

NSFSG Progress Report: AY 2008-2009

PRESENTATIONS (by faculty or students)

On-campus Presentations. (NOTE: Include only one presentation per row)

Presenter's Name	Presenter's Department	Title of Presentation	Oral (X)	Poster (X)
Benjamin Nixon, Brian Cunningham, Andrew Morris, Greg Caputo	Chemistry and Biochemistry	Investigating the Influence of Lipid Composition and pH on Peptide-Membrane Interaction		X
Whitney Wilson, Lubov Arotzky, Michael Urban, Greg Caputo	Chemistry and Biochemistry	Investigation of a Sequence Modified Antimicrobial Peptide		X
Eileen Oni, Cristina Iftode	Biological Sciences	Production of early and late proteins in adenoviruses with altered DNA polymerase coding sequences		X
Thomas Smith, Cristina Iftode	Biological Sciences	Optimizing conditions for transfection in mammalian cells with a GFP tagged plasmid		X
Luis E. Reyes and Charles E. Warrington (STEM) Darius Kuciauskas	Chemistry and Biochemistry	Preparation of Dye-Sensitized Solar Cells		X
Michael Reca (STEM) , Darius Kuciauskas	Chemistry and Biochemistry	Third-Generation Solar Cells: Sensitizer Binding to Nanostructured Semiconductors		X
Prasad Ranadive and Charles Warrington (STEM) Darius Kuciauskas	Chemistry and Biochemistry	Porphyrin Assemblies for Light Harvesting		X
Nathaniel Havens, Amos Mugweru	Chemistry & Biochemistry	Electrochemical sensors based on multiwalled carbon nanotubes (MWCNT) for prostate specific antigen (PSA)		Rowan University, STEM, April 17, 2009
Christopher Fable, K.V. Ramanujachary	Chemistry and Biochemistry	Coal-Gasification-An Alternate Route to Petroleum		X
William Carole and Lindsay Poole, K.V. Ramanujachary	Chemical Engineering	Fisher-Tropsch Synthesis for Clean Petroleum	X	
Kelly Savastano, Steven Solecki, Grigoriy Efros, Dr. Gabriela Hristescu, Dr. Courtney Richmond , Dr. Dexter Whittinghill	Students: Biological Sciences Richmond: Biological Sciences Hristescu: Computer Science Whittinghill: Mathematics	The effect of light on the growth and morphology of the threatened seagrass, <i>Halophila johnsonii</i>		X
Kelly Savastano, Dr. Courtney Richmond	Biological Sciences	The effect of light on the growth and morphology of the threatened seagrass <i>Halophila johnsonii</i>	X	X
William Wolff	Writing Arts	On Web 2.0	X	

National/International Technical Meetings. (NOTE: Include only one presentation per row)

Presenter & His/Her Affiliation	Co-authors & Their Affiliations	Title of Presentation	Oral (X)	Poster (X)	Name of Event	Location	Date(s)
Emily Blanck , Rowan University	N/A	The Ignored Story of the Tyrannicide Affair	X		AAAHRP	Seattle WA	3/20-3/22/09
Emily Blanck , Rowan University	N/A	Moving Beyond Person and Property	X		San Francisco State Conference on Rights	San Francisco, CA	9/17-9/18/09

Greg Caputo (Rowan)	Emmanuel Yawson, Michael Urban (Rowan University)	Antimicrobial Peptide C18G binds to Lipid Bilayers in a Lipid Composition dependent Manner		X	53 rd Annual Meeting of the Biophysical Society	Boston MA	2/28/09-3/04/09
Michael Fitzgerald/Rowan, Cristina Iftode	Rebecca Lewandowski, Eileen Oni, Thomas Smith, Cristina Iftode/Rowan	Differential effect of mutations in a nonconserved region of DNA polymerase on adenovirus late protein production		X	28th Annual Meeting of the American Society for Virology	Vancouver, Canada	July 11-15, 2009
Cristina Iftode /Rowan	Michael Fitzgerald, Rebecca Lewandowski, Eileen Oni, Thomas Smith/Rowan	Non-conserved residues of the adenovirus DNA polymerase required for entry into the late phase of the adenovirus infectious cycle	X		ICBP Symposium: On Route From Cell Biology to Molecular Medicine	Bucharest, Romania	September 9-12, 2009
Mark Hutter Rowan University	DeMond S. Miller, Rowan University	"Disaster Tourism and the Post-Katrina Redevelopment of New Orleans."	X		The Annual Meeting of the Society for the Study of Symbolic Interaction.	San Francisco, CA.	(August 9 to 11, 2009)
Mark Hutter Rowan University	DeMond Miller Rowan University	"Technological Disaster, Environmental Tourism, and the Rebuilding and Rebranding of New Orleans."	X		Society for the Interdisciplinary Study of Social Imagery.	(March 12-14, 2009).	Colorado Springs, CO.
DeMond Miller S. Rowan University		"This Place is Off Limits—Reclaiming, Rebuilding, and Reconnecting in the Disaster Landscape: A New Paradigm for Reconnecting People to Places of Tragedy, Tragedy and Disaster."	X		The Annual Meeting of the International Association for the Study of Environment, Space and Place.	Towson, MD.	(2009). (April 24-26, 2008).
DeMond Miller Rowan University	Mark Hutter and Joel Yelin Rowan University	"The Seen, Unseen, and Emerging Culture of Disaster Preparedness in Urban Landscapes."	X		The 72nd Annual Meeting of the Southern Sociological Society.	(April 1-5, 2009).	New Orleans, LA.
Nathaniel Havens Rowan University Amos Mugweru	Amos Mugweru Rowan University	Functionalization of Multi-walled Carbon Nanotubes for Early Detection of Prostate Specific Antigen		X	Philadelphia section of the American Chemical society	Temple University	January 22, 2009
K.V. Ramanujachary, Chemistry and Biochemistry	Heather Peterson, Samuel Lofland of Rowan University J.Gopalakrishnan, Indian Institute of Science, Bangalore, India	Synthesis and Properties of Novel Double Perovskites of the type Ln ₂ NiMnO ₆		X	International Conference on Materials for Advanced Technologies	Singapore	June28-July3, 2009
Courtney Richmond (Biological Sciences, Rowan)	Kamille Hammerstrom (Moss Landing Marine Laboratories), Kenneth A. Rose (Louisiana State University), W. Judson Kenworthy (NOAA-Beaufort laboratory)	Johnson's seagrass model	X		Johnson's seagrass Recovery Team meeting	St. Petersburg, FL	March 4-5, 2008 * Note: this occurred just before the NSF application was

							submitted and the travel was funded by the Recovery Team – this is not a direct deliverable from this NSFG
Melanie Stewart , Producing Artistic Director		2009 nEW Festival	X		2009 nEW Festival	University of the Arts	June 1-19, 2009
William Wolff , Rowan University		When understanding hypertext isn't enough: Notes toward a new online literacy	X		The Seventh Biennial Watson Conference	Louisville, KY	Oct 2008

PROPOSALS FOR EXTERNAL FUNDING

(NOTE: Include only one proposal per row)

Authors	Author Affiliations	Proposal Title	Funding Agency	Period of Funding
Emily Blanck	Rowan University	<u>The Tyrannicide Affair: Slavery and the Law in Revolutionary South Carolina and Massachusetts</u>	Cromwell Fellowship	2010
Greg Caputo	Rowan	Sequence-Structure-Activity Relationships in Membrane Interacting and Transmembrane Peptides	Research Corporation for Science Advancement	01/2010-12/2011
Greg Caputo	Rowan	CAREER: Structure Activity Relationship in Host Defense Peptides	National Science Foundation	07/2010-06/2014
Greg Caputo	Rowan	Structure Activity Relationship in Host Defense Peptides	National Institutes of Health	07/2010-06/2012
Patrick Crumrine and Jason Rohr	Rowan University University of South Florida	The role of biodiversity in reducing host trematode infections	The National Science Foundation	5/2008-9/2008
	Michael Fitzgerald, Rebecca Lewandowski, Eileen Oni, Thomas Smith/Rowan			

Kuciauskas and Caputo	Rowan University	Peptide-Directed Functional Porphyrin Light Harvesting Antennas for Third-Generation Solar Cells and Artificial Photosynthesis	NSF, proposal in preparation for September-November annual submission window	3 years starting June 2010
Tom Merrill		Combination Device Hypothermia and Intracranial Thrombectomy	NIH – SBIR Phase I	January 2010 to September 2010
DeMond Miller	Rowan University	Public Allies Partnership	Public Allies	Approx \$190,000 per year for 5 years
Samuel Lofland, K.V. Ramanujachary , Jeffrey Hettinger and Parise von-Lockette	Rowan University	MRI-Acquisition of a Four Circle X-ray Diffraction System for Education and research	NSF	Jan-2010-Jan-2011.
Melanie Stewart	Artistic Director, Melanie Stewart Dance Theatre	2009 nEW Festival	Dance Advance, Pew Center For Arts and Heritage Independence Foundation Philadelphia Cultural Fund PA Council on the Arts	May 22- June 19, 2009 FY 2009 FY 2009 FY 2009
William Wolff	Rowan University	Web 2.0 and the Emergence of a New Information Literacy	NEH	Summer 2009

Additional proposal information:

Proposed Funding Amount to Rowan University	Proposed Funding Amount to Collaborators	In Preparation (X)	Abandoned (X) (will not submit)	Submitted (X)	Awarded (X)	Rejected (X)
Emily Blanck				X		
Greg Caputo-47000	0			X		
Greg Caputo-400000	0			X		
Greg Caputo-300000	0	X				
Darius Kuciauskas Proposal in preparation, not available						
Tom Merrill	\$165,000			X – April 6th		
Lane Savadove Lane Savadove Lane Savadove Lane Savadove	EgoPo Classic Theater EgoPo Classic Theater EgoPo Classic Theater EgoPo Classic Theater	Bluebird: Production Expenses Bluebird: Project support Bluebird: Organizational Support for project Bluebird: Project support	Drexel University Samuel Fels Foundation Philadelphia Cultural Fund PA Council on the Arts	09/2008-05/2009 09/2008-05/2009 09/2008-05/2009 09/2008-05/2009		
William Wolff	6,000					

MANUSCRIPTS/PUBLICATIONS

(NOTE: Include only one manuscript per row)

Authors	Author Affiliations (match authors and their affiliations)	Title
Emily Blanck	Rowan University	The Tyrannicide Affair: Slavery and the Law in Revolutionary South Carolina and Massachusetts
Darius Kuciauskas and Gregory A. Caputo	Rowan University	Self-Assembly of Peptide-Porphyrin Complexes Leads to pH-dependent Excitonic Coupling
Stephanie Evans, Colette Taylor, Michelle Dunlap, and DeMond S. Miller	Evans-University of FL Taylor-Texas Tech Dunlap-Central Conn Miller-Rowan University	Evans, Stephanie, Colette Taylor, Michelle Dunlap, and DeMond S. Miller. (2009). <u>African Americans & Community Engagement in Higher Education: Practice, Research, and Reflection in Community Service, Service-Learning, and Community-Based Research</u> . The State University of New York Press. Albany, New York.
Joel Yelin and DeMond Miller	Yelin-Rowan University Miller-Rowan University	Yelin, Joel and DeMond Miller (2009). "A Brief History of Environmental Inequity and Military Colonialism on the Isle of Vieques, Puerto Rico." <i>Environmental Justice</i> . Vol. 2:3 pp. 153-159.
Jason Rivera and DeMond Miller	Rivera-Stockton College of NJ Miller-Rowan University	Rivera, Jason D. and DeMond Miller. (2009). "Environmental Education with a Focus of Risk." <u>Journal of Applied Security Research: Prevention and Response in Asset Protection, Terrorism and Violence</u> , Vol. 4:1 pp. 60-67.
Nathaniel Havens and Amos Mugweru	Rowan University	Carbon nanotube based electrochemical sensors for Cancer biomakers Manuscript in preparation
Sonalika Vaidya [@] , K. V. Ramanujachary[#] , S. E. Lofland [#] and Ashok K. Ganguli [@]	#Rowan University @Indian Institute of Technology, Delhi, India.	Synthesis of Homogeneous NiO@SiO ₂ Core-shell Nanostructures and the Effect of Shell Thickness on the Magnetic Properties. Published in Crystal Growth and Design, <u>Crystal Growth Design</u> , 2009, 9 (4), pp 1666–1670.
R.J. Booth ^a , R. Fillman ^a , H. Whitaker ^b , Abanti Nag ^c , R.M. Tiwari ^c , K.V. Ramanujachary^b , J. Gopalakrishnan ^c and S.E. Lofland ^a	A and B: Rowan University C: Indian Institute of Science, Bangalore	An investigation of structural, magnetic and dielectric properties of R ₂ NiMnO ₆ (R = rare earth, Y), Materials Research Bulletin, Volume 44, Issue 7, 1, Pages 1559-1564
Richmond, CE , Hammerstrom, KK, Whittinghill, D	CE Richmond – Rowan, Biological Sciences KK Hammerstrom – Moss Landing Marine Laboratories D Whittinghill – Rowan, Mathematics	Tentative title: The effects of light reduction on the growth morphology of the threatened seagrass <u>Halophila johnsonii</u>
Lane Savadove	EgoPo Classic Theater	Bluebird by Maurice Maeterlink adapted and directed by Lane Savadove
William Wolff , Katherin Fitzpatrick, Rene Youssef	Rowan University	Rethinking Usability for Web 2.0 and Beyond

Additional manuscript information:

In Preparation (X)	Abandoned (X) (will not submit)	Submitted (X)	Rejected (X)	Accepted (X)	Published (X)	Publication (complete citation information)
X						Emily Blanck
		X				Darius Kuciauskas Journal of Physical Chemistry B (2009)
					X	Weaver, K. Mark, Robert D'Intino, DeMond Miller , Edward J. Schoen, (2009). "Building An Entrepreneurial University: A Case Study Using A New Venture Development Approach." Pg. 107-121. In. <u>Handbook of University-Wide Entrepreneurship Education</u> . Page West, Elizabeth Gatewood, Kelly Shaver. Edward Elgar Publishing: Northampton, MA.

					X	DeMond Miller S. and Jason D. Rivera. (2008). <u>Reconfigured Landscapes and the Global Distribution of Risk in the Wake of Natural Disasters: The Indian Ocean; Kobe, Japan; and Hurricane Katrina</u> . Pg 106-123. In <u>Dangers in the Incommensurability of Globalization: Socio-Political Volatilities</u> . By: Gary Backhaus and John Murngi (eds). Cambridge Scholars Publishers: Newcastle, United Kingdom.
X This full-length manuscript is due for submission December 30, 2009.						(Forthcoming) DeMond Miller S. and Jason D. Rivera. <u>Community Disaster Recovery and Resiliency: Exploring Global Opportunities and Challenges</u> . Aurebach/Taylor & Francis. Boca Raton, Florida.
X This full-length book manuscript is due for submission March 20, 2010.						(Forthcoming) DeMond Miller S. and Jason D. Rivera. <u>Comparative Emergency Management: Examining Global and Regional Responses to Disasters</u> . Aurebach/Taylor & Francis. Boca Raton, Florida.
				X The revisions to this paper will be submitted Tuesday October 13, 2009		Yelin, Joel, Jason D. Rivera, and DeMond S. Miller (in press). "Geography of the Pilgrimage: Place and Spirituality in Japanese Buddhism." <u>International Journal of Culture, Tourism and Hospitality Research</u> . Vol. xx: Is. Xx.
X						Amos Mugweru
						Richmond, CE We will submit the first manuscript from this work to the journal <u>Aquatic Biology</u> .
					X	Lane Savadove 12 Performances, Mandell Theater, Philadelphia, PA 4/25/09-5/16/09
					X	Wolff, W.I. , Fitzpatrick, K., and Youssef, R. (2009). Rethinking usability for Web 2.0 and beyond. <u>Currents in Electronic Literacy</u> http://bit.ly/1R3r8

RESEARCH RESULTS

Include the highlights of the research activities and significant results. Use as much space as needed. Do not include graphics.

Emily Blanck My highlight was working with my student research assistant, Tessa Knight. Her help allowed me to spend more time compiling my data while we both collected materials. Moreover, as a burgeoning historian, I was able to show Tessa how archival research is done by going on two research trips.

On our research trips we were able to sift through the records of dozens of towns to discover that very few Massachusetts towns recorded the emancipation of their enslaved populations.

We also reviewed letters and notes from the Continental Congress and the 1787 Constitutional Convention to find that our incident has not been directly written about among the participants.

Greg Caputo The initial results of our experiments have shown a significant lipid dependence on the interaction of host-defense peptides (HDPs) with lipid bilayers. The indication from our initial findings is that the primary and most important driving force for interaction is the electrostatic interaction between the cationic HDPs and the anionic lipid membrane surface. This work has been extended to test the functional relevance of amino-acid structure on the binding behavior and efficacy of HDPs. Bacteriological experiments show 0-2fold impacts on compound efficacy upon alteration of the cationic amino acid side chain. With respect to membrane interaction, these experiments have recently begun (6/09) and are beginning to yield results. As a parallel, we have begun investigation of the thermodynamic properties of several of the cationic amino acids when incorporated in a lipid membrane environment. This provides a baseline for the magnitude of the effects we can expect to see in the HDPs.

Patrick Crumrine The objective of the project was to examine factors that affect the transmission of a trematode (flatworm) parasite from snails to amphibians. Understanding these factors is important because increased susceptibility of amphibians to parasites is thought to be one potential cause of global amphibian decline. I was specifically interested in learning whether the presence of parasite predators (dragonfly larvae) could reduce infection rates in amphibian tadpoles as parasites swim from one host (snails) to the next host (amphibian tadpoles). I approached this issue with a manipulative experiment. Green frog tadpoles were exposed to treatments with different levels of larval dragonfly diversity and also different levels of dragonfly density. All tadpoles were also exposed to snails infected with two different parasite species (*Echinostoma trivolvis* and Plagiorchiidae). The two primary response variables of the experiment were tadpole survival and the infection load of the tadpoles. I hypothesized that higher larval dragonfly density and diversity would lead to lower levels of parasite infection in the tadpoles.

Results from the experiment indicate that tadpole survival was not significantly influenced by the dragonfly diversity or density treatments. This is not surprising because previous studies have indicated that both parasites used in the experiment are not highly lethal to tadpoles in the developmental stages used in the experiment.

Data on infection loads are not yet available. It is a very labor and time intensive process to quantify the parasite load in preserved tadpoles. There are 640 tadpoles from the experiment. The intestine from each tadpole must first be dissected and this must be done under a dissecting microscope. This is necessary because the intestine makes up a significant portion of the mass and surface area of the animal. It is not possible to view the entire tadpole and the parasite cysts in the tadpole with the intestine obstructing the view. The intestine and any skin that was removed from the tadpole must then be observed under higher magnification using a compound microscope to quantify any parasite cysts that were removed in the dissection process. Each tadpole must then be flattened by placing it in between two microscope slides. Only then can an accurate parasite cysts count be obtained from the whole tadpole.

Cristina Iftode Effect of DNA polymerase/IVa2 promoter mutations on viral replication and propagation:

In previous work on late adenoviral transcription (IVa2 gene), we found that substitutions of two non-conserved residues in the C-terminal region of Adp1 (positions 989 and 992 in the Rep8 mutant) associated with poor viral propagation in transfected cells. Two other mutant viral genomes, Rep6 (one conserved amino acid change) and Rep7 (no amino acid change), and a wild type control (RepWT) were also examined. Viruses carrying the Rep6 and Rep7 mutations were readily isolated and displayed wild-type replication kinetics. In contrast, the Rep8 mutant produced very few plaques and proved difficult to propagate. Our results indicate that the poor Rep8 recovery is not a reflection of a primary defect in viral DNA synthesis. Rather this is caused by the deferential effect of the mutations on late protein synthesis. Since these mutations superimpose on the IVa2 promoter region, it is possible that some sort of viral packaging defect is involved. These findings are relevant for the design of more efficient adenovirus-based gene therapy vectors.

Purification of a protein complex containing the IVa2-RF cellular repressor:

As previously found by collaborators from Prof. Flint's lab at Princeton University, attempts to purify the cellular repressor of adenoviral transcription as a single protein species were unsuccessful. All chromatographic fractions that showed adenoviral promoter binding activity represented a complex of two different proteins. This suggests that the cellular repressor regulates adenoviral transcription in tandem with a cellular co-factor. The PI will use this protein complex to investigate transcription mechanisms from two late promoters, E2L and IVa2. We will examine the possibility that the cellular repressor controls the activation of several late genes, not just IVa2.

The PI has performed additional research in conjunction with the National Geographic Society's Genographic Project (see Project 2: A Survey Of Deep Ancestry Based On DNA Samples From A Rowan University Group).

Darius Kuciauskas At Rowan, I am developing a research program on novel, biomimetic approaches to photovoltaic solar energy conversion. My major goal is to develop novel "light harvesting antennas" similar to photosynthetic antennas. Hopefully, such antennas will be useful in organic and organic/inorganic solar cells.

To test solar cell efficiency, we needed a solar simulator. With NSFGR support, we acquired parts for such "low cost" solar simulator. Currently, we have functioning equipment for measuring photovoltage-photocurrent characteristics of solar cells. We also acquired some parts for IPCE measurements (quantum efficiency measurements using monochromatic radiation). IPCE instrument will be built in 2009-2010.

I am using NSFGR support to collect initial results that could strengthen our proposals to NSF (and perhaps other agencies that could support solar energy research). NSF proposal will be submitted during the next annual submission window of the chemistry program. Solar simulation equipment is also used for teaching; three STEM posters were presented in 2009. In the future, this equipment will also be used in the Physical Chemistry laboratory II course.

Michael Lim This endeavor was originally proposed as a two-year project to conclude in 2010. In spite of the shortened work period of one year, we have made strides toward our goal of loading and manipulating atoms in a patterned optical potential just above the surface of a super-polished optical surface. We have also laid the groundwork for continuing research in the coming year.

I made an initial visit to NTU in January 2009 during which I gave a research seminar, became acquainted with the experiment apparatus, and co-developed a procedure for attempting to measure the Casimir-Polder (CP) force in preliminary work with the optical chip apparatus. This last measurement will use the ultra-cold atoms loaded in the trap to create a quantum-superposition of two excited states, whose phase evolution will be affected by the CP force. Because the CP force is appreciable only at short range, the atoms will be sensitive to the changing effect as the atoms are lifted above the chip with micron-scale resolution. The observable will be the height-dependent beat signal in the relative occupation of the two states.

This work will continue in my upcoming sabbatical year, which I will spend almost entirely at NTU. The CP-force measurement is of fundamental interest in its own right (it is non-trivial to devise a system responsive enough to make this measurement), but will serve as a test of the general capabilities of the apparatus. Following this we will embark on the atomic coherence measurement outlined in the original, two-year proposal.

Tom Merrill We received the pump in January 2009. The pump was installed into a working in vitro setup in March 2009. We have used the new blood pump to verify cooling catheter performance upstream of in vivo testing. Without the ability to verify device performance, the risk of failure with expensive time-consuming in vivo testing would rise significantly. Substantial research work remains and we intend to publish and present the results extensively. We sincerely appreciate this award.

DeMond Miller The research activities have led to the full-length co-edited manuscript of the book, [African Americans & Community Engagement in Higher Education: Practice, Research, and Reflection in Community Service, Service-Learning, and Community-Based Research](#). The significance of this is that I am now working with the Public Allies Community Service and leadership group to house them and their New Jersey Service Contract here on the Rowan University Campus. This contract is estimated at \$190,000 per year for five years.

Amos Mugweru Carbon nanotubes were used for the development of electrochemical biosensors. Our efforts in this work were directed towards the design of self contained electrochemical antigen-antibody sensors. PSA antibody on SWCNT was achieved by covalently attaching it on the carboxylate bearing ends of SWCNT. To use electrochemical

detection the prostate specific antigen was labeled with peroxidases (HRP). FTIR showed clearly that the enzyme was attached to the MWNT. The PSA labeled with peroxidase catalyzed electrochemical signal for hydrogen peroxide with the whole assembly trapped in a polyethylene glycol hydrogel. Amperometric data showed that it is possible to observe the antigen antibody interaction involving the PSA. Fluorescence detection by labeling the secondary antibody with a FITC was also attempted in this work.

K.V. Ramanujachary With the ever rising prices in crude oil and gasoline combined with the increasing depletion of their supply, it is becoming more and more important to determine alternative methods by which to produce fuels. One method which has been in commercial use for the past 50 years is Fischer-Tropsch synthesis. In this process various hydrocarbons are produced by reacting carbon monoxide and hydrogen gasses over metal catalysts.

Catalysts which have been used primarily in this process are iron and cobalt on either silica or titania supports. For purposes of this report the synthesis of eight catalysts, 5, 10, 15, and 20% Fe or Co metal on TiO₂ was carried out along with their characterization by X-Ray Diffraction and BET surface area analysis. The 5 and 10% metal catalysts were used in experimental trials to determine if the reaction would indeed proceed with the provided equipment and to test for the catalysts activity in terms of the amount of carbon monoxide converted. The experiments were carried out at 430°C and 410 psi in order to increase the catalysts activity toward the production of hydrocarbons. Gas chromatography (GC) analysis was used to determine the conversion of CO in the reaction following its calibration with known concentrations of CO and H₂.

All of the above catalysts were synthesized and the 5 and 10% Co and Fe on TiO₂ catalysts were fully characterized by XRD and all catalysts were characterized by surface area analysis. The XRD analysis showed that the catalysts tested were found to have kept the same surface structure as the TiO₂ support which was expected. All the catalysts, when tested using BET surface area analysis showed surface areas greater than what was reported in literature. This could be due to using a higher surface area titania as the catalyst base. The GC was calibrated to CO and a linear trend was observed. The results of the four experimental trials performed showed a maximum conversion of CO of 40% using the 5% Co/TiO₂ catalyst. The 10% Co and the 5 and 10% Fe catalysts showed lower conversions that decreased over time reaching steady state values of 25%, 25% and 6% respectively, which is consistent with what has been read. The results from the FID column showed that multiple products had formed; however, they have not yet been identified. Future work includes testing and comparing the conversion of CO and selectivity to various hydrocarbons for the remaining four catalysts as well as to identify most or all of the outlet products. Also to be done is the development of a simple kinetic model as well as improvements to the current GC method to allow for a better separation of the reactants and products. Finally, new catalysts will be developed and tested, which could theoretically greatly increase or conversions and yield.

Richmond, CE Our two experiments on how light level (30%, 60%, 100% of ambient light) affects the growth and morphology of Halophila johnsonii yielded significant effects (by multiple linear regression). To summarize the results, when Halophila johnsonii is exposed to reduced light, we found that:

- plants are smaller (fewer 'nodes' (also called "leaf pairs"))
- nodes/leaf pairs are closer together (shorter rhizomes between nodes)
- leaves are shorter
- total plant biomass decreases
- a greater proportion of the total biomass is on the primary axis (the first, linear part of the plant that grows before it starts branching)

These results are consistent with plants whose ability to photosynthesize is compromised by the reduced light, suggesting that 30% and 60% of ambient light is not enough for a plant to grow normally. These levels of light reduction are not uncommon under docks or in water colored by algal blooms or other discoloring agents such as tannins which turn the water a tea color.

Under reduced light conditions, a newly established individual *H. johnsonii* plant should grow in a relatively straight direction consistent with less branching and more biomass on the primary axis, the plant will be smaller and leaf pairs will be more densely packed. Conversely, a plant growing under ambient (full sunlight) light conditions should grow in a way such that its leaf pairs are less densely packed, and the overall shape of the individual plant should be more oval or rounded compared to the plant growing in low light conditions, due to the higher rate of branching and the greater distances between leaf pairs. These differences in morphology could have an effect on the organisms that depend upon this seagrass for shelter and food, and is likely to affect the rate of erosion of the sediment the plant grows in under high wave energy conditions (e.g. storms).

The computer animation of the modeled seagrass growth must be viewed on a computer. A 'screen shot' can be provided to watch a moment frozen in time in the visualization of model predictions. I have not included any pictures from the model since the instructions above request we do not include graphics.

Three research students were trained during this NSFG. One is considering applying to graduate school in marine ecology, and did a summer research project on an REU (NSF-sponsored Research Experience for Undergraduates) grant this past summer (2009) after confirming her enjoyment of research while working on this project. The other two students are pursuing careers in the medical and dental fields, but they continue to do research with me this year, on a new project, because of the enthusiasm and interest this project generated.

Lane Savadove Bluebird opened at the Mandell Theater in Philadelphia in April of 2009 and ran for three weeks produced by my company EgoPo Classic Theater and directed and adapted by me. The production sold-out the majority of shows and was seen by close to 1000 people. Bluebird received positive reviews in all major media throughout the Philadelphia area. In addition, Bluebird has been nominated for a prestigious Barrymore Award for best collaboration for our work with nationally recognized Orchestra 2001. Kelsey Malone a current theater major at Rowan played the female lead and received significant press coverage. Close to 100 students from Rowan attended the performance and received classes with guest artists in which the experience was analyzed.

Thanks to the NSFG grant I was able to produce the largest scale project in my career. I was able to begin a significant relationship between Rowan and Drexel's theater departments which has led to cross-over professional opportunities for our students.

Bluebird was a one-of-a-kind experiment in creating of avant-garde music theater piece that would be as accessible and meaningful to children as young as six as well as experienced adult theater goers. This challenge was met perfectly. More that 25% of our audience were of child or youth ages. A significant number of children requested to come back to see the show a second time. Our special "kids day" performances included an extended experience for these audiences, including meeting the cast and crew, a tour backstage, and a chance to ask the actors questions.

Though because of sabbatical responsibilities, Prof. Melanie Stewart was unable to be the lead choreographer, the collaboration with her on the formation of the piece was instrumental to its success. The collaboration with Jim Freeman, Professor Emeritus at Swarthmore College and conductor of Orchestra 2001 was highly successful and consisted of a very extended and deep development process.

We presented two performances for high school students in low-income areas of Philadelphia. Close to 200 children saw the show. For most, it was their first experience of live theater.

Melanie Stewart Funding supported the Rowan University nEW Internship Program that acts as a support system and educational conduit for the Philadelphia nEW Festival produced by Melanie Stewart Dance Theatre. The nEW Festival is a professional, Philadelphia based dance/theatre program that creates, performs and produces original works of dance theatre by notable, professional artists with national and international reputations.

The nEW College Internship Program; is a comprehensive, integrated, experiential-learning college internship program.

The internship program, first implemented in 2003, fosters young artists by providing practical and applied experiences in art making and administration. The program fosters valuable skills and helps students become resourceful collaborators as they strive to negotiate a successful career in the arts.

In the highly competitive world of professional theatre and dance, students graduating in the arts rarely know how to obtain practical experience in the financially challenged, contemporary arts world. The majority of classroom learning focuses on perfecting the skill level and artistic vision of students but the entrepreneurial nature of the professional arts also requires students to know how to write grants, market their artistic products, build relationships with established artists and build audiences. The nEW Internship Program provided this important bridge between academia and the professional world and also allowed students a valuable opportunity to directly work with successful area and international artists.

Within the context of the nEW Festival which ran from May 22- June 19, 2009, undergraduate and graduate students will be given structured administrative and artistic job responsibilities to develop long-term creative resourcefulness and skills in self-promotion and arts administration. By working to market and produce the festival, they were given a unique professional and educational opportunity that offers meaningful, hands-on learning opportunities in artistic production, collaboration, public relations and marketing.

Chandrasekhar Vallath The project could not be completed because of the difficulty in finding reliable partners to carry out the work in India. I did the following:

In India, I partnered with a physician, Shailaja Choppella, MD, MPH, who conducted needs assessment studies at two primary health centers in the state of Kerala. The findings suggested that the project was well-conceived and is badly needed. However, implementation (even at the pilot level) and validation would take coordinated work with several agencies in both the US and India.

In the US, I approached a handful of organizations and individuals, specifically:

- American Association of Physicians of Indian Origin - Initial positive response from the head of their public health committee, followed by no communication.
- Doctors Without Borders - I left messages, but got no response.

- University of South Florida, The CHART-India Center for Public Health - I have initiated contact, but am awaiting a response.
- Centers for Disease Control's Division of Global Public Health Capacity Development - their responses were positive – they promised to give all necessary content, but they could not help implement or provide further funding.
- Intrahealth International, Chapel Hill, NC. The representative I corresponded with was very positive about the objectives and methodology of the project, but they could not promise other help.

In India, I approached the following individuals and organizations:

- Mr. Sam Pitroda - Mr. Pitroda heads India's 'National Knowledge Commission,' a high-level advisory body to Prime Minister Manmohan Singh, has the objective of transforming India into a knowledge society. Mr. Pitroda's brief response to my email was that it was a great idea, needed in India and many developing countries. He offered help, but did not respond to further correspondence.
- Dr. T. Sundararaman, Executive Director of the National Health System Resource Centre (NHSRC), a part of India's National Rural Health Mission (NRHM). The organization was not able to help.
- Dr. K.R. Srivathsan, pro-Vice Chancellor of the Indira Gandhi National Open University - there are five pro-vice chancellors who run this university with 2 million students in about two dozen countries. Dr. Srivathsan guaranteed full cooperation with me and also agreed to introduce me to Dr. S.J. Habayeb, World Health Organization Representative to India.
- Mudra Institute of Communication Ahmedabad – the director wanted to sign an MOU with Rowan to do the project, but it would have taken longer than the allotted one year to complete the project.

It was very disappointing to me that this pilot project could not be completed in the year I had to complete it. The idea was endorsed by several individuals, who said it was workable and would be very beneficial. However, in order to make it work, I needed reliable institutional support which I did not have. It may partly have been due to the fact that all this transpired during the worst of the financial crisis, when many institutions admitted that their funds were being drastically cut.

Consequently, I did not use any of the funds granted for the project.

I still hope to pursue this project at a future date. It was validated independently by several individuals who work in health communication.

William Wolff Research included the following objectives:

- Confront the confusion over the term “Web 2.0” by archiving definitions of the term and then use those definitions to come up with a definition that will help scholars and students in the humanities better understand the term
Results: We chose to represent the definition visually using the semantic online application, Wordle (see <http://twitpic.com/abps2>). The visual definition of Web 2.0 succeeds in representing the complexity of the term in a way that could not successfully be conveyed using sentences.
- Compile a master inventory of Web 2.0 applications and from that list determine purposive and random samples of Web 2.0 applications to study
Results: The master inventory included 2,741 total Web 2.0 applications as of September, 2008. Of that list we created a purposive sample of 31 and a random sample of 491. Research completed during the year was on the purposive sample.
- For each Web 2.0 application in the random sample populations, note their genres, functionalities, and vocabularies, as well as any other Web 2.0 applications they have been designed to interact with
Results: We created an Excel spreadsheet with the following column headers: Tag, Tag Definition, Writing, Genre or Function, and the name of each of the 31 applications we studies. The final spreadsheet contains 69 tags, 47% of which are a form of writing. The complexity of the labeling of the functions for each of the 31 sites precluded us from labeling them as a genre or a function. A significant amount of reading in genre theory needs to be completed for that stage of the project.
- Create a visual representation of Web 2.0 application relationships
Results: We uploaded screenshots of each of the applications in the purposive sample and tagged them using the tags we created during the course of the study. Visual relationships can be seen using <http://taggraph.com>, an application that interacts with Flickr tags. The visual representation of the Web 2.0 applications shows the myriad of overlaps among the applications writing spaces and functions. These connections are important to understand as we move forward to design the next phase of the study.
- Design an interactive, searchable web site open to the public to facilitate research and scholarship in the area of Web 2.0 digital literacies
Results: Time constrains prevented us from reaching this objective.

MILESTONES MET

Enter each milestone that was proposed and how each one was accomplished. Use as much space as needed.

Emily Blanck Systematically reviewed letters and notes from Continental Congress and Constitutional Convention: Achieved by looking at these records on microfilm.

Visit Massachusetts archives to “enliven my narrative of the slaves’ experiences and lives in Massachusetts by viewing pictures, maps, and descriptions of Boston’s harbor and streets”: Did not have time to do this work on my research trip.

Survey all local historical societies in Massachusetts to uncover as many of the town issued Emancipation bonds as possible: Researched in Several local historical societies for records and found a few. Records were also kept at the New England Historical and Genealogical Society and in the Library of Congress in Washington where we visited on a separate research trip.

Work toward publication of the book: I have written three chapters and two others are nearly done.

Greg Caputo Synthesis and purification of HDPs (3 synthesized and purified). Synthesis was performed by Rowan undergraduates using standard solid phase chemistry. Purification was performed in the chemistry department using HPLC.

-Synthesis and purification of model peptides (2 synthesized and purified).

-Characterization of antimicrobial activity of 3 HDPs was carried out. These assays also include the investigation of bacterial membrane disruption by HDPs. We have determined antimicrobial efficacy for 3 HDPs against 4 bacterial strains.

-Spectroscopic investigation of HDP interaction with membranes is ongoing. Each of the 3 HDPs are at various stages of characterization with respect to the following variables: Anionic lipid concentration, bacterial lipid concentration, environmental pH.

-Spectroscopic investigation of the two model peptides and their interaction with membranes is near completion.

-Two poster presentations were given at the Rowan STEM symposium in April 2009 based on this work. We anticipate two more on the work for the 2010 symposium.

-One poster presentation was given at the 53rd annual Meeting of the Biophysical Society. The poster was well received and led to the development of a new collaboration. I anticipate 1-2 more poster or oral presentations in 2010 dependent on Spring teaching schedule and travel funds availability.

-A manuscript on behavior of the model peptides is planned for Spring 2010. The experiments for this manuscript should be completed in Fall 2009.

Patrick Crumrine The experiment was conducted during the summer of 2008 at the University of Virginia’s (UVA) Blandy Experimental Farm (BEF). BEF is the field research station for the UVA Environmental Sciences Department and a field site where I have conducted research since 2004. Survival of tadpoles was quantified and all animals that were alive at the end of the experiment were euthanized and preserved. I visited the University of South Florida during August 2008 to learn how to stain and dissect tadpoles in the lab of Dr. Jason Rohr. While I was there I stained all of the tadpoles from the experiment.

During the 2008-2009 academic year for Rowan University undergraduate students (Chenchao Gao, Scott Hudzinski, Cindy Kong, Brian Yates) worked in my lab to dissect the tadpoles. Involving undergraduates has caused the pace of the work to slow somewhat because I have had to spend a considerable amount of time training them on the techniques. These delays are acceptable because it is extremely valuable for students to gain research experience. I would rather train undergraduates on this project than simply do all the work myself and get it done in a more timely fashion. At this point we have dissected approximately 60% of the tadpoles. Three students will be working with me this semester to finish the dissections. When all dissections are completed the tadpoles will be sent to Dr. Rohr’s lab for further analysis.

I plan to have students present a poster at the 2010 STEM Symposium based on our work. When all data collection and analysis is complete I plan to present the findings of the project at a national meeting, most likely the 2010 or 2011 meeting of the Ecological Society of America. I also plan to submit a manuscript to a peer-reviewed journal based on this work in the intermediate future.

Cristina Iftode 1. *Swab testing to collect DNA samples*: accomplished

-A swab test was performed by each individual in the group to collect cheek cells. At the Arizona Research Laboratory, DNA was extracted and further

processed by PCR and sequencing, and results were made available to us.

-Identification of haplotypes and haplogroups in our population sample: accomplished

The DNA data were tabulated and compared to those of known genealogic groups. The screening was done by using various genetic markers to establish relationships, and then haplotypes and haplogroups were identified.

-Construction of a map of the migration patterns of all haplogroups in our study sample: accomplished

This task was accomplished by superimposing our data on the Genographic Project map template.

-Presentation of data on-campus and at international conference: accomplished: Oral presentation at the Balkan Meeting on Human Genetics, Croatia, May 2009, and Poster presentation at STEM, April 2009

Darius Kuciauskas I proposed to acquire a solar simulator for broadband spectral measurements. This instrument is now functioning in the lab. Because of some reduction in price and additional funding that I obtained (from ACS PRF), we used part of NSFGRS grant to purchase additional solar simulation components for monochromatic IPCE measurements.

Michael Lim In parallel to the work that has been done at NTU, I have begun laying the foundation to perform related experiments using ultra-cold atoms near superconducting wires. To this end, my student has developed a new laser system for cooling and trapping rubidium atoms at Rowan. We have built and tested a high-power, narrowband, frequency-tunable laser system with a clean Gaussian spatial mode to be used for atomic Doppler-cooling. We have also contributed to the department acquisition of a helium gas analyzer that will allow extended, economical operation of an existing optical cryostat. The cryostat is the only lab equipment currently available to us that can be used to position laser-cooled atoms near superconducting wire patterns. This work will commence as a follow-on to my work at NTU in AY 2009/2010.

Finally, this NSFG award has provided the seed for external funding of this quantum computing project. In the coming year my collaborator will support my effort with ¼-time salary during my sabbatical months and ½ month of summer salary.

Tom Merrill In the 2008-2009 guide for applications the term “milestone” was not used. The term “outcomes” was used.

Taken from the application:

“We expect three top-level research outcomes: 1) the in vitro loop will be able to produce physiologically realistic pressure and flow conditions, 2) the in vitro test rig will be used to guide the selection of the CoolGuide catheter for animal testing, and 3) the animal testing of the CoolGuide catheter will demonstrate the predictive capabilities of the in vitro test rig.”

-An invitro loop has been created.

-Test results have enabled our team to select devices for animal testing. Testing is scheduled for July 2009.

-After July 2009 we will achieve this outcome.

Demond Miller The goal of this NSFG was to produce several peer reviewed papers for publication and at least two published books. To this end, one book has been published this year and another will be submitted to Taylor and Francis December 30, 2009. Several (4) national and international presentations on the research were made.

Amos Mugweru To enable fabrication of the sensors, the MWNT were carboxylated before functionalization with enzymes and proteins. Below I describe some of the work done. Carboxylation of MWNTs

The MWNTs were first carboxylated by sonicating 0.7 g of the material in a 150 mL mixture of concentrated HNO₃ and H₂SO₄ and HNO₃ (3:1, v/v) for 4 hours. 250 mL of de-ionized water was added and the reaction allowed cooling to room temperature. The suspension was filtered through 0.25 micron pore-size membrane filter, washed with 0.05 M NaOH followed by washing with de-ionized to pH 7.0 and dried at 110°C. The resulting carbon nanotubes are referred to as MWNT-COOH.

Functionalization of MWNT-COOH

0.5 g of MWNT-COOH were suspended in a solution containing 0.1 M 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide hydrochloride (EDC) and a 0.1 M of N-Hydroxysuccinimide

(NHS) in 0.1 M acetate buffer (pH 5.5) for 1 hour with constant agitation. The nanotubes were centrifuged at 13000 rpm (Sorvall Rc 5b plus, Asheville NC) and the solution phase was discarded. The initial experiments involved attachment of proteins with that are electro-active like hemoglobin (Hb). We then tested the electro-activity of this protein on the nanotube. Figure below illustrates the scheme from functionalization to protein attachment.

The formation of hydrogel from PEG-DA resulted from the free-radical polymerization of the acrylate end groups attached to the PEG derivatives. The photo-initiator dissociated when exposed to UV radiation and created highly reactive methyl radicals that attacked the unsaturated carbon-carbon double bonds of the acrylate groups to initiate a free-radical polymerization. The PEG-DA precursor solution (solution containing 1.0% (w/w) Darocur was made by mixing 5 μL of modified MWCNT-CO-Hb (2 mg/mL in phosphate buffer), and 0.5 μL DAROCUR.

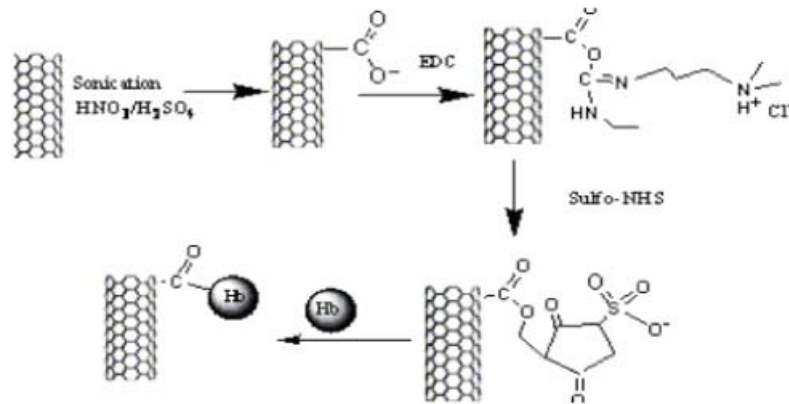


Figure 1: Functionalization of carbon nanotubes.

The PEG-DA precursor solution was deposited on a clean glassy electrode and then exposed to UV light a 366 nm, 300 mW/cm², UV light source (ECL-450 from Electrolite corporation, Bethel CT) for 0.5-3.0 s.

FTIR of MWCNT-CO-PSA spectra was obtained using attenuated total reflectance accessory. The peak at about 1700 cm⁻¹ observed showed the presence of carbonyl groups (C=O stretch). The broad peak at about 3200 cm⁻¹ to 3500cm⁻¹ may be due to a combination of both N-H stretch and O-H stretch from the carboxyl modified nanotubes and PSA modified nanotubes.

The HRP enzyme attached to the PSA antibody responded to the presence of hydrogen peroxide. The measurement of the current associated with an electrochemically active enzyme label as HRP is a representative of PSA.

Prof.K.V. Ramanujachary

- Successfully tested our high-pressure high-temperature catalytic reactor for the conversion of CO and hydrogen gases to Gasoline.
- Developed several catalysts for the conversion of CO at temperatures lower than those reported in the literature
- Highest conversion of ~35% was recorded on one of the catalysts developed at Rowan.

Richmond, CE New experiments on how extremely low light affects the seagrass *H. johnsonii*: summer 2008: Rowan biological sciences majors Grigoriy Efros, Kelly Savastano (Honors), and Steven Solecki were paid to work on new seagrass experiments to test the effects of extremely low light (1% and 10% of ambient light) on the growth and morphology of *Halophila johnsonii*. They inherited an experiment underway from two previous students (Bahram Shahrokh and Michelle Fisher) in May 2008, and continued the experiment until its completion (July 2008).

Collection of data from plants, after the experiment, summer & fall 2008, spring 2009: Once the experiment was completed, Grigoriy, Kelly and Steven collected data from the plants in the experiment, including the distance between nodes (where a leaf pair originates along a rhizome), the number of nodes, the size of the leaves, and the morphology of

the overall plant (e.g. linear growth vs. highly branched). The students also entered these data into a spreadsheet and checked each other's work for accuracy. I provided training and guidance in this process, screened the data after the students had entered and checked them, and helped them with problem-solving to reconcile data collected during the experiment (as the plants were growing) with data collected after the experiments (when we had the plants under the microscope). The students also collected new data on plants from previous experiments by thawing them (we save them in a frozen state), cutting them up into their component parts, drying and weighing them to measure dry biomass. They then entered these data as before.

Attempts to repeat the extremely low light experiment: summer & fall 2008, spring 2009: Grigoriy, Kelly, Steven and I worked to grow new *Halophila johnsonii* plants in the Science Hall greenhouse, but even the new plants we were sent from a colleague in the Indian River Lagoon in Florida would not grow. We are not positive why we could not get these plants to grow after years of successful growth, but it is likely to have been a result of the broken and unfixed A/C system in the Science Hall greenhouse room we were using, which allowed air temperatures to spike well above 110 degrees F on summer days. Because we were unable to get the plants to grow, we could not run the additional experiment we had planned.

Parameterization of the seagrass model: We have built a framework of the seagrass model, in collaboration with Dr. Kenneth A. Rose of Louisiana State University, and have run preliminary simulations, although we need more accurate parameter estimates for many of the variables in the model. Much of the model parameterization could not be done until more research was completed and some former data were checked for accuracy. We were also planning to use new data from the additional experiments the students hoped to complete before we found we could not get the plants to grow anymore in the greenhouse. We will continue model parameterization and run simulations with the data we have at hand.

Computer animation of preliminary seagrass model results: This represents a new collaboration with Dr. Gabriela Hristescu of the Computer Sciences department at Rowan. The seagrass model produces daily output with locations of each node (leaf pair) along a rhizome in the modeled seagrass plants. Because these data are daily and specific to location, it is helpful to "watch" the seagrasses "grow" in the model by using an animation to visualize their growth and senescence. Dr. Hristescu built a computer animation that uses the seagrass model output to show how the seagrass "grows" over time. This is far more helpful than simply the numerical or statistical analysis of the seagrass model output; being able to "see" the plants laid out on a simulated shoreline is incredibly powerful, and is of interest to the agency that funded this work as well as coastal managers in Florida who work in areas populated by this threatened species.

Honors Research Assistantship and final presentation: Junior Biological Sciences major and Honors student Kelly Savastano was awarded an Honors Research Assistantship in 2008-2009 to work on this project. While she collaborated with the two other students in the lab (Grigoriy Eφος and Steven Solecki), Kelly took a leadership role on the project and did far more independent work than they did. She presented the results of her work in oral and poster presentations at the end of the year Honors Program ceremony in spring 2009.

Lane Savadove August 2008: Pre-production collaboration to begin. Melanie Stewart, myself, and Jim Freeman along with designers begin meeting on a weekly basis to develop the form of the script and performance and to define the use of music, dance and text.

September 2008: As per the proposal - Melanie Stewart and Lane Savadove of Rowan begin year-long residency at Drexel University which will include workshops, presentations, and professional development.

October 2008: Lane Savadove presents a weekend long acting workshop based on the acting techniques which will be used to develop Bluebird.

December 2008: The college part of the ensemble is cast.

January 2009: Beginning of intensive daily training with the professional actors which includes Kelsey Malone of Rowan.

January 2009: Begin weekly workshops at Drexel to develop with the college ensemble the skills they will need.

March 2009: The college and professional casts are combined for the remaining rehearsal period.

April-May 2009: The piece performs at the Mandell Theater.

*The original proposal for \$10,000 included performances at Rowan University. The project was funded at the \$5000 which precluded this possibility. Instead, large groups of Rowan students including all majors attended the performances at Drexel.

Melanie Stewart Measurable objectives of the Rowan University nEW Internship Program were to:

-Provide paid (and/or college credit) professional/educational opportunities for six to nine college aged students and to provide a "bridge" between the academy and the professional field

-Expansion of the internship program was successfully achieved through active recruitment efforts and development of the curricular aspects of the program. Students were

recruited from throughout the region and opt for “credit” or “paid” opportunities in their applications. This year we received 15 applications and selected 12 interns for credit and non credit bearing experiences, exceeding our goal to expand to nine interns.

-Build the annual capacity of the internship program from six interns to nine interns. The capacity of the festival expanded in 2009 and presented the work of 15 professional choreographers in concerts presentations, master classes and workshop events serving over 40 professional artists and 300 patrons. The increased capacity of the internship program was effective in supporting the expanded program.

-Develop the administrative infrastructure of the nEW festival. The administrative structure of nEW has been developed as a result of targeted efforts to create an efficient working system which, features professional mentorship of interns by working artists and contracted professionals in marketing and administration to ensure high quality program function.

-Designate three year funding cycle to develop the internship program into a competitive and widely known opportunity. The nEW Internship Program functions with support of a partner foundation that has supported the three-year funding cycle. The support of the Independence Foundation has helped the organization guarantee the program’s efficacy for measured outcomes, stability and growth.

-Effectively educate young artists in art making and administration by providing practical skills in fully professional situations: Learning opportunities for interns include: Working directly with festival artists as Assistant Directors in rehearsal; attending master classes at the festival; assisting in the implementation of a fully realized public relations and marketing plan; coordinating administrative and production responsibilities of the festival; assisting with backstage and onstage artistry; learning the history and mission of MSDT and the nEW Festival to effectively advocate and promote the arts; and building their own professional mission.

The nEW College Internship Program has grown since its inception in 2003. It now effectively educates artists in a curriculum that integrates college learning with hands-on practical experience in the field working directly with professional artists. The interns who work within the context of the program go on to pursue related fields in art making and arts administration utilizing the valuable professional contacts established during their internship. The 2009 festival was our most ambitious program to date and as a result the most rewarding for students who participated.

William Wolff The application included the following milestones. Comments are included beneath each milestone:

Months 1 - 10

-research, bookmark, and store important articles on the history of the web, social networking, Web 2.0, the Semantic Web, and semiotic domains (such as role playing video games);

Status: Completed. Articles were stored on the primary investigator’s computer and/or bookmarked online using Diigo.

Months 1 – 4

-identify, catalogue, screenshot, and tag the 50 most popular Web 2.0 applications (at the time of the study, but with room for new applications as they emerge and/or gain popularity), including each application’s version, purpose, functionality, information requested during to sign-up, symbols, toolbar use, relationship with other Web 2.0 applications, number of registered users, writing spaces, genres, and competition;

-upload screenshots of applications to Flickr and tag images according to a predetermined tagging structure (also known as a collabulary)

-using screen recording software, record the primary functions of each Web 2.0 application, store the videos on a computer, and upload and tag each video to a private YouTube account

Status: After receiving funding, and beginning the study, the primary investigator realized that compiling only 50 most popular Web 2.0 applications would not be enough. A more thorough investigation would attempt to archive a whole list of Web 2.0 applications and from that list create a purposive and random sample. In September 2008 we compiled a master inventory of Web 2.0 applications (n = 2,741) aggregated from Go2Web20.net, the leading Web 2.0 application archive; Alexa.com, the leader in internet traffic ratings; and <http://movers20.esnips.com>, a leading Web 2.0 tracker. From that list we determined purposive (n = 31) and random samples (n = 491) of Web 2.0 applications to study.

Screenshots of each of application in the purposive sample were uploaded to Flickr and tags were added to each image when we completed the collabulary. After a year of study our collabulary consists of 69 unique tags. Time prevented us from recording the primary functions of each Web 2.0 application.

Months 4 - 8

-map relationships among the applications using Flickr, XML, and Adobe Flex

-write up preliminary results in a co-authored article for publication in The Journal of Computer-Mediated Communication, Computers & Composition, or other related journal

-identify and prepare conference presentations (single and co-authored)

Status: We succeeded in mapping the relationships among Web 2.0 applications using the online tool, Tag Graph. The complexities of the Web 2.0 applications prevented us from completing this step until Month 10. Because the final results were not completed until month 10, an article discussing those results was not written, though one (or more) is being

planned. An article was written during month 7 and was published in the online journal, [Currents in Electronic Literacy](#). Questions about appropriate moneys for travel precluded us from preparing conference presentations. Adobe Flex proved to be beyond the programming skills of the primary investigator and his research assistants.

Months 8 - 10

- determine which applications will be useful for the purposes of the larger study
- design the study, including all testing apparatus
- compose final report to be submitted to Associate Provost for Research

Status: I am currently preparing to work on items one and two.