

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

1

Introduction: An Ounce of Prevention

I began this fellowship with the goal of exploring how to advance “preventative” thinking and acting through teaching and learning. I wanted to better understand how it is that humans are *very* well aware that “an ounce of prevention is worth a pound of cure” on the one hand but that our focus and resources tend to go toward curing things (after they have already happened) rather than preventing them (before they happen). My focus became the connection between knowledge and action (or thinking and doing). It would seem that more effective teaching and learning requires us to develop our understanding of this relationship. Specifically, I am interested in creating teaching and learning techniques and course materials that will advance our ability to move from “knowing what to do” to actually “doing it.”

I alluded to the environmental metaphor of “upstream and downstream” where upstream solutions are almost always preferable to downstream ones because they avoid pollution in the first place rather than trying to clean it up after the fact. This tension is well known and has been identified by many. A notable example is Ghandi’s observation that, “The difference between what we do and what we are capable of doing would suffice to solve most of the world's problems”.

My intention was to examine and unpack the concepts of “prevention” and “cure” with the goal of developing more means for bringing this dilemma to my students’ attention and action in both their personal lives and in the way they think about public policy that might address social problems.

While the ambition involved in pursuing this question is large, I felt it necessary to begin with understanding how my own students think about and respond to this dilemma.

My scholarly activity included the following.

1. Designed and administered a qualitative survey to my students (in 6 courses over F2016 and W2017).
2. Coded and analyzed 147 responses.
3. Literature review of behavioural psychology and economics literature.
4. Interpolated some of the salient concepts in the literature with respondent reflections from the survey.
5. Drafted various charts and tables to advance understanding, vocabulary and application of the concepts of prevention and cure.

Outputs and Dissemination

1. Presented a workshop at the TLI Conference (UGuelph, May 2017)
2. Manuscript preparation of two articles based on various aspects of the research
3. Conceptual “Prevention-Cure” vocabulary and tables (included below)
4. Pedagogical applications and tools based on the most recent behavioural psychology research (listed below).

Statement of Scholarly Activity

2

John R. Ferguson University of Guelph 8/29/17

The “Following Through” Survey

As part of my introduction to all of the courses I teach, I ask students to think about what they want to get out of the course, including the knowledge and skills they expect to gain as well as the grade they would like to achieve. I also ask them to think about how they expect to accomplish these intentional learning outcomes. I ask them to consider the meaning of the following advice:

- “Act on the basis of how you anticipate feeling *after* making a choice (rather than on the basis of how you feel at the time of making it).”
- “Base your decisions on the future you want (instead of the present you are in).”

I ask them to consider how they will feel *after* they:

- study course materials or procrastinate;
- eat well or poorly;
- exercise or not;
- walk, cycle, or drive to work;
- shop or go for a walk in the woods.

I ask students if they have ever regretted choosing the former over the latter. They smile. We have a short discussion about how the basis (present- or future-oriented criteria) of their decision-making is related to the way they are likely to feel about the outcome. We talk about New Year’s resolutions and speculate on reasons for the high failure rate. We wonder aloud about how many hangovers would have been avoided by future-based decision-making. They laugh... knowingly. It is the beginning of the suggestion that they may have a means of leveraging a focus on the future for the purpose of gaining more of what benefits them in the longer run.

The Ethical Distinction Between Preventions and Cures

As the conversation continues, it begins to emerge that prevention and cure are not morally equivalent orientations. Cures generally cost many times more than preventions and usually care with them a much higher degree of pain and anguish. In everything from medicine to climate change prevention and mitigation, prevention is almost always less impactful than cure. Prevention has lower economic, environmental and social costs. Smoking prevention is always cheaper and more fortunate for potential smokers (and others) than some sort of after-the-fact intervention. Climate change “mitigation” (lowering emissions now) is most likely to be far less impactful than “adaptation” (responding to the effects of high emissions including disaster relief and redesigning infrastructure to withstand more extreme weather). (Roberts, 2014) This was the subject of Sir Nicholas Stern’s Stern Review (Stern, 2007) on climate change where he calculated that investing ~3%? in reducing climate change emissions now would save much (much) more than this later and would not carry with it the non financial costs of extreme weather with storms floods, damage to property, pain to living things and overall habitat destruction and social dislocation.

Initial impressions of this teaching and learning opening exercise are that it is a rather innocuous bit of friendly advice that bears little or no relation to course content or process. Yet, personal disappointment and regret is not the only thing that may come of making decisions without anticipating their material and psychic consequences. Some of our most damaging personal and environmental impacts are the result of neglecting longer-term consequences of our choices, plans and

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

actions. Insufficient follow-through on personal resolutions lead to both physical and mental health impacts including (perhaps most significantly) psychic stress and stalled (if not lowered) self-confidence. For example, it is now apparent that the profligate use of fossil fuel energy has led to anthropogenic forcing of climate change not to mention muscular atrophy, sedentarism, habitat destruction, accelerated species loss, etc.

Ghandi said, "Happiness is when what you think, what you say, and what you do are in harmony." We can all help ourselves feel better, stronger and more confident in ourselves. One way of helping ourselves do this is to find ways to try to align "think, say, and do."

After an intro lecture (pep talk really) on how to be more effective and successful in academics (or 'how to get better grades' for those with a more practical orientation on their future earning prospects), I ask them to reflect on their goals and aspirations and how they have (or have not) "followed through" with them in the past.

In order to understand their own situations and thinking and what they regarded as primary examples of the struggle (we all face) to "follow through" with intentions and act on the basis of how we will feel after we do things, I informally surveyed my F2016 and W2017 students via the following questions¹.

First² Round of Surveys (F16)

Did Not Follow Through

1. Describe some examples of times when you really wanted to do something you thought you should do more (e.g. studying, exercise, practicing a mental or physical skill you wanted to improve - like a sport or musical instrument) of **but talked yourself out of it.**

On what basis did you make this decision? What rationale did you provide yourself (if any). What other factors were associated with your lack of success. (This could be reasoning rationalization processes and/or environmental external factors.)

Briefly outline your decision-making process.

¹ My questions were leading in that they provide examples such as physical activity, learning an instrument or bettering themselves in some way). I needed a way to illustrate to them examples of following through that are likely shared by most of us. I assumed that physical and mental exercise regimes are difficult for all of us but the practice of thinking (and then acting) "ahead" could easily include verbal, facial and social habits that tend to be more positive for one's prospects of social, workplace acceptance (and therefore success).

² I felt it methodologically important to point out the slight differences in the wording of the two surveys from F16 to W16. In the first survey, I used the phrases "talked yourself out of it" and "were successful in doing so." After examining their responses, it became evident that reflecting on one's own efficacy in achieving one's own goals can be stressful. I wanted to try to reduce this stress by including more value-neutral language. Words like "successful" imply words often used as its opposite such as "failure." I wanted to be sure that students really tried to understand their thinking process before moralizing about it or invoking any self-blame or shame. So, in the second survey, I made the slight alteration of replacing these phrases with more matching and value-neutral language of "did not follow through and "did follow through."

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

4

Did Follow Through

2. Describe some examples of times when you really wanted to do something you thought you should do more (e.g. studying, exercise, practicing a mental or physical skill you wanted to improve - like a sport or musical instrument) and **were successful in doing so.**

On what basis did you make this decision? What rationale did you provide yourself (if any). What other factors were associated with your success. (This could be reasoning, rationalization processes and/or environmental, external factors.)

Briefly outline your decision-making process.

Second Round of Surveys (W17)

Did Not Follow Through

1. Describe some examples of times when you really wanted to do something you thought would be good for you and you should do more (e.g. studying, exercise, practicing a mental or physical skill you wanted to be improve - like a sport or musical instrument) and **DID NOT follow through.**
2. On what basis did you NOT follow through? On what basis did you make your decision? What rationale did you provide yourself (if any). What other factors were associated with your success. (This could be reasoning rationalization processes and/or environmental external factors.)

Briefly outline these factors.

Did Follow Through

1. Describe some examples of times when you really wanted to do something you thought would be good for you and you should do more (e.g. studying, exercise, practicing a mental or physical skill you wanted to be improve - like a sport or musical instrument) and **DID follow through.**

On what basis did you follow through? On what basis did you make your decision? What rationale did you provide yourself (if any). What other factors were associated with your success. (This could be reasoning rationalization processes and/or environmental external factors.)

Briefly outline these factors.

Number of respondents:

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

SOAN 3240 F16	=	28 responses
SOAN 4250 F16	=	18 responses
SOC 4410 F16	=	19 responses
POLS 4250 W17	=	8 responses
SOC 4010 W17	=	21 responses
SOC 3040 W 2017	=	53 responses
Total	=	147 responses

Results:

I examined and coded the responses. Below I provide a summary of some recurring points, and themes made by respondents.

Most Commonly Cited Aspirations

- Improve academic skill.
- Improve academic grades.
- Exercise (formal - go to the gym)
- Exercise (informal - “be more active” e.g. walk, bike, run, etc.).
- Eat more nutritious and healthier food.
- Lose weight or gain weight (associated with eating and/or exercising more/better)
- Develop a specific area of athletic or musical skill.
- Maintain or develop social networks (family, friends, join more intramural sport or clubs, etc.)

Analysis:

The first thing that became obvious is that the very act of asking the questions raises their personal consciousness about the connection between now and the future in their own lives. Responses indicated that most have thought about their personal efficacy in achieving their goals and began to distinguish some patterns in their own decision-making. They also began to articulate how agreeable or regrettable results are associated with prior decisions. This is a learning objective that rarely shows up on a course outline but may be one of the most important for any course to include. This is because, regardless of the discipline, students are trying to improve the manner in which they fulfill their own goals while meeting course expectations. Getting better at connecting what “works” in connecting decision making to results is perhaps the strongest basis of personal success for *all* of us.

The responses to the questions were a veritable treasure trove of self-reflection on aspirations, procrastination, rationalization, anxiety, stress, regret, behavioural modification techniques, confidence, pride, sense of accomplishment, etc. The sense of actively coming to terms with the process whereby they were able to make decisions become actions was live and palpable.

The survey reflections reveal a developing self awareness around self-efficacy and agency. There seemed to be a desire to develop a vocabulary around various tendencies, habits and cycles that each person experienced.

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

Developing Articulatory About the Spectrum between “Knowing” and “Doing”

This survey and its results have helped develop my understanding of how students see the relationship between “knowing what to do” and actually “doing it.” Their reflections have articulated how individuals think about this gap in their own goal-fulfillment behaviours. This provides a foundational window on how to understand this on a societal and policy level. In interpolating these personal reflections and the discussion about “following through,” it is possible to develop conceptual articulatory in recognizing stages in the process and techniques that increase the success rate in following through.

I have sketched some of this out in the following. (I have left some of the table cells blank in anticipation of using them as teaching and learning tools and having students fill them in.)

Conceptual and Visual Tools for Articulating and Distinguishing Preventions and Cures:

Prevention		Cure	How to inform prevention?
Prospective		Retrospective	Lesson’s
Before		After	Getting back to before
			Lesson’s Learned
			Turning Unilinear to Cyclical [Thinking (“back”) up stream]



Examples:

Nutritional Health		Low energy, unpleasant digestion etc.	Next Time:
Eat balanced variety		Supplements, digestive aids, medicine	Eat more balanced variety
Drinking Alcohol		Hangover	Next Time:
Reduce Alcohol Intake		Hydration, Headache Medicine, Sleep	Reduce alcohol Intake
Use of Fossil Fuels		Climate Change	Going Forward:

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

Mitigate		Adapt	Reduce (Carbon) emissions
Reduce (Carbon) Emissions		Reinforce Infrastructure	

Industrial Production		Climate Change	Going Forward:
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Low Pollution		High Pollution	
Avoid or contain emissions		Clean up toxic waste	Integrate waste reduction practices

Physical Health		Cancer	
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Avoid Carcinogens		Chemotherapy, Radiation	Avoid Carcinogens
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Social, non-violent		Anti-social, violent	
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Family, parenting, resources, support, healthcare, employment, etc.		Incarceration	Replace correlates of incarceration
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Use of Resources		Overuse of Resources	
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Reduce	Reuse	Recycle	Lessons Going Forward
Conserve, Use/buy less	Take to the Used Shop	Melt down to raw materials (causes more use of energy and materials)	Consume less-reuse more

Define necessity – consume accordingly		Consider use of materials – preventable?	Define necessity
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Upstream		Downstream	
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Potentially lower water supply (due to early in the feed)		Potentially lower water supply (due to upstream uses)	
Less Contaminated		More contaminated	

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

Less filtration/cleansing necessary		More filtration/cleansing necessary	
Take the water you need.		Take the water left over	
Deposit unavoidable effluents/pollutants		Filter, cleanse, recover, dispose of effluents	Consider best uses for water (drinking? cleansing? Pollutant conveyer?)

Criteria for conservation or use (the “discounting/investment” dilemma):

Does it advance well-being?

No = conserve

Yes = use

Articulating the spread between prevention and cure.

Some Metaphors for the Prevention-Cure Continuum

Lead		Follow	
Proaction		Reaction	
Foresight		Hindsight	
Prespond		Respond	
Imagine		Reimagine	
Envision		Revision	
Cover		Recover	
Sow		Reap	
Plant		Harvest	
Invest		Profit	
Interest ³		Capital	
Cradle		Grave	
Trickle		Flood	
Snowball		Avalanche	

³ The metaphor of “living off the interest” (a common phrase in environmental economics that contrasts “natural capital” with the usable “natural interest” it provides) takes on a whole new meaning with pedagogy. If you can kindle your “interest,” learning becomes an appetite fulfill rather than a task to complete. Much like in environmental circles, you need not live off the capital. This is preferable since capital is a non-renewable resource but interest is renewable as long as the capital is intact.

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

Ask students to create words, analogies, metaphors for the ends of the spectrum and then provide examples. The key question becomes how to think about where and how far we would have to go “upstream” to have prevented something. This requires more and more imagination in the case of increasingly complex social issues such as poverty, public health, criminality, violence, drug addiction etc. The goal here is to build “system two” (Kahneman, 2011) thinking muscles and pre-empt “system one” (Kahneman, 2011) thinking responses (such as “lock them up and throw away the key”). It expands the etiological vision in dealing with complex issues. Where did this come from? What factors seem to have been associated with its development?

Examples	Prevent?		Cure?

Ask students to think about what we reward and celebrate more, Preventers or Curers?

Heroes	Unsung?	Sung?
	Prevention	Cure
Einstein		
Watson and Crick		Insulin – response to diabetes
Chamberlain/Churchill	“Peace in Our Time” (Chamberlain)	WWII (Churchill)
Louis Pasteur	Vaccines/pasteurization	
9/11 Responders		Rescue

Ask students to consider situations that exemplify aspects of prevention and cure.

Ozone Layer	CFC production and Use	Montreal Protocol
Waste Crisis	Reduce	Recycle
Energy crisis	Conservation	Energy exploration
Health crisis	Exercise, diet	EMS (Noloxone!)
Health Care	Prevention (Broader access to nutrition, activity, sport, info, medical advice, etc.)	Cure (Wait for illness to go to doctor or hospital)

Next Steps

This research is the first step in understanding how to foster a recognition of and internalization of “an ounce of prevention is worth a pound of cure” in both personal, academic and policy achievements.

Statement of Scholarly Activity

10

John R. Ferguson University of Guelph 8/29/17

I am currently conducting an extensive analysis of the survey findings in relation to research in the behavioral psychology and economics literature. I will use various theories and explanations of rationality in human behavior to further analyze and discuss my survey findings..

This is the basis of articles and presentations exploring how making these connections can inform teaching and learning. I will be developing tools for applying the most recent research in behavioural psychology to teaching and learning.

Salient examples on which I am currently working include,

- Walter Mischel's "Marshmallow Test" research (Mischel, 2014)
- Daniel Kahneman and Amos Tversky's "prospect theory" and how it can help explain a lack of linear rationality (specifically "loss aversion") in decision-making. (Tversky A. &, 1981)
- Thaler and Sunstein's concept of "Nudge," (Thaler, 2008) "libertarian paternalism" and "architecture of choice" solutions to loss aversion in decision-making.
- Kahneman's "system one" ("fast") v "system two" ("slow") thinking. (Kahneman, 2011)
- Kahneman's "duration neglect" and the "peak-end rule" (Kahneman, 2011)
- B.J. Fogg's Fogg Model of Behavior Change (Fogg, 2009)
- Daniel Ariely's research on rationality, irrationality, the power of social relations, recognition, and praise. (Ariely, 2017)
- Theresa Marteau's research on "healthy environments" (Marteau, 2017)

I would like to thank the University of Guelph very much for providing the means for allowing me to advance my understanding in this vital area of pedagogical research and development.

Statement of Scholarly Activity

John R. Ferguson University of Guelph 8/29/17

11

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Statement of Scholarly Activity

12

John R. Ferguson University of Guelph 8/29/17

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