STRONG POSTER PRESENTATION EXAMPLES

Examples and Strengths List From

http://www.utexas.edu/ugs/ugr/poster/samples#stem

Strengths in Science, Technology, Engineering, Mathematics Example Posters*

- Poster 1 (Parasite Spillback)
  - Multiple types of visual aides
  - Logical visual strategy
  - Acknowledgements
- Poster 2 (Electrical Stimulation)
  - White Space
  - Legible text and graphics
  - Reports preliminary results
- Poster 3 (Microbial Legacy)
  - Accessible to multiple audiences
  - Clearly defined research questions
  - Effective use of visual aids

*Example Posters follow

Parasite Spillback Effects on Native Communities in New Zealand Streams and Lakes

Dr. David Kelly, Landcare Research
Rachel Paterson, The University of Otago Department of Zoology
Evolutionary and Ecological Parasitology Group

Alison Koone
Bridging Disciplines Program
Environmental Studies

Dr. Kenneth H. Dunton
The University of Texas at Austin Marine Science Institute

What is parasite spillback?

Parasite spillback is a process that describes the feedback of native parasites from new host species to native hosts.

- First, native parasites infect introduced or invasive host species.
- With a new host, parasites flourish.
- Now, parasites return to native species with increased infection and disease rates.

Salmonids Brown trout *Salmo trutta* (originating form Europe) and rainbow trout *Oncorhunchus mykiss* (North America) were first introduced to New Zealand waters in the late 19th century. Their effects on local and native stream communities as a non-indigenous species include lesser-studied effects such as parasite spillback and dilution.

Unpublished. Kelly, D.W., Paterson, R.A., Townshend, C.R., Poulin, R. & Tompkins, D.M. "Parasite spillback: a neglected concept in invasion ecology?"

Could parasite spillback be a cause of native species loss and local level extinction?

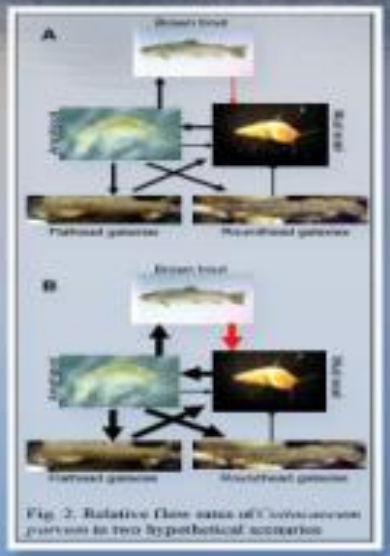


Fig. 2. Relative flow rates of [illegible] pattern in two hypothetical scenarios

Objectives

1. Test whether the presence of brown trout *Salmo trutta* and their parasite abundance is correlated to increased infection rates in four native species fish.
2. Identify for native fish and brown trout seasonal variations in infection intensity.
3. Understand the impact of parasites on host's condition, survival, and reproductive potential through captivity experimentation for all five host species. Parasite transmission to, establishment in, and mortality in different host species will also be identified.
4. Use multi-host and shared-parasite stochastic simulation models.
5. Consider global implications of this model by applying it to an Argentine system and conducting a literature survey of the abundance of shared parasites in native and exotic freshwater fish.

Unpublished. Kelly, D.W., Paterson, R.A., Townshend, C.R., Poulin, R. & Tompkins, D.M. "Is parasite spillback a cause of local extinction in native communities?"

Methods

- Analyze freshwater fish communities in lakes and streams
- Field surveys
- Host autopsies
- Infection trials
- Mathematical modeling

Presented at the Bridging Disciplines Program Poster Session and Reception
April 16, 2008

My Experience

I spent five months interning with this project, conducting various lab and field tasks. In the laboratory, I counted the invertebrates from lake benthic sediment samples. I also conducted lipid analysis on galaxids, brown trout, and bullys. In the field, I helped as we set nets and traps for fish. We also collected benthic sediment and zooplankton samples.

Discussion

Native species loss is a critical issue throughout the world in many different environments. This map from Conservation International shows biodiversity hotspots where over at least 70 percent of native species are already lost. The most biodiverse regions, including New Zealand, are also the ones most at risk.

Competition and predation are the traditional impacts of invasive species on native species, but disease driven impacts are becoming more widely recognized and researched. Whereas parasite spillover is already an accepted form of disease driven impact, parasite spillback can potentially be more widely used as a tool for describing and understanding impacts of invasive species and native species loss.

A parallel study with similar methods is currently being conducted by the same team of researchers in Argentina. Other areas of the world where parasite spillback has been researched include a study of competing native and invasive grasshopper populations in California. (Settle and Wilson 1990) With more awareness of this issue, more research and studies will hopefully begin and consider parasite spillback as a potential cause for native species loss, potentially helping reverse the trends in global hotspots.

Settle, W. H., and L. T. Wilson. 1990. Invasion by the variegated leafhopper and biotic interactions: parasitism, competition, and apparent competition. Ecology 71:1461-1474.

Acknowledgements

Professor Robert Poulin and Professor Colin Townshend of the Evolutionary and Ecological Parasitology Group
Dr. Daniel Tompkins of Landcare Research
Funded by The Royal Society of New Zealand Marsden Fund

Effects of electrical stimulation on Schwann cell migration on polypyrrole substrate

2

Jose Ybarra[1], Leandro Forciniti[2] & Christine Schmidt[2]

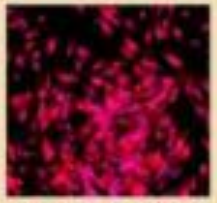
[1]School of Biological Sciences, [2]Department of Biomedical Engineering, Cockrell School of Engineering

Background

- Nerve injuries affect about 100,000 people in the US every year
- Nerve damage is difficult to repair, and often does not heal on its own

Why Schwann cells?

- Successful treatment requires nerve cells to migrate across the injury
- Schwann cells are associated with nerve repair after injury
- Migrate to site of injury to protect endoneurial tube
- Direct nerve growth with growth factors
- Axons are known to be able to regenerate through conduits formed by proliferating Schwann cells
- Study effects of electrical stimulation on Schwann cell migration to optimize treatment



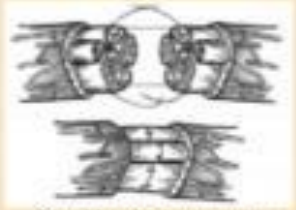
Schwann Cells cultured on Ppy-Tosylate

Current Treatments:

Autologous nerve graft

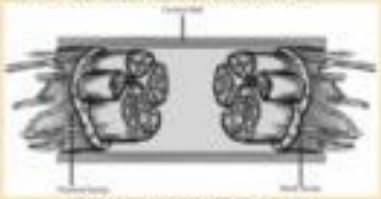
Requires donor nerve tissue to bridge injury gap (results in loss of function at donor site)

End to end connection



Stretching the nerve causes tension which can result in pain and difficulty of use

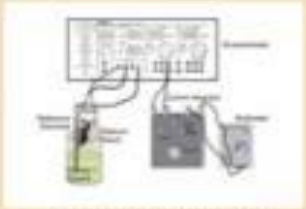
Nerve Guidance Conduit



- Provides more efficient and natural treatment
- Electrical stimulation has been shown to aid in recovery

Methods

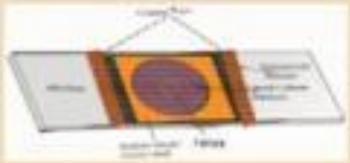
Electropolymerization of polypyrrole (Ppy) on Indium Tin Oxide (ITO) slides



Three-electrode setup for Ppy electropolymerization

Cell Culture/ Electrical Stimulation Set-up

Cells are stimulated with constant current through the substrate via copper tape using a two electrode set-up

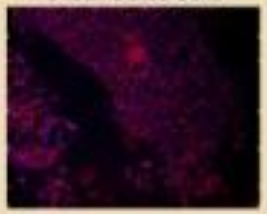


Migration assay:

Using a 10mm diameter ferrule for a well, cells are allowed to adhere to the substrate, and are observed for movement and imaged at 24, 36, and 48 hrs

Preliminary Results

Unstimulated Cells



Stimulated Cells

Cell Viability

Conclusion

We hope to find that upon electrical stimulation of Schwann cells, the cells orient themselves and migrate in a specific direction (with the current, against the current, toward the cathode or anode, etc.). Specific migratory patterns could be used to optimize treatment using nerve guidance by affecting orientation and direction of the applied electrical field.

Effect of Microbial Legacy on Nitrogen Cycle and Restoration Success

Tzu Chao, Clare Glinka, and Christine V. Hawkes
University of Texas at Austin

3

Introduction

- Nitrogen(N) cycle plays a key role in ecosystem and every transformation of the N cycle driven by microbes.
- Restoration attempts on converting abandon rangelands in south Florida back to the native scrub ecosystems allow a unique opportunity to study persistent effects of previous vegetation left on the microbial community and ecological processes.
- Biological crust is essential for native ecosystem.

What is Crust?

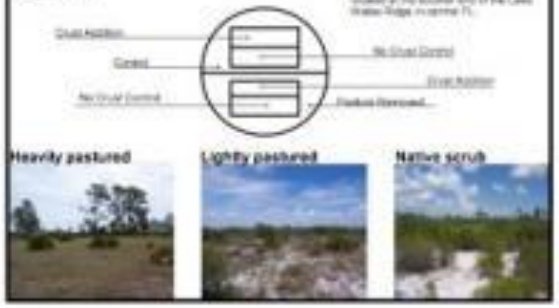
- A surface layer of "Living Soil", consisting primarily of cyanobacteria, algae, fungi and their byproducts.
- Supports many biological functions like N fixation and water infiltration control.

Questions

- How does native crust affect microbial legacy?
- Which impacts the N-cycle more? Microbial abundance or composition?

Field Site: Native scrub lands and abandoned pastures at Archbold Biological Station.

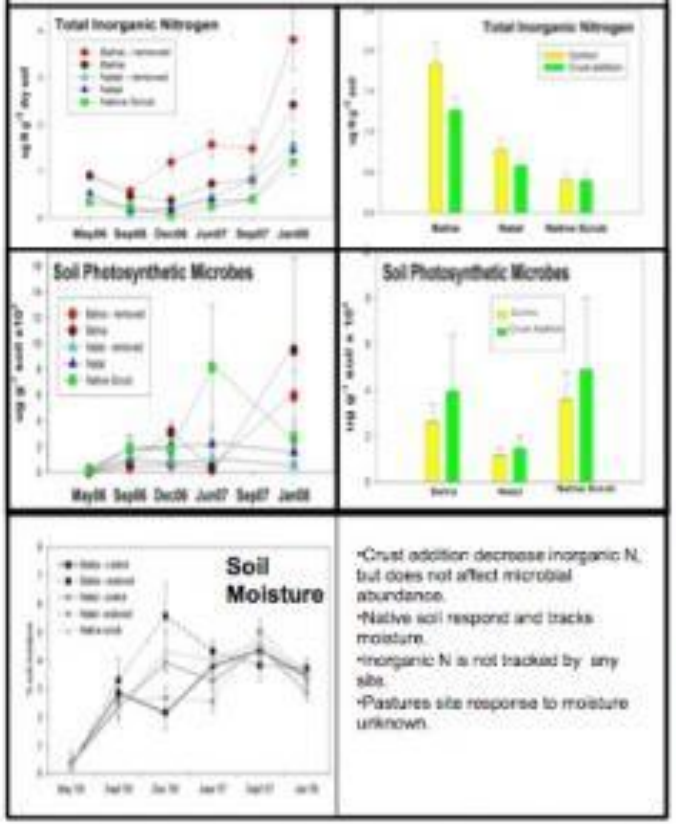
- Sites are abandoned pastures and native scrub lands subjected to pasture removal treatments and crust addition treatment(Fig.2).



Method

- Biogeohemical
  - KCl extraction
  - Photosynthetic activity determine by fluorometry.
- Molecular approach
  - PCR
  - RFLP
  - Direct sequence analysis

Soil Nitrogen, Photosynthetic Microbes Abundance, and Moisture changes over time and treatment

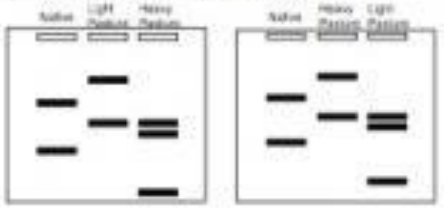


- Crust addition decrease inorganic N, but does not affect microbial abundance.
- Native soil respond and tracks moisture.
- Inorganic N is not tracked by any site.
- Pastures site response to moisture unknown.

Possible mechanisms

- Pasture vegetation has caused a shift in soil microbe community and chemistry.
- Frequent disturbance favor more resilient microbes and changes community composition.

Sample restriction fingerprint



- DNA based fingerprints allow characterization of community difference.
- Couple with clone library will allow identification of species.

Conclusion

- Inorganic nitrogen increases over time, and pasture sites both have higher inorganic nitrogen than the native.
- Crust treatment helps increase nitrogen fixation, but does not increase microbial abundance significantly.
- The microbial abundance does not track N, but does track moisture.
- Composition may be the more important factor in N-cycling.

Acknowledgment

- This project was supported by the National Research Initiative of the USDA Cooperative State Research, Education, and Extension Service, National Science Foundation and the Department of Defense.
- Special thanks to all members of the Hawkes lab, Juenger lab,and Manges Lab.

Social Science Example Posters Strengths

- Poster 1 (Demographic Shifts)
  - Venn diagram in discussion
  - Consistent graphics
  - Multiple types of visual aides
- Poster 2 (Juvenile Delinquency Program)
  - Effective Title
  - Consistent Graphics
  - Limitations of study part of discussion
- Poster 3 (Bridging the Gap)
  - Easy to read
  - Clearly defined research question
  - White Space

Demographic Shifts in the City:
Comparisons of the Populations of Tokyo and Mumbai Over Time

1

Timmy Huynh ▪ Advisor: Dr. Shannon Cavanagh
Department of Sociology and Population Research Center ▪ The University of Texas at Austin
Bridging Disciplines Program ▪ Social Inequality, Health & Policy

Introduction

The development of a city speaks volumes about the situation of the city at hand. In order to try to understand the workings of city development and growth, two of the world's largest cities (Tokyo and Mumbai) with current populations of about 12 million will be studied demographically over a forty-year period (1960-2000 and 1961-2001, respectively).

Tokyo

- Highly-advanced city in highly-developed Japan
- Total population changes little from 1960-2000
- Age and sex composition of Tokyo population changes dramatically from 1960-2000

Mumbai

- Developing city in quickly-developing India
- Total population grows rapidly from 1961-2001
- Age and sex structure remains relatively the same during the same period

Background

Decade	Tokyo	Mumbai
1960s	Economic boom from Korean War in 1950s and new technologies	Newly appointed capital of Indian state Maharashtra; ethnic riots
1970s	Oil Crisis of 1973 slowed economic growth	Increased naval traffic; Bombay Metro Region Development Authority
1980s	Rapid economic growth as Tokyo transformed into technology giant	Economy begins to expand beyond textiles; becomes major port
1990s	Recession in finance industry	Religious riots; renamed Mumbai from Bombay
Today	Tokyo boasts the largest city GDP in the world; largest urban area in world	Financial and entertainment center of India; largest city proper in world

Data: Graphs and Charts

Figure 1.

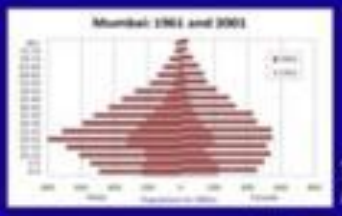


Figure 2.

Figure 3.

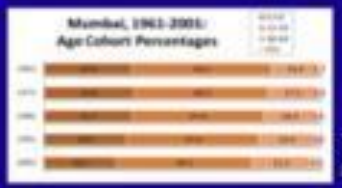


Figure 4.

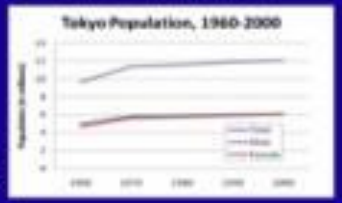


Figure 5.

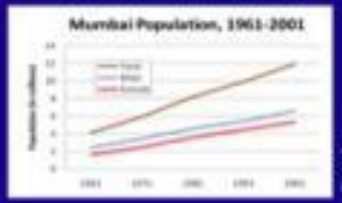


Figure 6.

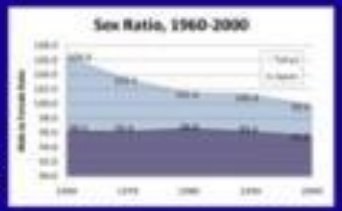


Figure 7.

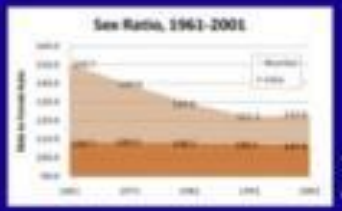


Figure 8.

Discussion

Commentary on data

The size of Tokyo's population remains mostly the same, but the composition changes dramatically.	Mumbai experiences massive population growth, but its population structure remains about the same.
Focus on age composition. Tokyo's younger cohorts see proportionately shrinking while the older, growing.	Focus on age composition. Mumbai's age composition remains relatively steady.
Tokyo's total population increases steadily but only slightly from 1960 to 2000.	Mumbai's total population grows rapidly, gaining about 2 million every decade.
Tokyo's sex ratio decreases over time toward Japan's sex ratio and away from the world average of 107.	Mumbai's sex ratio also decreases toward its country's sex ratio and also toward the world average of 107.

Points to consider

Tokyo
- Aging of population and shifting of economy to information technology industries
- Recessions correlated with dips in younger-age cohort drops

Both
- Compositional shift versus total growth of city populaces
- Steady "aging" of the populaces

Mumbai
- The "youth bulge" throughout 1961-2001
- Diversification of Mumbai economy and decrease in the sex ratio

Acknowledgements and References

I would like to thank Dr. Cavanagh for her role as my research advisor and the Bridging Disciplines Program for allowing me the opportunity to do my own research project.

Effectiveness of a Juvenile Delinquency Program Staffed by Social Work Interns

2

Brittany Burch
School of Social Work
The University of Texas at Austin

Purpose: To provide a detailed quantitative understanding of the DPU-SWIFS client population, the outcomes of those served, and the characteristics of those who successfully complete the program and what interventions produce the best results

What is DPU-SWIFS?

The Social Workers in Family Services Program of the Travis County Deferred Prosecution Unit (DPU-SWIFS) is a program in Austin staffed by social work interns from the UT School of Social Work. DPU-SWIFS is a prevention and treatment program for juveniles who have committed minor crimes.

This Study

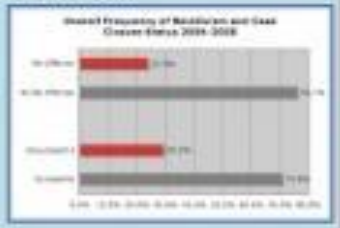
This program evaluation is an exploratory study designed to examine the effectiveness of the DPU-SWIFS Program. Quantitative data on all juveniles (n=144) who have gone through the program from 2006-2008 were collected, coded and analyzed. Case information was directly obtained from records kept by social work interns and DPU staff, stored on the Caseworker computer database at the Travis County Juvenile Probation Annex.

Results

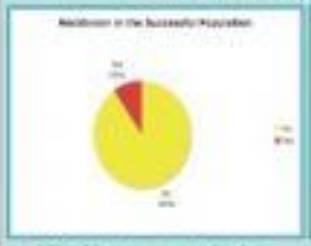
Question 1: What is the overall effectiveness of DPU-SWIFS in reducing recidivism?

Program effectiveness was measured by:

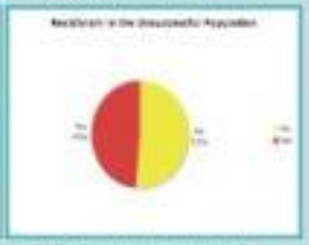
1. Case closure status
2. Prevalence of recidivism



Successful case closure status had a strong, negative correlation to recidivism.

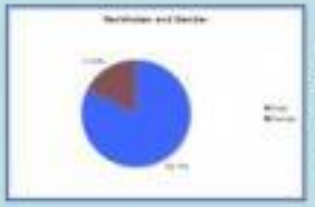


10% of the program youth who completed the program successfully re-offended and 90% did not re-offend.



51% of the program youth who were unsuccessful in completing the program re-offended and 49% did not re-offend.

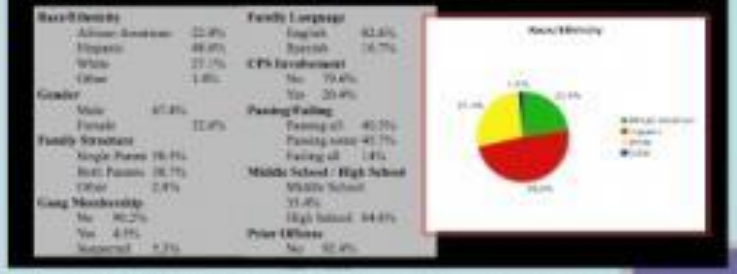
Question 2: Does effectiveness vary by demographic characteristics such as race/ethnicity or by other social, academic/developmental, or program specific factors?



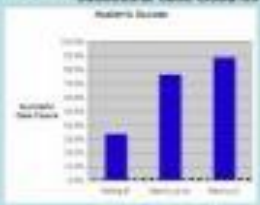
Gender was significantly correlated to recidivism.

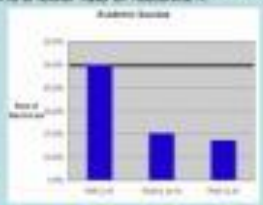
Of the program participants who re-offended 82.4% were male and 17.6% were female.

Key Characteristics of the DPU-SWIFS Youth Population:



Program youth with increased academic success had a higher percentage of successful case closures and a lower rate of recidivism.





Other Statistics:

- 84.8% of African American program youth, 64.3% of Hispanic youth, and 71.8% of White (Non-Hispanic) youth closed their cases as successful.
- 73.2% of males and 68% of females closed their cases as successful.
- 28.9% of program youth who lived in single-parent households re-offended and 18.2% of youth who lived in two-parent households re-offended.
- 44.8% of youth who had experienced CPS involvement received successful case closures and 77% of youth who had not experienced CPS involvement received successful case closures.
- 66.7% of youth who were in a gang at the time of intake re-offended, 42.9% of those who were suspected to be in a gang re-offended, and 22.5% of those who were not suspected or part of a gang re-offended.

Question 3: Is receipt of particular services offered by the Program related to recidivism?

- Unsuccessful completion of Community Service Restitution hours was strongly correlated to recidivism.
  - 40.9% of program youth who did not complete their CSR hours re-offended and 14.8% of those who completed their CSR hours re-offended.
- Participants who completed all programs referred to them recidivated significantly less than those who completed none of the programs referred to them.

Among youth who completed all of the programs to which they were referred 17.6% re-offended. Among youth who did not complete any of the programs to which they were referred 40.6% re-offended.

Limitations

- Little could be concluded about the nature of change in the program over time
- The true effectiveness of most services provided could not be measured because of inconsistent records
- Several variable relationships were not statistically significant due to a limited sample size
- Causal relationships were not determined due to the vast amount of data collected, the exploratory nature of the study and time constraints

Recommendations

- I encourage the social work interns of the DPU-SWIFS Program to adopt the categorization process utilized in this study for the sake of standardization, professionalism, and the enhancement of their ability to relate success to other entities
- Implications for future research: Qualitative studies considering both intrapersonal characteristics and interpersonal interaction

Acknowledgements: Faculty mentor: Professor Mary Mulvaney
Funding and Support: Undergraduate Research Fellowship from the Office of Undergraduate Research; UT Bridging Disciplines Program

Bridging the Gap:

Improving Access to Local Food in Austin Elementary Schools

Acknowledgements: Faculty Advisor, Dr. Sheri Hosty, College of Education; Office of Undergraduate Research Studies

Holly Harkrider | The University of Texas at Austin | College of Education | hollyharkrider@mail.utexas.edu

Research Questions:

What are the current barriers and affordances to local food access in Austin area elementary schools? What points in the phases of production and distribution of food from farm to cafeteria could be altered to allow local farmers to supply products to school lunch programs?

Purpose:

To identify the barriers and affordances for incorporating local foods into school lunch programs and propose a plan for a future program model.

"Re-localization...lies at the core of the concept of community food security, which advocates food systems that strengthen localities and communities by creating spatially closer links among two or more food system activities."

(Feenstra, 2002; Morgan, 2007)

OBSTACLES BETWEEN FARMS & SCHOOLS

Emerging Results:

My emergent research suggests the complexity and difficulties of the school food system in the Austin area and around the United States. The most pervasive barriers that occur across one or more areas within the cycle of food from farm to school are related to monetary and lesser support—policy makers, educators, school district officials. While these barriers do prevent access to local food in schools, the affordances may be able to serve as an aid to "bridge the gap" and make this an option in our schools.

Background:

With over 26% of Texans currently suffering from obesity, we are in crisis mode to find a way to become healthier and ensure positive outcomes for future generations (CDC, 2008). For many children, "school lunches are their most nutritious meal—sometimes their only meal—of the day" (USA Today, 2009). With the numerous benefits to local food, why do more schools outsource their food services to vendors instead of purchasing from the farms in their communities? Local food:

- Is less processed and usually grown using fewer pesticides
- Is fresher because it has spent less time traveling (NY Times, 2008)
- Supports the local economy
- Takes a shorter distance, requires less fuel to transport and is therefore easier on the environment
- Is less susceptible to bioterrorism (Associated Press, 2008)
- Helps to ensure positive futures for smaller farmers

Problems:

Debates about local not being always better, economically or health-wise:

- "Having the food be natural is nice, but a bigger threat to children's health is making sure that there's not too much salt and not too much saturated fat." (Margo Wootan, 2009)
- "'Local' and 'green' are not necessarily better than 'global' and 'fair'" (Morgan and Sonnino, 2008)

Affordances

For Choosing Local Food

- School Food Service staff training
- Supportive legislation and public policy
- Teacher and school staff support
- Community and parent interest
- Wide availability of local farms and gardens
- Partnership with local NGOs

Barriers

To Getting Local Food In Schools

- Cost
- Knowledge and Equipment
- Awareness and Information
- Legal Issues
- Leadership and support
- Student Preferences
- Provided commodities by the USDA
- Logistics
- Produce growing season
- Incentives, revenue from FMNVs

Proposed Methods:

My approach is rooted in the Grounded Theory of qualitative research methods developed by Glaser and Strauss, which suggests "a general methodology for developing theory that is grounded in data systematically gathered and analyzed" (Bill, in Perreira, 1995). This data will help to identify the key players in the farm to school ecology and to understand the previous and current environment around school lunch programs in the Austin area. Purposeful sampling techniques were used to identify the respondents and to host data sessions to develop an emergent research theory. The data will be analyzed using qualitative research methods and content analysis of key documents as described by Corbin and Strauss (2008). A future goal for my research would be to analyze and synthesize collected data to develop a model for how to approach these barriers and affordances more holistically in the future.

Austin Farms

Vegetables, Fruits & Herbs

Johnson's Backyard Garden
Boggy Creek Farms
Green Gate Farms
Springdale Farm
Hands of the Earth Farm
Natural Springs Garden
Urban Patchwork Neighborhood Farm

Eggs

Green Gate Farms
Urban Patchwork Neighborhood Farm
Barrison Farm
Vidi Farms, Onion Creek

Meat & Dairy

Green Gate Farms
Barrison Farm

And, according to localfoodies.org, there are 75 more local farms in the Austin area, all within 50 miles of our Capitol building.

Humanities & Creative Example Poster Strengths

- Humanities
  - Clearly defined research question
  - Easy to read
- Creative
  - Coming soon
- For helpful content hints please visit http://www.utexas.edu/ugs/ugr/poster/create_message

سپاه پاسداران انقلاب اسلامی

Iran's Islamic Revolutionary Guard Corps
An Evolution: 1979-2009

By: Sarah Golkar
Advisor: Dr. Ami Pedahzur
BDP: International Studies, Transnational Security and Terrorism

Total Forces

- **Army of the Islamic Republic: 350,000**
  - Army
  - Navy
  - Air Force
- **Islamic Revolutionary Guard Corps: 120,000**
  - Army
  - Navy
  - Air Force
- Jerusalem Force (Al-Qods): 1,000 elite soldiers
- Volunteer Militia (Basij): 90,000
- Law Enforcement (LEF): (120,000)

Is the revolutionary guard an impediment to regime change?

Conclusions

- Since 1979, Iran's Islamic Revolutionary Guard Corps and its peripheral infrastructure have steadily crept into social, economic, and political dominance.
- The organization's disregard for popular, and partisan opinion, use of violence to quell dissent, and ideological indoctrination suggests that it is the chief institutionalized impediment to internal and external democratic reform movements.
- Given the IRGC's seeming omnipotence in all sectors of society, politics, and economy, a regime change of political elites would negligibly affect the authoritarian tendencies and Islamic fundamentalist nature of Iran.

Government Structure

Literature Review

Source	Information	Reliability
Rand Corp.	Research, Graphs	Very Reliable
Alfoneh, Ali	White Paper	Reliable
Middle East Institute Viewpoints	Charts, Graphs, Statistics	Reliable
CFR Backgrounder	Summary, Structure	Fairly Reliable
Buchta, Wilfried	White Paper	Reliable
Jerusalem Center for Public Affairs	Investigative Report	Reliable
Cordesman, Anthony	White Paper	Very Reliable
Norton, Augustus	Book: Hezbollah	Reliable
Kermani, Navid	White Paper	Reliable

Major Findings

Society (Basij)

- Ensure adherence to Sharia Laws
- Conduct Domestic Surveillance
- Indoctrinate Youth
- Train Paramilitary
- Disaster Relief
- Censorship
- Protect Regime
- Produce Media: TV, Radio, Print

Foreign Policy (Al-Qods)

- Export Revolution
- Collect Intelligence
- Conduct Paramilitary Operations
- Fund Terrorist Organizations

Economy

- Public Works Foundations (Bonyads)
- Construction
- Infrastructural Engineering (Ghorb)
- Manufacturing
- Shadow Economy

Politics

- Dominated by Conservatives
- Clash with Reformists
- Interfere in elections