To: PhD Students

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Re: Starting Research Early

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After entrance in the School, doctoral students typically take courses and general examinations over a period of three years or more. When the last exam hurdle has been leaped, they turn to research for the first time. An acceptable research topic seldom appears quickly, and many students find that time and money have run out before they have more than a vague notion of the research they want to do or about how to do it. The full-time job they flee to proves to be more demanding than they thought; the dissertation languishes. It turns out to be very hard to do research without the close contact with faculty supervisors that is possible when the student is still in residence. An occasional ten minute conversation every few days is much more helpful than a hectic visit once a year. Hence, many students don=t finish at all; others finish only after years of spasmodic effort and oppressive anxiety.

The trouble is that the student uses his time in furthering his already high proficiency in taking courses and exams, but failed to learn very much about what research is or how to do it.

In general, students ought to regard courses as only one part of the training for the goal of research. How to do research must be learned in large part from experience, much as learning to ride a bicycle. Imagine trying to ride a bicycle with no other preparation than years of courses in the theory of cycling; you would have a set of hints to work from, but you still have to climb on and probably fall down a few times before you become proficient. You can learn by yourself but an instructor makes the learning easier and less painful.

The time to start research is as early in your graduate study as possible B now, for instance. Our purpose in preparing this document is to give you some hints on how to do this.

Our views on research versus courses and exams are not held by all nor even necessarily by a majority of the faculty. Some faculty members place a higher priority than we do on formal classwork. But we believe that our position is sufficiently well supported by experience and logic to be worthy of your serious consideration.

Why start research early? B Courses are only one form of preparation for the goal of research, and you are likely to be judged fundamentally on your achievement of the goal. Evidence suggests that the discerning part of the academic market-place pays more attention to the quality of your predoctoral and doctoral research than to your grades and courses. When we interview a faculty prospect here, we seldom ask him about what courses he took or what grades he received, although we may ask him about the things that interested him most or the courses he is mot interested in teaching. We always ask what research he has done and what he plans to do. By the time his promotion decision comes up, his performance in courses during graduate study is no longer even a part of his record.

The frame of mind with which you approach courses and exams has been with you for 16 years or so of formal schooling. During that time you have become wary about making mistakes or saying foolish things, because these tend to lower your grade. In research, by contrast, you need a certain brashness and willingness to say and do things, even though you know that a certain fraction of the things you say and do will turn out in retrospect to have been foolish. You and your teachers and fellow students will catch and correct, it is hoped, most of your errors before they are widely disseminated, but the only sure way of prevention is to abstain from doing research.

How to start. B It=s tempting to give an almost absolute priority to courses and general exams during the first two years of doctoral study. Everyone tends to respond to explicit, fixed, short deadlines and to put off the others. In particular, programmed work B reading assignments, problem sets B tends to push aside unprogrammed work B search for a problem, problem definition, general reflection.

But remember that the number of hours per day that you can spend on effective, concentrated study is limited. There=s plenty of time left over for getting started on your research.

A pervasive illusion is that you must be fully tooled up for all contingencies before you begin your research. The fact is that you never will feel that you know enough mathematics, economics, statistics, accounting, or whatever to do justice to a research project. You will always find yourself thinking, AAnother course in multivariate methods [fill in another title at will, if you wish] and I=ll be able to crack the topic wide open.≅ A better strategy B in fact, almost the only feasible strategy B is to define your problem, draw on what you already know, and try to learn a little about other tools that appear promising for your particular problem. The tools that may turn out to have been most valuable may not have even been taught in the courses that were available to you.

Hints on choosing a topic. B Do not think of your predoctoral and doctoral research as you life=s supreme effort. (Only a handful of Nobel prizes have ever been awarded on the basis of a dissertation; offhand we can only think of two, and these examples are over 50 years old.) With rare exceptions, the dissertation occupies this position only for those who gave up further research because of the trauma of the dissertation. There is no need to be afraid to tackle big or ambitious topics. Simply be prepared to do only manageable parts of such a topic for your dissertation. The highest tribute to a dissertation is likely to be given by the further work it leads to, by the author and others. Your Asuggestions for further research≅ should not be an empty formality.

Try to emphasize subject matter over technique. Don=t emulate the man who has just mastered linear programming (or whatever) and is looking around for a problem to solve with it. Try to find tools that will fit the problem rather than to distort or invent a problem in order to demonstrate the tool.

Resign yourself to the fact that luck and chance play a role in research as in everything else. If you are lucky, you may find a natural topic that will virtually develop itself, receive acclaim, and lead to further fruitful research after the completion of your dissertation. But you may not be so lucky; you may have to settle for something more mundane and frustrating. If after a reasonable search for a topic, you have something solid but not spectacular, don=t procrastinate until the ideal topic comes along. You may be luckier on your next research project. Don=t be deterred by dogmatic views of research that picture the process as a verification of an hypothesis or else a bust. Good research can be useful and meaningful even if it didn=t come out with the results you were hoping for. In statistical lingo the real question is, AWhat is the expected value of sample information from a proposed study?≅ (See G. William

Walster and T. Anne Cleary, AA Proposal for a New Editorial Policy in the Social Sciences,≅ The American Statistician, 24, 2, 1970, 16-18.)

For most people theoretical research is to empirical research as poetry is to prose, namely, much more difficult to carry off successfully. Moreover, in most areas of inquiry the easiest theoretical problems have often been solved. Theoretical research can be superb, but you are more likely to finish your dissertation if you choose an empirical question to answer, except possibly in management science, where a Anew algorithm for X≅ is likely to be useful yet within the ability of many doctoral students.

Be sensitive to currently promising types of research. Current hot topics include cost/benefit and cost/effectiveness studies. But if you are really convinced you have a novel investigation of merit, and can convince at least three faculty members of it, the gamble may be worth taking.

Hints on initial search. B Expose yourself to lots of research: workshops, journals, preprints, etc. But don=t feel that you have to master each such paper or presentation with the thoroughness that you would give to a section of a course upon which you would be examined. Browse, question, discuss! Occasionally you should try to delve deeply into a paper, and you should force yourself to do so from time to time. One financially rewarding way to give yourself an incentive to do this is to work for one of the many abstracting services, such as Executive Sciences Institute of Whippany, New Jersey, which pay a nominal fee for two or three page abstracts of articles from the professional literature. (See Weil for more information.) If you sign up to do abstracting in areas of interest to you, you will find the deadlines just as oppressive (and therefore compelling) as those for courses. More about deadlines follows.

Another possibility for intensive work on a paper might be worked out with faculty members who frequently referee manuscripts. Your willingness to serve as a supplementary referee might lead to interesting experiences and give you less awe about academic standards.

But the best object of all for thorough study is a paper that is closely related to your own research project, and this is still another reason for trying to latch onto such a topic as early as possible.

Talk to faculty members about tentative ideas; ask them for suggestions about others. Some faculty members are especially receptive to this kind of discussion; pester them. Some are even happy to suggest good topics that they do not expect to find time to pursue directly themselves.

Talk to your fellow students. You have much to learn from them. (Allen Wallis claims that he learned more from his fellow students than from the faculty, although in candor we must report that his fellow students included Milton Friedman, George Stigler, and Paul Samuelson.)

Insofar as you have free course choice, emphasize courses that require research papers. You may have to do a little informal research to find out just which ones these are.

The mechanics of research. B Write down your tentative ideas and keep revising them as they develop. Keep a journal or at least a file. Until you have written down an idea clearly, you probably have not understood it clearly or seen its full implications. Most of the students we have talked with have not learned this simple truth unless they have actually tried the suggestion. Moreover, by writing something down, you tend to overcome inhibitions about writing B related to the above-discussed fear of making errors B that may delay your start on serious research. Finally, many faculty members can help you more effectively if they can refer

to a short written statement of your ideas and work, even though the statement be very tentative.

Set deadlines and stick to them. If you set and stick to a reasonable set of deadlines, or even if you fail to meet some of them by a few days, your tendency to procrastinate will be largely overcome. Moreover, the habit of setting deadlines helps you avoid the multiple and impossible network of commitments that are so common in the academic world.

DISSERTATIONS WITH FEWER TEARS

Some Unofficial Tips for Doctoral Candidates in the School of Business

Harry Roberts*

By casual empiricism over the last few years I have arrived at a few maxims that seem worth recording in the hopes of helping doctoral candidates to produce better dissertations more efficiently and quickly.

1. A dissertation should resemble a good journal article rather than an encyclopedia. Twenty-five to seventy-five double-spaced pages, supplemented by technical appendices if appropriate, will usually do the job. At most, one year=s full time work rather than a half-lifetime of procrastination should suffice. Quality counts.

Write up your study clearly and honestly, with necessary supporting data. ASurvey the literature≅ insofar as it contains essential background, but keep the survey brief. Present a well-chosen bibliography rather than a long discourse of your own.

2. Do not wait until all other requirements have been discharged before beginning to think seriously of your dissertation topic.

3. In seeking dissertation topics, hound the faculty as much as possible. Once you get a few ideas, try them out on faculty members who might be interested. Don=t expect to be spoon fed but don=t feel that the whole burden rests on you alone. Most faculty members have pet ideas for research that they haven=t had time to try out, and all will try to be helpful in reacting to your ideas. They also can frequently suggest journals and unpublished work that may give hints. Acquire the Journal-reading habit early. Remember that almost every study concludes with Asuggestions for further research.≅ Some of these may be worth following up.

Frequent, short discussions spaced over a period of time are most likely to produce results.

4. Seek an empirical study rather than a theoretical study, unless you are very confident of your theoretical competence and creativity.

5. An empirical study can focus on hypotheses to be tested, but most likely it won=t. In fields with a highly developed theoretical structure B especially the natural sciences B it is reasonable to expect that most empirical studies will have at least some sharp hypotheses to be tested. This is not true for many areas of business interest, and attempts to force research into this mould are both deceitful and stultifying. AHypotheses≅ are likely to be no more than hunches as to where to look for sharper hypotheses, in which case the study might be described as an intelligent fishing trip. Descriptive research is not necessarily inappropriate nor useless: there is room, for example, even for case studies. Empirical work that reveals something worthwhile about the efficiency of measurement techniques is appropriate, either as a major or subsidiary purpose.

Even if you have an hypothesis to test, don=t forget to look for the unexpected.

Don=t overlook the possibility of special analysis of data collected for some other purpose.

6. Get statistical help in the design phase of your study, and as often as necessary thereafter. Few candidates will have enough theoretical and practical training in statistics to dispense with

this step. Consulting with all doctoral candidates who seek help is a standing assignment of Harry Roberts.

7. When you have tentatively decided on a topic, tell the director which faculty people you have found to be most interested in your topic. He can then consider this information in forming your committee.

8. When your topic is approved, impose a schedule, with iron deadlines, upon yourself. And stick to it. It=s better to go (relatively) hungry during a few months of full time work than to try to fit the project into your spare moments over the next decade. In particular, don=t think that dissertation-writing will harmonize with a teaching job. If you must do your work part-time, keep in touch with your committee. Don=t simply send them a completed draft after years of silence.

If you must leave the University before you finish your dissertation, be sure that you have faculty approval for the details of your study, insofar as they can be foreseen.

9. Modify your topic as progress dictates, but do it after discussion with your committee. Most topics B even approved ones B are too ambitious and need to be trimmed down. Often unexpected opportunities are discovered. If you wish to modify your proposal, discuss your ideas with your committee. Sometimes the original topic turns out to be totally unsuitable for some reason. Don=t be afraid to face up to this and make a change.

10. Try to pick a topic that you like, but don=t be discouraged if you eventually find yourself hating it. This happens to almost everyone, but it=s worst for the part-timers (see 8, above). The feeling usually passes if your keep going.

11. Send a copy of your draft to each member of your committee, and invite him to scribble the margins black, if he has time.

12. In preparing for your oral exam, try to think of important ramifications of your study so that you won=t be totally surprised if someone on the examining committee brings one up.

13. In your oral exam, don=t apologize and don=t bluff.

14. Suggestions for further reading;

(1) Essays in Positive Economics, Milton Friedman, Chap. 1.

(2) Statistics: A New Approach, Wallis and Roberts, Chaps. 1-6.

(3) Say it with Figures, Hans Zeisel, (Fourth Edition, 1957).

DISSERTATIONS WITH FEWER TEARS: II

How to Write

by Harry Roberts

Many years ago Jim Lorie used to deliver a five-minute pep talk on writing style. Unlike most talks it often had an immediate and drastic effect: incoherent students became coherent virtually overnight. I tried delivering the lecture and found that it worked for me, too. Over the years I have added some embellishments learned from Allen Wallis and Jimmie Savage. In the hope that two hours= work now may save me many five-minute lectures in the future, I have tried to set all this down for the benefit of incoherent doctoral students and others.

I begin with an example of good expository writing:

> This summer I raised a black swallowtail butterfly. It all started when we found a little caterpillar. We found it on a carrot top so I fed it carrot tops. Four days later it shed its skin and became a larger striped caterpillar. I kept on feeding it fresh carrot tops each day. It grew bigger and bigger. Two weeks later it stopped eating and got smaller. Then it spun a tread and hung itself on a stem. The next day it shed its skin and turned into a chrysalis, still attached to the carrot stem. Eight days later when we came to breakfast we found instead of a chrysalis a female black swallowtail butterfly.*

The author of this passage had a great advantage over most who will read this: he was only eight years old. His writing style, I confidently predict, will steadily deteriorate as his schooling progresses. Whether by design or not, our educational system encourages, develops and rewards poor writing.

Why is this good writing? It employs all the simple Lorie rules. The sentences are short, simple, declarative sentences. Each sentence gets over a point. The point of one sentence leads to the point of the next sentence. There are no useless words. There are no vague, abstract words and only one Abig≅ word, Achrysalis.≅ (AThe pupa state of certain insects, especially of butterflies, from which the perfect insect emerges.≅) The big word is not there for show: it is the <u>right</u> word. The result is a clear, vivid, and concise exposition.

An acceptable prose style requires nothing more than application of these simple rules. Any intelligent person can write acceptable exposition once he understands them. Good creative writing requires genius. A distinctive style of expository writing requires practice and some talent. Acceptable exposition demands only intelligence and determination, and this will do for doctoral dissertations.

The danger for most of us is saturation with academic jargon and double-talk. Jargon is insidious, for it soon robs us of our ability to use our intelligence. We think we are saying something and we are not, or at best we are saying something that we do not intend. Words displace thought, and the weight of words makes it hard for the reader to see that no, or little, thought is present. I once saw Lorie reduce a four-page dissertation proposal to the single sentence: ASales response depends on sales effort.≅

You will find it helpful to study carefully academic writing of good style. Pick up anything written by Henry Simons, Dennis H. Robertson, or Paul Halmos, and study a haphazardly chosen paragraph. (My friends Lorie, Wallis, and Savage, mentioned in the first paragraph, will

do just as well.) These men are real stylists and you B or I B will never touch them, but we can learn much from them. They write as well as John Erickson, and about more difficult things.

For contrast, pick haphazardly chosen paragraphs from academic journals, especially in psychology. Try putting them in English to see what they really say: boil them down, cut out the repetition, replace the jargon and clichés with plain language, straighten out the logical structure. Then pick up something that you yourself have written and do the same thing. Whenever you write anything in the future, keep revising it in just this way until you are satisfied or exhausted.

You must care about the kinds of words and sentences you write. You must realize that you can learn to write. After that it takes only hard work.

The next lesson concerns logical structure for a longer piece of work, like a proposal or a dissertation. Here the job is to fit paragraphs into a larger structure. An outline is helpful, whether you write it down or keep it in your head. Whether or not you use an outline, however, your paragraphs should effectively create one as you go. You should ask yourself: What does this paragraph add? How does it fit in? What does it lead to? You should fight the easy acceptance of the first organization of ideas that you set down on paper.

I find the advice of this last paragraph much harder to execute than that of the previous ones, and I do not hold out hope of overnight improvement here. Again, however, I have faith that determination and intelligence will help, once the need is seen.