

Leveraging the MSI Experience in the SI Doctoral Application Process

Introduction

Aside from writing the dissertation, completing the application to a doctoral program is potentially one of the most harrowing experiences encountered by aspiring scholars at the academy. In a fairly limited space, applicants must optimize the corpus of experiences and artifacts produced that show evidence of research skill and level of preparation for doctoral studies. The applications of current Master of Information Science (MSI) students at the University of Michigan School of Information (SI) to the PhD program in the same department are no exception. The MSI program, however, is a dedicated professional program, with a curriculum designed independently of the primary needs and goals of those who would pursue doctoral studies. Regardless, several MSI students do apply to the doctoral program, and a limited number have been admitted to start the program in the Fall 2004 semester.

Since the doctoral program in information science is an inherently academic program, can the experiences and artifacts generated by the MSI program be effectively leveraged in construction of a successful doctoral application? Since some students from the MSI program have gained admission to the PhD program, it is clear that they were able to construct successful applications; however, to what extent was the MSI experience integrated into the application? The purpose of this study is to examine the

application packages and perspectives of successful MSI applicants to determine the role of the MSI program in assembling the application package, and gaining admission to the program. Since the School of Information has become more concerned with the competitive standing of MSI graduates in ongoing pursuits, the results may have bearing on the school's evaluation of itself as providing adequate curricular resources and opportunities for those who would opt to forego the professional direction of the program, and instead opt to join the ranks of the academy as a career path.

Background

A clear caveat to this study is that I, the investigator, was a participant in the same doctoral application process as the interviewees. Like those interviewed for the study, I have been a MSI student at the School of Information for the past two years, and prepared an application for the SI PhD program. While it is natural to assume that this may have an undue biasing effect on the nature of this inquiry, throughout the course of interviewing, I found that my own experiences lent a level of sensitivity to the responses given by participants, as well as insight into the process of compiling the application. To the largest extent possible, I have consciously controlled the questions asked during interviews to maintain internal validity. Review of the interview transcripts reveals no interjection of my own experiences while conducting interviews, in an attempt to avoid leading of participant responses.

My own experiences in the process, however, were a driving force behind the original questions in this study. I was curious to know whether, given a consistent set of instructions to complete the application process, if others who had been successful in gaining admission to the program had leveraged the past two years in the same manner I

had. The MSI program requires the generation of numerous papers and project artifacts; yet upon later inspection, I found that I had not leveraged any of them in my application. I did not do this consciously, to my recollection. Since the MSI program has a professional focus, I wondered of the artifacts generated by the program were at all useful to those who would pursue doctoral studies in constructing the application. I also had the experience of having a faculty member who served as a strong advocate during the process, and wondered if this were a situation unique to my application. If so, what were the factors that others leveraged successfully? If not, is having an advocate a requisite for admission? These were the questions that occurred to me during the application process.

The choice of participants for this study was partially affected by scheduling considerations. I would have preferred to interview participants during the process or directly after the application had submitted. Unfortunately, this was not possible. I found that two factors prevented me from pursuing this option. First, applicants are not forthcoming about sharing their experiences or application materials before a decision is made. This is perhaps because an element of competition remains, and revealing resources would be “showing one’s hand too soon.” Second, I was asked by the chair of the doctoral committee to delay recruiting and interviews until after offers had been made to applicants. The chair felt that earlier interviewing would be inappropriate for political reasons. I chose to respect this request – partially because the reasons were sound, and partially because I did not want to jeopardize my own standing in the process.

In retrospect, the timing of a study like this is difficult given the sensitive nature of participants’ feelings of success and failure in applying to the program. In the future, I would recommend pursuing of this topic when I am outside the process itself. While I

was comfortable asking the questions necessary to derive data, there is a potentially confounding factor that the participants were familiar with me as a classmate and colleague. Since admissions decisions had already been released, the environment of competition had been removed; however, as a member of the in-group (both as an MSI student, as well as an accepted doctoral student), interviewees may have been more forthcoming in sharing their opinions and experiences.

Previous and Related Work

Upon inspection, it would seem that little to no academic research has been conducted specifically in the area of leveraging master's level work and artifacts in the pursuit of doctoral admissions. A literature search on this topic yielded only trade publications designed for students making applications either to doctoral-level professional programs (medicine, law, etc.) [1, 2] or to general graduate and doctoral programs [3-6]. The contents of these publications were quite broad, often offering non-contextual advice on methods of collecting artifacts and compiling them for presentation, rather than giving strategies for leveraging content.

In leveraging relationships, rather than artifacts during the construction of the application, study participants remarked upon events where, through one professor or mentor, they were introduced to another who was influential in the doctoral application process. This is in line with the work of Mark Buchanan [7], Duncan Watts [8], and Laszlo Barabasi [9], all of whom describe the "small world" effect of social networks. According to these pioneers of network science, access to a critical personality (node) within a social network can result in significant and useful relationships that may not have otherwise occurred. These critical nodes represent a high level of *centrality* [10], or

ability to connect relatively disjointed groups. This is commonly referred to as “the strength of weak ties [11]. Through Granovetter’s theories, it has become known that a larger perspective known as embeddedness, which holds that all economic action, including that by organizations, is enabled, constrained, and shaped by social ties among individuals [12]. The organizational dynamics of the SI community, as well as the larger academic community within the University of Michigan, is no exception to the economics of intellectual capital [13], described by Stewart as the economic potential of the embodied knowledge of an organization.

Axelrod and Cohen describe *proximity* and *activation* as critical elements that transmit shared culture within a cooperative complex social system or organization [14, 15]. In learning the appropriate elements to incorporate in the doctoral application, and the language in which to describe concepts, MSI students are particularly at an advantage through proximity. Contact with the SI culture through this proximity, and activation through the experience of the MSI curriculum, defines a community of practice in information science [16] which MSI students may potentially leverage more skillfully in communicating research concepts to the admissions committee. By experiencing the SI culture for two years, students come to understand the knowledge codification process in the “SI tradition [17].” It is this awareness of the SI community of practice, and the activation of this knowledge through the creation of relationships and artifacts, that may strongly influence the process MSI students follow when approaching the task of assembling the application to the SI PhD program.

Jean Lave and Etienne Wenger describe a process of *situated learning* through *legitimate peripheral participation*. From their book, Situated Learning:

Learning viewed as situated activity has as its central defining characteristic a process that we call legitimate peripheral participation. By this we mean to draw attention to the point that learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move toward full participation in the sociocultural practices of a community. Legitimate peripheral participation provides a way to speak about activities, identities, artifacts, and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice. A person's intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a sociocultural practice [18].

Under this model, participants, simply by participating the MSI program, become indoctrinated in the thought paradigms and vocabulary used to efficiently navigate the intellectual landscape of the School of Information. As we will later see, through primary relationships with a faculty advisor, the research process for these students followed a typical apprenticeship model [18, pp. 30-32], leading to the ability to construct an application that was well-matched with doctoral committee expectations of “what it means to do research” – a critical component of evaluation in the application process.

Methodology

The method of inquiry in the project employed a grounded theory model, described by Glaser & Strauss [19]. While I was interested in the ways in which artifacts were used in the application process, I did not make strong assumptions about their specific roles, nor did I discount that other factors or influences might be significant. I began by determining the artifacts required to complete a doctoral application to the SI program. These may be found in the application package located online at <http://www.si.umich.edu/admission/applying-phd.htm>. The checklist of required items is

- Personal statement of unspecified length

- Statement of specific area of research interest
- Explanation of why SI is an appropriate place to pursue these studies
- Statement of the applicant’s understanding of “what it means to learn how to do original research and to undertake such research.”
- Current resume
- Three recommendations
- Completed application form
- Transcripts

For this study, the final three items on the list were not inspected for the following reasons.

- Applicants had signed forms waiving the right to see recommendations provided. In the case of both study participants, they were unaware of the contents of the letters provided by recommenders.
- The application form is intended for administrative use, and did not hold robust information with respect to the topic of this study.
- Transcripts are also to be considered confidential, and as a simple listing of courses taken and grades received, did not contain information about specific projects that may have been undertaken through coursework. The interview approach did ask about particular courses and the artifacts generated through them.

As a result, the primary focus of artifact review was on the personal essay or statement provided, and the resume submitted as part of the application.

In addition to the review of paper artifacts, one-hour interviews were conducted with study participants (see Appendix A for interview protocol.) Interviews were recorded and later transcribed for coding (see Appendix B for coding schema.)

Two interviews were conducted with current students in the MSI program who had recently been offered acceptance to the doctoral program at SI for the Fall 2004 semester.

| Subject | Age | Gender | Background | MSI Track |
|---------|-----|--------|---|-----------|
| S1 | 24 | Female | <ul style="list-style-type: none"> • BA in philosophy • Professional experience as a computer programmer (1 year) • Accepted to other PhD programs before entering the MSI program • Entered MSI program with intent to continue for a PhD • Began MSI program in Fall 2002 | HCI |
| S2 | 38 | Female | <ul style="list-style-type: none"> • BS in engineering • Professional experience as a product manager for a Fortune 500 company (10 years) • Volunteer experience for four years in an international non-profit organization • Entered MSI program without intent to continue for a PhD • Began MSI program in Fall 2002 | LIS |

Table 1: Characteristics of Study Participants

Each interview lasted approximately 45 minutes and was conducted in room 405A in West Hall. There were no interruptions during the interviews, and there were no other distractions present. The interviews were recorded digitally for later transcription. After standard IRB consent forms were presented and signed, the interview was conducted focusing on the following underlying questions.

- What were your experiences leading up to your participation in the MSI program?
- What experiences in the MSI program did you find helpful in assembling your doctoral application?
- What artifacts produced in the MSI program did you find helpful in assembling your doctoral application?
- What relationships gained through the MSI program did you find helpful in assembling your doctoral application?
- How do you feel the MSI experience prepared you for doctoral studies?
- How do you define “information science” and “research” as requested by the personal statement requirement of the doctoral application?
- How did you engage the process of application preparation with respect to leveraging answers to the above questions?

Findings

Based upon information gained during the interview process, and inspecting the personal statements and resumes submitted for the doctoral application, several themes emerged relating to the manner in which applicants leveraged personal information and relationships in the construction of the application package. In particular, the following six issues were recurrent.

- MSI students did not feel papers, projects, or other artifacts produced in the master’s program were appropriate for the doctoral application.
- A research relationship with a faculty member was the strongest leveraged factor in applications.

- Students had varied opinions of the writing preparation given by SI in preparing the application.
- Levels of faculty support during the MSI experience had significant effect on the decision to pursue doctoral studies at SI.
- The non-specific nature of the personal statement instructions prompted students to seek outside structure in formulating the essay.
- Successful applicants have a non-linear history of academic and professional concentrations, which is seen as an appropriate match to the doctoral program.

Following is an exploration of each emergent theme, with examples drawn from paper artifacts, as well as sections of the transcribed interviews with the study participants.

MSI students did not feel papers, projects, or other artifacts produced in the master's program were appropriate for the doctoral application.

Following my original hypothesis, seeking ways in which artifacts produced during the MSI program were leveraged in the doctoral application, I concentrated some interview questions on this topic. Surprisingly, both respondents remarked that they did not feel that the MSI curriculum had produced adequate materials for this purpose. Further, the conscious decision to omit these materials had been a part of the process.

In the personal statement of S1, numerous allusions were made to the curriculum in the form of citations and references to assigned readings. The readings encountered through coursework did, in fact, strongly influence the construction of research ideas and topics. Answers during the interview, however, indicated that while the academic readings were valuable, the accompanying projects did not hold the same utility. When asked about projects taking place through the SI program, the only consistently

referenced projects had taken place through research done with the primary faculty advisor, in the capacity as a research assistant. Later, S1 commented on the fact that she believed the assignments in the master's program were inconsequential exercises, and did not see the need for her to "prove herself" (i.e., demonstrate her abilities and value as a serious researcher) by writing one-page summaries of articles, an activity she indicated was common for class assignments in her MSI experience.

S2 was more deliberate in the omission process. Though she also referenced standard SI readings in her application essay, she only felt that the project done during an independent study with her primary faculty advisor was of sufficient quality to mention.

I think that every time I have a chance to pick a project, like self-select, I think I've done something health related. Last term, in the information architecture class, I worked with a team, but we selected a health site. So, I think that really informed me about how health information is organized. How consumers use it. But, I didn't put that in my application because it seemed kind of minor – like evaluating the information architecture of a governmental health site didn't seem worthy of putting in a PhD application. I don't think last year I had a lot of chances to self-select the topic of a lot of projects. In 504, I didn't do a health collection. But, this term in a class I'm taking, for example, I am writing a paper on health librarianship. Aside from that, aside from doing the independent study with [my primary faculty advisor], which was based on his research, I can't think of any other examples that I incorporated into the essay.¹

The perception of MSI coursework as an inadequate leveraging point was addressed not only directly in the interviews of both candidates, but also during inspection of the personal statements and resumes. In each case, no mention of coursework artifacts, save those conducted during independent study, were addressed in the resume submissions, and only briefly in the personal statements.

¹ Interview with S2, conducted on March 3, 2004.

It is also interesting to note that the artifacts commonly referenced in the applications were, not surprisingly, related to research conducted through SI. Both applicants frequently made reference to the value of pursuing activities associated with SI-based research projects; however, involvement with these projects was generated by the students' own efforts and initiative. This would suggest the possibility that access to research projects of the caliber and nature of aspiring doctoral students is limited. If work done through coursework is insufficient, students may find that they are competitive in the doctoral application process only by taking on responsibilities and activities beyond coursework, which may be a significant investment. This option could be difficult, if not impossible for students who have outside responsibilities (family, need for employment, etc.)

A research relationship with a faculty member was the strongest leveraged factor in applications.

Based upon interviews and review of the paper artifacts provided by each participant, the theme that emerged most strongly centered on a primary relationship with a member of the School of Information faculty. The connection with a faculty member gained through out-of-class research opportunities was the most leveraged point in the applications of both students.

In the in-person interviews, S1 made consistent reference to her faculty advisor, who will likely serve as dissertation chair, as the focal point of her assurance that the SI doctoral program was the right choice. She also commented on the strong advocacy her advisor showed in representing her at faculty and doctoral committee meetings. S1's personal statement also devoted significant space, 50%, describing the work she has done

with her faculty advisor, and how the experience and guidance has led her to a pursuit of doctoral studies.

S2, as well, consistently mentioned her faculty advisor during the interview.

I was recruited pretty heavily by [my faculty advisor], who I was working with, and starting last fall, every time I would see him, he would say, “How come you’re not applying for the [doctoral] program?” and so, it’s not really something I had considered before that, but we would talk for hours on end and he convinced me that it was an interesting option. It would be a good option, so, that’s primarily why I decided to apply is because of his encouragement and because I really love the field of information.²

In total, 68% of S2’s personal statement directly addressed either her research relationship with the primary faculty advisor or expounded on the experience she had gained through being involved in his research. In each case, the content was directed at positively presenting this relationship and experience as evidence of preparation for doctoral studies.

In addition to the content presented in the personal statements, resumes, and interview statements of the study participants, I must make an observation as an interviewer. During the in-person interviews, each participant’s tone, when speaking of their faculty advisors, was indicative of high levels of respect, admiration, and collegiality. Not easily captured in transcripts or text, it was readily apparent during the interview process that both students felt a significant connection to the advisor, and the delivery of their statements belied the influence these relationships had on the decision to pursue doctoral studies, and to remain at the School of Information. Perhaps it is not incidental that both applicants chose only to submit applications to the doctoral program at SI.

² *Id.*

Students had varied opinions of the writing preparation given by SI in preparing the application.

During the interview process, the discussion turned to the topic of the actual preparation of the personal statement. When asked the general question of how SI had prepared them to complete the application, the topic of writing arose, unprompted by the interview protocol. The responses from each of the participants were markedly different with respect to the writing process.

S2 felt that, as an engineer with a decade of corporate experience, she had come to SI with a writing style that was appropriate for the tasks she had encountered in the professional world; however, she perceived that she was ill-prepared to apply this writing to the academy.

I think that writing, definitely, is something that we have to do a lot of [at SI], and it's something that I hadn't done a lot of – in that social science kind of writing aspect – because as an engineer, you write a lot of reports and you write a lot of requests for funding and specifications, but really my first term here was tough because I hadn't written at that level, I don't think, ever. Even in engineering school we don't write “social science” kind of papers. So, I've had to learn over the last three to four terms about how to effectively present ideas. That's been helpful – just the process of doing that.³

Through resources such as the Sweetland Writing Center, and meetings with faculty and graduate student instructors, S2 felt that she was able to capitalize on the resources provided during the MSI experience to develop her writing skills in a direction that was more appropriate for the expectations of the doctoral application, as well as moving forward with confidence in the program.

S1, on the other hand, experienced the opposite effect. Coming from a rigorous undergraduate program in the humanities, she felt that her skills had atrophied during the

³ *Id.*

MSI program, and that the level of writing required to construct a strong application essay was not supported by the educational level of the MSI program.

The essay writing, I met with [my SI faculty advisor]. I talked to an advisor at [my undergraduate institution] because I think that my writing has fallen off significantly in the MSI program. I think it's shitty, and it used to be really good. So, I asked my old advisors to help me with my writing.⁴

Unlike S2, S1 felt that the MSI program did not allow her a significant leveraging point during the writing process. Instead, she turned to other sources both outside the curriculum and outside the university to assist with a level of writing skill she felt appropriate to meet her expectations of "doctoral level writing." While the levels of writing skill will undoubtedly vary among students and applicants, it is surprising to find that the MSI program did not consistently transmit to students a perception that acceptable writing at the master's level would be a suitable level of writing for the doctoral application.

An analysis of the personal statements submitted by each applicant yields the following:

| Readability Results | S1 | S2 |
|---|--------|--------|
| Total sentences | 86 | 217 |
| Total words | 1,890 | 3,138 |
| Average words per Sentence | 21.98 | 14.46 |
| Words with 1 Syllable | 1,013 | 1,702 |
| Words with 2 Syllables | 395 | 703 |
| Words with 3 Syllables | 241 | 439 |
| Words with 4 or more Syllables | 241 | 294 |
| Percentage of word with three or more syllables | 25.50% | 23.36% |
| Average Syllables per Word | 1.85 | 1.78 |
| Gunning Fog Index* | 17.00 | 15.13 |
| Flesch Reading Ease* | 28.31 | 41.16 |
| Flesch-Kincaid Grade* | 12.00 | 11.11 |

⁴ Interview with S1, conducted on March 3, 2004.

Table 2: Readability Levels of Personal Statements

* See Appendix C for Explanation of these measures

Based upon analysis, the levels of writing in both essays are appropriate for an academic audience [20]. While S2 has a higher score in ease of reading (based upon Flesch Reading Ease score), the level of difficulty in vocabulary and percentage of large words is not significantly different. This would suggest that, for these two applicants, the variation in writing skill developed through the MSI program is not based in actual performance, but in perception.

Levels of faculty support during the MSI experience had significant effect on the decision to pursue doctoral studies at SI.

Leading up to and during the decision to apply, students must ask themselves a critical question – “Is this the right place for me?” As seen previously, relationships with the primary faculty advisor play a critical role in the decision to stay at SI. This, however, was not the sole contact with faculty that determined the decision to apply. For both applicants, secondary contact with faculty and staff was instrumental in creating the sense of a welcoming community. While these contacts were not specifically mentioned in the resume or personal statements, they are undoubtedly social artifacts of the MSI experience that were determinant in the decision to make an application.

S1 chose to take these secondary relationships and leverage them in the form of recommendations. Although I was not able to gain access to the recommendations themselves, S1 did feel comfortable sharing reasons why these secondary relationships become recommenders were influential.

George [Furnas], Michael [Cohen], Stephanie [Teasley], and Colleen Siefert. They’re all full professors or senior faculty members. It was important to have one that’s not from SI because I’m hoping to do a lot of work outside SI also. Colleen is respected by the faculty in SI as an

interdisciplinary research in cognition, which is important to HCI and sometimes undervalued. So, I had the right recommendations from the right people. I had an extra one that I didn't really know about. I didn't know Stephanie was writing one until I found out that Judy told her to write one. I think that the relationships I was able to build with all of them, because I had class with them, and because I went to office hours and said, "This is interesting, but this is what it makes me think about. Can we look at that?" Even though my primary purpose was not to leverage that, I think that it was probably the most valuable part of my application was that those people knew me really well, and they knew my work and they knew what I was interested in. They weren't going to be empty recommendations, whether official or unofficial.⁵

S2, on the other hand, divulged less regarding the leveraging of secondary relationships to gain recommendations. She did, however, state that incidental contact with faculty and staff were an influential factor in her decision to remain at SI. For her, the sense of community was key.

Every time I see Gavin [Clarkson], he's very encouraging, which is interesting. For example, we had a chat in the student lounge about a week ago...ten days ago...he's been very encouraging. His line has been, "You know...you should stick around." So, that's been interesting to know that there's people like that around here who feel that the PhD program would be a good option for me. I can't really say anything negative. Nothing comes to mind about negative interactions with faculty. Other positive interactions? I respect the faculty here. The brief exposure we got to them during Foundations, as they all rotated in, team taught, people like George [Furnas] and Michael [Cohen] and Margaret [Hedstrom]. I have a lot of respect for them even though I haven't had a lot of interaction with them.⁶

S2 also suggested that these incidental and secondary contacts were, in part, leveraged in the statement of proposed research. Her future plans at SI include furthering research relationships with various faculty members based upon experience during the MSI program.

I think I've been influenced by Soo Reih this term, because I'm taking her information seeking behavior class, which has been influential, because I

⁵ *Id.*

⁶ Interview with S2, conducted on March 3, 2004.

know that kind of research is being done here now. You know, that she's on board. That's where my interests lie. Being in class with her has been interesting, just to know that if I stay, that resource is available too...that we could work together. Karen Drabenstott does a lot of searching. I took her class last term, so being exposed to the searching folks, the information seeking behavior folks, has been influential in a positive way – to know that they're here and they would be available as resources, perhaps, when I say to do my information seeking behavior research. I know that a big focus in this research that I'm doing will be HCI, and although I haven't had a lot of exposure to the faculty, I know that Judy Olson is a top person in that field.⁷

The leveraging of this information was effected in an indirect strategy, alluding to the domain interests in the research description in the personal essay. The intent, though, is clear in that S2 has the intention to further capitalize on the relationship resources garnered through participation in the MSI program.

The non-specific nature of the personal statement instructions prompted students to seek outside structure in formulating the essay.

The instructions contained in the doctoral application, in the opinion of the applicants interviewed, did not provide a clear framework in which to construct the personal statement. As stated in the application, “Personal Essay: A statement of your specific area of research interest. Explain why you think SI is a good place for you to pursue your studies. Also state your understanding of what it means to learn how to do original research and to undertake such research.” This presents a double-edged sword for applicants. On one hand, vague instructions provide writers maximum latitude in deciding which elements of their own portfolios define the application. On the other, more effort, thought, and precision is required to build a framework in which to present one's own work.

⁷ *Id.*

Approaching this topic, S1 focused heavily on the first aspect of the instructions, outlining research interests moving forward; however, she sought assistance from outside sources by engaging her faculty advisor, other SI faculty, as well as instructors from her undergraduate institution. She also turned to the overall experience of the MSI program for guidance in constructing the essay. For example, S1 states:

Being in the MSI program and going through the Foundations and learning the language and the way SI talks about itself and what it does was helpful in helping me learn what kind of language did I need to put in my essay. It's a very different essay than I would write if I were trying to go to Carnegie-Mellon or Stanford or something.⁸

In this case, it again was not specific artifacts or projects leveraged in the application; rather, the experience, environment, and assimilation of the organizational culture provided a linguistic framework S1 found appropriate for expressing thoughts leading to a successful admission.

S2, on the other hand, found the need to pursue other options. She sought help in her first draft from her faculty advisor.

I talked about leadership, at which point [my faculty advisor] responded, "You know, leadership really isn't a key issue here with a doctoral application", which I thought was pretty interesting because it's definitely a strength I have and it's something that I've always leveraged, except in this case. I don't think I mentioned it at all. It's on my resume, but it wasn't in my essay because [my faculty advisor] advised me that the focus here was on research. The focus was on proving that you know what you're getting into and that you have a clear understanding of what performance would be expected of you. And so, I didn't leverage leadership at all, which I was actually kind of disappointed about, because I think it's one of my strengths.⁹

She indicated that this left her at something of a loss in defining the structure of her essay. Her solution to this was to seek templates for successful essays in other places.

⁸ Interview with S1, conducted on March 3, 2004.

⁹ Interview with S2, conducted on March 3, 2004.

The instructions were rather vague - just like write a five or six page...well...it didn't even say. Write an essay. They didn't ask any direct questions. To be honest, I went to other school web sites to find out what kind of questions they were addressing because schools like Syracuse and Illinois and Indiana were more focused with their application process. So, I went and looked at those to see what kind of questions they were asking their applicants to address because ours was pretty open, undefined. I talked to Sue, looked at other web sites, talked to [my primary advisor], talked to [another faculty member]. Yeah. That's primarily what I did. Also, I talked to [a current SI doctoral student], too, because he had applied two years before. And when I had writer's block. I have to admit, I asked him for a copy of his essay just to see how it was formatted. So, I did read through that. I read through it once and got the feel for what it was supposed to look like, or at least what it had for him. And he had been successful, so I was able to in my mind say, "Oh. That's how it's supposed to go." Then, that's how I proceeded.¹⁰

For S2, the decision of what to leverage and what to omit took a considerable amount of searching. Ultimately, it took outside examples of successful formats to guide the process. As stated before, this may be an intentional design on the part of the doctoral admissions committee – forcing applicants to define for themselves how to construct a successful essay. It is, however, undeniable that workarounds to this imposed creativity are attainable, as seen in S2's search process.

Successful applicants have a non-linear history of academic and professional concentrations, which is seen as an appropriate match to the doctoral program.

Upon asking interviewees to define the nature of "information science," the responses centered around the fact that the field is still undergoing development, and definitions are vague. As stated by S2,

It's a broad term, definitely. I think information science is unique in that it specifically deals with information, no matter in what field, in what realm, and in a lot of fields that deal specifically with information, like in public health, they'll talk about information...health information, how it's used...but I think information science is unique because it really talks

¹⁰ *Id.*

about information in general. To me, I think it's just so broad that it primarily means how information is created, how it's accessed, how it's used. It's a hard thing to define, and I think we've all struggled with even defining what information is in this program, but it's broad. It's wide open, and that's why the field appeals to me – because it is so broad, so far-reaching, and there's so much opportunity in it.¹¹

Similar sentiments were expressed by S1.

I still don't know [what information science is]. I thought about it in Foundation, and I've thought about it since then. I'm still not really sure what information science is. I get hung up on what is the difference between information and knowledge, and information and data, and those three connections, which I've had trouble figuring those out since senior year of college, but I guess information science, to me, and why I decided to stay at SI was sort of: What is information? How do we use it? How can we quantify it or qualify it, or both – between people, among people, from person to object, back and forth. So, information science asks the question, “What is information and how do you use it? How do you get it around?” I guess.¹²

Although the definition of “information science” is vague to the two participants, it is potentially this quality that allows them to effectively leverage a history of multidisciplinary study in gaining admission.

Both applicants, when questioned, admitted to following an academic and professional career path that embodies strong non-linear qualities. For example, S1 officially changed majors no less than 18 times during the undergraduate experience. She finally settled on an integrated program that combined philosophy, history, literature, and political science. Following graduation, she was employed as a computer programmer. She applied to doctoral programs in rhetoric, and opted to join the MSI program to study human-computer interaction. Through research at SI, she has become involved in courses and projects involving the departments of information, education, psychology,

¹¹ Interview with S2, conducted on March 3, 2004.

¹² Interview with S1, conducted on March 3, 2004.

communication studies, and various others. She intends to construct a doctoral program that incorporates the backgrounds of all these departments. When asked about the non-linearity of her interests, and how this benefits her standing as an applicant to the doctoral program she replied:

There's always going to be something about the way that I do things that doesn't make sense. It doesn't always make sense to me, but it's my life, so I'm able to construct a story that makes sense. I think that being in this PhD program is a natural progression that people who know me well will not be surprised by and that it will fit in. Because I've been looking for a long time for a place that will let me ask questions about how we learn. I'm in the generation that is unable to separate any activity from that activity's relationship with technology. I was at a computer when I was four, and I was online when I was ten. I'm at the beginning of that generation of technology users. There are lots of ways to ask, "How do we learn?" I want to ask the question that comes after that: "How do we do it better?" My inkling is that technology can help. If I find out that it can't, that's not really surprising and then that fits into the humanities and "what it means to know something" metaphysic, which is what my undergraduate is in. I became a programmer because I wanted to know more about the technology, so that fits in. Put those both together, with cognition and learning and memory and technology and what we can learn from computer technology, as well as books as a technology, or whiteboards as a technology...that sort of thing. SI is the place that asks that kind of question about technology instead of just "how do we make this PC more ergonomic?" Anytime you look at it, it's going to look a little bit fragmented and it's going to look like I don't have a lot of direction, but really, I just forked a lot. You end up in the same place.¹³

According to S2, in the statement "I'm able to construct a story that makes sense," the design of an explanation to the issue of non-linearity is postdictive. Consistently promoting itself as a multidisciplinary program, SI would not surprisingly tend to attract applicants who possess a background that integrates multiple subject areas. This can be easily seen in the diversity of disciplines represented by faculty pedigrees, publications, and current research agendas. As the gatekeepers to the doctoral program, faculty

¹³ *Id.*

members may experience a level of either attraction or empathy to those who have been searching for an environment with an integrationist philosophy, or alternately, a high tolerance for ambiguity – the fragmentation and forking described by S2.

S1 has a similar perspective, commenting on the fact that her varied background was significantly leveraged in her application materials. She began as a mechanical engineer, spending ten years in various positions involving product and project management. She then spent four years as a Peace Corps volunteer in Africa, focusing on health care issues in rural clinics. Upon entering SI, she specialized in HCI, but changed focus to LIS during the first year. She describes exploiting this nature of her background.

I'm the kind of person that's open to moving with the flow. I didn't have a plan when I came in, so it just feels like it really hasn't taken extreme turns, even though it might seem like that looking from the outside. In a way, that kind of encourages me because even though I have spent two years here, and theoretically have more background about the program than people coming in from the outside that haven't been exposed to it before, it's kind of interesting to me that it's still a possibility, and almost an expectation. That even though you've spent two years here, you could totally be taken by something you haven't even thought about yet. So, I'm really kind of expecting it to be non-linear in that respect. I started the essay with a Peace Corps story, and some things I learned in the Peace Corps, but I think that at this point in my life, I'm so used to the fact that I'm a wanderer that I don't even recognize it anymore. I don't recognize it as a strength. I don't recognize it as a fault. It's interesting. I see that as an element of the SI program. Specifically, what I was just saying about Sue Schoun saying, "You know...just see what hits you. See where the flow takes you." So, I like that. It's actually that interaction that made me feel more positive about staying.¹⁴

This is consistent with S1's construction of the personal statement, in which she lists as her top reason for applying to SI as, "The interdisciplinary nature of SI and the opportunity to collaborate with other schools and units within the University of

¹⁴ Interview with S2, conducted on March 3, 2004.

Michigan.” In the full section describing why SI is an appropriate place for her research, S1 consistently references the fact that ties are made between SI and several other departments. The collection of a wide array of domain knowledge, in this case, is an institutional construct that serves the needs and interests of applicants who have taken “a wandering path” in their approach to constructing research vectors.

Conclusions

Although my original hypothesis was concerned with determining which papers, projects, and other artifacts of the MSI program were most effectively or commonly leveraged in the construction of the doctoral application, I was surprised to find that these objects were, in fact, largely ignored or consciously omitted from the materials presented to the committee. Given the statements by study participants that these artifacts are seen as “unworthy” to be presented in a doctoral application, this raises questions about the perception of the MSI program as an appropriate place for academically oriented students to invest time, money, and effort. As the School of Information continues to evolve its mission and the curriculum generated out of that mission, it would be advantageous to recognize the needs of students beyond the purely professional.

The current discussions among School of Information doctoral students and faculty, centered around the question “How do we draw more quality doctoral applicants from the MSI population?” indicates that the issue is gaining traction as SI moves forward as a leading institution. How, indeed?

It is clear from the statements of students that primary personal relationships with faculty members were a driving factor not only in making the decision to continue with academic studies, but also generated significant personal information to be leveraged in

the form of research perspective and experience. This was evident both in the personal statements of applicants, as well as in the content of interviews. The strong ties to a faculty member are critical in recruiting and retaining qualified applicants. To this end, SI may consider providing more opportunities for the establishment of these relationships. There are numerous venues for creating these links, some with more feasibility than others; however, creation of student-faculty links on an individual basis may be an ongoing action item for the School of Information. Following this, the secondary input from other faculty members was a significant factor in creating a sense of community for those who would seek admission. This leads to the conclusion that faculty may have great impact by remaining aware that their encouragement and guidance, even to students who are not directly involved in their own research projects, can have strong effects.

Instead of presenting class-generated artifacts from the MSI program, study participants stated that they did draw heavily on their research experience at SI from outside-of-the-classroom opportunities. As both stated (and parallel to my own experience), these opportunities were the result of personal initiative. Creating a greater sense of empowerment among master's students to seek out and establish these outside research relationships may increase the number of applications from MSI students that show a more mature sense of the research process – a primary criterion for evaluating potential doctoral admits.

Finally, the results of the study raise questions about the MSI curriculum itself. This conclusion is founded on the premise that the MSI program has goals of allowing master's students to generate a working portfolio of artifacts through assignments and project work that may be later leveraged in pursuing future endeavors. Since both study

participants stated that they made conscious decisions to omit artifacts developed through SI coursework, deeming it unworthy as representative of research skill, the School of Information must ask itself questions evaluating the quality level of artifacts elicited by current assignments, topics, and project curricula. If it is true that the School of Information is undergoing a philosophical shift to serve the needs of both academic- and professional-track students, and the outcomes of these projects are not perceived by students as useful in pursuing future research, to what end are they working? Based upon the results of the study, a conclusion may be reached that the School of Information needs to reexamine the viability of project artifacts as effective tools for all MSI students' post-graduation goals. True, the program provides elements (here in the form of research opportunities available to those who actively seek them) that are consistently leveraged; however, the school may also take heed of significant elements that are omitted from applications.

On an encouraging note, since this inquiry was undertaken, the School of Information has installed a new program for master's students wishing to pursue research-oriented activities. The formalization of a master's thesis option program has been designed to promote the one-on-one relationships between students and faculty that apparently play an important role in the doctoral application process. Since the participants interviewed garnered the most valuable experience leveraged in the application through research activities, the offering of a research-based thesis option might serve as an institutionally sanctioned mechanism for other students to develop the resources to be effectively used in successful applications to doctoral programs, whether at SI or elsewhere.

Directions for Future Research

The study performed is clearly a first step in a potentially larger exploration both of how applicants to the SI doctoral program leverage previous experience in a number of realms, as well as how MSI students apply the SI experience to various goals.

Admittedly, the sample size available for this study was rather small. Expansion in several directions may reveal more robust findings overall. Since the group studied was limited to MSI students who had been accepted to the SI doctoral program in 2004, there are five apparent directions in which to expand the study: by cohort, success criteria, goals, institution, and time.

Cohort Expansion

A first direction to expand this study is to release the criterion that applicants must be from the MSI program. This would increase the current year pool of potential participants from five to fifteen. In this case, categories for background could be established, such as “entry from a current graduate program”, “entry from an undergraduate program”, “entry from industry or profession”. All other variables would remain fixed.

Strengths of this approach would be

- A more established sense of salient factors considered by the current doctoral committee.
- Identification of other common uses of personal information in the application process.

- Identification of other types of personal relationships that may be leveraged in applications.

Limitations to this approach would be

- Extending the pool of participants would change the initial inquiry. The study would become oriented toward the question “what types of information to applicants to the SI doctoral program leverage”, losing applicability to interpret the MSI program’s contributions.
- Since the full range of applicants represents many recent backgrounds, it may be difficult to identify strong or consistent factors.
- Potentially uneven balances among cohorts from different years, since the size of entering cohorts is not consistent or standardized.

Success Criteria Expansion

A second, but more politically sensitive extension of the study would be to include not only those MSI applicants who were successful in gaining admission to the doctoral program, but to recruit as participants all who submitted applications, regardless of admission success. This direction was considered as part of the original study design; however, the chair of the doctoral committee pointed out that rejection from the doctoral program might be an emotionally difficult experience for some, and that the school’s policy of confidentiality in the application process prevented giving access to the full list of applicants. If allowed, expanding the study in this direction could allow a more robust development underlying theory of how the MSI is leveraged in constructing an application.

Strengths of this approach may be

- As stated above, a more complete set of subject data to evaluate how the MSI is leveraged in the SI doctoral application process.
- Identification of factors that may have led to both acceptance and rejection by the admissions committee.

Limitations of this approach may be

- Inability to access the lists of applicants because of existing policy.
- Inability to recruit study participants due to a lack of willingness to talk about a perceived failure.
- Difficulty in identifying consistent factors among unsuccessful applicants. Similar to Tolstoy's opening line of *Anna Karenina*, "*Happy families are all alike. Each unhappy family is unhappy in its own way.* [21]" – admitted applicants may have strong common factors, due to the consistency in opinion of the admissions committee, whereas unsuccessful applicants may have too large a variance in application elements to distinguish salient factors.

Goal Expansion

Perhaps more interesting to the larger SI community would be to address applicants not only to doctoral programs, but also to all endeavors pursued by MSI graduates. Given the nature of the MSI as a professional degree, a majority of students do not continue to doctoral level studies, instead opting to seek employment upon completion of the program. While the continuing goals are different, the process of compiling a job application or job seeker's portfolio might have similar traits to the compilation of the doctoral application. Currently, some statistics on this are gathered by the Office of Academic and Career Services at SI, however, the data are not robust, and

are reliant on alumni self-report through survey methods. In the case of this study option, the object of application would be used as a blocking variable or categorization, and the remained of variables would remain fixed.

Strengths of this approach may be

- Larger application to the interests of the SI Academic and Career Services office.
- More robust definition and tracking of the “usefulness” of the MSI experience in achieving future goals.

Limitations of this approach may be

- Given the widely varied academic and employment vectors of MSI graduates, it may be difficult to establish consistent criteria or categories by which to evaluate ways in which the MSI experience is leveraged. Qualifications and expectations may be divergent, or further, conflicting from area to area.

Institution Expansion

Commonly, applicants to a doctoral program will apply to numerous institutions. This is especially true in a field as broadly defined as “information science”, as seen with the vagueness of definition be the current study participants. Since the MSI integrates and prepares students for multidisciplinary work, the study could be expanded to include all institutions to which the participant pool applied. In such an endeavor, applicants may engage in significant reuse of materials. In this design, the institution would be used as a blocking variable, and to the greatest extent, other factors would be held fixed.

Strengths of this approach may be

- May serve as an indicator of how flexible or adaptable the resources generated by the MSI can be.

- Can give a more defined list of the academic departments or fields that MSI graduates for which MSI graduates see themselves prepared to enter doctoral-level study.

Limitations of this approach may be

- Institutions have different requirements for the application process. It may not be possible to exactly compare an applicant's construction of one application package to another.
- Applicants may be applying to a variety of departments. This may be of some concern for cross-comparison of application topics.
- This approach would necessitate a review of application materials from all involved institutions, and would require development of an understanding of the evaluation criteria set forth by each department. This may be difficult to establish without direct access to the administration or admissions committees from each institution.

Longitudinal Expansion

A fifth method of extending the study is to look at parallel groups over varying time periods. While SI has a limited history of accepting students from the MSI program into the doctoral program, there are a number of possible cases. More data to support or refute the findings of this study may be gained by recruiting all members of the SI doctoral program who entered the MSI program after 1996, when the new program was initiated. In this case, the year the person entered the PhD program would be used as a blocking variable, and the rest of the experimental variables would remain the same.

Strengths of this approach would be

- A strengthened sense of the role the MSI program plays in applications to the doctoral program in general.
- Identification of consistent artifacts or relationships produced in the MSI program that are leveraged in applications.

Limitations to this approach would be

- Missing data in the form of the application essay. Not all applicants may archive these materials.
- Revised data in the form of the resume or curriculum vitae. Applicants may not have archived versions used in the past, specifically the version used for the doctoral application.
- Inaccurate recall of the process or state of mind in preparing the application. Participants may have applied to the program as many as seven years ago, and perspectives on the application process may have changed significantly.
- Changes in the makeup of the doctoral committee may introduce variation in the factors that are considered for admission.

References

1. Stanley H. Kaplan Educational Center (New York N.Y.), *Getting into law school*. 1997, Simon & Schuster: New York, NY.
2. Jung, P., *Getting in : how not to apply to medical school*. Surviving medical school series. 1999, Thousand Oaks, Calif.: Sage Publications.
3. Asher, D., *Graduate admissions essays : what works, what doesn't, and why*. 1991, Berkeley, Calif.: Ten Speed Press. vii, 131 p.
4. Peters, R.L., *Getting what you came for : the smart student's guide to earning a Master's or a Ph.D.* 1st ed. 1992, New York: Noonday Press. xii, 386 p.
5. Bloom, D.F., J.D. Karp, and N. Cohen, *The Ph.D. process : a student's guide to graduate school in the sciences*. 1998, New York: Oxford University Press. xiv, 209 p.
6. Greene, H. and M.W. Greene, *Making it into a top graduate school : ten essential steps to graduate school admission*. 1st ed. 2001, New York: Cliff Street Books. x., 348 p.
7. Buchanan, M., *Nexus : small worlds and the groundbreaking science of networks*. 1st ed. 2002, New York: W.W. Norton. 235 p.
8. Watts, D.J., *Six degrees : the science of a connected age*. 1st ed. 2003, New York: Norton. 368 p.
9. Barabâasi, A.-L., *Linked : how everything is connected to everything else and what it means for business, science, and everyday life*. 2003, New York: Plume. 294 p.
10. Wasserman, S. and K. Faust, *Social network analysis methods and applications*. Structural analysis in the social sciences. 1994, New York: Cambridge University Press.
11. Freeman, L.C., *The Sociological Concept of "Group": An Empirical Test of Two Models*. American Journal of Sociology, 1992. **98**(1): p. 152-166.
12. Granovetter, M., *The Strength of Weak Ties*. American Journal of Sociology, 1973. **78**(6): p. 1360-1380.
13. Stewart, T.A., *The wealth of knowledge : intellectual capital and the twenty-first century organization*. 1st ed. 2001, New York: Currency. xx, 379 p.
14. Axelrod, R.M. and M.D. Cohen, *Harnessing complexity : organizational implications of a scientific frontier*. 1999, New York: Free Press. xviii, 184 p.

15. Axelrod, R.M., *The evolution of cooperation*. 1990, London ; New York: Penguin Books. xiv, 241 p.
16. Wenger, E., *Communities of practice : learning, meaning, and identity*. Learning in doing. 1998, Cambridge, U.K. ; New York, N.Y.: Cambridge University Press. xv, 318 p.
17. Nohr, H., *Knowledge Codification*. Knowledge WORKS News, 1999. 1(9).
18. Lave, J. and E. Wenger, *Situated learning : legitimate peripheral participation*. Learning in doing. 1991, Cambridge [England] ; New York: Cambridge University Press. 138 p.
19. Glaser, B.G. and A.L. Strauss, *The discovery of grounded theory: strategies for qualitative research*. 1967, Chicago: Aldine de Gruyter.
20. Zakaluk, B.L., S.J. Samuels, and International Reading Association., *Readability : its past, present, and future*. 1988, Newark, Del.: International Reading Association. xii, 144 p.
21. Tolstoy, L., et al., *Anna Karenina*. 1889, London: Walter Scott.

Appendix A: Interview Protocol

1. What is your age? Your educational and professional background before coming to SI?
2. When did you enter the masters program at the School of Information?
3. Why did you choose to apply to an information PhD program?
4. Why at the School of Information at Michigan?
5. Where else did you apply to PhD programs?
6. Why did you choose those programs? (If there are other programs) Did you choose them based on specific similarities to the SI program? Specific differences? What are they?
7. In what ways has your SI experience reinforced or changed your views on a career as an academic information professional?
8. What types of positions do you intend to pursue when completing a PhD?
9. What departments do you intend to approach when completing the PhD?
10. What, if any, advantages do you feel a masters in a new field affords in applying to a doctoral program?
11. What, if any, disadvantages do you feel a masters in a new field affords in applying to a doctoral program?

12. How have the activities made available to you at SI been leveraged in your doctoral application?
13. What aspects of the doctoral application process (events, conversations, materials, etc.) guided you in choosing what aspects of your personal information were most appropriate for your application?
14. Did you choose your activities with your application to the PhD program in mind?
Based on this, which did you choose?
15. How have the papers/projects/artifacts produced in the MSI program been leveraged in your doctoral application?
16. How have your interactions with the SI faculty encouraged or discouraged you from applying to the SI doctoral program?
17. Is your intended area of research the same as your area of specialization in the masters program? (Only to be used if the interviewee discusses his/her specialization)
If not, how does it differ?
18. Are there any other aspects or circumstances of your doctoral application that we haven't covered that you would like to tell me about?

Appendix B: Coding Schema for Interviews, Personal Statements, and Resumes

1. Motivation for pursuing a PhD
 - a. Personal
 - b. Academic
 - c. Professional
2. Motivation for applying to SI PhD program
 - a. Internal factors (Ego-related)
 - i. Familiarity/comfort with program
 - ii. Relationship with faculty
 - iii. Environmental (i.e., already in Ann Arbor, owns a house here, family)
 - iv. Other
 - b. External factors
 - i. Funding
 - ii. Match with subject areas/research initiatives
 - iii. Application to other programs/No application to other programs
 - iv. Objective perception of SI doctoral program
 - v. Contact with specific faculty
 - vi. SI marketing materials
 - vii. Other
3. Previous Experience/Education
 - a. Academic
 - i. Undergraduate
 1. Same as masters concentration
 2. Different from masters concentration
 - ii. Masters
 1. Specialization (if noted by subject)
 2. Same as intended doctoral concentration
 3. Different from intended doctoral concentration
 - b. Non-academic
 - i. Professional
 1. Same as academic concentration
 2. Different from academic concentration
 3. Duration/nature of activity
 - ii. Non-professional
 1. Same as academic concentration
 2. Different from academic concentration
 3. Duration/nature of activity
4. Perception of SI Master's program
 - a. Curriculum/preparation for PhD work
 - i. Positive (+)
 - ii. Neutral (+/-)
 - iii. Negative (-)
 - b. Faculty input/influence/support
 - i. Positive (+)

- ii. Neutral (+/-)
 - iii. Negative (-)
 - c. Relevance of projects/artifacts to goals in entering a PhD program
 - i. Positive (+)
 - ii. Neutral (+/-)
 - iii. Negative (-)
- 5. Future plans
 - a. Academic (defined here at the university level)
 - i. Position titles
 - ii. Department types/titles
 - 1. Traditional information science
 - 2. General social science
 - 3. Other
 - iii. Research
 - iv. Teaching
 - v. Other
 - b. Non-academic
 - i. Position titles
 - ii. Research
 - iii. Teaching
 - iv. Other
- 6. Personal definitions of academic/professional field
 - a. Information science
 - b. New field/emerging field
 - c. Positive aspects (based on definition) related to a PhD in “information science”
 - d. Negative aspects (based on definition) related to a PhD in “information science”
- 7. Doctoral application
 - a. Course preparation
 - i. Specialization (if noted by subject)
 - ii. Courses chosen
 - iii. Papers/projects/artifacts
 - 1. How relates to doctoral preparation
 - 2. How presented/mentioned/positioned in application
 - 3. How presented/mentioned/positioned in resume
 - 4. How presented/mentioned/positioned in personal statement
 - b. Recommendations
 - i. SI-internal
 - 1. Faculty
 - 2. Other
 - ii. External
 - 1. Faculty
 - 2. Other
 - c. Resume
 - i. Academically focused

- ii. Professionally focused
 - iii. Hybrid
 - d. Personal statement
 - i. Overall theme
 - ii. Research details
 - iii. MSI experience integration
 - iv. Faculty relationships
 - 1. Primary
 - 2. Secondary
 - 3. Incidental
 - v. Personal (non-academic) information

Appendix C: Measures of Linguistic Analysis

Frequently, linguistic analyses of texts are used to determine measures of grade level, difficulty of language, and propriety for intended audience. Linguists and educational psychologists have developed several scales and algorithms for this purpose.

Gunning Fog Index

The following text was retrieved from <http://www.usingenglish.com/glossary/fog-index.html> on April 13, 2004.

The **Fog Index** is a readability test designed to show how easy or difficult a text is to read. It uses the following formula:

Reading Level (Grade) = (Average No. of words in sentences / Percentage of words of three or more syllables) x 0.4

The resulting number is your *Gunning Fog Index*.

The Gunning Fog Index gives the number of years of education that your reader hypothetically needs to understand the paragraph or text. The Gunning Fog Index formula implies that short sentences written in plain English achieve a better score than long sentences written in complicated language.

For reference, the New York Times has an average Fog Index of 11-12, Time magazine about 11. Typically, technical documentation has a Fog Index between 10 and 15, and professional prose almost never exceeds 18.

Flesch Reading Ease

The following text, written by Rudolph Flesch, was retrieved from <http://www.mang.canterbury.ac.nz/courseinfo/AcademicWriting/Flesch.htm> on April 13, 2004.

Step 1. Count the words.

Count the words in your piece of writing. Count as single words contractions, hyphenated words, abbreviations, figures, symbols and their combinations, e.g., *wouldn't*, *full-length*, *TV*, *17*, *&*, *\$15*, *7%*.

Step 2. Count the syllables.

Count the syllables in your piece of writing. Count the syllables in words as they are pronounced. Count abbreviations, figures, symbols and their combinations as one-syllable words. If a word has two accepted pronunciations, use the one with fewer syllables. If in doubt, check a dictionary.

Step 3. Count the sentences.

Count the sentences in your piece of writing. Count as a sentence each full unit of speech marked off by a period, colon, semicolon, dash, question mark or exclamation point.

Disregard paragraph breaks, colons, semicolons, dashes or initial capitals *within* a sentence. For instance, count the following as a single sentence:

You qualify if-

- (1) You are at least 58 years old; and
- (2) Your total household income is under \$5,000.

Step 4. Figure the average number of syllables per word.

Divide the number of syllables by the number of words.

Step 5. Figure the average number of words per sentence.

Divide the number of words by the number of sentences.

Step 6. Find your readability score.

Find the average sentence length and word length of your piece of writing on the chart (below). Take a straightedge or ruler and connect the two figures. The intersection of the straightedge or ruler with the center column shows your readability score.

You can also use this formula: Multiply the average sentence length by 1.015. Multiply the average word length by 84.6. Add the two numbers. Subtract this sum from 206.835. The balance is your readability score.

The scale shows scores from 0 to 100. Zero means practically unreadable and 100 means extremely easy. The minimum score for Plain English is 60, or about 20 words per sentence and 1 1/2 syllables per word. Conversational English for consumers should score at least 80, or about 15 words per sentence and 1 1/2 syllables per word.

All Plain English examples score at least 60.

Here are the scores of some reading materials I've tested. These are average scores of random samples.

| | |
|----------------------------|----|
| Comics | 92 |
| Consumer ads in magazines | 82 |
| <i>Movie Screen</i> | 75 |
| <i>Seventeen</i> | 67 |
| <i>Reader's Digest</i> | 65 |
| <i>Sports Illustrated</i> | 63 |
| <i>New York Daily News</i> | 60 |
| <i>Atlantic Monthly</i> | 57 |
| <i>Time</i> | 52 |
| <i>Newsweek</i> | 50 |
| <i>Wall Street Journal</i> | 43 |

| | |
|---------------------------------|------|
| <i>Harvard Business Review</i> | 43 |
| <i>New York Times</i> | 39 |
| <i>New York Review of Books</i> | 35 |
| <i>Harvard Law Review</i> | 32 |
| Standard auto insurance policy | 10 |
| <i>Internal Revenue Code</i> | (-6) |

Here's how the scores translate into school grades. Reading matter with the score shown on the left side will be easy for students on the level shown on the right.

| Score | School Level |
|--------------|----------------------------------|
| 90 to 100 | 5th grade |
| 80 to 90 | 6th grade |
| 70 to 80 | 7th grade |
| 60 to 70 | 8th and 9th grade |
| 50 to 60 | 10th to 12th grade (high school) |
| 30 to 50 | College |
| 0 to 30 | College graduate |

Flesch-Kincaid Grade Level

The following text was retrieved from <http://csep.psyc.memphis.edu/cohmetrix/readabilityresearch.htm> on April 13, 2004.

The Flesch-Kincaid Grade Level formula converts the Reading Ease Score to a U.S. grade-school level.

$$(.39 \times \text{ASL}) + (11.8 \times \text{ASW}) - 15.59$$

where:

ASL = average sentence length (the number of words divided by the number of sentences)

ASW = average number of syllables per word (the number of syllables divided by the number of words)