, University of South Carolina

Problems, Issues & Plans

Why a Journal?

- Provide students multiple formats to showcase research (complements presentation opportunity through Discovery Day, university's research conference)
- Publication experience valuable to complete research process
- Publication in professional journals not available for all students
- Marketing tool to showcase student research

Why Now?

- Technology advanced, to meet the needs of publication for all disciplines
- Administration support critical: impetus, staffing, and funds

Purpose

This poster portrays the experience of the University of South Carolina from the decision of creating a journal of undergraduate research to the implementation. Each step will be discussed followed by lessons learned.

Why On-line?

- Available for all disciplines
- Broader audience access: students, prospective students, potential partners/collaborators
- Recurring costs low
- Content refreshed regularly
- Dynamic interface

Why Caravel?

- Named after the type of ship used by explorer Magellan
- "Magellan program" is the university's undergraduate research brand
- Research is about the journey not the destination

Site Design and Development

Site Considerations and Needs

- Time constraints, staff expertise, IT resources
- Server accessibility (will the site be hosted on- or off-site)
- Content Management System (allows easy updating of website with minimal training, eliminates annual contract with web developer)
- Platform responsive website (adjusts for desk laptop, tablet, phones)
- Article archiving (how often, search options, accessibility)
- Submission process and forms (web or email)
- Journal focus (articles themselves) on the homepage
- What information needs to be available and where

Site Development and Bid Process

- Evaluate timeline to completion
- Previous experience (review previous jobs/websites for compatibility with journal needs)
- Compare and contrast competing bids for user interface
- Training of staff for site management
- Cost (\$34,500)
- Site: <http://caravel.sc.edu/>

Editorial and Submission Process

Submission Guidelines

- Guidelines must be discipline appropriate
- All submissions include a written component, for art/music/audio, format is an artist's statement or abstract, providing context
- Student form addresses plagiarism, copyright, and compliance issues (human subjects and animal use)
- Faculty mentor approval of submission
- "Paper" forms to be submitted by email
- Writing center consult encouraged

Review and Feedback Process

- Anonymous review
- Two reviewers: editorial board and topic expert
- Three options: Accept with minor changes, accept with major changes, or revise and resubmit
- No decline option as this is viewed as an educational experience
- All students receive feedback
- "Revise and resubmit" may include a requirement of additional research/inquiry and/or writing center consultation

Other

- Eligibility: Undergraduates and one year post-graduation
- Research conducted by university's undergraduates at any location and with any mentor
- Copyright: not restrictive; submission may be published in other forums

Moving Forward

Future Plans

- Student review board (graduate or undergraduates) may be added in future
- Submissions will move to webforms / database rather than by email
- Will use short, catchy titles to capture a broader audience (marketing focus)

Faculty and Student Quotes

Thank you so much for the good news you bring to [student], whose work it was my pleasure to supervise. I also commend the University, yourself and all others who work on the journal for having launched such a great initiative and for contributing to the development of our students. -- Faculty mentor

Working with my partner and mentor on this paper has been extremely beneficial for me academically in that it has given me a thorough understanding of how to construct a proper research paper, and working well with others to finalize the project. This experience will help me reach my goal of going to graduate school. -- Student

The site design and editorial and submission process occurred concurrently for Caravel. It is important to evaluate where and when overlaps should occur.



Non-traditional layout

Dennis and Dennis Architects: Architecture and Culture in Macon, Georgia

Student Name [Redacted]
Art History, Sociology

Introduction

I am investigating the cultural and architectural histories of six major buildings in downtown Macon, Georgia by the long-running local firm of Dennis and Dennis. Though the firm produced many recognizable public and private buildings during their long career, no one has thoroughly examined the extent of their influence in Macon. Relying on a variety of primary sources, my project assesses both internal evaluations of the firm's work as well as the public perceptions of these buildings over time. In the course of my research the evolution of the firm throughout their work on these six buildings has aligned with and been a parallel to the city's own commercial growth. The products of this research combine architectural histories of each building with analysis of the unique cultural impact that the firm and their buildings have had on the city.

Future Work

There is still so much more to be learned about the firm and I hope to have opportunities to continue this research. I want to have a more comprehensive idea of the scope of their work and the history of the firm itself, eventually attaining a better point of comparison for their work across the country and within the Middle Georgia area. As I prepare to begin graduate coursework for Historic Preservation, I hope to eventually foster a career of highlighting the great stories behind buildings such as these that so intricately shape communities.

Resources

My research comes from the firm's private archives, the records of *The Macon Telegraph*, and the Historical Room at the Washington Memorial Library.



Temple Beth Israel



Constructed:

- Construction completed in 1902
- Designed for the oldest Jewish congregation in the city

Style:

- Classical details, portico, and a crowning cupola define the symmetrical façade
- Masonry and stucco composition
- White stucco composition, subtle pilasters, and delicate stained glass line the street-facing elevations and create an elegant

Impact:

- Set on Cherry Street, it binds the residential area on one end with the civic sector on the other
- Its design and longevity have fostered the organization's community involvement and become a physical image of the historic congregation's legacy.



Section drawing by P.E. Dennis



Shortly after Completion

Centenary United Methodist Church



Constructed:

- Construction lasted from 1903 to 1913.
- Commissioned by a small congregation that started as a Sunday school.

Style:

- Highly decorative classical details
- Richardson-Romanesque form
- Characterized by dramatic tower
- Brick and plaster

Impact:

- Its placement on a major street, next door to Mercer University, and facing public space gave the church access to the community.
- From here they have established themselves within the downtown area, focusing on outreach and community engagement.
- They are still an active congregation in the area, persisting through various changes in their surroundings.



Centenary Shortly after Construction

City Auditorium



Constructed:

- Construction from 1923 – 1925
- The decision making process took nearly ten years. This time was characterized by a great deal of indecision on the location, style and capacity.

Style:

- It is Monumental porticoed limestone structure
- Sits atop an announcing pedestal
- Houses the largest copper dome in the world
- Neoclassical in design
- Entrances line each street elevations
- An outdoor stage projects from the Cherry Street elevation

Impact:

- The structure has been immensely successful as a locus of culture and civic gathering.
- It commands attention from all over downtown and binds its neighboring governmental, cultural, and commercial sectors.



City Auditorium's Original Interior

Macon City Hall



Constructed:

- Original City Hall constructed in 1833
- Dennis and Dennis renovations in 1935

Style:

- Neoclassical temple front projects from two side bays
- Masonry and stucco composition
- Very symmetrical, rational façade
- Little decoration
- Pilasters and laurel wreath reliefs within the entablature break up the surface

Impact:

- Its regularity and explicit historic style convey its governmental function.
- Set in the same location for over a century, it has become an icon of the city.
- Cemented Dennis and Dennis's reputation for classical and civic designs



The Original City Hall Building



City Hall after Completion

Insurance Company of North America



Constructed:

- Completed in 1957

Style:

- Commissioned to look like Independence Hall
- Marble and brick, symmetrical structure
- Rich with symbolic details and design elements

Impact:

- The building sits atop Coleman Hill.
- It does not face the street, but rather looks over the entire city.
- It is an immediately recognizable icon in downtown Macon's landscape
- The building is now home to Mercer University's Law School



Macon Telegraph Ad for INA Open House



Dennis and Dennis Rendering for Gate Sign

Post Office



Constructed:

- Construction completed in 1964

Style:

- Abstracted Neoclassical details characterize the impressive four story façade
- Modeled after Elam Alexander's original design for Wesleyan College, which formerly stood on the property
- Designated by a squared cupola at its top
- Brick and Marble structure
- Functional post office needs grow out of the less formal rear

Impact:

- The building's referential design honors the city's history, while its Classical abstractions mark it as a modern regional business center.
- Dennis and Dennis proved their skill at infusing symbolism with their signature traditional language.
- The building's ideal location on College Street insures that it is still a busy center today.



Dennis and Dennis Rendering of the Post Office



Alternative layout with top to bottom flow

Rejuvenating Lime Production in Oman: *Resolving Current Challenges*



R. Al-Zalqum¹, F. Al-Said¹, A. Al-Said¹, M. Al-Wabishi¹, M. Deabeesa¹,
M. Al-Waadi¹, S. Al-Tamsily², A. Al-Lawati³, A. Al-Matrooshi⁴, A. Al-Zalqum⁵

¹Department of Crop Science and ²Department of Soil Water and Ag. Eng.,
³College of Agricultural and Marine Sciences, Sultan Qaboos University,
⁴Ministry of Agriculture, Sultanate of Oman

Abstract

Production of lime (*Citrus aurantiifolia*) and other related citrus species in Oman have been significantly reduced in recent years. The reduction in yield has been attributed to a combination of abiotic and biotic factors that adversely affected tree growth and productivity. Loss of area cultivated with lime trees was 50% of that in 1990 (Fig. 1), mainly due to Witches' Broom Disease of Lime (WBDL). The disease that may have originated in the Subtropical low production throughout the entire region of western Asia and North Africa first affecting first aspects in Oman as well. In Oman, these problems have been worsened by increasingly stressful abiotic conditions caused by drought, salinity and soil infertility which ultimately led to the decline of lime production in the country (Fig. 2). The convergent adverse effects of biotic and abiotic stresses on tree lime yield have resulted loss of tree lime acreage and productivity and reduced economic lime largely traditional farming systems. The unsustainable tree lime production has eventually led to abandonment of many farms, to conversion of lime farms to forage farms, or to complete change of the land use into other commercial projects. While the causal agent of WBDL, i.e. *asexual Phytophthora aestivalis* has long been identified, practical solutions to the disease have not been tested and these challenges remain every year loss. Through national and international collaboration, methodological experimentation in the laboratory and field testing of efficient management strategies, the research will tackle solution-oriented aspects of WBDL in Oman. The researchers aim to eventually provide practical solutions to tree lime growers, thus enabling them to continue production from diseased trees while new, long-term solutions through resistant cultivars are being gradually evaluated and introduced. The proposed project will address the phytophthora-caused WBDL through individually identifying native citrus species for tolerance to resistance, characterizing the interaction of WBDL with other citrus diseases, enhanced handling and hybridizations of new *Citrus* resistant clones, establishment of field trials for evaluating hybridized and exotic cultivars of *Citrus aurantiifolia* lime, study the soil-borne alternative vectors and hosts and optimizing lime production through management of diseased trees.

Statement of the Problem

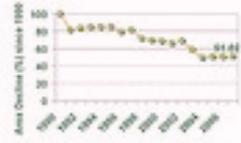
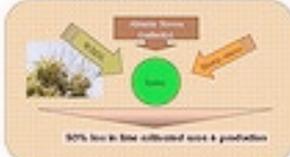


Fig. 1. Area cultivated with lime in Oman has been reduced by almost 50% since 1990.



50% loss in lime cultivated area & production

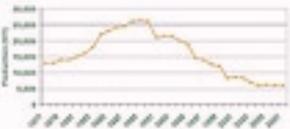


Fig. 2. Lime production in Oman during the past two decades (1990-2008).

Methodological Approach






Comparative Survey

- General status of WBDL in Oman
- Identification of lime production
- Identification of lime and related diseases
- Identification of vectors

Phytopathological Studies

- Initial isolation of lime (WBDL), *Ascomycota* & *Ascomycota* (Fungal) from WBDL
- Characterization of isolates (Genetic, Biochemical)
- Pathogenicity of WBDL isolates to lime trees



Phytopathological Studies

- Gene amplification & molecular identification of phytopathogens
- Identification of phytopathogens (Genetic, Biochemical)
- Pathogenicity of isolates to lime tree (Experimental)

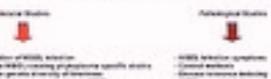
Molecular Studies

- Isolation of *Ascomycota* and *Ascomycota* from lime
- Molecular diversity & detection of phytopathogens
- Phylogenetic relationships
- Path Management Strategies

Pathological Studies

- Identification of WBDL, *Ascomycota*
- Gene amplification & molecular identification of phytopathogens



Field Studies

- Identification of WBDL, *Ascomycota*
- Gene amplification & molecular identification of phytopathogens

SR/AGRC/CP/03/01

University Day 2009

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“Expected” layout for activities/experiences



Title

Student Name; Mentor Name
Department, University of South Carolina



USC Connect

USC Connect is leading the transformation of students' educational experiences through a university-wide focus on integrating learning within and beyond the classroom. The ultimate goal of *USC Connect* is for students to be thoroughly and deeply prepared with core knowledge, developed skills, and the dispositions to contribute and lead in home, community, and work settings. USC Connect strives to enhance the learning of all students by promoting participation in beyond the classroom experiences, and creating opportunities for reflection on these experiences.

Community Service

One thing about me that sets me apart from many others is the dedication I put into my service work here at Carolina. I currently serve as Executive Director of the Waverly Afterschool Program, President of Students for Big Brothers Big Sisters, President of the USC Chapter of No Kid Hungry, Vice President of Make a Wish Organization, Vice President of Community Service for USC Connect Student Representative Board, as well as a host of other organizations. Besides serving, I have also completed two service-learning components as well.

Reflection

The unique thing that I really enjoy about USC Connect is that the five pathways to success are all different, but connect to each other. Being involved with Community Service is a pathway that can connect you with anything whether you are studying abroad, doing research, or taking part in an internship! USC Connect emphasizes that service is a great way for us to reflect on helping our local and global community & address many grass root problems that fall through the cracks because there are not enough people to help address them.

In Class Experience

In my School's in Community (EDFN 300) class I have been able to learn what it means to be an educator. I have researched several different regions and learned how education looks differently where ever you go. Being able to take the information I have learned inside the classroom has created a gateway to what I participate in outside the class. Learning strategies such as how to tutor students makes a difference.

Waverly Program

I take the most pride in the transformation the Waverly program has taken since I started to work with it. The 2012-2013 school year was the first year that I took over the program as Executive Director! I have been able to improve the program. We not only expanded our volunteer base, but we also expanded the program so that we could help even more students. This year, we partnered with St. Lawrence Place, a transitional shelter for single mothers, and brought the Waverly Program there so that their children could have access to the same resources as those who attend Melrose Park. Everyday I see significant similarities between what I have learned in my classes and the work that I do with Waverly. Being able to make a connection between the two helps a lot, especially since the work I do directly correlates to my future career plans. Waverly embodies what USC Connect stands for when it comes to outside experiences.

Reflection



In my work with Waverly I am preparing myself to be an educator. My goals consist of expanding the program I have grown as well as working more on learning exactly what it means to be an educator.

Community Service in Action



In my Service Learning in South Carolina class (Univ. 201) we took an alternate spring break trip to Allendale, SC. In this photo I am working to restore an abandoned home so it can be turned into an educational facility for community members.

In my Speech 140, class I was taught the skills to communicate with any audience. In the photo to the right I am reading a book to a group of kindergarten students at an elementary school.



In the photo below I am tutoring a local high school student who participates in the Waverly Program.



Contact information

Conclusion

When I created an e-portfolio I was able to look back at all the work and accomplishments I have participated in and reflect on those experiences. Creating an e-Portfolio not only helps me reflect on what I learned, but may also help me attract future employers.

What I Learned?

I have learned the art of true reflection from working on this project. I was able to take one pathway from USC Connect—Community Service, and expand on the one aspect of how everything we do inside the classroom connects with what we do outside. I learned that you should always keep a journal of every organization and event that you take part in. It is important to record the purpose of the event and what you got out of it.

Future Career

I have learned that everything I do helps prepare me for when I have my own class and am teaching. Working both at the Waverly center combined with my experiences inside the classroom helps to ensure that I have the proper tools needed to be a successful educator.

Learning Never Stops

What I will take away from this experience is that learning never stops. As I learn within my classes, I am able to use that information in my community service position. As I work with students, I am constantly learning from: How a particular teaching style works, how to create lasting relationships with students, and how to appeal to their learning styles. I know that as I begin my career as an educator, I will repeat this cycle. I will reflect on my experiences I will be able to use what I learned to create a great learning environment.



Alternative layout with top to bottom flow for activities/ experiences

Not Your Grandma's Knitting Circle: Fiber Arts In the New Millennium

Student Name

Department of Anthropology, University of South Carolina

Hypothesis

Globalization has facilitated the renewed attention to handmade goods and, through the Internet, assisted in the formation of collective groups. In today's global world fiber arts are being re-contextualized and reinstated in the lives of modern day women and men. This has brought about new movements in fiber arts to "DIY", or do-it-yourself.

Introduction

The goal of this project was to explore the ways in which globalization and the Internet relate to the formation and maintenance of collective knitting groups. Part of my research documented the differences between the knitting cultures of Asheville, NC and New York City, NY. I also studied how these groups use social media and websites like Ravelry.com to communicate and enhance the group's experience both on and off line. I situated this project around the idea that crafters organize collectives to counter the alienation of global capitalism.

Motivation



I learned to knit at the age of ten and have been hooked ever since. My personal experience with a knitting culture has led me to question what makes this particular type of collective so unique in the modern era. Seeing the ways in which the Internet has become integrated into my own knitting led me to examine the ways in which knitters, as a community, utilize the sources available on the web both for communicating and for furthering their craft.

History of Knitting

- Archeological data
- Islamic Egypt: 7th-9th century
- Moors of Spain
- Catholic knitting iconography: 14th century
- Invention of draw plate needles 1566
- Queen Elizabeth I and machine knitting
- Revolutionary War: knitting as resistance
- The Industrial Revolution
- Victorian Measure knitting
- Knitting for Quilts: WWI and WWII
- Post war decline
- Yarn markets of the 80s
- Celebrity Knitting in the late 90s



Knitting and the Internet

- Knitlist
- Knitly.com message boards
- Bloggs
- Blogging Communities
- YouTube knitting podcasts
- Meemp.com host knitting circles' online activity
- Ravelry.com as the central hub of online knitting
- Ravelry vs. Facebook
- Photography and knitting
- Pinterest.com
- Etsy.com

Goals of Study

- To study knitting collectives by participant observation.
- Use the internet to find and make contact with different types of knitting groups
- Internet with communities on the internet using social media like meetup.com and ravelry.com
- Observe the ways that relationships translate from online activities to real world friendships.
- Document the ways that I use the internet during my research and participation in the knitting cultures of New York City, NY and Asheville, NC
- Study the different types of knitting groups including an all male knitting group and a pits and parls knitting collective.
- Participate in knitting social events outside of the collective's regular meetings

Asheville, NC

Knitting climate

- Southern mountain town
- Very cold in winter (high need for knitted garments)
- Back to nature.
- Age range of knitters: late 20s to late 60s
- Very large and helpful knitting stores
- Encouraging
- Large presence
- Both small and large collectives

Groups Studied

- Parls All Men's Group
- Wednesday morning Sit 'n Knit
- Thursday Evening Sit 'n Knit
- Parls and Parls



Events

- Springing Whewl Class
- Stitch 'n Pitch
- Indie Craft Fair
- South Eastern Animal and Fiber Fair



Pine path at the stitch 'n pitch



Findings

- Instant connection of knitters
- Encouragement among knitters
- Knitting gives people a sense of accomplishment and satisfaction
- The life style of knitters reflecting their desire to DIY everything
- Knitting is being used for politics, not just as a hobby art form
- There is a variety of websites utilized by knitters
- These websites are integrated into the collective's regular meetings
- Community building vs. communication
- Strength of online bonds
- Online relationships transforming into long lasting friendships and yearly visits

Methods

- Study of historical craft
- Participant observation
- Found knitting collectives through the internet
- Used key informants to conduct a chain referral sampling
- Conducted semi-structured interviews
- Treated the groups meetings as open forums to collect data on the group's collective idea

Challenges

- Infiltrating the knitting groups found on the internet
- Observing the groups while participating in the conversation and knitting
- Navigating the knitting culture of two different cities in a very short amount of time
- Time management
- Having enough detailed observation to extract strong and supported conclusions

New York City, NY

Knitting climate

- International capital
- Cold winters (high need for knitted garments)
- Knitting as hip and fashionable
- Age range of knitters: early 20s to late 50s
- Small stores
- Few groups met at yarn stores
- Exclusive groups
- International yarn market capital
- Knitting on subways

Groups Studied

- Craft night with Ale's and co.
- Spin City
- NYC Parls and Parls



Events

- Yarn Hop to the Hamptons
- Visit to a llama farm
- Interviews with the Editors of 3 knitting magazines: Vogue Knitting, Knit Simple, & Yarn Market News



Conclusions

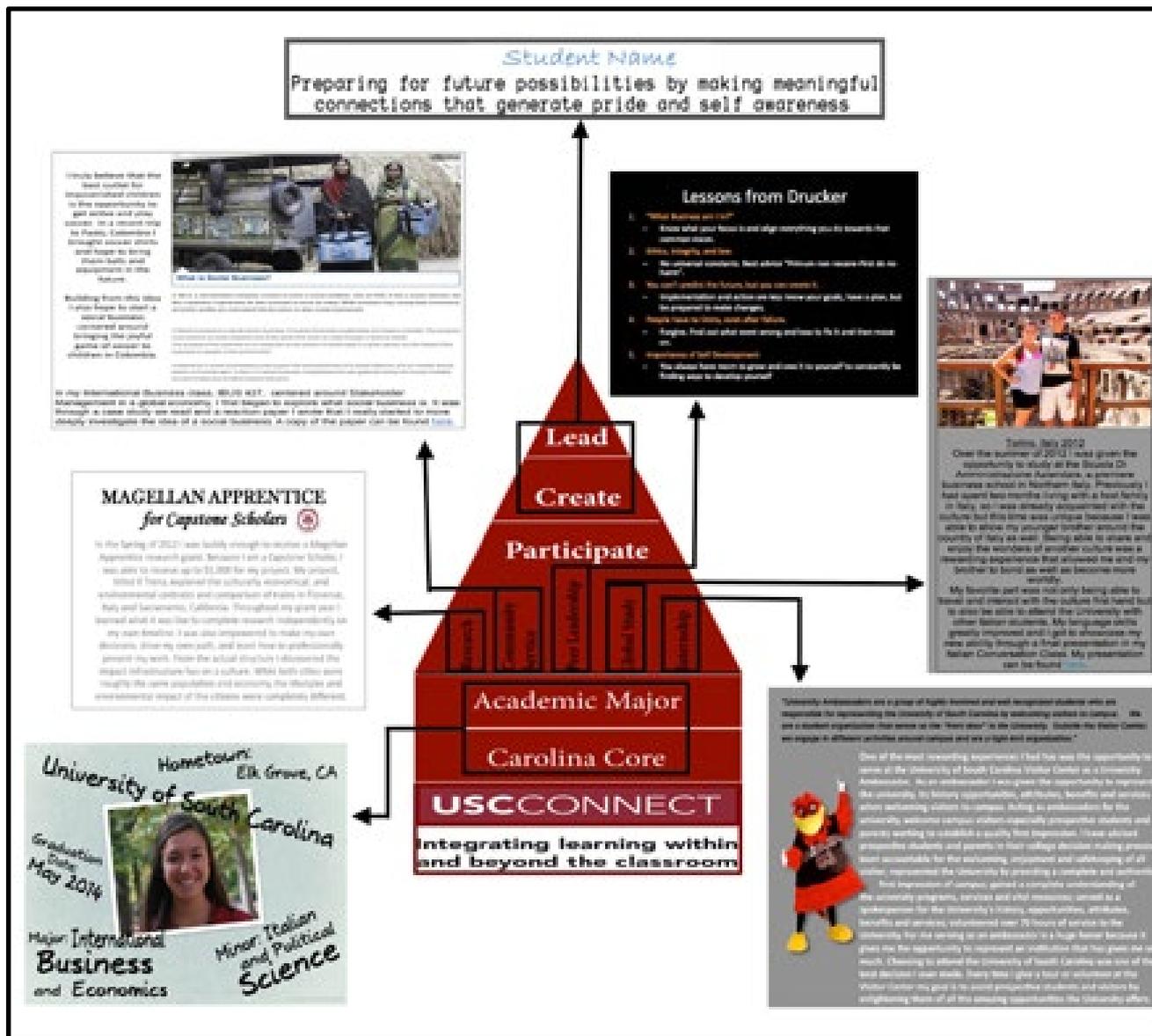
- People are empowered by knitting
- Knitting is being re-contextualized and reintroduced into the lives of modern men and women
- The knitting revolution is a reaction against globalization
- Knitting is being used for political and social dialogue
- Knitters of today are drawn to collective activity
- The internet has given freedom of choice in the ways knitters relate to one another

Acknowledgment

Dr. Barker
Dr. Kingsolver
University of South Carolina Magellan Scholarship and Magellan Mini-Grant
Caroline Weaver



Non-traditional layout for activities/experiences





GABA Mechanisms in Audiogenic Seizures Studied Using Herpes Virus and Lentivirus Mediated Gene Transfer

S. A. Epps^{1,2}, J. R. Coleman¹, ¹Department of Psychology, University of South Carolina, Columbia, SC 29208; ² South Carolina Honors College, University of South Carolina, Columbia SC 29208



Introduction

Audiogenic seizure (AGS) susceptibility in Long-Evans rats results from exposure to intense sound during an early sensitive period of development and is characterized by wild running and tonic convulsions following intense sound exposure. Experimental models of seizure disorders have demonstrated the efficacy of increasing GABAergic activity within the inferior colliculus (IC) in the AGS model. Increasing IC GABA levels directly or indirectly via injection of GABA agonists or increasing the availability of GAD⁶⁵ reduces AGS incidence and severity. Alteration of GABA_A receptor configurations also appears to be a critical feature of seizure susceptibility.¹

Gene transfer technology shows promise for the study and treatment of seizure disorders. Previous studies showed the effectiveness of injecting a herpes viral vector encoding for GAD65 or GABAAR1 to reduce the incidence of wild running and tonic convulsions. To study long-term expression, a lentivirus viral vector was injected into the central nucleus of the IC in order to change GAD⁶⁵ or GABA_A expression. Behavioral testing was then conducted to examine the effect of viral gene transfer on AGS. The incidence and latency of AGS, wild running and tonic convulsions were examined before and after injection. Immunohistochemical and histological examination of the injection site followed behavioral testing.

Previous Findings

Wild Running and Clonus Incidence Percentages Following GAD65 and Alpha-1 Mix Sense Herpes Simplex-1 Injections

Previous studies found that infection with GAD65 sense herpes viral vector significantly reduced the incidence of overall clonus, $\chi^2=2.852$, $p<0.05$. For wild running, there was a marginal increase in incidence between at pre-tests and Post-test 3, $\chi^2=2.205$, $p<0.05$, as well as significant decreases between each pre-test and Post-test 3.

Methods

AGS susceptibility in Long-Evans rats is typically induced by exposure to pure tone bursts (10 kHz, 125 dB SPL, 8 m) on PND 18, followed by subsequent testing on PND 32 (125 dB white noise, noise exposure 2 hr).

Subjects were pre-tested for AGS 2 and 3 days before surgery. Incidences of AGS activity (tone, wild running, or wild running & clonus) were recorded as well as latency to wild running and clonus.

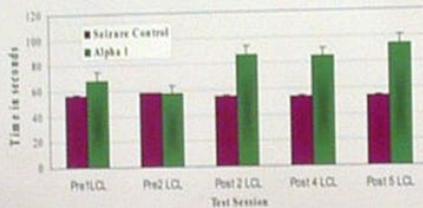
Histology: CNIC injections (1 or 2) were made at PND 30-35 using multiple alternate injection locations, and well-visualizing 11.6 mg/ml GABA_A α_1 lentivirus or 5.5 mg/ml GAD65 lentivirus viral vectors.

Behavioral testing for AGS was conducted 2 through 30 days after surgery using a 125 dB white noise.

Subjects were intracranially perfused with 3M PFA, 0.1M phosphate-buffered saline. Frozen coronal IC sections (20 μ m) were processed for b-galactosidase (b-gal) (Sigma), GAD65 (Chemicon), or Nissl substance.

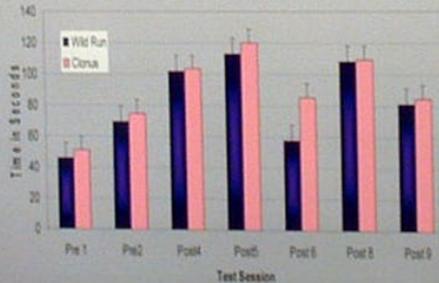
Results

Clonus Latencies Following Lentivirus Alpha-1 Sense Injections Compared to Control Rats



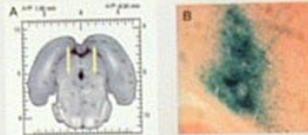
Treatment with lentivirus GABA α -1 injections yielded no significant changes in latencies to wild running. However, the latency to clonus increased significantly from pre-testing to Post-tests 2 ($F=10.528$, $p<0.05$), Post-test 4 ($F=15.180$, $p<0.05$), and Post-test 5 ($F=19.042$, $p<0.05$), as compared with seizure control rats. The overall incidence of clonus between pre-tests and post-tests was only marginally reduced, $p=0.063$.

Wild Running and Clonus Latencies Following Lentivirus GAD65 Sense Injection



The latency to wild running increased significantly from Pre-test 1 and 2 to Post-test 5 ($p<0.05$), Post-test 2 ($p<0.05$), and Post-test 5 ($p<0.05$), as compared to a control group. The latency to clonus also showed a significant increase as compared to control groups. This increase occurred for Post-test 4 ($p<0.001$) and Post-test 6 ($p<0.05$). The incidence of AGS seizures between sites decreased in rats injected with GAD⁶⁵ sense Lentivirus. Chi-square analysis for the incidence of wild running showed a significant decrease, $\chi^2=4.132$, $p<0.05$. Overall incidence of clonus also significantly decreased, $\chi^2=7.811$, $p<0.005$.

Diagrams and Figures



A. The central nucleus of inferior colliculus (CNIC), located in the midbrain region of the rat brain.
B. b-galactosidase (b-gal) staining shows injection site in medial central nucleus of right IC on neutral red background (50x).

Conclusions

1. Previous data showed that blocking GAD65 or GABAAR1 expression increases incidence of wild running and clonus in normal seizure resistant rats. Also, enhancing herpes GAD65 expression significantly reduces the incidence of clonus in primary post-testing in normal seizure resistant rats. Enhancing herpes GABAAR1 reduces the incidence of wild running in primary post-testing of normal seizure resistant rats.¹
2. Enhancing lentivirus α -1 expression significantly increases the latencies of clonus during post-testing. The overall incidence of clonus was marginally reduced.
3. Latency to wild run and clonus increased significantly in rats treated with a GAD65 sense lentivirus injection. Chi-square results also showed a significant decrease in wild running and clonus incidence following this injection.
4. This research suggests that introduction of viral vectors which influence the GABA system can be used systematically to study seizure mechanisms. This method may be useful in clinical treatment human epilepsy in the future.

References & Acknowledgements

References
1. Ross, K.C. & Coleman, J.R. (2005) Audiogenic seizures in the developmentally timed L-phenylalanine (DL) Developmental Psychobiology, 44, 303-310.
2. Fargnoli, D.L., et al. (2005) GAD65 in the inferior colliculus plays a critical role in normal audiogenic seizures. Brain Research, 1040, 40-47.
3. Coleman, J.R., et al. (2005) Founounen, G.D. & Ross, K.C. (2005) Herpes-mediated modulation of audiogenic seizure susceptibility. Epilepsia, 46, 130-144.
The author would like to thank the following:
A. J. Pineda, L. E. Vavoshin, L. E. Martin, N. Kumar, M. Dole, J. Owens, and K. C. Ross. ¹ Department of Psychology, University of South Carolina, Columbia, SC 29208; ² Department of Human Nutrition, Columbia College, Columbia

Want to provide additional information or handouts during your presentation? -add a folder or envelope of info to bottom of the display board

****MUST bring your own push pins or thumbtacks****

Display format

By permission and special request ONLY

This format is for static or visual arts; some demonstration based projects/experiences



- Contact our@sc.edu to discuss needs
- Table (half ~4ft) / NO poster board
- No electricity available

How To:

Planning your poster



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Planning:

#1

REMEMBER:

You are not in this alone –
talk with your mentor!

ASK for assistance!



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Planning: Identify Message

#2

What do you want the audience to know when finished?

Identify your message!



What information is
CRITICAL to understanding
this message?

**Include ONLY message
supporting information!**



Outline your message and supporting information

The abstract is a good starting point



Planning: Outline Information

Possible questions/issues to consider in your outline:

- 1) Clarify your message
- 2) What activities or results support message
- 3) What information is needed to understand the results/experience and how you got to those results
- 4) Are there images that can help explain or support the message
- 5) Introduce or explain the activity to put it in context
- 6) Are there any future plans or next steps
- 7) Review “typical” sections ([Slide #18](#))



**Stay message
focused!**



Map your outline into
poster format on paper

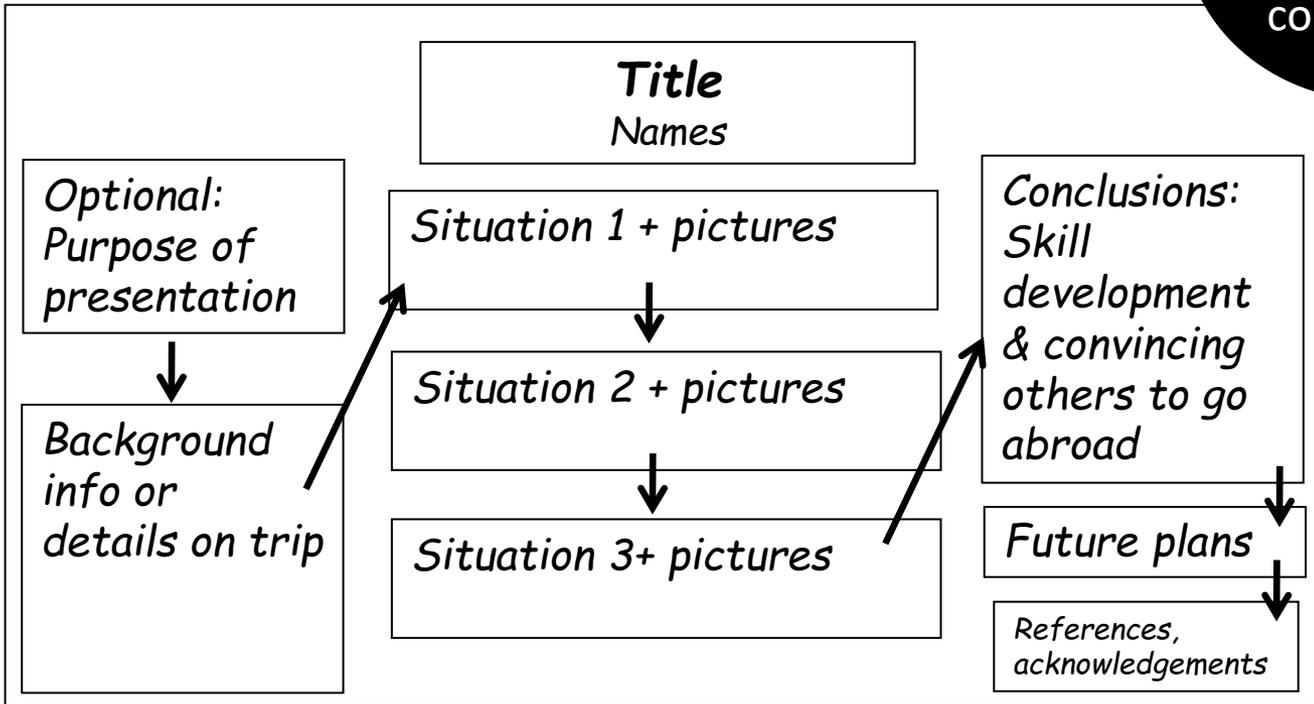
**Review critically;
focus on the message!**



Planning: Mapping Poster

EXAMPLE

#5
continued



Review critically; focus on the message!

Planning: Resources

#6

- *Connect with your mentor, supervisor, and/or instructor EARLY in the planning process for recommended resources and content*
- **REMEMBER:** *some content cannot be shared due to intellectual property – ask your mentor!*
- *General resources and how tos – there is a lot of info available on line to help support your poster development*



How To:

Creating your poster



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Creating your Poster with PowerPoint

A ton of info is available on line to help support your poster development

Check out YouTube for tutorials on making research posters in PowerPoint; be sure to filter by upload date for the most recent software versions

Discover UofSC Poster Size

MAX:48in (H) x 42in (W)

**MIN (GLD): 24in x 36in (vertical or horizontal;
[GLD poster templates and guidance here](#))**



How To:

Details: Making it GREAT



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Guidelines: Color

Use color, photos, charts, and graphs to **support** your poster and message.

Remember: A little color goes a long way. Stick to two or three colors **for text**.





Title Names, departments

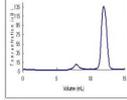
University of South Carolina, Columbia, SC



Abstract

Deposition of amyloid plaques within the cerebrovasculature, consisting mostly of insoluble fibrillar amyloid-beta protein (Aβ) aggregates, is a pathological feature in 25-50% of Alzheimer's disease (AD) brains. Polypeptides such as resveratrol, curcumin and quercetin, have been considered promising in disease modifying therapy for AD as they are capable of inhibiting formation of Aβ and dissociating preformed Aβ. In this study, we tested the effects of a new group of polyphenols - Agarins, luteolin, 3',4'-dihydroxyflavone and 5,7,3',4'-tetrahydroxyflavone - on Aβ dissociation.

AB Monomer Purification



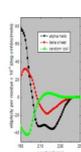
Size exclusion chromatography (SEC) is used to purify Aβ(1-40) peptides. Pre-existing aggregates, which can serve as aggregation seeds, are removed in this manner. The second peak represents the isolated monomer species. Concentration of AB monomers is determined from UV absorbance at 280 nm corrected for light scattering.

AB Fibril Preparation

Isolated monomeric Aβ(1-40) was incubated with 150 mM NaCl at 25°C and then agitated on a vortex at 500 rpm to promote assembly. Aβ was purified by centrifugation.

AB Fibril Measurement

Thioflavin T (ThT) fluorescence was used to monitor the quantity of amyloid material. ThT binds the β-sheet structure of amyloid fibrils, giving a characteristic shifted fluorescence emission and excitation. Measurements were taken to correct fluorescence changes caused by the inner filter effect.

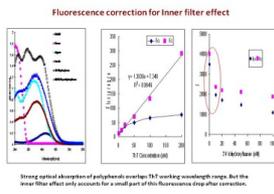
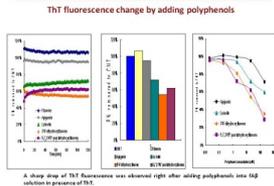


Circular dichroism (CD) is used to measure β-sheet structure of Aβ fibrils. Transmission electron microscope (TEM) imaging is used to visualize changes of Aβ. Double-reciprocal plots of ThT concentration and corrected fluorescence for different polyphenol concentration at fixed amount of Aβ were assessed to investigate binding competition. $1/ThT + \alpha \cdot Fmax / [ThT + Fmax]$ where α is the apparent binding constant, $Fmax$ is the maximum ThT fluorescence.

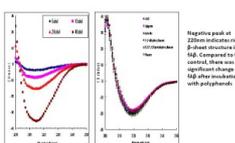
AB Fibril Dissociation Assay

Aβ were diluted to 20 μM in 40 mM Tris with 150 mM NaCl in presence or absence of 200 μM polyphenol. Reaction solutions were incubated without agitation at room temperature for at least 2 hours. Test samples were tested for ThT fluorescence, CD and TEM.

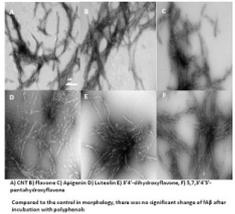
Results



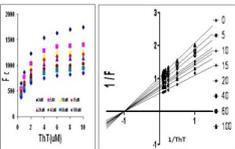
CD spectra of Aβ incubated with polyphenols



TEM imaging of Aβ incubated with polyphenols



Double-reciprocal plots of ThT concentration and corrected fluorescence



Conclusions

- Agarins, luteolin, 3',4'-dihydroxyflavone and 5,7,3',4'-tetrahydroxyflavone decrease ThT fluorescence associated with Aβ.
- The inner filter effect alone does not explain the large amount of fluorescent drop.
- Based on CD and TEM imaging evidence, polyphenols do not dissociate Aβ.
- Double-reciprocal plots of ThT concentration and corrected fluorescence indicate that polyphenols and ThT may noncompetitively bind to Aβ.

Future Work

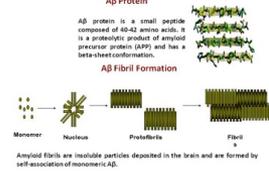
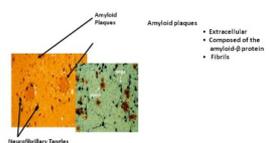
- Screen these polyphenols in proteofibril elongation and association mechanisms, to determine if binding effect other aggregation mechanisms.
- Determine whether polyphenol binding to Aβ can alter cell responses elicited by Aβ.

Acknowledgements

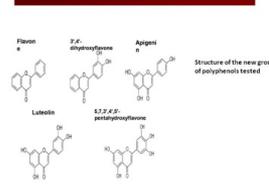
- Dr. Moss Research Group
- NSF CAREER Award (SES-0644826) to MAM
- Magellan Scholar Undergraduate Research Award
- South Carolina Undergraduate Research Funding (SURF) through the South Carolina Honors College
- Pilot Study Grant, University of South Carolina, Complimentary and Alternative Medicine Center

Background and Significance

Neuropathological Properties



Methodology



Impacting Communities, Changing Lives: Diabetes Education in Columbia, SC

Student name, Senior, Department of Anthropology
Free Clinic of Columbia, SC
Mentors: Names

Background

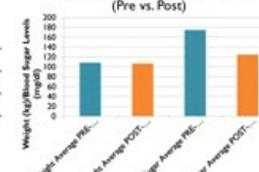
Diabetes is currently ranked 7th in terms of leading cause of death of most South Carolinians [1]. In addition to poor overall health in South Carolina, it makes sense that health education is not as heavily promoted in the state as it should be. When diabetes can cause the loss of limbs, eyesight, and a gambit of other health problems in combination with hypertension, education is a necessary in trying to limit the risk exposed of South Carolinians to this growing epidemic. This is exacerbated in disadvantaged communities where a market-poor diet may be the only diet available to them. In terms of education in South Carolina, 83% of high school students drop out between the ages of 16 and 18. This is incredible in comparison to the fact that 37.9% of high school students will not graduate with a high school diploma as a result of various factors [1]. With such unvarying statistics South Carolina is currently 47th in the nation in terms of quality public education [2]. It makes sense that such trends in terms of health education are also as low and unvaried.

Results

How Physical Health Was Affected

	Blood Pressure	Blood Sugar	BMI
Blacks	132/96	186.94	33.72
Whites	111/71	200.36	32.45
Hispanics/Other*	131/77	295	45.72
Normal Range	120/80	120	18.5-24.9

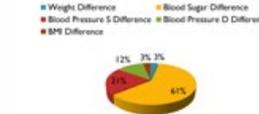
Weight and Blood Sugar Averages (Pre vs. Post)



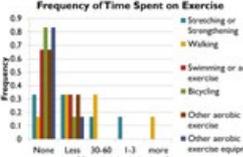
BMI Difference



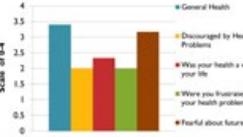
Differences in Wellness Markers



How Were Behaviors Affected?



Assessment of Overall Health/Worry Levels



Conclusions

Based on our results, we can effectively see the need of this program in the community. The data illustrates correlations in ethnicity and in education levels with behaviors and physical illness. Problems with promotion through the clinic and the restrictions in regards to assessments of patients after the sessions also presented us from gathering a true picture of another confounding aspect of our project showed that individuals were more confident after the sessions yet still did not alter their behavior enough to show any significant changes. Ways to improve the project consist of monitoring the program over a longer length of time and analyzing different educational models for involving patients.

Acknowledgements

Special thanks to the Carolina Leadership Institute for the grant that allowed for the completion of this project. I would also like to thank the Free Clinic of Columbia, SC for allowing my staff and myself to utilize their facilities for this project. I would also like to thank my team consisting of Stephanie Crawford, Philip Robb, Phyllis McLean, Haley Grimes, Charlotte Harris, Annalya Seal, Wessley Reeves, and Kristine Hubert. I would also like to personally thank Drs. Simmons and Crump for their continued mentorship through this project.

GOOD:
1) use of color to highlight and separate sections;
2) uses color and pictures effectively in results;
BAD: text small

Guidelines: Color

When choosing colors for your poster, err on the side of conservatism.

➤ Chartreuse and pink? **Not so much!**

Certain colors “vibrate” when side-by-side, making text difficult to read:

Headache

Yikes





Impacts of sea-level rise on Seattle, WA

DANIEL MAHR • BROWN UNIVERSITY • GEO132 • DECEMBER 12, 2009

Introduction

Among the many impacts of global warming, only one level has a physically defined basin and clear boundaries. Understanding the impacts of rising oceans is especially important since it is the most directly measurable impact caused by rising oceans. These topics enable understanding of coastal impacts through the use of a geographic information system.

Research questions:

- How much land will different amounts of sea-level rise impact in an urban area?
- How does the average urban/residential affect different building types (eg. residential, commercial, industrial)?

Data

LiDAR data: Light detection and ranging data are the most accurate means of digital elevation model available and horizontal and vertical resolution of topographic data from the alternative data is much better. The limits of a coverage's LiDAR data are defined from apparent area exposure to error. This, including elevation errors are only available for the data in a few areas.



Due to the quality of LiDAR data, I chose my King County study area as a result of the reference and freely available LiDAR data set from the Puget Sound Urban Consortium. The data is accurate enough to find a 1-foot difference in elevation for 1 foot and a vertical resolution of 1 foot.

Geocoding: For the correlation of inundation area with building types, I obtained data from the King County Department of Assessments.

Methods

Sea level rise heights:

- Three elevation data represent three levels of height rise: the mean high tide height must be added to determine the inundation amount. An high tide height is followed for low tide scenario calculate the value of 1.6 feet rise.

Inundation modeling:

- Elevation data were merged into a single digital elevation model from the LiDAR data.
- Using the Single-Outlet Map Algebra tool, waters were created from the DEM representing the inundation coverage at the heights 1, 3, 6, 9, 12, and 15-foot increases from the mean high tide height of 1.6 feet.

Building Classification: An algorithm was used to automatically determine the number of individual buildings covering an area. This, only with a value of 1 value for the flooded by 1-foot or 1.6-foot rise with a value of 1 occurrence for a 1-foot or 1.6-foot rise.

Building classification:

- Commercial and residential parcel data were processed and geocoded. 95% of commercial parcels and 98% of residential parcels matched.
- Using LiDAR values for floor rise, values 10-15 from the aggregated inundation raster were assigned to residential parcels.
- Using LiDAR values for floor rise, values 10-15 from the aggregated inundation raster were assigned to residential parcels.

Results

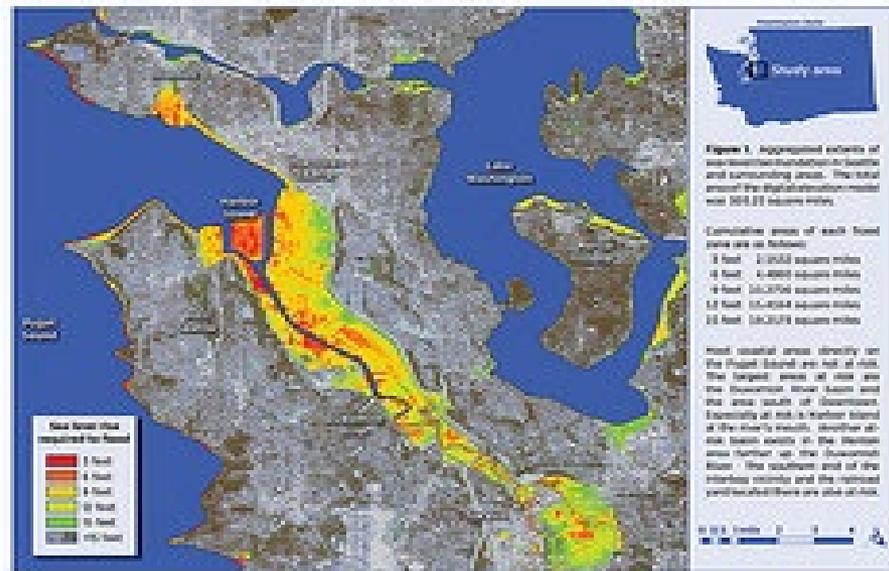
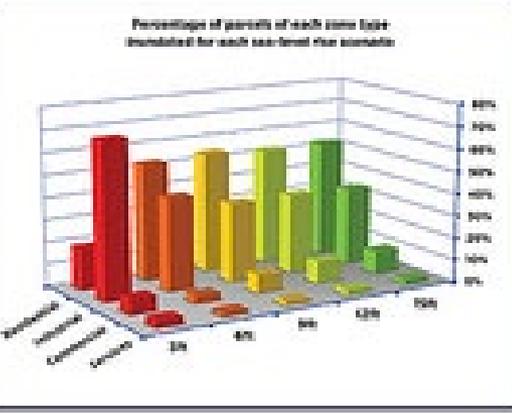


Figure 2. Sea level rise inundation impact by parcel type. Each bar represents the percentage of parcels of that type that are at risk of the total number of parcels inundated for that height. For example, 71% of parcels inundated by 1 foot of sea level rise are residential buildings. The percentage values from which the pie was derived are included below.

The unit used for this assessment is the number of parcels. Residential areas, which are generally made up of a smaller number of smaller parcels, are therefore likely to contribute other parcels. Although a similar analysis using aggregated water or volume heights as the dependent variable would produce meaningful results, they are not as practical. In the case of water heights, not all the floors in a given structure would necessarily be inundated by one foot rise. In the case of aggregated water, the representative value of a given parcel may easily exceed its volume value. This was dependent value of water rise further complicates this approach.

Parcels categorized as "Residential" include government buildings, the stadium, police stations, hospitals, houses of worship, schools, public parking lots, churches, and libraries.

Sea Level Rise	Residential	Commercial	Industrial	Residential	Total
1 foot	71%	17%	12%	0%	100%
3 foot	61%	21%	18%	0%	100%
6 foot	51%	21%	28%	0%	100%
9 foot	41%	21%	38%	0%	100%
12 foot	31%	21%	48%	0%	100%
15 foot	21%	21%	58%	0%	100%



Discussion

Land already under construction: Land already under construction is not greatly impacted by sea level rise. The extent of inundation is limited to the extent of the land. It is evident that the global-warmed basin in these areas has naturally developed dunes and shallow basins that are not greatly affected by sea-level rise. This is due to the nature of the terrain.

Sea level rise impact on Puget Sound: The Puget Sound basin is a shallow basin where large masses of land are only a few feet above the depth of the sea. The Puget Sound basin is the largest area of concern in the Puget Sound area. It is between 10 and 15 feet. This represents the most vulnerable area in the Puget Sound basin. This is due to the nature of the terrain and the fact that the Puget Sound basin is a shallow basin. This is due to the nature of the terrain and the fact that the Puget Sound basin is a shallow basin.

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Conclusions

Sea level rise impact on Puget Sound: The Puget Sound basin is a shallow basin where large masses of land are only a few feet above the depth of the sea. The Puget Sound basin is the largest area of concern in the Puget Sound area. It is between 10 and 15 feet. This represents the most vulnerable area in the Puget Sound basin. This is due to the nature of the terrain and the fact that the Puget Sound basin is a shallow basin.

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Acknowledgements

Help and Support:

- Open Earth - Brown University GIS System Manager
- Tom O'Brien - Brown University Senior Science Data Administrator

Data:

- LiDAR Data - Puget Sound Urban Consortium
- Parcels - King County Department of Assessments
- Geocoding - Puget Sound Urban Consortium
- Orthorectified - USGS National Wetland Inventory
- Coastline - Washington State Department of Transportation

GOOD: 1) use of color and contrast; 2) sections highlighted and separated for emphasis; 3) good focus on data/results; BAD: too much text

Guidelines: Color

Color can be used to accentuate, separate, and/or highlight information

Title

Name, Department, University of South Carolina

Problems, Issues & Plans

Purpose

This poster portrays the experience of the University of South Carolina from the decision of creating a journal of undergraduate research to the implementation. Each step will be discussed followed by lessons learned.

Why a Journal?

- Provide students multiple forums to showcase research (complements presentation opportunity through Discovery Day, university's research conference)
- Publication experience valuable to complete research process
- Publication in professional journals not available for all students
- Marketing tool to showcase student research

Why On-line?

- Available for all disciplines
- Broader audience access: students, prospective students, potential partners/collaborators
- Recurring costs low
- Content refreshed regularly
- Dynamic interface

Why Now?

- Technology advanced: to meet the needs of publications for all disciplines
- Administration support critical: impetus, staffing, and funds

Why Caravel?

- Named after the type of ship used by explorer Magellan
- "Magellan programs" is the university's undergraduate research brand
- Research is about the journey not the destination

Editorial and Submission Process

Submission Guidelines

- Guidelines must be discipline appropriate
- All submissions include a written component, for an issue/topic, format is an author's statement or abstract providing context
- Student form addresses plagiarism, copyright, and compliance issues (human subjects and animal use)
- Faculty mentor approval of submission
- "Paper" format to be submitted by email
- Writing center consult encouraged

Faculty Editorial and Advisory Board

- Same board used to guide journal development and review submissions
- Faculty reviews only
- Provide feedback on submission guidelines and site needs
- Market journal to colleagues and students

Role of Editorial Board

- Review all submissions within discipline or near-discipline
- Identify and solicit second reader (topic expert) for each submission (*see Lessons Learned)
- Provide publication recommendations in terms of timing and discipline representation
- Final decisions for publication made by Vice President for Research

Review and Feedback Process

- Anonymous review
- Two reviewers: editorial board and topic expert
- Three options: Accept with minor changes, accept with major changes, or revise and resubmit
- No decline option as this is viewed as an educational experience
- All students receive feedback
- "Revise and resubmit" may include a requirement of additional research inquiry and/or writing center consultation

Other

- Eligibility: Undergraduates and one year post-graduates
- Research conducted by university's undergraduates at any location and with any mentor
- Copyright: not restrictive; submission may be published in other formats

Site Design and Development

The original two design bids for Caravel

Site Considerations and Needs

- Time constraints, staff expertise, IT resources
- Server accessibility (will the site be hosted on- or off-site)
- Content Management System (allows easy updating of website with minimal training, eliminates annual contract with web developer)
- Platform responsive website (adjusts for desk/laptop/tablet, phones)
- Article archiving (flow offers, search options, accessibility)
- Submission process and forms (web or email)
- Journal focus (articles themselves) on the homepage
- What information needs to be available and where

Site Development and Bid Process

- Evaluate timeline to completion
- Previous experience (review previous jobs/websites for compatibility with journal needs)
- Compare and contrast competing bids for user interface
- Training of staff for site management
- Cost (\$34,500)
- Site: <http://caravel.sc.edu>

Moving Forward

Future Plans

- Student review board (graduate or undergraduates) may be added in future
- Submissions will move to webforms / database rather than by email
- Will use short, catchy titles to capture a broader audience (marketing focus)

Faculty and Student Quotes

Thank you so much for the good news you bring to [student], whose work it was my pleasure to supervise. I also commended the University, yourself and all others who work on the journal for having launched such a great initiative and for contributing to the development of our students. – Faculty mentor

Working with my partner and mentor on this paper has been extremely beneficial for me academically in that it has given me a thorough understanding of how to construct a proper research paper, and working well with others to finalize the project. This experience will help me reach my goal of going to graduate school. – Student

Lessons Learned

- Editors submit recommendations for second reviewers to Managing Editor
- Ensures submission is next to second reviewer in timely manner
- Ensures submission is not sent to student's mentor (may occur if reviewing anonymously)
- Short review times (max two weeks) and timely follow-up needed to maintain editorial timeline (enthusiasm does not equal timeliness)

Final product: Caravel screen captures, above. Caravel homepage. Below, an article page which includes the archive list, a video of the author describing his work, an abstract, and the submission itself (in this case a video).

The site design and editorial and submission process occurred concurrently for Caravel. It is important to evaluate where and when overlap should occur.

Guidelines: Color

Avoid
background
pictures!





Title

Names, departments

Introduction

Play behavior in juvenile rats is important for the recognition of social cues and behaviors in adulthood. One of the biggest indicators of play in juveniles is pinning (Panksepp & Beatty 1980), which is when one play partner is laying dorsal-side down with another partner laying on top (Vanderschuren et al 1997). Pins are usually preceded by contact with the dorsal area of the pinned rat.

In the past, play has been shown to be affected in models of Fetal Alcohol Syndrome (FAS) (Meyer & Riley 1986). While FAS models show that alcohol affects both duration and rate of social behavior (Kelly et al 2000), relatively little research has been done on play.

Siviy & Panksepp (1987) found that juvenile rats with their dorsal body surface anesthetized show a concentration-dependent reduction in play behavior. The current experiment uses an FAS model to analyze the effect of alcohol exposure on play behavior in rats with varying degrees of sensory impairment induced by local anesthetic.

Treatment

Prenatal and postnatal alcohol exposure administration was done via intragastric intubation (see table below).

Group	Treatment of Dams (GD1-Birth)	Treatment of Pups (PD2-PD16)
Ethanol Exposed (ET)	Dams were intragastrically intubated with 4.5 g/100ml of 20% ethanol in distilled water.	Pups were intragastrically intubated with 1.2 g/100ml of ethanol in distilled water and intubated two hours later with saline.
Maternal Controls (MC)	Dams were intubated with a vehicle (distilled water) during the above period for the duration of lactation of maternal dams. They were not fed to ET pups.	Pups were intragastrically intubated and intubated two hours later but without any solutions being administered.
Nonintubated Controls (NC)	Dams were not intubated.	Pups were not intubated.

Procedure

Two males and two females were used from each litter. Rats were weaned at postnatal day (PD) 21 and housed separately at PD 27. On PD 32 to 34, rats were habituated for five minutes to play in an isolated area. On PD 35, rat pairs began testing. Five doses of xylocaine, a local anesthetic, were used: 0.00%, 0.50%, 1.00%, 2.00% and 4.00%. .2 ml were administered dorsally in four places: behind each ear, and laterally at each side above the ribcage. The treatments were administered in randomized fashion over five days of testing.

Results

The amount of mean pins for each xylocaine treatment in the ET group was significantly more than the IC or NC groups, except for 0.50% & 4.00%. These data are collapsed across sex.



The mean dorsal contacts for each group followed the general pattern of peaking at 0.50% and decreasing, except for NCs, who peaked at 1.00%. These data are collapsed across sex.



Conclusions & Future Directions

The data at this point suggest that the effect of xylocaine treatment did not interact with group. This suggests that the change in play behavior seen here in ethanol-exposed rats is not a function of somatosensory processing changes, and instead must be a function of some other aspect of the social behavior system.

The heightened number of pins in the ET group suggests that either the ethanol-exposed rats are more motivated to engage in play behavior, are more sensitive to play initiation by another animal, or are more likely to exhibit play responses. The lack of differences in dorsal contacts across groups suggests that there are no differences in play responses and the lack of interaction between group and xylocaine dose suggests no differences in sensory sensitivity to play initiation. Therefore, it may be that motivation to play is altered in alcohol-exposed animals. This suggests that alcohol exposure may be altering social motivation during the juvenile period. FAS is known to increase the likelihood of impulsive, and subsequently delinquent, behavior, at least in males (Tremblay et al 1994), and this may be due to changes in motivation.

References

Kelly, S. J., Day, R., & Steingard, A. M. Effects of prenatal alcohol exposure on social behavior in humans and other animals. *Neuroscience and Biobehavioral Reviews*, 32, 140-160 (2008).

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Panksepp, J. and Beatty, W. W. Social depression and play in rats. *Behavioral and Brain Research*, 39, 107-108 (1980).

Siviy, S. M. and Panksepp, J. Sensory modulation of juvenile play in rats. *Developmental Psychobiology*, 29(1), 69-83 (1997).

Tremblay, R. E., Rhea, R. G., Mann, P., & Gauthier, W. L. Frustrated early onset of adult antisocial behavior from prenatal alcohol exposure. *Alcoholism: Clinical Experimental Research*, 19, 720-726 (1995).

Vanderschuren, L. J. M. J., Meelis, R. J. M., & Van Ree, J. M. The neurobiology of social play behavior in rats. *Neuroscience and Biobehavioral Reviews*, 21, 289-300 (1997).

digitalblasphemy.com

Background overwhelming & inconsistent with message; too much text and too small

Guidelines: Text

Break text into easy-to-read chunks:

- Use paragraphs sparingly
- Use lists/bullets
- Use audience appropriate language
- Use distinctive section headers
 - Emphasize with text size, color, or font





Introduction

Wireless Networks

- Wireless networks are expected to be available and reliable at all times and all locations
- Environmental conditions like walls, weather, and large crowds cause problems

Smartphones

- Smartphones have a variety of sensors built into them that can gather information about the surrounding environment
- These sensors include accelerometers, compasses, light detectors, and proximity detectors
- They also have wifi radios and GPS

Goals

- This project aimed to use the readings from the sensors to detect situations that will cause reduced signal strength
- It may be possible to predict when the user is going to have poor reception so the phone can plan accordingly

Other Work

- A number of other projects are underway that also make use of the sensors available on smartphones
 - Mobile Assistant for Inattentive Drivers (MAID)
 - Increasing the reliability of natural interaction systems such as Microsoft's Kinect

Methods

Android App

- An app was developed for Android phones that would automatically collect data every 15 minutes
 - This interval was chosen to balance frequency of collection with battery life
- The app was allowed to run constantly on the user's phone to collect data in real world situations
- The app uploaded data after each collection to a MySQL database

Data Collected

- Data collected included: time, proximity, battery level, location, cellular signal strength, and wifi signal strength
- The data were downloaded from the database into an Excel spreadsheet
- The correlation function in Excel was used to determine if acceleration, magnetic field, proximity, battery charge, or light appeared to have an influence on cellular and wifi signal strengths
- The data points corresponding to wifi signal strength were plotted on a map and color coded to indicate the signal strength of the University wireless network, "uscstudent" at that location.

Results and Discussion

Accelerometer

- Cellular Strength: 0.146
- Wifi Strength: 0.069
- These low correlation values indicate the absence of a relationship between acceleration and both cellular and wifi signal strengths

Magnetic Field

- Cellular Strength: -0.123
- Wifi Strength: -0.022
- These correlation values were even smaller than the ones for acceleration, so there is again little evidence to suggest a relationship between magnetic field and the signal strengths

Proximity

- Cellular Strength: -0.302
- Wifi Strength: -0.289
- These values are much stronger than the previous two and are the strongest observed.
- There is a possibility of a slight negative correlation
- The relatively strong correlation could also be explained by the phone being in a pocket versus in the open

Battery Change

- Cellular Strength: -0.291
- Wifi Strength: -0.193
- These values are weaker than the proximity values and slightly negative
- There may be a negative correlation between battery change and the signal strengths

Light

- Cellular Strength: 0.205
- Wifi Strength: 0.017
- These values were opposite the proximity values and much weaker
- This difference supports the possibility of being in the pocket reducing signal strength and being in the open increasing it

Figure 1: Wifi Map

- The map reveals the clustering of the data points
- As the project continues, a more even distribution of data points will be collected
- Wifi signal strength appears to be stronger inside than outside



Arena for Research on Emerging Networks and Applications

Wifi Map



Figure 1: Map of Wifi Signal Strength

Ongoing and Future Work

Signal Correlations with Other Sensors

- Use newer sensors such as gyroscopes, barometers, and thermometers
- Collect data in diverse scenarios using multiple phones

Mobile Assistant for Inattentive Drivers (MAID)

- Link the phone to the car's diagnostics port to get real-time data from the car's sensors
- Identify the fingerprint for each event and create the abstract sensor modules
 - *Reckless*: detect reckless driving
 - *Speed*: detect when the driver is going too fast
 - *Turn signal*: detect if the driver properly signaled before turning
 - *Stop*: detect if the driver obeyed a stop sign
 - *Lost*: detect when the driver appears to be lost
 - *Yield*: detect if the driver properly yielded at a yield sign
 - *Clog*: detect if the driver is causing traffic to back up behind him
 - *Drunk*: detect drunken driving
 - *Lane change*: detect lane changes
- Identify additional situations that might be detectable using the phone's sensors

Enhancing Kinect with Smartphones

- Wii uses accelerometer and gyroscope to detect motion
- Kinect uses video and depth cameras to detect motion
- Combine the two methods together to make a more robust system
 - Use the phone in the packet in place of the Wii remote
 - Use its accelerometer/gyroscope sensors to aid Kinect
 - Allow players Kinect cannot see to interact with the system
 - Help the system identify players from a crowd

Good use of color and contrast; sections highlighted and separated for emphasis; bulleted lists easier to read

Guidelines: Text

Use an easy-to-read font for all text at a minimum size of 24pt.

Avoid ALL-CAPS for extended blocks of text, as they are HARD TO READ.



Guidelines: Text

Limit to two fonts:

one serified and one non-serified



Guidelines: Text

Use “standard” fonts, such as:

Serif:

- Times New Roman
- Garamond
- Georgia

Sans Serif:

- Arial
- Calibri
- Verdana

Symbols, math:

Use only the most basic symbols needed



Guidelines: Text

Using “standard” fonts limits printing concerns

Unknown fonts might be changed during the printing process, resulting in changes to your design and layout

To avoid font substitution, see “how to” docs for embedding fonts prior to printing



Guidelines: Text

Suggested font sizes:

- **Title** - sans serif, Title Case, 90-120pts
- **Sub Titles** (names, etc) - sans serif, 72 pts
- **Section Titles** - sans serif, 45 pts
- **Main Text** - serif font, minimum 24pts (bigger is better!)



Guidelines: Images

Pictures, graphs, etc = **GOOD!**



Clip art = **BAD!!!!**



Guidelines: Images

- Check the quality of your image, picture, graph, etc. **BEFORE** printing (check it at 100% size – find this under “View” in PowerPoint)
- Avoid pixilated pictures and graphs!



Guidelines: Images

Don't use images you find on the internet for your poster unless you know:

1. The images are not copyrighted
2. The images are large enough to print well on your poster



Guidelines: Aesthetic

Simplify!





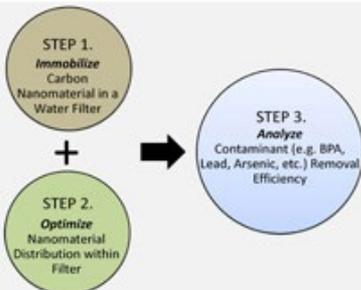
Excellent example of image use and extremely limited text

Motivation:

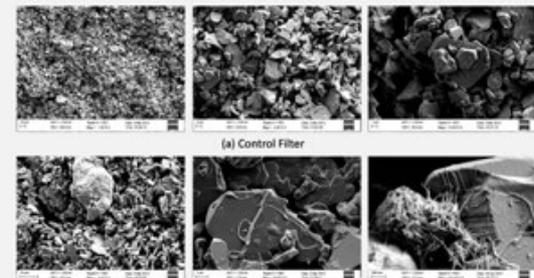
- World-wide potable water crisis needs affordable treatment technologies
- Nanomaterials have promising capabilities (sorption/filtration)
- Lack of strategy for useful application



Objectives:



Results:



(a) Control Filter
(b) MWNT-Enabled Filter
Figure 1: SEM Images

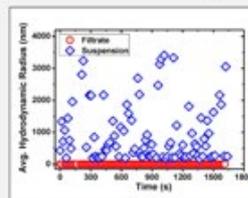


Figure 2: Hydrodynamic Radius

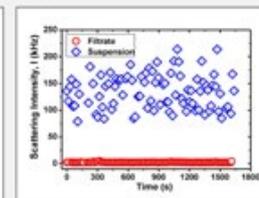
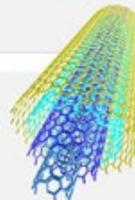
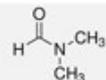


Figure 3: Scattering Intensity

Materials:

- Carbon Nanotubes (CNTs)
- Organic Solvent: N,N-Dimethylformamide
- Commercial Water Filter

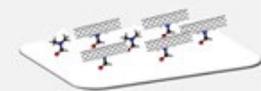


Underlying Mechanism:

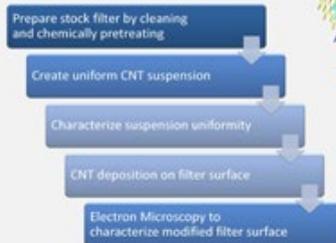
Untreated Filter Surface
(No Affinity)



Chemically Treated Filter Surface
(Thermodynamic Affinity)



Methods:



Conclusions:

- CNTs can be deposited on functionalized surfaces
- The attachment is irreversible thus results in immobilized CNT coated surfaces



Guidelines: Aesthetic

Question everything!

- Does it support the message
- Is the language understandable
- Is it too wordy
- Is it too busy



How To:

Viewing and Editing



Viewing and Editing

Throughout the process, view layout and contents at **full size** and **overall**!

In PowerPoint:

- To view full size: View-Zoom-100%
- To view overall: View – “fit-to-window”



Viewing and Editing

Share drafts with mentor and peers:

- HONEST opinions
- Editing assistance (grammar, spelling, language usage, layout, aesthetics, etc)

In PowerPoint:

- Email PowerPoint file
- Convert to PDF (Office button-Save As-PDF)
- Print on 8.5x11 paper (Office button-Print-check box: Scale to fit paper-preview to confirm-Print)



Viewing and Editing

Full size editing:

If possible, it's a great idea to print out a full size draft for editing

HOW: ([tips here](#))

- Printers
- Adobe Acrobat
- Publisher
- Excel
- Other?



Remember:

A successful poster...

- conveys a **clear message**,
- by **high-impact** visual information,
- with **minimum** text

...grabs attention!



How To: Presenting



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Presenting

The TALK

#1

- Prepare a 30sec, 2min, and 5min overview of your project/activity
- Possible topics (think message and outline):
 - the context of your problem/experience and why it is important (Introduction/Background)
 - your objective and what you did
 - what you discovered or results
 - what the answer means in terms of the context or the impact

Spread the message!



Presenting

#2

Consider Audience

- Be prepared to talk with experts and non-experts
- Know definitions
- Critically review your poster and talk for potential questions
- Don't be scared of "I don't know," "I hadn't thought of that," and "Great idea!"

Don't assume knowledge!



Presenting

#3

Engage the viewer

- Invite the viewer to ask questions or offer to “walk them through it”
- Use the poster as a visual aid to emphasize points and share information (point to things)
- Don’t stand in front of your poster (can move in while pointing to things)

Be welcoming!



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Presenting

#4

Attitude

- If you are bored – your audience will be bored!
- Show your enthusiasm for your topic

Share your passion!



Presenting

#5

Appearance

- Don't distract the audience with your own appearance
- Be neatly neutral OR complement colors
- Business casual (suits not required)
- Sensible shoes (remember standing!)

Don't clash!



As **Gamecocks**,
our expertise has
No Limits.



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