

WRITING EFFECTIVE RESEARCH STATEMENTS FOR FELLOWSHIP & JOB APPLICATIONS

Presenters

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WELCOME



- Please make a name tag:
 - name & graduate program
- Find a seat according to interest:
 - fellowship—front of room
 - non-academic job—middle
 - academic job—back of room

Today's Agenda



- Opening Segment
 - ▣ Purpose of the research statement
 - ▣ Audiences
 - ▣ Structures
- Shaping for your audience(s)
 - ▣ Audience analysis
 - ▣ Grant/position description, institutional context
 - ▣ Decision making processes and conventions

Today's Agenda



- Organizing for the Specific Context
 - ▣ Fellowships/grants—dissertation, early career
 - ▣ Non-academic—industry, consulting, NGO, non-profit
 - ▣ Academic—institution, position type, research home

- Create an Action Plan
 - ▣ Rubric
 - ▣ Peer review

What is a research statement?



- Summary
 - ▣ Research interests—past, present, future
 - ▣ Achievements
 - ▣ Current aims
 - ▣ Findings

- Proposal for future directions
 - ▣ Short term and long term goals
 - ▣ Resources
 - ▣ Potential funding

Why a research statement?



- Benefit to employer or committee
 - ▣ Communicates **FOCUS**
 - your interests, contributions, direction
 - ▣ Demonstrates **INDEPENDENCE**
 - expertise in a specific area
 - potential to secure funding
 - fit within the department, organization or fellowship
- Benefit to you
 - ▣ Helps clarify purpose, ideas, direction, funding

Adapted from Jim Pawelczyk, Ph.D., Noll Laboratory, Department of Kinesiology

Audiences



- Disciplinary—familiar with research
- Interdisciplinary—varying levels of familiarity
- Grants and fellowships
- Academic—teaching, research, combination
- Non-academic—government, industry, consulting, non-profit

Structure



- Background
- Current research
 - ▣ What do you hope to solve, discover
 - ▣ Importance/relevance
 - ▣ Promising lines of inquiry
- Future research
 - ▣ Credible, feasible, fits employer needs
 - ▣ Short and long-term goals

Style and Formatting



- Clear and concise
- Use headings and subheadings to highlight significant topics
- No more than two pages
- No page-long paragraphs
- Get feedback from peers, senior graduate students, postdocs and mentors

Content



□ FOCUS

- ▣ Why is your research important
- ▣ What will you do within and beyond the time allotted (fellowship, tenure process, etc.)

□ INDEPENDENCE

- ▣ Logical progression from past, current, future research
- ▣ Articulates why you are the best person to conduct the research
- ▣ Show innovation—different from past research



Audience Analysis

Audience Analysis



- Job Posting – keywords, order, required/hoped for
- Hiring Entity – mission, structure, context
 - ▣ overall
 - ▣ specific unit
 - ▣ selection/hiring team
- Career Paths – short to long term
 - ▣ institution's pathways – tracks, hierarchies
 - ▣ your current stage – starting place, initial phase
 - ▣ your future goals – career home, scholarly growth

Audience Analysis



- Explicit and Implicit Dimensions of “Fit”
 - academic specialty(ies) and interest(s)
 - approach(es) to research
 - methodological frame(s) / skills & synergies
 - compatibility with local research efforts
 - potential for earning funding / reputation
 - other research-related duties set out in job posting

Audience Analysis



□ Explicit and Implicit Dimensions

- interplay of scholarly independence, collaboration and leadership
- preparation for non-research dimensions of research role: staff management, budgeting, social networking the research, editorial skills
- preparation for presenting, teaching, mentoring, and other public/interactive roles associated with position

Multiple Audiences



□ Static Level

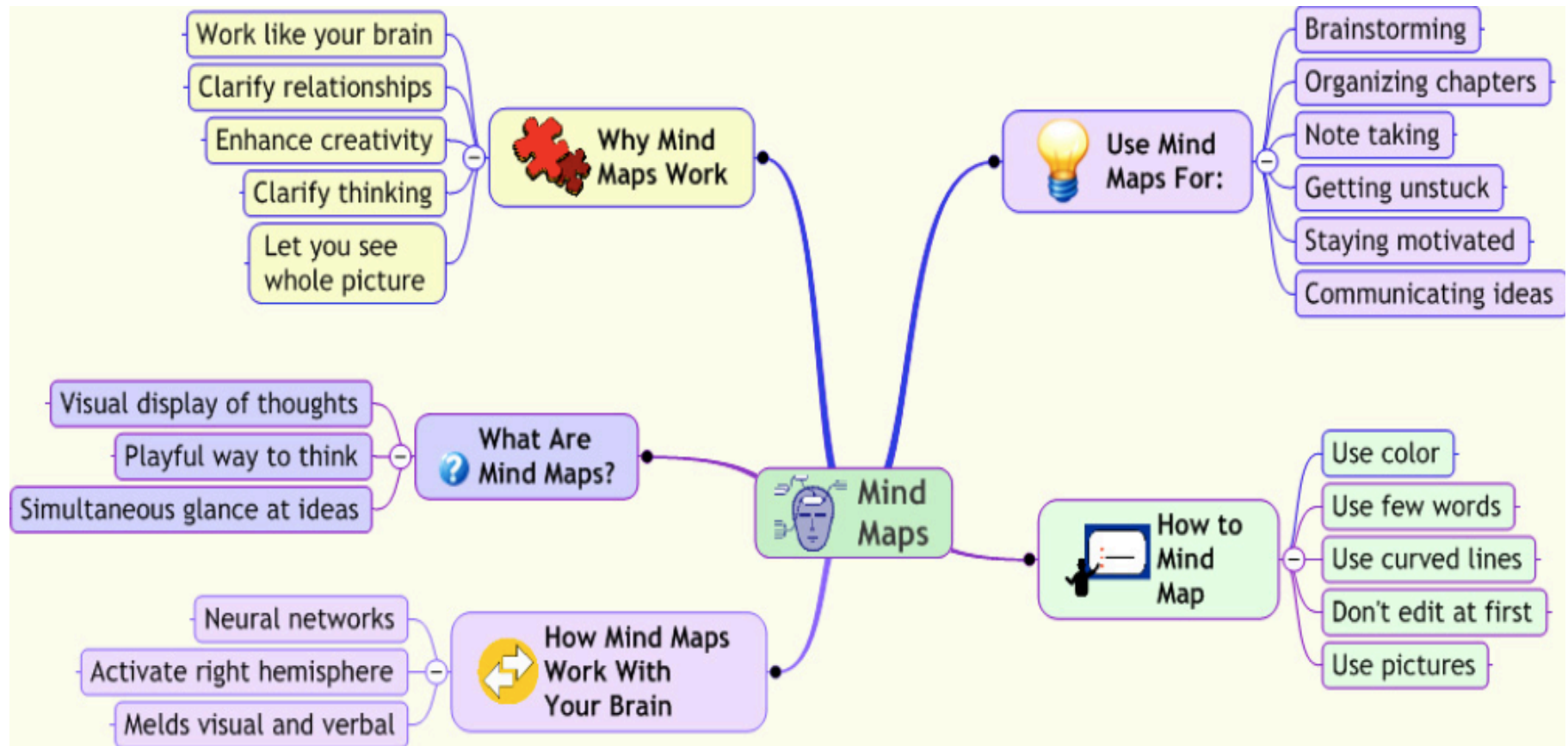
- Who are your readers – expert and not?
- What do you know about your readers – research history, current goals, mission?
- What would your potential coworkers *presume to assume* about you and your *type of work*?
- What do you *assume* and *actually know* about research role/overall work life at targeted institution?
- Given trends in targeted institution, what do potential coworkers need to understand *first and foremost* about you and your *type of work*?

Multiple Audiences



- Dynamic Level
 - Job Posting / Position Description
 - Narrative Mapping
 - Titling Documents
 - Signposts & Keywords within Document
 - Language throughout Document
 - Professional Self across Documents

Narrative Mapping



 Example of Mind Map by
Gina Hiatt, Ph.D. and
Academic Ladder

Narrative Mapping

My Qualifications and Experience	Job Qualifications and Duties	How I Will Show a “Fit” in Research Statement

Position Requirements Distinguish Required and Desired	Knowledge, Skills, Abilities that Demonstrate “Fit”	How to Show “Fit” in Application Documents	How to Show “Fit” in Interviews & Interactions	How They Showed “Fit” during Campus Visit or Interview



Research Statement

Grants and fellowships

Karin Matchett, Ph.D.

College of Veterinary Medicine

Describe your research



- Your description of your research interests and accomplishments must be extremely well thought out. Often, the most effective way to work out your thoughts is on paper, revision by revision.
- To achieve optimal flow, tone, and language requires reworking your initial draft and incorporating suggestions that you garner from your colleagues. You must reach:
 - ▣ Researchers in your field
 - ▣ Readers outside your field

Structure the description of your research



Before you delve into your research, you must establish a compelling rationale for its importance:

- What's the problem?
- What's the pressing need?
- What's the gap in knowledge that's keeping us from meeting the pressing need?

Problem, need, and gap in knowledge



- The problem
 - ▣ What is known?
 - ▣ What is currently unknown?

- The pressing need
 - ▣ What is the most important need relative to this important problem?

- The gap in knowledge
 - ▣ What specific lack of knowledge is standing between us and a solution to the problem?

Each component must be designed to point directly and ruthlessly at your proposed research.

Choose your terminology carefully



Each of these can be expressed with more or less technical detail. Your decisions about level of detail must be based on your audience's familiarity with your research. Or lack thereof.

- Problem
- Pressing need
- Gap in knowledge

In the research statement, you won't use the terms of conversation that you enjoy with your colleagues. For the review panel, you must articulate your rationale and your research more comprehensively and more carefully.



- What's the problem?

- Cancer

- Metastasis

- sLuD-modified core 5 N-glycans

- What's the pressing need?

- More effective treatments

- Strategies for halting metastatic tumors

- Understanding the mechanism underlying the alteration of sLuD-modified core 5 N-glycans

Approach



Now that you've outlined a compelling rationale for the problem you're addressing, the description of your proposed work fits perfectly into the gap you've described and justified.

If your research is hypothesis-driven:

- I hypothesize that...
- To test this hypothesis I will...

If not (explicitly) hypothesis-driven:

- My approach will be to...

Impact



Finally, state clearly what the benefit of the completed research will be—to your field and to the world.

A common first draft might go something like this:

“Upon completion, the proposed studies will provide insight into the causes of social stratification among urban teens.”

Good. Now push yourself to get more specific. Arriving at a sharp, meaningful statement of the impact often takes two or three revisions, each more specific than the last.

Components of a strong research statement



- The problem
- The specific sub-problem
- The pressing needs, both large and small
- What's the major gap in knowledge?
 - ▣ What's currently known?
 - ▣ What is unknown?
- Your hypothesis
- Your approach
- The impact and benefit of your research



Dissertation fellowships

- Describe your long-range scholarly and research goals, looking ahead five years, in terms customized to the expertise of your audience.
- Explain why your research matters to scholars in the field and to people outside of your field.
- Be specific. Write in such a way as to help the non-experts talk to one another about your work.
- Describe your strategy for transitioning to independent status in academia: your desired post-dissertation position and potential funding sources for the next stage of your research.



Postdoctoral fellowships

- Describe your long-range scholarly and research goals, looking ahead five to ten years, in terms customized to the expertise of your audience.
- Explain how you will exhibit leadership in your mentoring activities.
- Again, be specific!
- Describe your strategy for transitioning to independent status in academia: your plan for moving from the postdoc to a faculty position or job in industry or government, and your plan for securing funding for the next stage of your research.



Interdisciplinary research: How you write and what you say

- The more interdisciplinary your research, the more important it is to write clearly. Be even more careful to not fall into a jargon-rich narrative.
- Interdisciplinary research must be couched in rationales that are persuasive to multiple audiences. Choose your readers even more carefully, and make sure they're representative of the selection committee (as best you can guess).
- Even if you don't think of your research as interdisciplinary right now, cultivate the ability to communicate and problem-solve across disciplines. You never know!

Language and style




- Keep the subject and verb close to one another, to avoid exhausting your readers.




Don't make your readers hold their breath:

“High-density SNP arrays for whole genome association studies in mice, SNPs association studies in children, deep sequencing and high-resolution array-based comparative genomic hybridization to identify somatic mutations and copy number aberrations in tumors, Solexa RNA sequencing supplemented by commercial microarrays to evaluate gene expression profiles, and solid-phase sequencing for microRNA profiling and for identification of novel species that contribute to gene regulation in colon carcinomas ... ”



“High-density SNP arrays for whole genome association studies in mice, SNPs association studies in children, deep sequencing and high-resolution array-based comparative genomic hybridization to identify somatic mutations and copy number aberrations in tumors, Solexa RNA sequencing supplemented by commercial microarrays to evaluate gene expression profiles, and solid-phase sequencing for microRNA profiling and for identification of novel species that contribute to gene regulation in colon carcinomas **have been well established.** [But these have left question X unanswered.] **In the proposed studies, we will develop a novel approach...**”



“High-density SNP arrays for whole genome association studies in mice, SNPs association studies in children, deep sequencing and high-resolution array-based comparative genomic hybridization to identify somatic mutations and copy number aberrations in tumors, Solexa RNA sequencing supplemented by commercial microarrays to evaluate gene expression profiles, and solid-phase sequencing for microRNA profiling and for identification of novel species that contribute to gene regulation in colon carcinomas **are the major platforms we will utilize** in the proposed studies.”

Language and style



- Use as few specialized words as possible, and define the terms you do use. Consider your audience. For a non-specialized group, opt for the more readily understood (conversational) words or phrases.
- Make 1 / 3 of your sentences fairly short.
- Overall, vary sentence length, and keep the subject and verb near the beginning. The cumulative benefits of this (to your readers' mental well-being) cannot be overemphasized.
- When you're revising, trim away the "I believe that's" and "I hope that's." Replace "I would," "I can," and "I could," with "I will." Project confidence!



Research Statements

Non-Academic Sectors

Noro Andriamanalina, Ph.D.
The Graduate School

Non-Academic Sectors



- **Industry** (biotech firms, pharmaceutical, engineering)
- **Government**
 - ▣ Federal (policy, and enforcement agencies, national labs)
 - ▣ State—DNR, DHS
 - ▣ Local (county, city)
- **NGOs: Non-Government Organizations**
 - ▣ Non-profits, humanitarian and relief organizations
 - ▣ Consulting—expertise in a specific area meeting a specific need

Among top 10 industries for postdocs



- Trudeau Institute, Saranac Lake, NY
- Whitehead Institute for Biomedical Research, Cambridge, MA
- Woods Hole Oceanographic Institution, MA
- Novartis Institutes for Biomedical Research, Cambridge, MA
- Genentech, South San Francisco, CA
- Rocky Mountain Laboratory, NIH, Hamilton, MT
- Sandia National Laboratories, Livermore, CA
- Mayo Clinic, Rochester, MN

Tailoring



- Know the mission
 - ▣ Product development and profit
 - ▣ Public service—government funded
 - ▣ Humanitarian, NGO non-profit
- Content
 - ▣ Include dissertation/thesis research
 - ▣ Postdoctoral training
 - ▣ Other relevant research experience

Types of positions

- **MENA-LDAS Program Background:**

In partnership with NASA Goddard Space Flight Centre and funded by USAID, the Middle East North Africa-Land Data Assimilation System (MENA-LDAS) is being developed at the International Centre for Biosaline Agriculture (ICBA) in Dubai. This research will generate data and scientific insight on regional surface- and ground-water resources.

Position:

ICBA seeks to appoint a researcher with expertise in analyzing data from NASA's fleet of Earth Science satellites. This data will be used to assimilate the output from the hydrological model, and for analysis of water use in particular agricultural systems.

-

Types of positions

- **US Army Research Laboratory—Research Management**
- **Duties:** As Branch Chief you will supervise 25 personnel of Network Security Branch. Lead research, propose and execute advanced research programs which may include theoretical approaches to detection of network intrusion attack, data exfiltration for computer and communication networks; theory and techniques for threat behavior analysis, automated analysis of malware; theory, structure dynamics, evolution of friendly and adversarial networks, emergent and self-organizing behaviors...
- **Advanced Degree and Research Record:** PhD or equivalent degree is desired as is record of research publications in technical journals.

Types of positions

□ **XB Consultants--Senior Researcher**

- XB Consultants provides local, international and cross border Recruitment solutions for the Commercial Finance and Accounting, Fund / Asset Management, Interim and Inv
- Defining scope and develop research plans.
- Working Closely with Project Managers to deliver world class projects in Sensor Networks, Wireless technology and Business Applications
- Conduct the research and co-ordinate work with peers and external partners, including leading academic institutes and centers of excellence
- Ph.D or Minimum of a Master's in Informatics, Computer Science, Electrical Engineering or related disciplines
- Experience in Publicly Funded Projects
- Experience of working in an International or multi-national environment

Interdisciplinary



- Industry—large vs. small companies
- Government, NGO, Consulting—more collaborative research across disciplines, sectors, nations



Research Statements

Academic Positions

Keywords: nimble, nebulous, dynamic

- Ilene Alexander, Ph.D.
- Center for Teaching for Learning

Academic Institutions & Positions - 1

□ Research Institution

▣ Tenure Track

- Research Position
- Faculty Role Position
 - Departmental Appointment
 - Shared Appointment
 - Research Institution Affiliation

▣ Academic Staff

- Teaching Professor
- Researcher - Lab Manager, Institute Member
- Professional & Administrative Staff

Academic Institutions & Positions - 2



- Comprehensive Colleges & Universities
 - ▣ Regional Serving – public: Mankato
 - ▣ Regional Serving – private: Hamline
 - ▣ Masters or Doctoral granting

- Liberal Arts Colleges & Universities
 - ▣ Research and Teaching
 - ▣ Teaching and Research

Tailoring - 1



- Diagram the position description
- Chart the audience analysis
- Establish just documents are being requested
 - ▣ Research Statement
 - ▣ Research Philosophy / Philosophy of Research
 - ▣ Statement of Teaching and Research [Interests]
 - ▣ Cover letter only, but directive about knowledge, skills, abilities to be addressed

Tailoring - 2

□ Determine

- What sort of Research Agenda / Program?
 - Your own lab – funding, too? existing?
 - Collaborative – across college? within institute? with community?
 - Discovery, Integration, Application, Teaching – all? some? when?
- What links between Research and Teaching?
 - URPO, methods courses, study abroad, active learning
- What dimensions of Mentoring?
 - “pipeline,” thesis advising, Postdoctoral supervision – rewarded?
- What are **R P T** expectations and policies?
 - As interdisciplinary scholar who’s evaluating? “MOU”?
 - What counts as tenurable research?

Claudia case - 1



□ Educational Background

- PhD – Feminist Studies, qualitative methodology
- ethnic studies expertise; methods linked to literary theory, media studies, historiography, ethnography

□ Research Interests

- Oral History and Midwest Chicanas
- Media Studies and Cultural Representations
- Use of Social Technologies in teaching and communities

□ Research Experience

- Dissertation
- RA assignments
- Creation of new courses

Claudia case - 2

□ Possible Fits

- History
- Literature
- Chican@ Studies
- Gender / Women's / Sexuality Studies
- Cultural Studies

□ Unique Characteristics

- Technology
 - In teaching
 - In research
 - As research
- Teaching Experience crosses 4 disciplines
- Work Experience includes educational community organizing

Claudia case - 3

□ Positions Applied for

- History – Comprehensive & Lib Arts; joint appts w/ WmSt
- Literature – Lib Arts asst prof w/ Chican@ expertise
- Chican@ Studies – R1 and Lib Arts, asst prof positions
- Gender, Women's, Sexuality Studies – all institutional types for asst prof; multiple department teaching expectations but single research & tenure home
- Ethnic Studies – R1 postdocs, Lib Arts asst prof
- Variety of postdoctoral posts

Claudia case - 4

□ Decisions in Writing about Research

▣ Three versions

- for single disciplines, incorporating Chican@ Studies expertise
- Ethnic Studies positions, organizing based on job posting
- Women's Studies positions, organized based on job posting

▣ Three segments

- Current Research to Planned Next Stages
- Specifics regarding current, on-going, and future ways of working with Students
- Long Term, first setting out a vision to convey research philosophy as linked to student learning and community context, then setting out an agenda for future directions

Samples in the Handout Packet



- Applied Economist linking experimental frameworks to policy issues by pursuing research to generate knowledge, applying behavioral insights to development, health and environmental questions in collaboration with private, public, academic sectors.
- Research Scientist from Psychology base centering work around themes of diversity, performance, health & well-being in workplaces using various methodologies and statistical techniques to address pressing questions.

Creating an Action Plan

- Revision – Content and Organization
 - ▣ Where and why it's needed
 - ▣ Strategies for content development, overall organization and development of cohesive analysis / argument / knowledge construction
 - ▣ Transitions Coherence Unity
- Surface Features
 - ▣ Key sections, paragraphs, sentences
 - ▣ Section, paragraph, sentence structures
 - ▣ Conventions – of language, of citation style, of formatting

Creating an Action Plan



□ Feedback – Start with a Rubric

- Context setting
- Data collection
- Data analysis
 - Trends
 - Outlying Comments
 - Alignment
- Revision Plan
 - Static
 - Dynamic
- Next level of feedback
 - Revision Memos
 - Multiple Mentors

Creating an Action Plan



□ Revision Memo

- audience: peer reviewers, mentor reviewers
- purpose: give readers specific questions and context to guide their reading / responding
- text provides the following:
 - points to strengths of this draft
 - notes one or two passages you are still working on – describe what you see as “missing” or not quite complete, clear, detailed enough
 - includes two specific questions/concerns would you like readers to address in providing feedback

Creating an Action Plan



For transmitting new materials or corresponding with readers new to your drafts, a **Revision Memo** provides

- (1) a short narrative contextualizing the purpose and context of the document
- (2) a statement to pinpoint the extent of, what type of, and suggested timeline for feedback you want from individual reviewer
- (3) specific questions to frame your concerns/queries and guide the reviewer in providing feedback
- (4) synopsis of revisions you've already undertaken & of call for paper/RFP/job post

- Green** = a household/conversational term
- Orange** = a technical term that many non-specialists will be able to follow (may need to be defined, or may not)
- Red** = a technical term that must be defined and should be used sparingly for largely non-specialist audiences

Cancer and cell-surface sugars: How tumor cells adhere and spread

The problem More than 1.44 million new cases of invasive **cancer** will be diagnosed in the United States in next year. Five hundred thousand of these people will die from cancer, more than 1,500 deaths per day. **The sub-problem** Most deaths from cancer are due not to the original **tumor**, but rather to growths discovered at distant locations in the body, a process known as **metastasis**. **What's known** Although many of the steps in initial cancer formation are well understood, **The gap in knowledge** a **major unsolved problem** in the pathogenesis of cancer is the mechanism by which cancers **invade** and **metastasize** into other tissues. **The need** My research investigates the adhesion mechanisms by which tumor cells invade, proliferate, and metastasize throughout the body. My laboratory focuses particularly on elbow cancer, one of the most common newly diagnosed cancers in men and women. **More problem, with punch line** This cancer develops in a stepwise progression, beginning with benign growths that, if not surgically removed, can enlarge and transform into malignant tumors. Malignant cells may then escape from the primary tumor and metastasize to other limbs in the body, especially the wrist. Wrist metastases are often fatal.

Metaphor/illustration The process of **adhesion** and **metastasis** of tumor cells resembles the migration of **white blood cells** to sites of inflammation. White blood cells adhere to the inner surface of **blood vessels** and continue from there to sites of inflammation in other tissues. **Preliminary studies** In my initial studies, I elucidated a new mechanism by which white blood cells attach to the blood vessel through the action of adhesion molecules on the inner surface of the vessel. Similarly, cancer cells circulating in the blood can attach to blood vessels when their **cell surface proteins**, decorated with sugar residues, bind with **adhesion molecules** on the surface of blood vessels. Moreover, recent studies have shown that when the cell surface proteins of white blood cells are modified with certain complex sugars, these white blood cells have distinctly stronger **binding** interactions with the adhesion molecules of blood vessels. **Gap in knowledge** A critical **gap in our current knowledge** is whether these modified cell surface proteins—more specifically, the **modified glycans**—are also found on cancer cells, thus conferring a powerful binding interaction with blood vessels and encouraging the spread of cancer.

Approach My objective is to investigate the role of these **modified glycans/sLud-modified core 5 N-glycans** in the adhesion of cancer cells to blood vessels, their invasion into adjoining tissues, and metastasis. **I hypothesize** that these modified glycans expressed on cancer cells promote the formation of high-strength bonds to the **selectins/adhesion molecules** and thus greatly facilitate the spread of cancer to distant organs. **My overall research goal** is to clarify the mechanisms used by cancer cells in the progression of malignancy. The elucidation of the role of **modified glycans** in **tumor progression** can lead to new prognostic indicators for cancer, strategies for

interrupting the progression of elbow cancer, and innovative treatment options to decrease the likelihood that cancer will spread.

Specific Aims. I have developed three projects to identify the contribution to cancer progression of the **modified glycan, sLud-modified core 5 N-glycan**. In **Specific Aim 1** I investigate this **glycan's expression** in normal human elbow tissues, in benign adenomas, in adenocarcinomas (primary elbow tumors at various stages of tumor progression), and in related secondary tumors that develop in the wrist. I discovered that the majority of primary elbow tumors and wrist **metastases** strongly expressed **sLud-modified core 5 N-glycan/the modified glycan**, but benign **adenomas** and normal elbow **tissue** did not. My findings suggest that the progression from normal tissue to an invasive malignancy is associated with an increased expression of **sLud-modified core 5 N-glycan/the modified glycan**. I am currently expanding my findings using a larger data set with the goal of determining the expression of these glycans at the cell surface and gene levels. I will correlate this new knowledge of cellular activities to patients' prognosis and survival, and evaluate the usefulness of the modified glycan as a **tumor marker** and predictor of **disease progression**. I can then develop ways to inhibit the expression of these glycans and assess the impact on **metastatic cancer** and **patient survival**.

In order to impede the progression of elbow cancer, we must understand how cancer cells **invade** tissues and **metastasize** to other organs. In **Specific Aim 2**, I will examine the **adhesive** properties of elbow cancer cells. Currently, I am introducing genes into cultured elbow cancer cells that do not normally express the **modified glycan**, and in this way I can interfere with the expression of the modified glycan at the gene and cell surface levels. I will then place the genetically manipulated cells in **conditions mimicking a blood vessel**, determine their ability to bind to the adhesion molecules, and compare their ability to that of unmanipulated cancer cells. Conversely, I will take elbow cancer cells that produce abundant quantities of the modified glycan and dramatically *reduce* its expression by **silencing the genes that encode it**. Again, I will **compare** the **adhesive properties** of the silenced versus unmanipulated cells. These experiments will enable me to directly pinpoint the capacity of the modified glycan to bind to adhesion molecules that line the blood vessels, and determine whether this is a mechanism used by cancer cells in the early events of metastasis.

In **Specific Aim 3** I will seek an answer to the question, What is the role of the modified glycan in **tumor growth**, both **primary** and **metastatic**? I will use a squirrel model of cancer, which will closely approximate the complex interactions of cancer cells with their environment in the human body. I will inject the **genetically manipulated and unmanipulated** human elbow cancer cells (described above) at different tissue locations, and I will evaluate the **tumors** that form at the injection site and in distant limbs including the wrist. I hypothesize that the expression of the modified glycan greatly enhances the ability of cancer cells to metastasize. Therefore, I anticipate that squirrels injected with cancer cells expressing these **modified glycans** will form more tumors than squirrels injected with cells that lack **the modified form**.

Impact, benefit, future work

Impact. Based on my findings, this modified glycan may be used in the future as a **tumor marker** for the **progression of elbow cancer**. Conceivably, **therapies** could be developed to decrease the expression of these glycans and thus **prevent cancer cells from adhering to blood vessels** and **metastasizing to new tissues**. Future work These projects also lead to important,

related questions. What are the specific **backbone structures** that position the modified glycan to **bind to the blood vessel**? What are the **signals** and **activation mechanisms** that regulate the expression of the modified glycan? In the long term, my goal is to investigate the broad picture of the mechanisms that cancer cells use for metastasis by examining the **relationships between cancer metastasis and inflammation**. What are the interactions between cancer cells and immune cells that cause cancer to **disappear** or, alternatively, to **progress**? As I move through these research questions and others that arise as I work, my results will lead myself and others closer to therapies that can eventually stop cancer in its tracks.

Research Statement

Applied Economist – Submitted for Liberal Arts Position

Introduction

I am an applied economist with interests ranging from development, environmental to health economics. Generally speaking, I prefer to use experimental frameworks and apply insights from behavioral economics to these policy issues. I first explain my recent dissertation research followed by my future research plans and a brief description of my research philosophy.

Current Research

Livestock theft is a serious problem in sub-Saharan Africa with annual losses of US \$50 million. Standard economic crime models assume that potential thieves weigh the benefits and risks of crime. In these standard models higher penalties or probabilities of being caught mitigate crime. In South Africa, however, the probability of being detected committing livestock theft is very low and attempts to deter theft are expensive. Thus, the standard mitigation strategies of high penalties and high detection probabilities are not realistic solutions. In response to this challenge, my dissertation uses experimental methods to evaluate factors that exacerbate livestock theft and strategies to mitigate this problem in South Africa. Specifically, I analyze the importance of heterogeneity in race and wealth as aggravating factors as well as gift-giving and efficiency information as mitigation strategies.

The first aspect of this project is the development of a more applicable model. This model diverges from the standard approach by eliminating the threat of detection or punishment and incorporating aspects of reciprocity theory. In this model, a potential thief's payoff is determined not only by his consumption, but also impacted by inequality aversion, fairness and economic efficiency considerations. Given South Africa's apartheid experience, social distance (race and wealth) also impacts an agent's theft decision. Later, this model is adapted to show how gifts from a rancher to a potential thief might be used as mitigate theft and lead to higher societal welfare.

The second aspect of my dissertation uses South African prisoners as subjects in economic games where players are given the opportunity to "steal" from one another. The results of this experiment validates the importance of the factors mentioned above in the decision making process. Further experimental results show that a gift relationship can reduce theft leading to higher welfare for both parties.

The third aspect of the project also uses this experiment to compare gifts to payments as methods to mitigate theft. Under different conditions both gifts and payments are effective. However, an agent's behavioral response to the treatment determines a treatment's usefulness.

I am pleased that this work has shown the potential to impact policy and may lead to a pilot project to test the effectiveness of gift-giving to mitigate livestock theft. Although the generation of knowledge is exciting for its own sake, seeing my work impact policy is an important motivator.

New Directions

In the future, I intend to continue to incorporate behavioral insights into standard models and apply the results to policy. Several projects are of particular interest. I intend to:

-examine the impact of subsidies and rewards for healthy behaviors. Many insurers or development programs use incentives to motivate behavior but little rigorous research has been done to determine how to design such a program for maximum effectiveness. More importantly, little is known about the long-term impacts of such programs and how they might impact future motivation and thus health outcomes.

-analyze why people contribute to public goods and how insights from behavioral economics might be used to influence a more efficient provision of such goods. The most salient application for this work is how people make consumption decisions regarding goods which generate externalities. (e.g. drive an SUV or bike to work?)

- develop a methodology to generate experimental data using the online role playing video games. Typically, economic experiments are done in a laboratory or the field and can be logistically difficult and expensive. Many online video games are set in complex social situations which mimic real life. Decisions made in these environments can generate inexpensive data and be a valuable tool to understand behaviors such as cooperation, kindness and reciprocity.

Research Philosophy

Each of these projects applies economics to relevant policy issues and contributes to our understanding of human decision making. In order to accomplish these projects I will coordinate with other economists and well as academics from other disciplines. It is my firm belief that research questions are best confronted in an interdisciplinary environment and my work reflects this. In addition, some of my work requires collaboration with researchers abroad who might better understand social settings and provide additional opportunities for joint work. Likewise, I work to establish working relationships with the private and public sectors to answer questions of mutual interest. Not only does this assure policy relevance of my work, it also provides and unique opportunity to mitigate the logistical and funding difficulties of experimental economics.

Although research is an important part of my career, it does not stand alone. My research and teaching objectives are symbiotic. My experimental work gives students an entertaining and memorable platform to learn economics in the classroom by incorporating experiments into lectures. In addition, involving more advanced students in research is feasible as these students can easily recognize policy issues and contribute through literature reviews, experimental design and basic data analysis. My strong interest in applied research makes my work more accessible to those without graduate economics training.

Conclusion

As I have mentioned, I pursue research to generate knowledge for its own sake but just as importantly to apply findings to policy. Using experimental methods to apply behavioral insights to development, health and environmental questions allows me to collaborate within and across disciplines as well as both the public and private sector. I am also able to use my research to enhance my teaching and incorporate students in my investigative work. I look forward to continuing on this path.

Research Statement
Psychology – Targeting Research Institution
(one more draft to go)

As a scholar, I see my role in the scientific process to be multi-faceted. While many scientists focus on either producing or applying research, I believe that it is valuable to generate, synthesize, and apply new scientific knowledge to answer research questions and that these different types of inquiries often reinforce each other and provide different insights. Thus, I carefully examine the fit between the research question and the research design and methodology of each of my projects. I have utilized a variety of methods and research designs in my previous studies including survey methodology, lab experiments, field experiments, momentary experience sampling, physiological measures, and meta-analytic synthesis.

I believe that my role as a researcher involves both training undergraduate and graduate students to understand research design and methodology and also encouraging their interest in conducting original research. To fulfill this role, I will encourage research collaboration with students with a steady progression in responsibility. Students will work on projects led by myself as their introduction to research to be exposed to all aspects of the research process, but will subsequently be encouraged to develop their own research ideas and interests, carry out these projects with my support, and submit manuscripts for publication. My goal is to train researchers to have the necessary research tools at their disposal to carry out high-quality, innovative research studies, regardless of the research content.

As an industrial/organizational psychologist, I am somewhat unusual in that my research interests span both the industrial and organizational sides of the science. My research interests currently center around three themes. First, I am interested in issues of fairness, bias, and diversity in organizational and educational settings. To this end, I have studied subgroup differences in selection tools and methods to increase minority representation in work and school settings. Secondly, I am interested in the measurement and prediction of academic and job performance. In this domain, I have examined individual differences related to performance, reliability issues in job performance ratings, and methodological issues. Third, I am interested in worker health and well-being. In this arena, I am particularly interested in the role of work events and the supervisor in the physical and mental health of employees.

My first research stream involves issues of fairness, bias, and diversity in organizational and educational settings. Within this domain, I have examined subgroup (e.g., race and gender) differences on selection tools used for selecting workers and students. One project has examined the Black-White and Hispanic-White gap on tests of cognitive abilities to understand if the magnitude of these differences increases or decreases over the lifespan (Sackett & Shen, 2009). Another series of projects examines gender differences in personality traits (Duehr, Foldes, Shen, & Ones, in preparation; Shen, Ones, Duehr, & Foldes, 2010a). These projects seek to understand both mean and variability differences in personality traits between men and women as these differences may have implications for the gender composition of jobs when employers rely on personality assessments to hire workers. My research in subgroup differences also

takes on a cross-cultural perspective. A current research project examines whether there are systematic differences in the magnitude of gender differences in personality traits across cultures (Duehr, Shen, Foldes, & Ones, 2010b). A previous project examined similarities and differences across countries on legal protections for diversity and sanctions against discrimination (Myors, Lievens, Schollart, Van Hove, Cronshaw, & Mlandinic, et al., 2009a, 2009b). In addition to examining subgroup differences in selection tools, I am also interested in the tradeoff between predictive validity and adverse impact. A current project examines whether using specific abilities tests matched to job content, rather than general cognitive ability tests, may help to increase minority representation at minimal loss of predictive validity (Waters, Sackett, & Shen, in preparation).

Industrial/organizational psychologists are at the forefront of utilizing scientific methods to address diversity issues in work and school organizations. I believe that this research is both timely and necessary to help organizations balance their dual goals of maximizing diversity and job performance. My future research in this area will expand on current conceptualizations of gender differences in personality by examining gender differences in the heritability of personality traits and differential prediction by gender of job performance outcomes using personality traits. Additionally, I am interested in expanding my research to examine perceptions of diversity and the diversity climates of universities and organizations to determine if these perceptions, in addition to physical numbers, are related to increased positive outcomes for both minority and majority individuals.

My second research stream has focused on the measurement and prediction of academic and job performance. A study in this area focused on understanding feedback-seeking behaviors as a potential individual difference variable that could explain differences in job performance (Anseel, Beatty, Shen, Lievens, & Sackett, 2010). Another study focused on the interrater reliability of job performance ratings (Shen, Beatty, & Sackett, 2009). By understanding under what circumstances performance can be more accurately assessed by supervisors, we're hoping that organizations can increase these situations so that relationships between job performance and other variables can be more reliably estimated. Additionally, these reliability estimates can be used in meta-analytic studies to better understand construct level relationship between job performance and other organizational constructs.

I am also interested in methodological research that can explain inconsistent findings in the performance literature. As part of a project funded by the College Board, my colleagues and I have explored whether there are situational moderators that influence the relationship between a cognitive ability test (e.g., SAT) and freshmen grade-point-average (FGPA). What we found is that though the SAT is a valid predictor of FGPA across schools, it tends to predict better in more selective and costly institutions that place a higher emphasis on traditional selection tools of standardized testing and school records and it tends to be less predictive in schools with higher percentages of minority students or rely on alternative selection tools for selection (Shen, Sackett, Kuncel, Beatty, Rigdon, & Kiger, 2010).

My third research stream has emphasized worker health and well-being. Within this

area, a substantial amount of my research interest involves the role of the supervisor in promoting employee health and happiness. My first year project was the creation of a taxonomy and inventory of ineffective leadership behaviors (Shen, Rasch, Davies, & Bono, 2008). My colleagues and I believe that ineffective leadership is not simply the absence of effective leadership behaviors and that these leadership behaviors have substantial relations with employees working experiences and desire to leave a position. Ultimately, our goal would be to create a training program that teaches leaders to change their ineffective behaviors and evaluate if this program has a beneficial outcomes for employees and the leaders themselves.

Similarly, I have also studied emotional intelligence as another construct that would potentially allow employees to regulate their own emotional experiences at work and another why in which leaders could influence their followers. (Groves, McEnrue, & Shen, 2008; McEnrue, Groves, & Shen, 2009; McEnrue, Groves, & Shen, in press). In addition to examining the role of the leader in employee health and well-being, my colleagues and I have also examined if events at work are related to employee's physiological and psychological health both at work and at home (Bono, Glomb, Shen, Kim, & Koch, in preparation). We also examined whether an intervention telling individuals to focus on positive life events, lessened the impact of negative work events on employees' health.

Overall, while my research interests are diverse, they center around three major themes: diversity, performance, and health and well-being. My ultimate goal is to produce research that will provide insight into the creation of diverse, equitable, productive, and healthy workplaces. To that end, I take a broad view of research valuing both basic and applied work and the appropriate usage of a variety of methodologies and statistical techniques to address these pressing questions.

Resources to Support “Writing Research Statements” Workshop

Short articles addressing writing style for academic writing

Shaping Up Your Sentences, by Helen Sword

<http://www.review.mai.ac.nz/index.php/TK/article/view/156>

Writing about Your Research: Verb Tense, from UNebraska,

<http://cgi.stanford.edu/~dept-ctl/cgi-bin/tomprof/posting.php?ID=1009>

Writing an Engaging Title, by Helen Sword

<http://review.mai.ac.nz/index.php/TK/article/viewArticle/260>

Graduate Career Planning Resources

Graduate & Professional Students’ Guide To Career Planning – Academic and Non-Academic: <http://z.umn.edu/gradguide>

Graduate Student Virtual Commons, University of Minnesota Resources:

<http://z.umn.edu/virtualcommons>

Short Reference Guides to Writing Research Statements

University of Washington Career Center, Graduate Student Page:

<http://careers.washington.edu/GradStudents>; pull down menus for Academic and Beyond Academe searches include PDF on Research Statement

Statement of Interdisciplinary Research Interest:

http://idphd.grad.dal.ca/Prospective_Students/Admissions/Statement%20of%20Interdisciplinary%20Research/ - note: PDF downloads from “click here” prompt in second sentence of introductory narrative.