

Final Report Format
Faculty Research and Applied Research

3.1 Researcher's(s') Name, Title, Department Name

Primary researcher: Dr. Carla Edwards, Chair, and professor Department of Psychology/Sociology/Counseling

Other researchers involved in this project: Dr. Jerrold Barnett, Dr. Ryan Wessell and Dr. Roger Neustadter

3.2. Project Title.

Understanding the Personality and Cognitive Variables Contributing to Second Language Acquisition in a Sample of Rural College Students

3.3 Type of grant - Date granted - Amount approved - Date completed

Faculty applied research grant

Amount: 2,595.00

Date Granted: 11/24/2009

3.4 Findings and recommendations. (Be brief, not to exceed 300 words).

Actual statistical analysis were insignificant and no future plans to pursue this avenue of research are in place. However, the project purchase of Rosetta stone had broad applied value. Faculty and students utilized the software prior to traveling for a service learning project in Panama. Also the software remains a useful aspect of the lab in our department and students from across campus utilize this software. It is available for all of our majors as well as second language students and students working with the study abroad office.

3.5 Listing of expenditures by type (student labor, travel, supplies, etc.), total spent and balance remaining (if any) to be returned to the Faculty or Applied Research account.

Acct	Doc Code	DESC	DATE	Budget Entries	Rev/Exp	Commitments
7100	J0004065	Establish new Appl Research accts	2009/11/24	2,595.00	.00	.00
	J0004065	Establish new Appl Research accts	2009/11/24	.00	.00	.00
	J0004065	Establish new Appl Research accts	2009/11/24	.00	.00	.00
7154	CC000015	Mar 10 photocopy charge	2010/03/30	.00	10.00	.00
7307	R0003208	Nancy Baxter for Avis Curphey	2009/12/01	.00	.00	2,550.00
	P0003814	Rosetta Stone Ltd	2009/12/02	.00	.00	-2,550.00
	P0003814	Rosetta Stone Ltd	2009/12/02	.00	.00	2,570.00
	I0018312	Rosetta Stone Ltd	2010/02/09	.00	.00	-2,570.00
	I0018312	Rosetta Stone Ltd	2010/02/09	.00	2,570.00	.00
71-Direct Expenditures				2,595.00	2,580.00	.00
Prepared On July 1, 2011 (SummaryYTD)						

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Mafic intrusions and thermal overprints in the Silvermines granite, St. Francois Mountains

C. Renee Rohs, Associate Professor of Geology, Northwest Missouri State University, vrohs@nwmissouri.edu

The study area for this research is along the East Fork of the St. Francis River at the Silver Mines Recreation Area where diabase dikes intrude the surrounding granite. Samples of the Silvermines granite and the diabase were collected for isotopic analysis. Gas ages were determined using Ar-Ar methodologies for the diabase groundmass as well as K-feldspar, biotite, and amphibole in the host granite. Isotopic analyses were conducted at the University of Nevada at Las Vegas Isotope Geology Lab by Dr. Terry Spell. According to the Ar-Ar data collected, the total gas age for the diabase is 1167.1 ± 7.9 Ma. Ar-Ar data from the granite is more complex indicating older Precambrian ages as well as thermal overprints with total gas ages ranging from 900-1260. The data presented in this study provide some constraints on the timing of thermal activity in the Silver Mines area that may be linked to economic mineralization of magnetite or a larger-scale event associated with the structural resetting of K-feldspar minerals in the area. Expected ages for the igneous rocks were 400, 1310 or 1470 Ma based on previous studies within the region. The isotopic ages determined in this study indicate some thermal overprint but are not determinative as to what event or mixture of events took place. Modeling with the host rock and intrusive mixing possibilities may provide some future insight.

Budget

40Ar/39Ar Furnace Step Heat Analysis

K-spar	Silvermines Granite - At the contact with diabase	650.00
K-spar	Silvermines Granite - 30 ft. from the contact with diabase	650.00
Biotite	Silvermines Granite - 30 ft. from the contact with diabase	400.00
Amphibole	Silvermines Granite - At the contact with diabase	400.00
Diabase	Diabase	
	400.00	
Mineral separation for 5 samples		<u>120.00</u>
TOTAL		\$3100

**Faculty Research
Final Report**

3.1 Researchers' Name, Title, Department Name

Dr. Michael Bellamy and Dr. David Richardson

3.2 Project Title

Field Testing of a Solar-Powered Water Pasteurizer

3.3 Type of Grant – Date Granted – Amount Approved – Date Completed

Applied Research – November 1, 2007 - \$4325 – The initial findings were complete in August of 2008. However, as is stated in the next section, the focus of the work was modified and the final data is being collected in the summer of 2011.

3.4 Findings and Recommendations

The goal of the work was to determine if the solar-powered water pasteurizer that we developed would work in a developing country such as Haiti. The technology is extremely effective, but costly compared to other disinfection technologies.

In Haiti bottled water is treated by reverse osmosis and ozone. Five gallons of RO water sells for between \$0.75 and \$1. Water can be heat-pasteurized much cheaper and could possibly form the basis of a micro water-treatment business.

We found that Haitians knew that heating water made it safer and would drink the water we made. However, they were not motivated to use the equipment since they had a steady source of income and they feared that in some situations that heating water would not be enough. RO water has gained their trust over many years.

The only way that heat-pasteurized water would become socially acceptable would be to give it away to people who cannot afford treated water for a long enough period of time for people to develop confidence in the technology. However, since heat-pasteurization is expensive, it makes more sense to give away chlorinated water and develop confidence in this inexpensive technology.

Using private funds, Dr. Bellamy modified an on-site hypochlorite (bleach) generator and taught a Haitian man to use it. With the renewed outbreak of cholera in Haiti this summer, we are installing water tanks at various schools and churches. The people are then provided with bleach for free. We hope to develop a market for inexpensive chlorinated water in this way and eventually set up self-sustaining water treatment businesses that sell chlorinated water.

Ironically, the system developed and tested in this project possibly has commercial promise in the United States. It could be installed in a window or roof and heat pasteurize drinking water using solar power.

3.5 Listing of Expenditures by Type

Category	Total
Student Labor	\$0
Supplies (copper pipes, pvc fittings, tempered glass, copper absorber plates)	\$1910.87
Travel Expenses	\$2030.88
Shipping Equipment	\$800
Fee to get equipment out of customs	\$532.80
Total	\$5274.55
	Cost overage was covered by chemistry department.
Money to Return to AR Fund	\$0

Final Report – Faculty Research Grant, 2011-2012

Name: Elyssa Ford, Asst. Prof of History, Department of Humanities & Social Sciences

Project Title: Rodeo as Refuge, Rodeo as Rebellion

Abstract (300 words)

I was able to attend a number of rodeos, both black rodeos in Texas and American Indian rodeos in Arizona and New Mexico, during the summer of 2012. Because many rodeos are held at the same time in the summer and due to the large distance between some of the rodeos, I had to choose carefully which rodeos I would and would not attend. In the end, I focused on three Native American rodeos in Arizona and New Mexico and one black rodeo in Texas. I could

have attended a second black rodeo in Texas, but in the end decided it was not worth the travel costs due to how the rodeos in that circuit were organized. After attending one rodeo in that circuit, I realized that all of the competitors remained completely separate from the audience, so it was impossible to make contacts there. In the end, I am satisfied with the number of rodeos I was able to attend and the contacts that I made, in addition to the interviews that I completed. Moreover, the grant and the ability to attend these rodeos and start talking again with the rodeo competitors really pushed me to get back into this research and to start thinking even more about where I want my monograph to go and what additional work I need to do for it. Based on this work, I feel confident that in the summer of 2013 I will be able to focus for 1-2 months on that research and writing process and that within 1-2 years I will have a full monograph to send to a publisher.

Itemized Expenses

My expenses were submitted in July 2012, and I received the reimbursement that same month. Those forms, plus the itemized expenses are on file in the Graduate Office.

FACULTY RESEARCH PROJECT ABSTRACT (Originally Submitted 10/5/2011)

1. Researcher's (s') Name, Title, and Academic Rank (If not holding academic rank, statement of background).

Rebecca Hendrix, PhD, Associate Professor; Alisha Francis, PhD, Associate Professor;
Ryan Wessell, PhD, Associate Professor; Carla Edwards, PhD, Full Professor

2. Department Name: Behavioral Sciences
3. Campus Address, Telephone Number, E-mail address:

As principal investigator, this is Rebecca Hendrix's contact info:
Colden Hall 2400
562-1564
hendrix@nwmissouri.edu

4. Title of Research.

Skills Learned from Engagement in Undergraduate Research

ABSTRACT

Fifty-five participants (16 males, 39 females) responded to the survey. Of these, 26 were presenting posters and 29 were presenting papers; thus, some participants had multiple projects. When asked why they were presenting, most common answer was to build a vita for a graduate school degree ($N = 42$), followed by learning how to present information in the field ($N = 39$), and to learn how research is conducted in psychology ($N = 28$). Student presenters had the support of faculty as they completed their projects. Twenty-five projects were considered to be individual projects while 21 of them were team projects. Twenty-three of the presentations

results as fulfillment of course requirements and 10 were completed as independent study projects.

Students were asked to what degree they felt participating in research developed specific skills or characteristics. These questions were presented in five groups and measured on a Likert-scale (1 = Not at all, 7 = A great deal). A review of Table 1 shows that students perceived all of the categories to be of fairly similar importance. Refer to Table 1 for Means and Standard Deviations of each of the five categories.

Table 1
Research Skills and Characteristics

	Mean	SD
Critical Thinking	5.70	1.22
Research Development Skills	5.60	1.33
Analysis and Interpretation	5.65	1.39
Communicate Results	5.28	1.76
Professional Development	5.60	1.55

Mühsam, Armin, Associate Professor, Department of Fine and Performing Arts

“Narratives of Progress”

Faculty Research Grant 10/19/11 \$ 1,914.26 10/10/12

Findings and recommendations

My proposed research was to produce large format paintings for a solo show at the Charleston Heights Art Center in Las Vegas, NV. I did complete several of them but I had to change plans when the Las Vegas venue pushed my show date back from November 2012 to mid-January 2013. I knew that I needed to use up the grant money before I could even hope to apply for a new grant in the fall of 2012 so I decided to instead show this latest work in my exhibition at Ambacher Contemporary, in Munich, which opened on September 14, 2012 (hence the substantial expense for the crate and shipping of the large paintings). For the same reasons of timing I then used the remainder of the money to ship work to two other shows, in Concord, MA, and New Harmony, IN, respectively (for the latter, I even submitted a second faculty research proposal in January 2012 but it was denied because I had not spent everything from my initial account; see above).

As far as the actual research is concerned, in my new work I focused on several compositions of “technological” interiors, with considerable success, judging from the reception they received in Germany. They figure prominently in my newly published hardcover catalogue and it was mainly on the strength of these that I was invited to have an exhibition in Hamburg, Germany, in November 2012.

The actual costs incurred run as follows:

a) Shipping:	International	\$1,246.65
	Domestic	\$ 525.18
b) Supplies:	Frames	\$ 103.29
	Custom-built crate	\$ 198.00

Total		\$ 2,073.12
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Applied Research Final Report

1. Researchers' Name, Title, Department Name

Dr. Jamie Patton, Associate Professor, Agriculture, Valk 124, X 1659, jamiejp@---
Dr. Yi-Hwa Wu, Associate Professor, Geography, GS 1075, X 1869, ywu@---
Dr. Ming-Chih Hung, Associate Professor, Geography, GS 1337, X 1797, mhung@---

2. Project Title

Close-Range Hyperspectral and Multispectral Imagery to Examine the Effects of Shadow on Vegetation NDVI

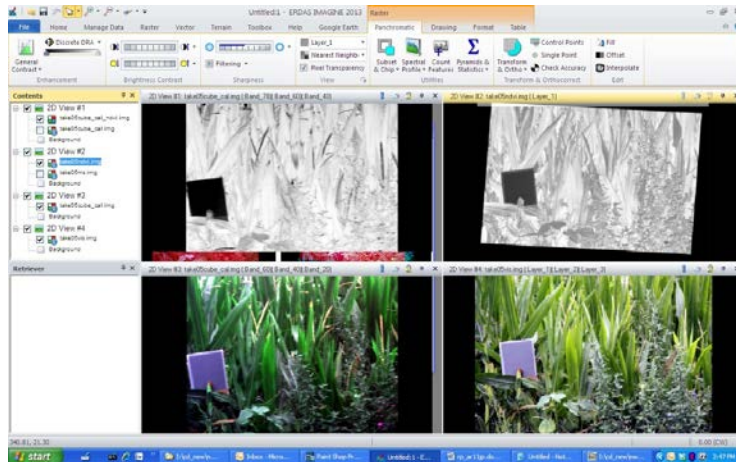
3. Type of grant - Date granted - Amount approved - Date completed

Applied Research (A101 25078 222 Hyperspectral imagery), approved Fall 2011 with budget \$2,760, completed Summer 2013.

4. Findings and recommendations. (Be brief, not to exceed 300 words)

The research team borrowed the hyperspectral camera (SOC710) from the company (Surface Optics Corporation) twice to finish the picturing of the various objects under study. On Aug. 13, 2013, we surveyed university green house with the hyperspectral camera, and our own multispectral imagine system. On Aug. 14, we surveyed the university farm and Mazingo Lake. On Aug. 15, we surveyed an exposed rock site north of St. Joe, a man-made wetland in a conservation center, and a construction site in a shopping mall. On Aug. 16, we surveyed soil samples in the soil lab, and rock samples in a rock lab. On Aug 17, we surveyed a vegetated garden with grass, trees, flowers, crops, etc.

The following is an image of NDVI taken from the borrowed hyperspectral camera on the left, and our own multispectral imagine system on the right. It is evident that shadowed areas have a higher NDVI values.



Summary of the Budget Expenditures

Itemized budget:

Camera accessories	
Batteries X 2	\$100
Memory cards (SD) X 2 at 32Gb	\$160
External hard disk for extra working/storage space	\$150
Color printing	
\$3/square foot by Geo-Tech Service	\$150
Hyperspectral camera shipping (two-way)	\$400
WorldView-2 high spatial resolution satellite image	
\$23/km ² with 25 km ² min order from image archive	
Or \$1,800 min order for new task	\$1,800
Total	\$2,760

Used budget: \$ 2,717.00

Remaining fund: \$ 43.00

Name, Title, Department Name: Amanda Petefish-Schrag, Associate Professor of Theatre,
Department of Fine and Performing Arts

Project Title: *Musical Theatre Playwriting Project: Death Comes for Jesse James*

Type of Grant: Theoretical Research Grant

Date Granted: November 14, 2011

Amount Approved: \$1068

Date Completed: December 5, 2012

Findings and Recommendations: Through multiple collaborative sessions with Michael Trosvig, (composer), and Ben Schrag (co-writer and lyricist) involving multiple working drafts, a book (script) and score for *Death Comes for Jesse James* was developed. Following a workshop reading of this script, additional changes were made based on feedback received from actors and fellow theatre artists in the Minneapolis/St. Paul theatre community and broader Midwest region.

The resulting script and score is a new American folk musical that seeks to explore the history and cultural mythology surrounding Jesse James - a story that has continued to grow in resonance given thriving partisan rhetoric, proliferation of guns, and cycles of violence that mark both the world of James and our own contemporary culture.

The script is also an exploration of form, attempting to address, in part, practicalities which often hinder the production of musical theatre in small theatre venues and college programs. We have fused features of

didactic, surrealist, and traditional musical theatre with selective realism and Greek tragedy. This has allowed us to feature prominent women's roles and flexible casting within a double chorus. Likewise, these stylistic markers allow for minimal, but impactful, technical and design elements, making the musical more affordable and practical to design and produce than many standard American musicals.

A performance of this musical has been scheduled for April 2013 at Northwest Missouri State University. The opportunity to mount the script, and see whether theoretical ideas function practically will be invaluable in the further evolution of the work. Moreover, the opportunity to see how a college-theatre company of actors, designers, and technicians handles the work will allow for a concrete assessment of how well we have met the challenge of creating a musical suited for a small/mid-size college theatre company. Following this production, additional work revising the script will commence.

Listing of expenditures by type:

- 438.48 – Travel to Fergus Falls, Minnesota to meet with composer.
 - 256.20 - Travel to Minneapolis, Minnesota for meeting with composer/workshop.
 - Total expenditures = \$694.68 (\$373.32 remaining)
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Applied Research Final Report

1. Researchers' Name, Title, Department Name

Dr. Yi-Hwa (Eva) Wu, Assistant Professor, Geology/Geography, GS 1075, X 1869
Dr. Ming-Chih Hung, Associate Professor, Geology/Geography, GS1337, X 1797
Dr. Jamie Patton, Associate Professor, Agriculture, Valk 124, X 1659

2. Project Title

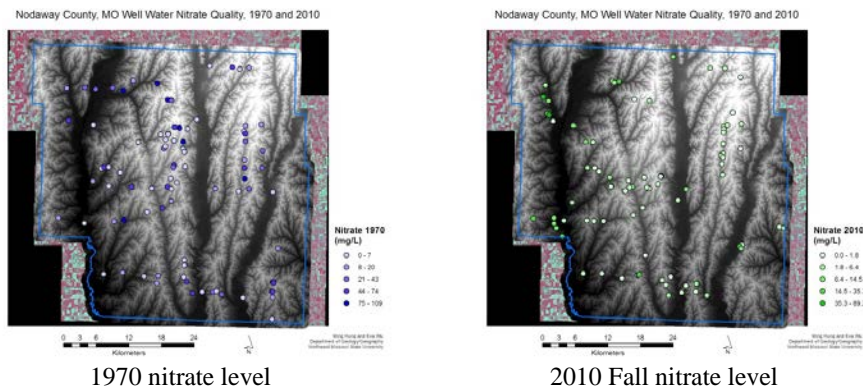
Measure the changes in well water quality in Nodaway County between 1970 and 2010

3. Type of grant - Date granted - Amount approved - Date completed

Applied Research (A101-31043-222 AR-Nod Cty Well Water Quality), approved Fall 2009 with budget \$3,400, completed Summer 2011.

4. Findings and recommendations. (Be brief, not to exceed 300 words)

Samples from 93 groundwater wells within Nodaway County were collected on April 20 and 21, 2010. Two 50 mL samples were collected from each well using single use polyethylene micro bailers and stored chilled in sterile polyethylene tubes until analyzed. Well locations were recorded using Garmin GPS units. Well and landscape characteristics were noted and photographed. 27 of the 93 wells sampled were part of Hoffman's original 1970 study. Another survey was conducted on October 12, 2010 using the same procedure. 31 wells were surveyed. 23 out of 31 wells were surveyed earlier in Spring 2010. Satellite images of the Nodaway County have been purchased; primary visual interpretation was performed to outline general land use/cover types.



Recommendation for further research is to look further the land use/cover types and associate them to well water quality. Another research agenda is to analyze the effect of seasonal changes on well water quality by comparing the data from 2010 Spring and 2010 Fall.

Summary of the Budget Expenditures

Itemized expense:

Camera (to replace an old camera)	\$ 351.94
printing	\$ 156.25
images	\$ 2,447.51

total	\$ 2,955.70
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Total approved budget: \$ 3,400

Remaining fund: \$ 444.30

Faculty Research and Applied Research Final Report

3.1 Researchers' Name, Title, Department Name

Dr. April Haberyan, Assistant Professor, Dr. Jerry Barnett, Professor
Department of Psychology, Sociology, and Counseling
2370 Colden Hall/ 2320 Colden Hall
562-1305/562-1736

3.2 Project Title.

The Psychological Consequences of Sleep Deprivation on Participants in a Field Training Exercise

3.3 Type of grant - Date granted - Amount approved - Date completed

Applied Research Grant- Account Number 122931, FOAP Number- A10131034
Date Granted- 11/2008
Amount approved-\$6,476.00
Date Completed- 1/2011

3.4 Findings and recommendations

According to the literature, when working in real or simulated crisis situations, sleep deprivation can impact complex skills such as having to appreciate a situation, assessing risk, developing plans, and showing insight into one's performance. This study was designed to measure the impact of sleep deprivation on decision making in college students participating in a disaster field training exercise in Macedonia in May, 2009. As part of the study, participants were asked to complete the informed consent form, Trait Anxiety Scale, Stanford Sleepiness Scale, Need for Cognition Scale, and a Planning Task

Scenario form. Using qualitative and quantitative data analysis the researchers found the sleep deprived participants were more rigid in their thinking, had difficulty appreciating an updated situation, showed impaired innovative thinking and demonstrated less tolerance for stressful situations. On average the participants received less than four hours of sleep a night during the field training exercise. The researchers' recommendations included having a mandated rest period during the day as well as provide at least a 6 hour period for rest at night. Individuals conducting field training exercises and supervisors in real world disaster settings need to be knowledgeable about the factors that impact disaster relief workers' decision making during stressful situations. The information from this study could help instructors develop training exercises that better prepare individuals for the real life demands of disaster relief work.

3.5 List of Expenditures

Travel to Florida (airline) (\$350.00 each)	700.00
Travel to Macedonia (\$3000.00 each)	3012.00
Baggage Fee	30.00
Student Participation Fee	1925.00*
<i>Travel to Macedonia (covered by Dept/College funds)*</i>	<i>1000.00*</i>
Travel to/from KCI (158 miles total 0.45)	142.00
Airport parking (\$5.50 p/day)	99.00
Handouts (60 copies of 8 page packet)	10.00
Total Funds Used	\$6918.00