Evaluation of Doctor of Pharmacy Program Admissions Criteria

President's Emerging Leaders Program 2008-09

September 28, 2009

Project Team:

Sophia Anema, Office of Institutional Compliance
Michele Lorenz, Student Unions & Activities
Peyton N. Owens III, McNamara Academic Center for Student-Athletes
Jody Seiler-Peterson, Academic Support Resources
Mary Vincent Franco, College of Design

Project Sponsor:

Dr. Charles Taylor, Senior Associate Dean for Professional Education, College of Pharmacy

Project Advisers:

Dr. Doneka Scott, Director of Student Development, College of Pharmacy
Peter Haeg, Director of Student Services, College of Pharmacy

UNIVERSITY OF MINNESOTA
Driven to Discover℠

Table of Contents

EXECUTIVE SUMMARY

In the fall of 2008 the University of Minnesota's College of Pharmacy charged our President's Emerging Leaders (PEL) team with reviewing the Doctor of Pharmacy (Pharm.D.) program's admissions process and making recommendations to ensure that the admissions criteria and interview process are the most effective methods of selecting excellent future pharmacists.

Our research included a qualitative analysis of data gathered through interviews and focus groups with representatives from key stakeholder groups as well as a review of relevant literature related to admissions to pharmacy and other health professional schools.

A significant part of this project was to identify and define cognitive and non-cognitive characteristics of excellent pharmacists. For the purposes of this paper, we define *cognitive* as being related to thinking and learning, e.g. academic ability, knowledge, and innate intelligence, and *non-cognitive* as those characteristics traditionally described as "non-academic" or "soft skills," e.g., interpersonal skills and awareness and management of one's emotions.

From the interviews and focus groups, we identified nine critical cognitive and non-cognitive characteristics of excellent pharmacists. These are the characteristics that should be assessed in the admissions process.

1. Intellectual capacity
2. Organizational efficiency
3. Problem-solving skills
4. Communication skills
5. Relationship-building skills
6. Compassion
7. Integrity
8. Familiarity with the pharmaceutical field
9. Leadership skills

After gathering and analyzing our data and synthesizing it into the critical characteristics, our team developed recommendations that we feel will ensure that the Doctor of Pharmacy program continues to be a national leader in producing excellent pharmacists.

Recommendations

Each of our six recommendations can be grouped under one of the following: continue a current practice, improve upon a current practice, or implement a new practice.

Continue to:

1. ***Assess cognitive characteristics via Pharmacy College Admission Test (PCAT) scores and undergraduate grade point average (GPA)***
   Research has shown that PCAT scores and GPA are valid and reliable measures of cognitive characteristics, and are predictors of success later in a student's academic and professional career.

2. ***Evaluate non-cognitive characteristics via essays***
   Essays help the admissions committee evaluate a candidate's ability to communicate well in a written form. They can be structured in such a way as to evaluate any of the nine critical characteristics that are not evaluated by the interview, or otherwise deserve additional evaluation beyond the interview.

Improve:

3. ***Assessment of non-cognitive characteristics via an enhanced interview format***
   The interview is a required part of the admissions process, as mandated by the Accreditation Council for Pharmacy Education (ACPE). In order to ensure that it is as effective as possible, it should be structured in nature, utilize behavioral questions and be conducted by two interviewers.

4. ***Training for interviewers and essay evaluators***
   The ACPE also requires that interviewers receive training prior to interviewing candidates. A clearly outlined and consistently delivered training program for both interviewers and essay evaluators will not only ensure that the College meets the ACPE requirements, but will also help them more reliably assess for desired characteristics in candidates.

Implement:

5. ***Personal Potential Index (PPI) assessment tool***
   The PPI is a standardized assessment tool offered by the Educational Testing Service (ETS) that applicants would be required to submit with the other required materials. It measures six non-cognitive dimensions, most of which overlap with the critical characteristics identified by our team. It will allow the admissions committee to assess more fully and in a standardized way each candidate's non-cognitive characteristics.

6. ***Multiple Mini-Interview (MMI) framework***
   The MMI framework applies the multiple-station format of the Objective Structured Clinical Examination (OSCE) to the interview process in admissions. Benefits of implementing the MMI include more objective evaluation of candidates, the ability to tailor questions to assess desired characteristics, and a high level of satisfaction with the process by evaluators and candidates. Because it is significantly different than the current admissions process, it will require more time to prepare and implement than our first five recommendations. Prior to the implementation of the MMI, the College of Pharmacy will need to develop the questions, scenarios, and evaluation criteria for the various stations that form the MMI as well as determine the venue and logistics.

INTRODUCTION

Over the past decade, the field of pharmacy has undergone a significant change. In the past, pharmacists were primarily responsible for dispensing medications safely and efficiently. Present-day pharmacists have a notably different mission. Rather than simply dispensing medications, they practice patient-centered pharmaceutical care. This means they are responsible for all of a patient's medication-related needs. They provide comprehensive medication-related care that directly improves a patient's quality of life and serve as the medication experts on the health care teams (Latif, 2004).

Schools of pharmacy are well-situated to ensure that new pharmacists embrace their evolving role as leaders and advocates in a patient-centered model of health care. The University of Minnesota (University) is in an excellent position to be a leader in this effort. Its College of Pharmacy (College) is one of the top three pharmacy schools in the United States (U.S. News and World Report, n.d.) and is nationally recognized as a producer of leaders in pharmacy practice and science. Additionally, leaders in the College have expressed their desire to work proactively to ensure the close alignment of the Pharm.D. professional pharmacy program with the patient-centered, pharmaceutical care mission of the pharmacy field.

The College's Pharm.D. program emphasizes its support of the evolving role of the pharmacist in its mission "to educate pharmacists with superior knowledge and skills to provide pharmaceutical care" (College of Pharmacy, 2009, Mission and Vision section, para. 2). The College is building upon this foundation by undertaking an effort to ensure alignment of the program's curriculum and admissions process functions with the mission and vision of the program as well as the field of pharmacy. It is currently engaged in a major curriculum revision and has requested that our President's Emerging Leaders team work concurrently on reviewing the admissions process.

PROJECT CHARGE

Our charge was for our team was to examine the current Pharm.D. program's admissions process and make recommendations to ensure that the admissions criteria and interview process are the most effective method of selecting the best future pharmacists.

The project charge aligns well with the University's goal of becoming one of the top three public research universities in the world. It directly supports that goal through the *Exceptional Students* Pillar of Excellence by evaluating criteria for admitting students to become exceptional pharmaceutical professionals and patient-centered leaders. It also supports the *Exceptional Innovation* Pillar by embracing cutting-edge evaluation methods of the non-cognitive skills required in the pharmaceutical field.

Project Objectives

A significant part of this project was to identify and define cognitive and non-cognitive characteristics of excellent pharmacists. For the purposes of this paper, we define *cognitive* as being related to thinking and learning, e.g. academic ability, knowledge, and innate intelligence, and *non-cognitive* as those characteristics that traditionally have been described as "non-academic" or "soft skills," e.g., interpersonal skills and awareness and management of one's emotions.

The objectives for this project were as follows:

- To analyze the admissions process and implementation in the College of Pharmacy and other professional schools
- To define cognitive and non-cognitive characteristics critical to the success of excellent pharmacists and
- To determine modes of assessment of cognitive and non-cognitive characteristics
- To recommend an approach to assessing skills and characteristics in applicants

METHODOLOGY

Our team engaged in several methods of researching effective strategies for admitting students with the potential to be excellent future pharmacists. These methods included holding regular meetings with our project sponsor and advisers, conducting interviews and focus groups with key stakeholder groups, and reviewing relevant literature.

Meetings with sponsor and advisers

We initially met with our project sponsor, Dr. Charles Taylor, and advisers, Dr. Doneka Scott and Peter Haeg, in September 2008. The purpose of the meeting was to learn about the project and its scope, the goals of the Pharm.D. program, and the current admissions process. We held monthly meetings with our advisers to ensure that we were on track for meeting the project goals.

Interviews and focus groups

Our team conducted 23 interviews and 9 focus groups with people from key stakeholder groups between January and March 2009. To prepare for those meetings we also held a test focus group in January 2009. The participant breakdown for our research was as follows.

Interviews:

- 13 practicing pharmacists
- 4 other health care professionals
- 1 employer of pharmacists
- Directors of Admissions for the University's Medical School, College of Veterinary Medicine, School of Dentistry, School of Nursing, and School of Social Work

Focus groups:

- 6 Pharm.D. faculty and admissions committee members from the Twin Cities and Duluth campuses (1 group)
- 18 current Pharm.D. students from the Twin Cities and Duluth campuses (3 groups)
- 31 patients from Twin Cities (5 groups)

Limitations of our research participants were the following.

1. We interviewed a small number (four) of health care professionals.
2. The group of other health care professionals was comprised solely of physicians (three primary care physicians and one specialist).
3. We interviewed only one employer. Due to extremely small *n*, we opted not to include the employer data in our report.
4. Our patient focus groups were homogeneous in nature, e.g., primarily educated white women who were recruited from the University of Minnesota-Twin Cities campus.

With the exception of one core question that was asked of everyone, we tailored the focus group/interview questions to each participant group according to their particular role in the admissions process and/or delivery of pharmacy services. Despite the varied questions among participant groups, we conducted all interviews and focus groups in a consistent manner and followed a standard interview protocol. (See Appendix A for interview and focus group protocol and Appendix B for interview and focus group questions.)

Prior to our first formal focus group, we conducted a test focus group session which involved four PEL and University campus colleagues. The test session provided our team with productive feedback on question content, the ordering of questions, and facilitation techniques. Results from the trial were not incorporated into our research data.

Upon completion of the interviews and focus groups, we conducted a qualitative analysis of the gathered data. As the interviews were intended to gather general information, opinions, and best practices, we did not conduct them in a way that provided statistically relevant data. From our analysis, we identified a set of critical characteristics which are discussed below.

Literature review

Throughout the project, our team conducted a literature review via written and online publications in the areas of admissions to pharmacy and other healthcare schools, assessment of desired skills and characteristics in students and professionals, and indicators of academic and professional success.

CURRENT ADMISSIONS PROCESS FOR THE PHARM.D. PROGRAM AT THE COLLEGE OF PHARMACY

The Doctor of Pharmacy is a four-year professional degree that prepares students to become licensed pharmacists. Each year, the University of Minnesota receives approximately 1,000 applications and offers admission to 180 applicants. While the College's application deadline is in February, they utilize a rolling admissions process, which means that applications are received, reviewed and decided upon on a continual basis between August and February.

The components of the Pharm.D. application are as follows.

1. Pharmacy College Admissions Test (PCAT) -- The College has no minimum score requirement.
2. Application to Pharmacy College Application Service (PharmCAS), a national pharmacy application service, which includes:

    - Transcripts -- the College requires a minimum cumulative grade point average of 3.00, or a GPA of 3.20 over the most recent 60 semester credits
    - Three letters of reference
    - Essays
    - Information about leadership, volunteer, work, and extracurricular activities
    - Test of English as a Foreign Language (TOEFL) score, if necessary

3. A supplemental application required by the College of Pharmacy that includes at least four essay questions

The College's Pharm.D. program is one program that is administered on two campuses, Duluth and Twin Cities. Similarly, the admissions process is also one process that incorporates staff, faculty, and students from both campuses. PharmCAS sends applications weekly to the College, where they are prescreened by staff members in Duluth and the Twin Cities; each application is reviewed by two of the four staff members. The prescreening process evaluates applications on the basis of the College's selection criteria. Approximately 360 invitations are then extended for on-campus interviews on both the Twin Cities and Duluth campuses; the applicant selects her preferred interview location. Six days are set aside for all interviews.

Faculty members are trained on interview techniques and instructed to use a standardized set of interview questions. The interviewer has access to the applicant's application with the exception of references, transcripts, grades, and test scores. Faculty members interview applicants in a one-on-one format for 40 minutes, followed by a 20-minute period during which the interviewer completes an evaluation form which is forwarded to the Admissions Committee, which is comprised of faculty members and current students.

Each member of the College's Admissions Committee is assigned a portfolio of applications to review. Each applicant is reviewed by two reviewers. The reviewers score the applications prior to meeting to discuss the applicant pool. The Committee decides whether to admit, defer, waitlist, or reject an applicant. Top applicants on the waitlist are ranked and receive priority if admitted applicants decline their admission to the College. Once an applicant returns a signed letter of intent, honor code affirmation, and tuition deposit, he is officially admitted to the College.

CRITICAL CHARACTERISTICS OF AN EXCELLENT PHARMACIST

Given that the College of Pharmacy's graduation rate in the Pharm.D. program has been 97-98% over at least the past 10 years, it is able to function on the premise that entry into the University of Minnesota's Pharm.D. program is synonymous with entry into the field of pharmacy. Therefore, by identifying critical characteristics of excellent pharmacists we were able to identify the characteristics that the College should evaluate when considering an applicant's admission to the Pharm.D. program.

Through qualitative analysis of the focus group and interview transcripts, we identified nine critical cognitive and non-cognitive characteristics of excellent pharmacists, which are listed below in a general order of importance (from most to least). This order represents a sort of Maslow's Hierarchy where the characteristics move from a necessary foundational level up through skills that are strongly desired yet still preferred rather than required.

1. Intellectual capacity
2. Organizational efficiency
3. Problem-solving skills
4. Communication skills
5. Relationship building skills
6. Compassion
7. Integrity
8. Familiarity with the pharmaceutical field
9. Leadership skills

Even a cursory look at this list indicates that the majority of characteristics are non-cognitive. All of our stakeholder groups emphasized the need for strong non-cognitive skills among pharmacists. Pharmacists themselves, along with other health care professionals, reiterated this opinion, stating…

- "For pharmacists [doing Medication Therapy Management], people skills will be even more important. Pharmacists will have to interact with people more and be able to read people."
- "Robots will fill scripts, techs will check the robots' work, and pharmacists will become much more patient-focused. Problem-solving skills will have to increase."
- "For now – in this period focused on change – soft skills are by far more important than academics. People need to build relationships and trust [with their pharmacist]."
- "You need, of course, a baseline of technical knowledge, but…interpersonal skills are highly important."
- "Students need more patient experience early on. They need to learn *how* to deal with patients. The patient experience should occur early and often."
- "[Pharmacists] need to be able to manage people, especially pharmacy techs and patients."
- In the field of pharmacy, "We need smart people with good people skills."

It is largely the case for each of the nine characteristics that applicants must bring to the Pharm.D. program at least a modicum of each element. The College cannot teach attention to detail, compassion, or integrity, for example. It cannot teach a foundation of any of the nine characteristics. Rather, it can only offer discipline-specific knowledge and application along with skills to improve, for example, a student's ability to communicate well with others. As suggested by one faculty member who has served on the College's Admissions Committee, a student is a seed that is planted at the door and watered at school in order to produce the stalk of a future pharmacist.

1. Intellectual Capacity

Working Definition: Ability to learn and retain information in a manner that promotes knowledge of fundamentals in the pharmaceutical field as well as other knowledge relevant to health care

Intellectual capacity, one of two cognitive characteristics on our list, forms the foundation for an applicant's admission to the Pharm.D. program. A candidate must demonstrate both her ability to understand the prerequisite coursework and her potential to learn and comprehend the pharmaceutical knowledge gained through the Pharm.D. curriculum. Quite simply, the remaining eight characteristics of an excellent pharmacist are rendered irrelevant if the candidate is incapable of understanding and correctly applying the content of the discipline. As one physician stated, "Technical skills are a baseline requirement." The

pharmacists we interviewed expressed great satisfaction with the cognitive abilities and pharmaceutical knowledge displayed by graduates of the University of Minnesota's Pharm.D. program.

Frequent mention was made by all stakeholder groups of the need for pharmacists to willingly engage in lifelong learning in order to remain knowledgeable about new medications as well as new findings on existing drug therapies. One participant commented that more than 50 new medications come on the market each year, all of which require a pharmacist's attention. A pharmacist stated that a faculty member had told him that by the time he retires, 50% of the drugs he currently works with will be obsolete. A physician noted how useful medication updates would be if they came from objective physicians rather than from profit-driven pharmaceutical company representatives.

2. Organizational Efficiency

Working Definition: Ability to organize oneself so as to ensure accuracy, effectiveness and efficiency in the handling of patient information and medication

All participants in our research expressed the need for a pharmacist to be detailed-oriented and able to multitask in order to successfully provide accurate information and medication to those they serve. The importance of organization and accuracy were captured in statements by Pharm.D. faculty members who said that "everything is important every time" and that whereas diagnosing an illness and prescribing medicine is "part science and part medical guess" and, thus, physicians may try different approaches to a program, "pharmacists have to be 100% right all the time."

To a certain point, a thorough curriculum and training process can teach organizational skills, but the ability to maintain such acute attention to detail on a prolonged basis required innate organizational efficiency skills. It is this accuracy, combined with efficiency, that patients in our study commonly ranked as one of their top three characteristics of excellent pharmacists.

In addition to attention to detail and efficiency, our study participants named time management, the ability to multitask, and carefulness as important aspects of organizational efficiency. Such exactness with such an important and potentially dangerous product as medication logically creates a high level of stress. Thus, handling stress well is included in this characteristic due to the essential role it plays in helping a pharmacist maintain his level of organizational efficiency.

3. Problem-Solving Skills

Working Definition: Ability to solve problems in a proactive and resourceful manner

Oftentimes referred to by our participants as critical thinking or resourcefulness, this characteristic was viewed by employers and pharmacists as the ability to interpret medication information and share it accurately with those they serve, including health care professionals and, most importantly, patients. One aspect of problem-solving noted by current Pharm.D. students is asking questions in order to better understand a situation and create meaningful solutions.

Problem-solving was seen by other health care professionals as the ability and willingness to view potentially difficult situations as problems to be solved rather than issues to be set aside. One example of this was offered by a physician who referenced a patient situation where she needed to prescribe a particular influenza medication to an elderly man and several members of his family. The first pharmacist the physician called told her that the drug was unavailable and quickly ended the discussion. The second pharmacist's reaction was quite different. Upon hearing the patients' situation and seeing in the computer system that the drug was, indeed, no longer available, he said, "Hmm. Now, doesn't this pose an interesting challenge?" He proceeded to locate the formula and recreate the medication for the patients.

The problem-solving strength of that pharmacist alleviated a problem for those patients and the physician. The characteristic of problem-solving is in direct alignment with the pharmaceutical field's vision of being patient-centered. One pharmacist stated, "The ability to problem-solve is really key. Pharmacists need to look at each situation in a whole new view because each patient has a unique situation." A very evident theme emerged from our conversations with pharmacists that the act of problem-solving forms is a primary activity on a daily basis, both for medication and insurance issues.

Physicians also noted, however, that they often encounter pharmacists who display an unhelpful attitude toward problem-solving. One stated that pharmacists "can be real sticklers and make unreasonable or unnecessary requests [of physicians]." Another stated the need for pharmacists to work with doctors and to employ a customer-service orientation with physicians as well as patients.

4. Communication Skills

Working Definition: Ability to effectively and respectfully use verbal and non-verbal communication skills, including active listening

Most patients in our focus groups stated that unless a consultation is requested by either the pharmacist or patient regarding a medication, patients do not usually interact directly with the pharmacist. Most of the patients stated that for their pharmaceutical needs they choose large-chain retail stores, which "provide a transactional experience." As one patient noted, a pharmacist "taking time to communicate is rare at larger chains that are not set up for this." Yet, when asked to name the three most important characteristics of excellent pharmacists, the most frequently stated answer from patients was good communication skills. This is particularly interesting against the backdrop of (a) the growing interest in and availability of Medication Therapy Management (MTM) in hospital, clinic, and community retail pharmacies and (b) the fact that the vast majority of our patients were unfamiliar with MTM.

Under the umbrella of good communication skills, participants specified the following qualities:

- Uses lay terms
- Utilizes tact
- Listens well
- Displays patience
- Does not speak in a condescending tone
- Counsels well
- Employs diplomacy
- Conveys confidence

Pharmacists and other health care professionals strongly echoed the essential nature of excellent communication skills. Not unexpectedly, the latter group discussed the importance of a pharmacist's ability to counsel their patients well on appropriate use of medications, potential side effects, potential food or drug interactions, and the availability of equivalent generic drugs. Careful and appropriate communication of drug information is absolutely essential. Lack thereof can result in "patients misinterpreting what the pharmacist said," particularly common in patients who are elderly or non-native English-speakers, or in the pharmacist "giving misinformation to patients in a way that compromises the patient's trust in the doctor. (See related information below under *Relationship Building Skills*.)

Pharmacists agreed with the concerns of the health care professionals. They view their primary roles as that of checking a prescription for dosing accuracy, reviewing a patient's

record for potential problems with existing medications, correctly dispensing medications, and conveying all related information accurately and effectively to patients. This information could also include payment parameters of insurance and Medicare.

> According to Beardsley, "A patient needs information to help them adhere to treatment regimens, but the organization and the timing of the message as well as to whom the message is given and in what manner has also a large impact. It is necessary to explain all aspects of someone's health to them. Whether this means the diagnosis, the treatment, or the side-effects, it is necessary that a health care professional takes the time out to speak with their patient regarding this. Effective pharmaceutical care is based on the clear and concise transfer of accurate information to patients and health care providers" (as cited in Soman, 2008, Interpersonal Communication Skills, para. 15).

Pharmacists know they not only have to relay information clearly, but they also need to listen carefully to patients as they express their questions and concerns. Active listening is an important component of information gathering, which along with relationship building and education, comprise the three functions of communication in patient-physician communication, according to the American Academy on Communication in Healthcare (Sullivan, 2008). We feel the same can be said for patient-pharmacist communication.

Our interviews with pharmacists, other health care professionals, and Pharm.D. students highlighted the fact that patient-pharmacist communication needs to be reciprocal. In addition to pharmacists clearly communicating information, patients must communicate their situations, e.g., symptoms they are experiencing which could indicate side effects of the medication, inability to swallow a pill, difficulty managing multiple medications, or the fact that they are taking less than the prescribed amount of medication due to the high cost of the medication. This two-way communication is much more likely to occur if a trusting relationship exists between the patient and the pharmacist. Berger stated, "One key element to a good relationship is listening. 'Probably no other skills are more valuable in developing trust than listening and empathic responding'" (as cited in Soman, 2008, Interpersonal Communication Skills, para. 11). This is another example of the intertwined nature of communication skills and relationship building skills.

Health care professionals also emphasized related area in which communication is essential: between pharmacists and physicians. One physician noted that a pharmacist's "ability to counsel patients on their medications *and* talk to doctors regarding medications in a diplomatic way" is extremely important. Professional, respectful communication among health care providers not only strengthens their professional relationships (see the following section) but also serves toward improving patient care. A physician commented that "patients often confide in the pharmacist more than the doctor regarding drug cost issues," thus the pharmacist understands an aspect of the patient's life that is directly affected by the medication treatment prescribed by the physician. In such a situation, good

communication between the pharmacist and physician could result in the physician electing to prescribe a different medication.

5. Relationship Building Skills

Working Definition: Ability to utilize interpersonal skills to create a productive partnership between oneself and the persons with whom one interacts in a professional capacity

While "relationship builder" was not specified on our participants' list of the top three characteristics of excellent pharmacists, the discussions we had about what they want and need from interactions with their pharmacist clearly indicated the need for pharmacists to create relationships with their patients and their health care colleagues. In fact, this was the category that generated the most descriptors, which is indicative of the multi-faceted nature of relationship building. The descriptors given were as follows (in no particular order).

- Personable; friendly; amicable; approachable
- Respectful
- Exhibits a customer focus and good customer service
- Treats each patient as an individual; knows an individual's needs
- Utilizes good interpersonal skills; interacts well with people
- Works well on a team
- Collaborative (e.g., with patients, a patient's health care team, and pharmacy staff)
- Flexible
- Respectful of diversity; able to interact with people different from herself
- Employs a holistic view
- Open-minded
- Creates relationships with patients and colleagues

Patient comments such as "I don't know who my pharmacist is," "I can name my doctor but not my pharmacist," and "It wouldn't occur to me to have a relationship [with a pharmacist], but it seems like a good idea" were common and highlight the transactional vs. relational nature of today's patient-pharmacist relationship. One patient participant referred to the "cashier type of approach." Despite a desire for a relationship in which the pharmacist is familiar with the patient's individual medication regimen, most patients choose their pharmacy based on convenience and accurate dispensing of their prescriptions. Convenience can result in a patient filling prescriptions at different pharmacies, or even via mail, lessening the likelihood of a relationship.

The few patients in our study who indicated more complex medication therapy for themselves or family members had a different perspective on this relationship. One focus group member whose medication therapy includes a controlled substance indicated that he talks "to my pharmacist as much as my doctor." Others could imagine such a need if their medication needs increased to the point where MTM is involved (usually with three or more medications), and one patient stated he "does not wish to get to a four-drug threshold before someone cares."

Many of the descriptors of relationship building skills in the list above are applicable to communication skills as well, as the two skill sets are complementary. Good communication is key to initiating a healthy, trusting patient-pharmacist relationship, and having a trusting relationship results in more honest, open communication. It is the element of trust that pharmacists, Pharm.D. students, and other health care professionals believe is critical to excellent pharmaceutical care. The examples of two-way communication given in the *Communication Skills* section above are far more likely to happen in a patient-pharmacist relationship where an element of trust has been established.

While the importance of relationship building between patients and pharmacists is clear, it is not always an easy goal to reach. Our interviews and focus groups identified two primary obstacles. The first obstacle is an obvious one – physical space. The typical pharmacy arrangement, whether in a retail or clinic setting, does not lend itself to private, confidential conversations. "I don't feel comfortable asking questions because of the lack of privacy at the pharmacy," said one patient. The consultation window, while well-intentioned, is not conducive to private or even moderately lengthy conversations. One Pharm.D. student commented that "It's difficult to build a trusting relationship in the numbers-based environment of the corporate, bureaucratic community setting." The physical space, combined with the fact that most patients do not know their pharmacists well or at all, creates a difficult hurdle to overcome.

The second, less obvious obstacle, we found was that patients often do not understand the role of the pharmacist beyond filling prescriptions and dispensing medication, and thus do not know what to expect from them beyond accuracy with their medications. As one patient commented, "Our expectations for doctors are too high and for pharmacists are too low." In terms of relationships, patients presume they will have a relationship with their physician, but it often does not occur to patients to do the same with their pharmacist.

Building relationships with other health care professionals is another area which relies heavily on a pharmacist's communication skills. Three of the four interviewees in this group, all direct-care physicians, expressed the desire to have productive, respectful relationships with pharmacists and stated that a pharmacist's communication ability and style greatly affects that relationship. "It is *really* helpful when a doctor has a relationship with a pharmacist."

The physicians noted that in some cases "pharmacists give misinformation to patients in a way that compromises the patient's trust in the doctor." In other cases, pharmacists give information to patients that contradicts the information given by a physician without having discussed the concerns with the physician and/or without properly prefacing the discrepancy in information to the patient. This lack of professional courtesy, in their view, certainly decreased the physician's trust in the physician-pharmacist relationship as well as potentially damaged the patient-physician relationship. In their description of an optimal pharmacist-physician working relationship, all the physicians in our study emphasized the importance of the following factors: "mutual respect," "rapport and professional courtesy such that [they can problem-solve] in a professional, respectful manner." As one physician stated, professional courtesy is "a must" in the pharmacist-physician relationship. "People skills make *such* a difference. It's common sense."

6. Compassion

Working Definition: A sincere desire to help individuals alleviate their physical and mental health care issues via medication therapy as prescribed by health care professionals

Expressed in various ways – caring, empathetic, compassionate, kind, helping – the idea of compassion was the most frequent response given by the College's Pharm.D. faculty regarding the three most important characteristics of excellent pharmacists. It was the second most frequent answer given by pharmacists and University of Minnesota Pharm.D. students. This reinforces the notion that the "full implementation of pharmaceutical care will require practitioners that are committed to working with patients with a caring, compassionate concern for their total well-being. Pharmacy education has a primary responsibility for producing graduates with qualities that contribute to this helping orientation" (Wright & Miederhoff, 1999).

In our review of similar professional programs at the University of Minnesota, it is clear that compassion is a characteristic that is valued and sought out (see Appendix C). The School of Social Work, for example, "looks for candidates who have a clear identity with the values and ethics of the profession and a commitment to social justice." The social work profession, of course, includes compassion in its foundation. The College of Veterinary Medicine lists compassion for animals among its top characteristics for both applicants to its program and for professionals in the field. Their curriculum does not attempt to teach empathy, so they look for applicants who come to the program with an existing basis.

Compassion, along with its synonyms above, plays an important part in building a patient-pharmacist relationship. Wright & Miederhoff note that Carl Rogers, the creator of client-centered counseling, viewed empathy as "one prerequisite to effective helping relationships." They state that

> "in Roger's view, empathy enables practitioners to establish the trusting relationship necessary to help patients. Studies of practitioner-patient interactions in health settings have confirmed that practitioners who are high on measures of empathy, as rated by trained observers, elicit more positive responses from patients than practitioners low on measures of empathy" (Wright & Miederhoff, 1999).

In the words on one pharmacist we interviewed, "Intelligence is a must, but we need to weed out those applicants who are just going through the motions." In other words, applicants need to have a passion for the field and for helping others.

7. Integrity

Working Definition: Understanding and upholding the moral and ethical principles of the pharmaceutical profession

While the word *integrity* was mentioned only once, by a faculty member who included it as a top characteristic of excellent pharmacists, other qualities that support the notion of integrity were stated frequently. These qualities include:

- Trustworthiness
- Responsibility
- Reliability
- Dependability
- Accountability
- Ethical behavior

Conversations with the other health care professionals group yielded discussion of integrity in two areas, the first of which was in terms of the trust that needs to be present in the patient-pharmacist relationship. Half of the physicians stated (in almost identical sentences) that "The patient needs to be able to trust the pharmacist."

The second area of integrity deals with ethical behavior. Two of the four physicians mentioned the need for pharmacists to demonstrate ethical behavior by setting their personal moral judgments aside while on the job. One physician stated: "It is a problem when pharmacists bring in their own values over a doctor's prescription." A second said "pharmacists need to move toward or change the policy toward being more fair and providing 'service for all' regardless of their personal moral beliefs." The example given by both physicians was of pharmacists who refused to dispense birth control or the morning-after pill despite a physician's prescription. A closing statement on this subject by one of the

physicians was that "If a pharmacist feels that strongly about an issue, then he should have gone into pathology, not pharmacy."

Current Pharm.D. students were very aware of the need to build trust with their patients and to display trustworthiness. They could see the direct correlation between building trust and providing better patient care. To paraphrase one student, a patient needs to trust his pharmacist such that he tells the pharmacist all the information necessary for the pharmacist to best care for him. Patients, however, by and large did not include integrity or its related qualities among their top characteristics of excellent pharmacists – only two patients touched on integrity by specifying "ethic of care" and "trustworthy/confidential" – but rather seemed to consider it an expected, foundational characteristic.

8. Familiarity with the Pharmaceutical Field

Working Definition: An understanding of pharmacy's role in health care and personal experience with the daily operations of a pharmacy-related position

The second of our two cognitive characteristics, this characteristic is specifically geared toward retention in the Pharm.D. program yet has no relation to an applicant's academic achievement. Applicants who lack familiarity with the pharmaceutical field prior to admission certainly may achieve excellence as a pharmacist. However, as is true for many other professional disciplines, students who have personal experience in the field they are admitted to have a higher tendency to complete the program because, quite simply, they have a better understanding of what they are getting into.

Applicants to the University of Minnesota's veterinary, medical, dental, nursing, and social work programs, for example, must show personal experience in the field. This is often displayed by previous work or volunteer experience. The purpose of such requirements is to expose students to the field from a perspective they might not otherwise have. In terms of pharmacy, such experience might be gained by full- or part-time employment as cashier or pharmacy technician, employment in a field that interacts with pharmacists, or having a parent or sibling who works as a pharmacist and thus witnessing and discussing the daily responsibilities and challenges of a pharmacist.

9. Leadership Skills

Working Definition: The act of affecting change for the benefit of the pharmaceutical profession

Within the context of our research, leadership refers to a pharmacist who leads change in the field of pharmacy whether individually or as a member of a team. Our study participants discussed pharmacists as being (or having the potential to be) assertive and proactive…

- advocates for patients and for the use of generic drugs;
- change agents for improvements in the overall health care system, including more patient-centered pharmaceutical care; and
- professionals involved in health care process and policy issues via levels ranging from clinic committees to regional, national, and international professional organizations.

The University of Minnesota's College of Pharmacy is committed to educating and graduating excellent pharmacists and is vested in producing leaders in the field. Given that interest, our team included a question for patients, pharmacists, College of Pharmacy faculty and admissions committee members, and other health care professionals which asked in what ways pharmacists influenced change (see Appendix B). It is noteworthy that outside of this question, the issue of leadership arose naturally only once in our conversations by one faculty who included "leads change" as one of her top three characteristics of an excellent pharmacist.

Our interview and focus group participants offered a variety of comments that help to explain why leadership does not appear to be on the forefront of people's minds when thinking about excellent pharmacists. A College of Pharmacy faculty member stated that "pharmacists are trained for 100% accuracy and, therefore, are less likely to be risk-takers." A physician said, that pharmacists "are bound by lots of rules, so sometimes it seems they're powerless. They're kindof caught in the middle between all the rules of the insurance companies, etc. and the needs of the patients." In other words, pharmacists are limited as to where and how they can affect change. One faculty member pointed out that pharmacists can affect change daily "one patient at a time." Another faculty added that it is the pharmacists' responsibility to "change society's expectations of what pharmacists can or could do."

The need for leadership and change in pharmaceutical care is present and palpable. One pharmacist noted that "Pharmacists need…leadership skills to be a voice that influences changes in healthcare," while another added that "Anywhere medications are involved, pharmacists should at least touch [the issue]." The College of Pharmacy recently created its own working definition of leadership to frame its curricular and extra-curricular efforts toward this end. Results of such efforts are now visible. Medication Therapy Management,

for example, is now making its way into more pharmacies thanks to years of work and leadership by pharmaceutical professionals. This is still seen on a small scale and is relatively unknown to most patients, so more pharmacist leaders are needed to move the effort ahead.

ASSESSMENT TOOLS AND METHODS

At the heart of the admissions process is a series of assessments, usually including an interview, a written application, submission of grades and GPA, and a standardized test. The goal of using multiple assessments is to evaluate a candidate on a wide variety of criteria through several different methods. Below, we analyze a variety of assessments, some currently used by the College and others not, and discuss their appropriateness for evaluating cognitive and non-cognitive characteristics.

Assessment of Cognitive Characteristics

When asked, "What are the three most important characteristics of an excellent pharmacist", *knowledgeable* was one of the top answers given by focus group participants. This was especially true with the patients we interviewed, who are accustomed to trusting the expertise of doctors and pharmacists when considering medication-related health matters. In fact, one patient lamented how little effort patients put into understanding their health needs, yet will "spend hours online researching digital cameras." But certainly, determining the optimal optical zoom for a camera is far easier to glean from an online search than judging which heart medication will work best with the medications one is already taking. Therefore, pharmacy schools need to ensure that those admitted are capable of learning and applying complex information.

Cognitive skills are the mental capabilities required to successfully learn academic subjects. Success within an academic program requires that students operate at relativistic levels; they need to see knowledge as relative to particular frames of reference (Battaglini & Schenkat, 1987). There is substantial evidence that cognitive ability measures predict knowledge and skill acquisition and therefore future academic success (McCall, MacLaughlin, Fike, & Ruiz, 2007; Kuncel et al., 2005; Meagher, Lin, & Stellato, 2006; Siu & Reiter, 2009; Ferguson et al., Kleshinski et al., Mills et al., as cited in Benbassat & Baumal, 2007; White et al., as cited in Burch, 2009; Ackerman, as cited in Kuncel et al., 2005). The need to ensure sufficient cognitive ability is especially true in the ever-evolving field of pharmacy in which each patient poses a unique set of challenges; there is no "one-size fits all" solution.

To measure intellectual aptitude, many pharmacy programs, including the University of Minnesota, use grade point averages (GPAs) and the PCAT. Undergraduate GPA is the most

common criterion used in admissions processes throughout universities and colleges. It operates under the principle that past performance is the best predictor of future success. The weight the GPA is given in the admissions process varies from school to school. Factors used to determine the weighting of criteria can include the competitiveness of the applicant pool (typically, the higher the competitiveness, the more weight will be placed on the GPA), program admissions requirements (e.g., PCAT, essays), the reputation of the undergraduate institution the applicant attended (if the institution is deemed of high quality, a lower GPA may still be considered), and the reliability of the admissions criteria.

Some schools, such as the University of Minnesota's College of Veterinary Medicine, use the GPA as a diagnostic measure, meaning they set thresholds by which they screen applicants. For applicants who exceed the threshold, the College of Veterinary Medicine will "pass" the applicant and will move on to assessing the applicant's personal characteristics. Applicants who do not meet the threshold are not considered further. Some educators disagree with this practice, stating that "admission committees might well find many instances in which truly compelling personal characteristics would trump one or two isolated blemishes in the academic record" (Cohen, as cited in Albanese, Snow, Skochelak, Hugget, & Farrell, 2003, p. 313).

The PCAT is a tool specifically designed to assess the types of abilities, aptitudes, and skills that most accurately predict success in the science-oriented courses required in a pharmacy program. It consists of 240 multiple choice questions and two writing topics. Specifically, the PCAT assesses six content areas: verbal ability, biology, chemistry, reading and comprehension, quantitative ability, and writing.

Essays

The College currently requires a minimum of four essays in its supplemental application in addition to the personal statement in the PharmCAS application. The primary role of the essay in the application process is to provide admissions evaluators an example of the applicant's writing skills. At a minimum, an essay should demonstrate the applicant's ability to express himself clearly, answer the essay question in an organized fashion, make an effective argument, and reveal personal characteristics.

Since the essay is written in an unsupervised environment, it is not always clear whether the applicant wrote the essay alone or had input from others. Albanese et al., (2003) found a high instance of students reporting their having received input from others including professional services. To get around this problem, at least one school has asked applicants to write an essay during a 60-minute period while they are on campus for their interview. Although this approach guarantees the originality of the essay, it not only limits the amount of preparation but also restricts the number of essays a candidate can submit.

Researchers have had a difficult time analyzing the effectiveness of an essay in the admissions process. A frequently cited study (Ferguson et al., 2003) examined the role of personal

statements in relation to performance during a five-year medical degree program in England. The results indicated that the amount of information in the personal statements was predictive of clinical aspects of training. Siu and Reiter conducted an informal literature review of different assessment tools for medical school admissions including the personal statement. These authors point to two studies (Kirchner & Holm, 1997; Brown, Carpio, & Roberts, 1991) in which a positive correlation was found between the personal statement and other factors such as graduating GPA. However, the results could not be duplicated later, perhaps due to rater bias.

In analyzing each part of the traditional application process researchers started with standardized test scores and GPA results to determine how reliable they are in predicting success in a professional program. More challenging has been analysis of the more qualitative admissions requirements like letters of reference and essays. To date there has not been a definitive study or series of studies to conclude that essays are predictive of academic success. Nevertheless, the essay continues to be an integral part of the admissions process because of its ability to demonstrate the applicant's commitment to the profession, attention to detail and written communication skills.

Interviews

Increasingly, evidence has shown that non-cognitive characteristics, such as the nine critical characteristics that we have identified, may contribute significantly to future performance (Latif, 2005) and PCAT scores, while helpful in predicting academic success, are ill-equipped to identify non-cognitive characteristics (Latif, 2005). Instead, admissions committees use the personal interview. Edwards et al. contend there are actually four purposes for the admissions interview: information gathering, decision-making, verification, and recruitment (as cited in Latif, 2004, p. 3). The information-gathering aspect includes assessing whether or not the applicant exhibits or has the potential to develop a college's previously identified desired non-cognitive characteristics.

In the 2007 revision of the Accreditation Council for Pharmacy Education's (ACPE) Accreditation Standards and Guidelines for the Pharm.D. program, interviews became a required part of the admissions process. The Guidelines specify that the interview should evaluate the applicant's verbal communication skills, understanding of the pharmacy profession, and commitment to patient care (ACPE, 2006). While the predictive viability of interviews has been a topic of considerable debate (Salvatori, as cited in Burch, 2009, p. 154) as a required component of the Pharm.D. admissions process, we will focus our efforts on maximizing the effectualness of this assessment method.

Interview Frameworks

Interview frameworks can vary significantly, ranging from structured to unstructured.

Structured Interviews

Structured interviews consist of four necessary components (Edwards et al., as cited in Courneya et al., 2005, p. 499).

1. The interview content is developed from a job (or, in the case of pharmacy, a role) analysis.
2. The questions are standardized (i.e., a pre-determined set that is consistently repeated with each interviewee).
3. The interviewers are provided with sample answers to the questions.
4. The interview is conducted by a panel of interviewers (as opposed to a one-on-one interview).

Primarily used to gather quantitative data, structured interviews are used to gather qualitative data when the intent is to facilitate a more exact comparison between respondents.

Semi-Structured Interviews

In simple terms, a semi-structured interview is one that does not meet all of the above four criteria (Edwards et al., as cited in Courneya et al., 2005, p. 499). Generally, themes and grouping of questions are pre-determined, but new questions (such as probing questions) may be asked during the interview.

Unstructured Interviews

Unstructured interviews are free of restrictions. Interviewers can change questions at will and have no objective scoring protocols (Latif, 2004). This makes performing an accurate comparison between respondents very difficult.

Furthermore, a myriad of biases are prevalent in unstructured interviews, including rater tendencies (such as leniency, severity, and halo effects), demographic factors, and stereotypes (Edwards et al., as cited in Latif, 2004, p. 3). Furthermore, the opportunity for the applicant to impress or manipulate the interviewer is greater in an unstructured interview (Campion et.al., as cited in Latif, 2005, p. 724).

For a process to be deemed credible, it must be both reliable and valid. Reliability is defined as the ability to achieve consistent results when a testing procedure is repeated (Kreiter, 2004). Validity in an academic admissions process refers to the degree to which the testing procedure's result predicts the applicant's performance during and after her training (Benbassat & Baumal, 2007). Studies have shown that both the reliability and validity of interviews improve as one moves from an unstructured to a semi-structured to a structured framework (Edwards et al., as cited in Courneya et al., 2005, p. 499; Huffcutt, Weekely, Jones, Wiesner & Degroot, 2001; Latif, 2004; Simola, Taggar, &

Smith, 2007). This is attributed to the structured interview's use of standardized questions and evaluation forms.

Interview Question Styles

Within these interview frameworks, there are various styles of asking questions. Here we focus on two, situational and behavioral, as they are commonly used to facilitate understanding of the respondent's non-cognitive characteristics.

Situational-Based Interviews

In situational interviews, applicants respond to hypothetical situations relevant to the position for which they are applying. Situational interviews are based on goal-setting theory, which has found that intentions can predict a person's actions (Latham, 1989, as cited in Huffcutt et al., 2001, p. 619). Furthermore, as the difficulty of the goal increases, the level of effort and the quality of performance contributed also increases (Latham & Locke, 2002). Therefore, one could infer that if applicants give sophisticated responses, their desire and ability to perform well in the position is quite high.

Behavioral-Based Interviews

Behavioral-based interviews assume that past behavior is the best predictor of future behavior (Janz, as cited in Huffcutt et al., 2001, p. 620). The intent is to evaluate the applicant's knowledge, skills, and abilities to perform well, as well as his ability to replicate such performance (Clement, 2008). Often, the interviewer will specify "target answers" (Clement, 2008), i.e., the ideal responses that would ensure that the applicant's values and mission align with those of the interviewer (Courneya et al., 2005).

Research has shown significant validity and reliability for both behavioral and situational question styles (Janz, Orpen, Latham & Saari, Latham et al., as cited in Huffcutt et al., 2001; Campion & Hudson, as cited in Simola et al., 2007; Latham & Skarlicki, 1995 as cited in Simola et al., 2007). Due to this disparity of conclusions, it is difficult for interviewers to make a definitive determination as to which format should be favored (Simola et al., 2007). However, three separate studies have directly compared situational and behavioral interviews for higher-level positions, all of which have concluded that situational interviews are much less predictive of future performance for these types of positions (Huffcutt, 2001).

Interview Formats

Interviews can follow various formats. The most typical format is the one-on-one interview, but the panel interview has become increasingly popular because it is viewed as more objective.

Individual Interviews

An individual interview is a one-on-one interaction between interviewer and interviewee, which typically lasts 30-60 minutes. Many individual interviews are held in the interviewer's office; the savvy candidate can get clues as how to respond to questions by assessing the décor and therefore more easily establishes a rapport with the interviewer. Individual interviews also tend to be affected by individual personalities and may become more conversational in nature, thereby decreasing the consistency between interviews.

Panel Interviews

Panel interviews are defined as interviews consisting of more than one interviewer. They typically take place in a conference room, and there is less small talk as the interviewers are more focused on learning the information identified in the pre-defined interview questions than in personal interaction. This increased focus can be more intimidating for the interviewee, but it also makes the interview more efficient. Panel interviews allow people who would not normally be part of the interviewing process to participate. Because there are multiple interviewers, there are multiple points of view that will evaluate the responses.

Literature supports the use of more than one interviewer (Latif, 2004; Simola et al., 2007; Courneya et al., 2005). The reasons cited include improvement of inter-rater reliability (Latif, 2005), protection against idiosyncratic approaches of any single rater (Campion et al., as cited in Simola, 2007, p. 32; Latif, 2004), the garnering of multiple view points, and reduction of random error through the aggregation of ratings (Dipboye, as cited in Simola, 2007, p. 32).

Multiple Mini-Interviews

A relatively recent development in the area of admissions evaluation, the Multiple Mini-Interview (MMI) was developed by the Michael G. DeGroote School of Medicine at Canada's McMaster University with the intention of increasing the validity of the admissions interview process. The MMI is based on the format of the Objective Structured Clinical Examination (OSCE), which is an evaluative process common in health care education.

During an OSCE, students progress through a series of stations, each with a different evaluator, in which they demonstrate their ability at a wide variety of

cognitive, curricular tasks (e.g., patient interaction and physical examination skills). The MMI applies this structure to the admissions process in order to evaluate a candidate's non-cognitive abilities. "The process of developing the MMI stations is quite deliberate in that it does not require clinical knowledge. This is done in an effort to prevent biasing the process in favor of health sciences students/personnel" (Eva, Rosenfeld, Reiter & Norman, 2004b, p. 316), thus allowing for a more even playing field in terms of candidates' non-cognitive abilities. This interview format has enjoyed success, and several programs throughout Canada and the United States have adopted the MMI.

Benefits of the MMI include the following.

- *Reduced bias*: The primary benefit of the MMI is the reduction of interviewer bias. This happens mainly due to the utilization of multiple evaluators. Compared to traditional one-on-one and panel interviews, the MMI involves a higher number of raters who interact with and evaluate each candidate. Because multiple evaluators are involved, there is less chance of rater bias due to gender, background, or personality conflicts between candidate and evaluator. Such a structure allows for increased inter-rater reliability and thus provides a more thorough, objective evaluation of each candidate.
- *Incorporates a variety of techniques*: The MMI offers brief periods comprised of a combination of traditional interview-style questions; role play scenarios; interactive, kinesthetic activities; and teamwork via a partner.
- *Assessment of multiple non-cognitive qualities*: "The MMI can be adapted to assess a number of non-cognitive domains and can discriminate between non-cognitive attributes at different stations" (LeMay, Lockyer, Collin & Brownell, 2007, p. 574). Qualities assessed "should be informed by the educational philosophy adopted by the institution in which the admissions committee works as well as broader documents that outline the key competencies" (Eva, Reiter, Rosenfeld, & Norman, 2004a, p. 603).
- *More efficient use of time*: Compared with a typical interview model (a one-hour interview conducted by two interviewers), Rosenfeld, Reiter, Trinh & Eva (2006) found the MMI to be "considerably more efficient" (p. 52). Table 1 illustrates that while the MMI requires the same number of observer hours, the number of applicants observed per hour is greatly increased.
- *Cost efficient*: Rosenfeld et al. (2006) examined the costs associated with implementing the MMI compared to the traditional one-hour, two-interviewer format. Topics included the creation of stations and/or interview questions, payment to evaluators and staff members, infrastructure expenses (e.g., room rental and score sheets), and

miscellaneous purchases (e.g., food and parking). Their data suggests that the MMI is "at least as cost efficient" as the traditional interview (p. 54).

- *High rater and candidate satisfaction*: Researchers who surveyed both candidates and interviewers upon completion of an MMI cycle found that both groups reported quite high satisfaction with the process. Candidates commented that if they were unhappy with their performance with one station or interviewer, they had a chance to recover at the next station. A number of interviewers remarked that while the exercise was tiring, it was "fun" and entertaining as well (Eva, et al., 2004b, p. 320).

Table 1:
Time Requirements for MMI and Traditional Interview

Technique	Event	No. of observers required	No. of applicants per event	Number of observer hours per applicant	Number of applicants per hour	Hours of interviewing required for 400 applicants	Observer hours for 400 applicants
12-station MMI	1 circuit	12	12	2.0	6	66.7	800
2 Interviewers, 1 hour	Interview with one applicant	2	1	2.0	1	400	800

Source: Rosenfeld et al., 2006, p. 51.

Challenges that the MMI may present include the following.

- *Space issues*: Multiple enclosed spaces to accommodate each station are required.
- *Question/activity development*: Institutions need to devote time to the development of appropriate as well as activities designed to assess specific characteristics.
- *Training program*: Given the unique structure and requirements of the MMI, a new training program would need to be developed for both interviewers and individuals staffing the event.
- *Additional personnel*: Although each interviewer spends less time interviewing, more interviewers and additional staff members are required to implement an MMI structure.

Assessment Inventories for Non-Cognitive Characteristics

A number of non-cognitive assessments based on theories such as emotional intelligence exist. After reviewing several, we opted to present the three assessments that most closely align with our nine critical characteristics.

1. Personal Qualities Assessment
2. Bar-On Emotional Quotient Inventory
3. Personal Potential Index

Personal Qualities Assessment

The Personal Qualities Assessment (PQA) was developed by a research team of psychologists from New South Wales, Australia, in an effort to incorporate the evaluation of non-cognitive characteristics into the admissions process for medical and other health profession schools.

Description of Tool

The PQA is divided into three sections, one that measures cognitive skills and two that measure non-cognitive.

1. The first section – the Mental Agility Test (MAT) – is designed to measure high-level reasoning ability skills. The respondent answers 45 questions in 60 minutes.
2. The second section – Narcissism, Aloofness, Confidence, Empathy (NACE) – measures interpersonal values. The respondent reviews a number of situations and decides what to do according to their opinions or values.
3. The third section measures interpersonal traits. The respondent is presented with a moral dilemma and a series of statements about how people might think and behave in response to it. The respondent is then asked to indicate how true or false each statement is about herself. This section combined with the second takes 60 minutes to finish (PQA, n.d., description of test section).

What PQA Measures

The results of the NACE place the respondent on a continuum from *Detached from Others* (Aloofness, Narcissism) to *Involved with Others* (Empathy, Self-Confidence). Terms used to describe the *Involved with Others* end of the continuum include warm, emotionally stable, trusting, forthright, sociable, relaxed, extroverted, and high emotional intelligence.

The results for the interpersonal traits section also place the respondent on a continuum. At one end is *Individual Freedom* (where the respondent values individual freedom much higher than duty to the group), with *Duty to Society/Group* (where the respondent values duty to the group much higher than individual freedom) at the other end. Adjectives used to describe the *Duty* end of

the continuum include conscientious, rule-conscious, grounded, perfectionistic, dutiful, self-controlled, authoritarian, and conforming (PQA, n.d., Powerpoint presentation).

Analysis of the PQA for the College of Pharmacy

Despite the fact that there is some overlap between the PQA continua and our critical characteristics and that the PQA was designed to supplement applications to a variety of different health profession schools, we do not recommend the tool for two reasons. First, the three sections are bundled, so the cognitive assessment would need to be completed along with the other two. Since applicants take the PCAT, it would be unnecessarily redundant to require them to take another cognitive test. Second, the PQA is designed to be proctored with respondents using either a paper or on-line exam. Therefore, it is impractical to have applicants take the test as part of their application.

Bar-On Emotional Quotient Inventory

The Bar-On Emotional Quotient Inventory (EQ-I) was developed by Dr. Reuven Bar-On, an Israeli psychologist, in an effort to measure emotionally and socially intelligent behavior as reported by respondents (Bar-On, 2005). The tool is not designed specifically for admission to graduate or professional schools; rather, it is a point-in-time assessment of one's emotional and social competencies. The tool has been translated into more than 30 languages, and data from around the world has been collected and analyzed.

Description of Tool

The EQ-I consists 133 items in the form of short sentences and uses a five-point Likert scale with responses ranging from "very seldom or not true of me" (worth 1 point) to "very often true of me or true of me" (worth 5 points). The EQ-I results report contains a total EQ score, and scores on the 5 dimensions and 15 components listed below. The higher the score, the more positive the prediction for effective functioning in meeting daily demands and challenges. The assessment takes approximately 40 minutes to complete.

What EQ-I Measures

The following are the 5 dimensions and 15 components of the EQ-I.

Intrapersonal skills

- Self regard – to accurately perceive, understand, and accept oneself
- Emotional self-awareness – to be aware of and understand one's emotions
- Assertiveness – to effectively and constructively express one's emotions and oneself

- Independence – to be self-reliant and free of emotional dependency on others
- Self-actualization – to strive to achieve personal goals and actualize one's potential

Interpersonal skills

- Empathy – to be aware of and understand how others feel
- Social responsibility – to identify with one's social group and cooperate with others
- Interpersonal relationship – to establish mutually satisfying relationships and relate well with others

Stress management

- Stress tolerance – to effectively and constructively manage emotions
- Impulse control – to effectively and constructively control emotions

Adaptability

- Reality testing – to objectively validate one's feelings and thinking with external reality
- Flexibility – to adapt and adjust one's feelings and thinking to new situations
- Problem-solving – to effectively solve problems of a personal and interpersonal nature

General mood

- Optimism – to be positive and look at the brighter side of life
- Happiness – to feel content with oneself, others, and life in general

Analysis of the EQ-I for the College of Pharmacy

Table 2 shows a rough correlation between the EQ-I components and our critical characteristics.

Table 2:
EQ-I Components and Critical Characteristics

EQ-I Components	**Critical Characteristics of Excellent Pharmacists**
Empathy	Compassion
Interpersonal relationship	Relationship building skills
Stress tolerance	Organizational efficiency
Problem-solving	Problem-solving skills
Self-regard Assertiveness Self-actualization	Integrity

Although there is considerable overlap between the two sets of characteristics, the EQ-I was not developed to be an admissions process evaluation tool. The EQ-I is used most commonly for workforce management and involves the work of a coach who discusses the results with the respondent and suggests ways for him to move toward productively balancing the various emotional intelligence components.

Personal Potential Index

The Personal Potential Index (PPI) is a new assessment tool offered by the Educational Testing Service (ETS), which administers the SAT and GRE. However, unlike the SAT and GRE, the PPI is designed to measure non-cognitive attributes that ETS has determined are "critical for success." ETS explicitly designed the PPI to complement other information that individuals submit with their graduate school application. The assessment is generally filled out online by the three or four individuals who also write a letter of recommendation for the applicant. Beginning in July 2009, ETS will include the PPI with the GRE, but the PPI may be purchased separately at a cost of $20 per institution that receives a results report.

ETS reviewed research on which non-cognitive qualities are most important to measure. The two research studies reviewed included one-on-one and group interviews with faculty and staff members who were asked which variables ought to be considered in graduate school admissions. A second body of research ETS reviewed is based on a U.S. Army study that looked at training and performance outcome measures. The results were put into a framework of two cognitive and six non-cognitive components which are now used widely in industrial psychology. Finally, a well-known survey to determine workforce readiness was distributed to U.S. employers. The survey included ten non-cognitive factors (Kyllonen, 2008).

Description of Tool

The PPI has 24 questions divided into 6 dimensions with an additional numeric overall evaluation. Evaluators choose a rating on a five-point scale which includes "Below Average," "Average," "Above Average," "Outstanding (Top 5%)," and "Truly Exceptional (Top 1%)." Evaluators may write comments for each of the six dimensions. The PPI results report includes numeric equivalents for each rating and graphical representations of the mean for each evaluator. Evaluator comments are included. ETS estimates it takes an evaluator 15 minutes to complete the PPI.

What PPI Measures

The PPI includes the following 6 dimensions and 24 personal attributes.

Knowledge and Creativity

- Has a broad perspective on the field
- Is among the brightest persons I know
- Produces novel ideas
- Is intensely curious about the field

Communication Skills

- Speaks in a clear, organized, and logical manner
- Writes with precision and style
- Speaks in a way that is interesting
- Organizes writing well

Teamwork

- Supports the efforts of others
- Behaves in an open and friendly manner
- Works well in group settings
- Gives criticism/feedback to others in a helpful way

Resilience

- Accepts feedback without getting defensive
- Works well under stress
- Can overcome challenges and setbacks
- Works extremely hard

Planning and Organization

- Sets realistic goals
- Organizes work and time effectively
- Meets deadlines
- Makes plans and sticks to them

Ethics and Integrity

- Is among the most honest people I know
- Maintains high ethical standards
- Is worthy of trust from others
- Demonstrates sincerity

Analysis of the PPI for the College of Pharmacy

Of the assessments we reviewed, the PPI has the greatest overlap with our nine critical characteristics. Table 3 illustrates a rough correlation between two groups (PPI's Resilience and Planning and Organization are combined):

Table 3:
PPI Personal Attributes and Critical Characteristics

PPI Personal Attributes	Critical Characteristics of Excellent Pharmacists
Knowledge and creativity	Intellectual capacity
Communication skills	Communication skills
Teamwork	Relationship building skills
Resilience; Planning and organization	Organizational efficiency
Ethics and integrity	Integrity

The critical characteristics that are not covered by the PPI are as follows.

- Compassion
- Familiarity with pharmaceutical field
- Problem-solving skills
- Leadership

The College of Pharmacy Admissions Committee has the opportunity to evaluate these characteristics through the interview and/or essay questions.

The accuracy of self-assessments, which is the most common type of non-cognitive assessment tool, is suspect. Literature suggests that respondents can choose their responses in order to skew their results to a more positive outcome (Kyllonen, 2008). The PPI is not subject to the same chances of skewing since an independent evaluator completes the questionnaire.

ETS is the most established standardized testing company in the United States. The infrastructure to process the evaluation results is solid, and the results are designed to be distributed to graduate institutions. ETS is well-positioned to collect large amounts of data for both benchmarking and analysis of how the evaluation can be improved.

The most common criticisms of the PPI are that these non-cognitive qualities are best evaluated in a more open-ended fashion instead of assigning a number to a quality. Also, ETS's motivation for developing the PPI may be as much the opportunity to sell an additional product as it is to advance the quality of the admissions process (Jaschik, 2008). However, the fact that ETS has developed an evaluation that assigns a numeric result to non-cognitive characteristics does not mean that the assessment should not be considered seriously.

RECOMMENDATIONS

Recommendation 1: Assess cognitive characteristics

Because both GPA and the PCAT have been shown to be moderate to strong predictors of grades earned in pharmacy programs and scores on licensing exams, both should continue to remain staples in the Pharm.D. admissions process.

In truth, a balance between the assessment of cognitive and non-cognitive characteristics is desired. Decreased reliance on cognitive assessments may influence the perceptions others have of the program. Too low a threshold could damage recruitment efforts as top applicants look for programs with high academic credentials, whereas too high a threshold could exclude applicants with compelling personal characteristics and circumstances (Albanese et al., 2003).

Recommendation 2: Continue evaluation of non-cognitive characteristics via essays

We recommend that the College continue to require applicants to complete a minimum of three essays as part of their application.

One of the critical characteristics for a successful pharmacist is communication, both verbal and non-verbal. Being able to express oneself clearly in writing is fundamental to demonstrating verbal communication skills. Essays also provide another opportunity for the Admissions Committee to evaluate non-cognitive characteristics that may either not be targeted in other portions of the admissions process (see Table 4 on p. 36) or may be important enough to further explore through a written statement. For example, one of the College's 2009 essay questions asks what unique role the applicant envisions for himself in the field of pharmacy in the next 10 years. This topic focuses on the respondent's familiarity with the field of pharmacy and offers opportunities for the applicant to demonstrate his compassion, integrity, and leadership characteristics.

One way to address the criticism that essays are not evaluated using consistent and rigorous methods is to use specific guidelines to train evaluators what to look for when they read the essays. Given the example question above, the evaluator should be prompted not only to rate the quality of the writing as well as the consistency of the writing as compared to the PCAT writing score (which the College currently does), but also the degree of understanding the applicant shows for the field of pharmacy, and the degree to which the applicant envisions himself in a position that demonstrates compassion and leadership.

Another characteristic that our findings highlighted is relationship building skills. The College should include a question such as "Describe a time when you needed another person's help to obtain your goal. Include the relationship you had with that person and how you worked with

him." The applicant has the opportunity to demonstrate how he approaches team interactions and views working relationships, as well as share his experience with collaboration.

Recommendation 3 - Enhance interview format

We recommend that the College of Pharmacy implement a structured interview utilizing behavioral questions and conducted by two interviewers.

Structured

As previously stated, structured interviews are the most reliable and valid interview framework because, as research shows, unstructured interviews are riddled with biases, especially those related to the predilections of the interviewers. The use of standardized questions and evaluation forms prevents interviewers from improvising during interviews. While biases may not be intended, any individualized questions or comments are inherently so as they are produced by the interviewer's preferences. Even in situations where the interviewer is to select one question out of two (or more) possible options, bias enters the interview via the mere selection of the question that is asked. The interview is no longer structured and is, therefore, less predictive.

Behavioral

Since acceptance to the Pharm.D. program is considered to be entrance into the pharmacy profession, sophisticated evaluation methods are necessary to the admissions process. As indicated, research has shown that behavioral questions are the best way for interviewers to understand if the applicant has been involved in complex situations and what characteristics she was able to employ in the resolution of those situations.

Panel Interview: Two Interviewers

The current Pharm.D. students we interviewed echoed academic research which suggests that panel interviews are less likely to contain bias than one-on-one interviews. They generally agreed that if an applicant is able to properly gauge the interviewer, the applicant can respond in a way that increases rapport. However, they recognize that there is a disparity among interviewers. As one student indicated, "Some interviewers don't have soft skills." The students agreed that this disparity causes a disadvantage for those applicants who could not develop a good rapport with their interviewer due to differing communication styles.

Essentially, the current Pharm.D. students believe that the interviewer plays a key role in whether or not non-cognitive characteristics are assessed, and they do not trust that the assessment was consistent amongst interviewers. To remedy this, they suggested having more than one interviewer present. Interestingly, some indicated that having current Pharm.D. students involved in the interviewing process was a "must." They cited two benefits for this. First, it would help the applicants feel more comfortable because

they could relate more easily to a student. Second, it would allow current students to be more involved in the program and gain new experiences.

We recommend involving two interviewers, because we appreciate that the interview is by far the most time-consuming and costly tool for gathering applicant information. We also recommend that the College of Pharmacy not rely solely on faculty members to serve as interviewers, but rather select interviewers from the current Pharm.D. student body and local pharmaceutical practitioners as well, thereby controlling the time commitment put forth by faculty. At least one interviewer in each interview must be a faculty member.

Recommendation 4: Provide clearly outlined and consistently delivered interviewer and essay evaluator training

We recommend that the College continue to provide interviewer and essay evaluator training and ensure that it is clearly outlined and consistently delivered. As previously mentioned, assessment of non-cognitive factors can be highly subjective in the interview setting. Interviewer training increases the likelihood that the recommended interview structure and process are successful at assessing non-cognitive characteristics because it reduces interviewer subjectivity or bias and increases inter-rater reliability (Joyner, Cox, White-Harris, & Blalock, 2007; Roberts, et al., 2008).

Clearly Outlined

A clearly outlined training program will help ensure that interviewers and essay evaluators understand the purpose and place of their respective assessment tools within the admissions process. We recommend that components of the program include the following.

- Overview of the admissions and interview processes
- Instructions to familiarize essay evaluators with the format of the essay questions and evaluation form
- Instructions to familiarize interviewers with the format of the interview, interview questions, and interviewee evaluation form
- Practice and coaching to allow interviewers an opportunity to participate in a simulated interview and receive feedback

Consistently Delivered

The training program should be delivered in a consistent manner. Each training session should be the same in length and should cover the aspects of the training program stated above. Additionally, as is current practice in the College, training should be provided annually for both new and returning interviewers and essay (Rippentrop, Wong, & Altmaier, 2003).

The accreditation standards and guidelines for the Pharm.D. program reflect the need for interviewer and essay evaluator training but leave determination of the training structure and rigor to the discretion of the school (ACPE, 2006, Guideline 17.3, p. 29). We believe that by providing a clearly outlined and consistently delivered training program, the University's Pharm.D. program will not only continue to meet the ACPE Standards and Guidelines but remain a leader in implementing admissions best practices.

Recommendation 5: Assess non-cognitive characteristics via an assessment tool

We recommend that in addition to the existing components of the admissions process – PCAT, GPA, interview, and essays – the College of Pharmacy require applicants to complete the Personal Potential Index to assess non-cognitive characteristics. While every applicant must complete an essay, essays provide limited opportunity for the candidate to display her mastery of certain non-cognitive skills. To thoroughly vet the entire candidate pool in a consistent manner, each applicant should be evaluated on her non-cognitive skills via an assessment tool.

A number of non-cognitive assessments based on theories such as emotional intelligence exist. We recommend the Personal Potential Index because it is a well-researched tool that is expressly designed to assess non-cognitive characteristics across a broad applicant pool. The cost of $20 per results report should also not be a barrier.

Recommendation 6: Implement a Multiple Mini-Interview (MMI) Format

We recommend implementation of the Multiple Mini-Interview format. Recommendations 1-5 and the College's recent experience with the OSCE will serve as a foundation to this recommendation. The MMI represents a significant change from the College's current process and will require significant planning. As explored above, there are significant benefits to the MMI that we feel outweigh the potential challenges.

The College will need to spend time and, possibly, funds to address the following areas.

1. Space: The College will need to secure space that allows for 8-10 stations in close proximity to allow for smooth movement of students among them.
2. Number of interview days: In the current process, an average of 60 candidates attend each of the six interview days. The venue for the MMI will, in part, dictate how many candidates may be evaluated each interview day. Given the increased logistical complexities, the College might consider offering fewer interview days in which they accommodate more candidates per day.
3. Stations: While 8-10 stations is recommended, it is the College's purview how many to incorporate. The College will need to determine which of the nine critical characteristics it would like to evaluate via the MMI as well as the appropriate station style (e.g., role

play, physical problem-solving activity) for each. Current interview questions may be appropriate for use in the MMI. Significant discussion will be necessary for this step. We recommend consultation with universities that have already implemented the MMI for advice and sample questions.

4. Dual-campus implementation: The College currently offers candidates the option of interviewing on either the Twin Cities or Duluth campus, regardless of their preferred campus of study. Appropriate space and the availability of sufficient evaluators in both locations will determine if the option is viable with the implementation of the MMI. If it is not, we recommend undertaking the MMI on the Twin Cities campus for all candidates.
5. Increased number of personnel: The College will need to recruit and train up to twice as many personnel to implement the MMI. As an incentive to involve interviewers, each interviewer can expect to spend significantly less time interviewing.

Summary of Recommendations

As the College of Pharmacy's Admissions committee develops the essay topics and the questions for the interview (or questions and scenarios for the MMI), we encourage them to track the mode of assessment for each of the nine critical characteristics. Table 4 shows a sample chart based on our research and recommendations. We are unable to create a finalized chart because accurate mapping of assessment mode to characteristic will depend on the questions/scenarios that the Admissions Committee selects for the essays and interview, be it a panel interview or MMI. Thus, we include on the sample chart panel interview, MMI, and essay for all characteristics except intellectual capacity.

Table 4:
Critical Characteristics and Modes of Assessment

Characteristic	Mode of Assessment
Intellectual capacity	• GPA • PCAT • PPI
Organizational efficiency	• Essays • PPI • Panel interview • MMI
Problem-solving skills	• GPA • PCAT • Essays • Panel interview • MMI
Communication skills	• Essays • PPI • Panel interview • MMI • TOEFL
Relationship-building skills	• Essays • PPI • Panel interview • MMI
Compassion	• Essays • Panel interview • MMI
Integrity	• Essays • PPI • Panel interview • MMI
Familiarity with the pharmaceutical field	• Essays • Panel interview • MMI • PharmCAS application
Leadership skills	• Essays • PPI • Panel interview • MMI • PharmCAS application

FUTURE CONSIDERATIONS

It should be noted that we conducted our research and formulated our recommendations vis-à-vis the agreed-upon scope for the PEL *Doctor of Pharmacy Program Admissions Criteria* project. Throughout our research, however, a variety of issues emerged that fall outside our project scope but yet should be noted here as areas of future consideration by the College of Pharmacy. They include the following topics.

- **Equal and fair admissions process.** Our team feels that our recommendations allow for an equal and fair admissions process and, certainly, endorses the notion that the College of Pharmacy should do everything possible to ensure such a process. We believe the College will reach that goal by maintaining a transparent admissions process, properly documenting all aspects of the process, consistently applying the criteria, and properly training interviewers and essay evaluators. However, we did not engage in analysis of or a literature review about the specific issue of assuring a bias-free admissions process.

- **Weighting of cognitive and non-cognitive characteristics.** We asked current Pharm.D. students how they felt the cognitive and non-cognitive characteristics should be weighted in the admissions process. The discussion was lively. On one end of the spectrum was the idea of equal weighting. "Everyone can be knowledgeable. However, soft skills [non-cognitive characteristics] make the difference and set people apart." "Applicants with excellent soft skills can make up ground [in the interview] for not looking good on paper." On the other was no one single weighting system. "Applicants have different goals and there are different programs, so all applicants shouldn't be lumped into one weighting system." The College's Admissions Committee should engage in further discussion to determine the weight placed on an applicant's cognitive and non-cognitive characteristics.

- **Costs for admission process and tools.** Admittedly, two of our recommendations – Assess non-cognitive characteristics via an assessment tool (i.e., the PPI) and Implement a Multiple Mini-Interview format – will potentially raise the cost of conducting the annual admissions process. The college will need to conduct further analysis to determine the specific costs (e.g., faculty and staff time; venue expenses) incurred by the MMI as well as the exact cost of the PPI. Another question for discussion by the College's Admissions Committee is how to cover these costs. In the current economic environment, many collegiate and unit budgets are decreasing while applicants' ability to pay for additional application costs (e.g., the cost of the PPI) is likely diminished as well.

- **Logistics of conducting the MMI at the Twin Cities and Duluth campuses.** Under the current admissions process, the College offers applicants the choice to interview on either the Twin Cities or Duluth campus, regardless of which campus they prefer for their studies. Because the MMI requires a significantly different venue than does a panel

interview, the Admissions Committee will need to review the space available on both campuses to determine the viability of conducting the MMI on both campuses. The Committee should also weigh any potential detriments associated with requiring all applicants to interview on the Twin Cities campus.

CONCLUSION

With the field of pharmacy's shift in mission to patient-centered pharmaceutical care, it is crucial that the University of Minnesota's Pharm.D. program use admissions criteria that ensure selection of applicants who demonstrate the characteristics and skills necessary to deliver this type of care. We recommend that the nine critical characteristics of excellent pharmacists that we identified serve as the foundation for what the Admissions Committee and staff evaluates in Pharm.D. applicants. Additionally, incorporation of our six recommendations to continue, improve, or implement current and new practices should be accompanied by a means to track mode(s) of assessment for each critical characteristic. By implementing our recommendations, the College of Pharmacy will be well positioned to ensure alignment of the Pharm.D. program with the evolving mission of pharmaceutical care and will continue to be a leader in pharmacy education.

ACKNOWLEDGMENTS

The PEL Pharmacy Admission Team would like to acknowledge and extend our gratitude to the many individuals who have contributed to our report.

To our project sponsor and advisers, thank you for your support, guidance, and motivation, and for the unique opportunity you extended to us. It has been our pleasure to work with you.

To the faculty and staff of the Academic Health Center and School of Social Work programs who we interviewed, we are grateful for the information and insight you extended to us.

To all interviewees and focus group participants, our immense appreciation for your time, honesty, and invaluable feedback.

To Kaia Paquin and Pierce Hanson of the College of Pharmacy, many thanks for your logistical assistance with our meetings and focus groups.

To our PEL mentors, our sincere gratitude for your wisdom and inspiration.

To our supervisors, our sincere gratitude for your support for our participation in this meaningful learning experience.

To the PEL Program leadership and members of our PEL cohort, special thanks for challenging our beliefs and inspiring us to reach higher leadership goals.

Most especially to our families, thank you for your support during this year of exploration of leadership.

BIBLIOGRAPHY

Accreditation Council for Pharmacy Education, Inc. (2006). *Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree*. Retrieved May 4, 2009, from ACPE Web site: http://www.acpe-accredit.org

Adler, L. (2007). Using the panel interview to save time and increase accuracy. Retrieved June 24, 2009, from The Adler Group Web site: http://www.adlerconcepts.com/resources /column/newsletter/using_the_panel_interview_to_s.php

Albanese, M. A., Snow, M. H., Skochelak, S. E., Hugget, K. N., & Farrell, P. M. (2003). Assessing personal qualities in medical school admissions. *Academic Medicine, 78*(3), 313-321.

Albanese, M. A., Farrell, P., & Dottl, S. L. (2005). A comparison of statistical criteria for setting optimally discriminating MCAT and GPA thresholds in medical school admissions. *Teaching and Learning in Medicine, 17*(2), 149-158.

Albanese, M. A., Farrell, P., & Dottl, S. L. (2005). Statistical criteria for setting thresholds in medical school admissions. *Advances in Health Sciences Education, 10*, 89-103.

Bar-On, R. (2005). The Bar-On model of emotional-social intelligence (ESI). In P. Fernandex-Berrocal and N. Extremera (Guest Editors), Special Issue on Emotional Intelligence. *Psicothema*, *18*(1), 13-25.

Basco, W. T. J., Lancaster, C. J., Gilbert, G. E., Carey, M. E., & Blue, A. V. (2008). Medical school application interview score has limited predictive validity for performance on a fourth year clinical practice examination. *Advances in Health Sciences Education, 13*, 151-162.

Battaglini, D. J., & Schenkat, R. J. (1987). Fostering cognitive development in college students: The Perry and Toulmin models. Retrieved July 7, 2009, from ERIC Digests database: http://www.ericdigests.org/pre-925/perry.htm

Benbassat, J., & Baumal, R. (2007). Uncertainties in the selection of applicants for medical school. *Advances in Health Sciences Education, 12*(4), 509-521.

Berger, B. A. (2002). *Communication skills for pharmacists: Building relationships, improving* p*atient care*. Atlanta: APhA Publications.

Brown, B., Carpio, B., & Roberts, J. (1991). The use of an autobiographical letter in the nursing admissions process: Initial reliability and validity. *Canadian Journal of Nursing Research*, *23*(2), 9-20.

Clement, M. C. (2008). Past is prologue. *Principal Leadership (High School Ed.), 8*(5), 44-48.

College of Pharmacy. (2009). *Mission and vision*. Retrieved May 4, 2009, from University of Minnesota, College of Pharmacy Web site: http://www.pharmacy.umn.edu/about /mission/home.html

Courneya, C., Write, K., Frinton, V., Mak, E., Schulzer, M., & Pachev, G. (2005). Medical student selection: Choice of a semi-structured panel interview or an unstructured one-on-one interview. *Medical Teacher, 27*(6), 499-503.

Dubovsky, S. L., Gendel, M. H., Dubovsky, A. N., Levin, R., Rosse, J., & House, R. (2008). Can admissions interviews predict performance in residency? *Acad Psychiatry, 32*, 498-503.

Educational Testing Service (n.d.). *The ETS Personal Potential Index (ETS PPI): Assuring a more complete picture*. Retrieved May 1, 2009, from Educational Testing Service Web site: http://www.ets.org

Eva, K. W., Reiter, H. I., Rosenfeld, J., & Norman, G. R. (2004a). The relationship between interviewers' characteristics and ratings assigned during a multiple mini-interview. *Academic Medicine, 79*(6), 602-609.

Eva, K. W., Rosenfeld, J., Reiter, H. I., & Norman, G. R. (2004b). An admissions OSCE: The multiple mini-interview. *Medical Education, 38*(3), 314-326.

Ferguson, E., James, D., O'Hehir, F., & Sanders, A. (2003). Pilot study of the roles of personality, references, and personal statements in relation to performance over the five years of a medical degree. *British Medical Journal*, *326*, 429-432.

Huffcutt, A., Weekely, J., Jones, C., Wiesner, W., & Degroot, T. (2001). Comparison of situational and behavior description interview questions for higher-level positions. *Personnel Psychology, 54*(3), 619-644.

Jaschik, S. (2007). *Making holistic admissions work*. Retrieved May 20, 2009, from Inside Higher Ed Web site: http://www.insidehighered.com

Jaschik, S. (2008). *Non-cognitive qualities join the GRE*. Retrieved November 10, 2008, from Inside Higher Ed Web site: http://www.insidehighered.com

Jensen, D. (2000). How to prepare for and succeed at panel interviews. Retrieved June 24, 2009, from Science magazine Web site: http://sciencecareers.sciencemag.org/career_magazine /previous_issues/articles/0770/how_to_prepare_for_and_succeed_at_panel_interviews

Joyner, P. U., Cox, W. C., White-Harris, C., & Blalock, S. J. (2007). The structured interview and interviewer training in the admissions process. *American Journal of Pharmaceutical Education, 71*(5), 83, 1-4.

Kirchner, G. L., & Holm, M. B. (1997). Prediction of academic and clinical performance of occupational therapy students in an entry-level master's program. *The American Journal of Occupational Therapy*. *51*,775-779.

Kreiter, C. D., Yin, P., Solow, C., & Brennan, R. L. (2004). Investigating the reliability of the medical school admissions interview. *Advances in Health Sciences Education, 9*, 147-159.

Kuncel, N. R., Crede, M., Thomas, L. L., Klieger, D. l., Seiler, S. N., & Woo, S. E. (2005). A meta-analysis of the validity of the pharmacy college admission test (PCAT) and grade predictors of pharmacy student performance. *American Journal of Pharmaceutical Education, 69*(3), 339-347.

Kyllonen, P. C. (2008). The research behind the ETS Personal Potential Index (PPI). Retrieved May 1, 2009, from Education Testing Service Web site: http://www.ets.org/Media /Products/PPI/10411_PPI_bkgrd_report_RD4.pdf

Latif, D.A. (2004). Using the structured interview for a more reliable assessment of pharmacy student applicants. *American Journal of Pharmaceutical Education*, *68*(1), 21, 1-7.

Latif, D. A. (2005). Including the assessment of nontraditional factors in pharmacy school admissions. *The Annals of Pharmacotherapy, 39*, 721-726.

LeMay, J. F., Lockyer, J. M., Collin, V. T., & Brownell, A. K. (2007). Assessment of non-cognitive traits through the admissions multiple mini-interview. *Medical Education, 41*(6), 573-579.

Lumden, M. A., Bore, M., Millar, K., Jack, R., & Powis, D. (2005). Assessment of personal qualities in relation to admission to medical school. *Medical Education, 39*, 258-265.

McCall, K. L., MacLaughlin, E. J., Fike, D. S., & Ruiz, B. (2007). Preadmission predictors of PharmD graduates' performance on the NAPLEX. *American Journal of Pharmaceutical Education, 71*(1), 05.

Meagher, D. G., Lin, A., & Stellato, C. P. (2006). A predictive validity study of the pharmacy college admission test. *American Journal of Pharmaceutical Education, 70*(3), 53.

Parks, C. (2000). "I feel like a number:" Gradepoint average and admissions. Retrieved June 22, 2009, from UW-Milwaukee Web site: http://www.uwm.edu/~ccp2/work/gpa.html

Pearson. (2008). PCAT candidate information booklet. In *Pharmacy College Admission Test (PCAT)*. Retrieved June 22, 2009, from Pearson Web site: http://pearsonassess.com/hai/ Images/dotcom/pcatweb.info/PCAT_CIB.pdf

Personal Qualities Assessment (n.d.) Retrieved November 10, 2008, from Personal Qualities Assessment Web site: http://www.pqa.net.au

Rippentrop, A. E., Wong, M., & Altmaier, E. M. (2003). A content analysis of interviewee reports of medical school admissions interviews. *Medical Education Online, 8*(10). Retrieved May 7, 2009, from http://www.med-ed-online.org/pdf/res00063.pdf

Roberts, C., Walton, M., Rothnie, I., Crossley, J., Lyon, P., Kumar, K., et al. (2008). Factors affecting the utility of the multiple mini-interview in selecting candidates for graduate-entry medical school. *Medical Education*, *42*, 396-404.

Rosenfeld, J. M., Reiter, H. I., Trinh, K., & Eva, K. W. (2008). A cost efficiency comparison between the multiple mini-interview and traditional admissions interviews. *Advances in Health* Sciences *Education, 13*(1), 43-58.

Simola, S. K., Taggar, S., & Smith, G. W. (2007). The employment selection interview: Disparity among research-based recommendations, current practices and what matters to human rights tribunals. *Canadian Journal of Administrative Sciences, 24*, 30-44.

Siu, E., & Reiter, H. I. (2009, April 2). Overview: What's worked and what hasn't as a guide towards predictive admissions tool development. *Advances in Health Sciences Education*.

Soman, E. (2008). Interpersonal communication skills: Effective interpersonal communication skills needed for professionals in the health care industry. Retrieved April 29, 2009, from HealthMad Web site: http://healthmad.com/healthcare-industry/interpersonal-communication-skills/

Sullivan, L. (2008, August). Communication skills enhance patient encounters. Retrieved April 29, 2009, from Entrepreneur Web site: http://www.entrepreneur.com/tradejournals/article/190284649.html

U.S. Department of Health & Human Services. (n.d.). Individual interviews. Retrieved June 24, 2009, from U.S. Department of Health & Human Services Web site: http://www.usability.gov/methods/individual.html

U.S. News and World Report. (n.d.). 2008 rankings, Pharmacy. Retrieved May 4, 2009, from http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-pharmacy-schools/rankings

Wagner, P. J., Jester, D. M., & Moseley, G. C. (2001). Use of the Emotional Quotient Inventory in medical education. *Academic Medicine*, *76*(5), 506-507.

Wright, S., & Miederhoff, P. (1999). Selecting students with personal characteristics relevant to pharmaceutical care. *American Journal of Pharmaceutical Education, 63*, 132-138.

Appendix A: Interview and Focus Group Protocol

1. Sponsors sent a note of introduction to interviewees and focus group participants on behalf of the team.

2. Sponsors or team members contacted participants to set up interviews and focus groups.

3. Participants were not given the questions ahead of time and were told there was nothing they needed to prepare for the interview or focus group.

4. A standard introduction was given at the beginning of all interviews and focus groups.

5. Interviews were conducted one-on-one* and were not recorded.
   * The first interview was conducted by two team members

6. Focus groups were conducted with at least one facilitator and one note-taker, and were digitally recorded.

7. Individuals were not personally identified in the final report.

8. Recordings and notes will be stored securely, with only team members and sponsors having access to research records.

Appendix B: Interview and Focus Group Questions

College of Pharmacy Faculty and Admissions Committee

1. What are the three most important characteristics of an excellent pharmacist?

2. How does the current admissions process assess these characteristics?

3. What is most effective about the current admissions process in assessment of these characteristics? Why?

4. What is least effective about the current admissions process? Why?

5. Thinking about your three most important characteristics, how, if at all, will they change in the next 10 years?

6. In what roles and ways do pharmacists influence change?
    a. In the field of pharmacy
    b. In advancing quality of patient care

7. We wanted to know how effective the current admissions process is in selecting the best future pharmacists. Do you have any comments to add to our discussion?

Current Students in the University of Minnesota Pharm.D. Program

1. What are the three most important characteristics of an excellent pharmacist?
    a. Which of these are "academic" characteristics and which are "soft skills"?

2. In what ways do you feel the admissions process assessed these characteristics?
    a. What about the interview and written statements that you submitted?

3. In your opinion, how should the academic characteristics be weighted against the "soft skills" when determining which applicants are admitted to the Pharm.D. program?

4. How does the Pharm.D. program help develop these characteristics in students?

5. What are your expectations of a patient-pharmacist relationship?

6. In thinking about that relationship, what challenges do you foresee?

7. As you think about your future patients, how important to you is your relationship with them?

8. In light of this conversation, what suggestions do you have for changing the admissions process?

9. We wanted to know your opinions regarding the admissions process into the Pharm.D. program and the relationship between patients and pharmacists. Do you have any comments to add to our discussion?

Directors of University of Minnesota Professional Healthcare and Social Work Programs

1. How do you assess your candidates? Do you use a weighted or holistic admissions process, or another type?
    a. How much weight to you place on each element?

2. What are the top three characteristics that you look for in a candidate?
    a. Would these change if you were describing a professional within the field?

3. How do you assess a candidate's non-cognitive characteristics?

4. Please describe your interview format.
    a. Who comprises your interview team?
    b. Are any of those interviewers also on the admissions committee?

5. Are you familiar with the Multiple Mini Interview (MMI)? If so, are you considering using this method?

6. What measures do you use to determine if the admissions process is successful?

7. To your knowledge, are there other professional schools that are doing something innovative or unique in their admissions processes?

8. We wanted to hear about your admissions process – what works well and what doesn't in your current admissions process? Do you have anything to add?

Employers

1. How long have you been in your current role and how many pharmacists do you employ or supervise?

2. What are your key responsibilities in your role as an employer or supervisor?

3. What are the three most important characteristics of an excellent pharmacist?

4. How do you assess these characteristics during the hiring process? On an ongoing basis?

5. What are your expectations of a patient-pharmacist relationship?

6. What challenges do you see to meeting these expectations?

7. How important is this relationship to your organization's ability to comprehensively care for patient? Please explain.

8. In what roles and ways do pharmacists influence change?
    a. Within your organization
    b. In the field of pharmacy
    c. In advancing quality of patient care

9. We wanted to hear from you about the skills and characteristics of an excellent pharmacist. Do you have any comments to add to our discussion?

Other Health Care Professionals

1. How long have you been in the health-care field and what do you think you like best about your work?

2. What are the three most important characteristics of an excellent pharmacist?

3. In what roles or ways do pharmacists influence change in advancing quality of patient care?

4. What are your expectations of a patient-pharmacist relationship?

5. How does the pharmacist's role affect your work with patients?

6. Given your role, how would you describe an optimal working relationship with a pharmacist?

7. Given trends you see in health care and pharmacy, what technical and soft skills do you feel will be necessary of pharmacists in the future?

8. We wanted to hear from you about the skills and characteristics of an excellent pharmacist. Do you have any comments to add to our discussion?

Patients

1. How often have you interacted with a pharmacist in the last 12 months?
    a. Do you have any experience with medication therapy management (MTM)?

2. What are the three most important characteristics of an excellent pharmacist?

3. As you think about your health care providers, how important to you is your relationship with your pharmacist?

4. Do you seek out a specific pharmacist for care or advice?
    a. If you do, why do you seek out that pharmacist?
    b. If you don't, why not?

5. What do you expect to get out of your interactions with your pharmacist?

6. What would you like from your pharmacist that you don't currently get?

7. We wanted to hear from you about the skills and characteristics of an excellent pharmacist. Do you have any comments to add to our discussion?

Pharmacists

1. How long have you been in the field and what do you like best about being a pharmacist?

2. Please describe the most important responsibilities that a pharmacist has in health care.

3. In what roles and ways do pharmacists influence change?
    a. In the workplace
    b. In the field of pharmacy
    c. In advancing quality of patient care

4. What are the three most important characteristics of an excellent pharmacist?

5. What are your expectations of a patient-pharmacist relationship?

6. What are your greatest challenges in your relationships with patients?

7. Given trends you see in health care and pharmacy, what technical and soft skills do you feel will be necessary in the future?

8. What comments or critiques do you have about the technical and soft skills of recent pharmacy graduates?

9. We wanted to hear from you about the skills and characteristics of an excellent pharmacist. Do you have any comments to add to our discussion?

10. Are there any health care professionals and/or employers you feel would be interested in meeting with a member of our team?

Appendix C: Comparison of Admissions Processes in Similar Programs within the University of Minnesota Academic Health Center and School of Social Work

As part of the team's research we interviewed either the director of admissions or the head of the admissions committee for the following colleges and programs.

- College of Veterinary Medicine: DVM Program
  Larry Bjorkland, Director of Student Affairs and Recruitment
- Medical School: MD Program
  Paul White, Associate Dean of Admissions
- School of Dentistry: DDS Program
  Naty Lopez, Assistant Dean of Admissions and Diversity
- School of Nursing: DNP Program
  Gale Shea, Director of Student and Career Advancement Services and
  Dr. Sandra Edwardson, Director of Doctorate of Nursing Practice Program
- School of Social Work: MSW Program
  Kate Walthour, Director of Admissions

We included the School of Social Work because (a) we believed that non-cognitive characteristics might be emphasized in their admissions process and (b) social workers often interact with clients in a manner similar to that of health professionals.

The same questions were asked during all interviews. The results are presented in the following chart.

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
Admissions Process: holistic or set	Holistic.	Combination. Step 1 is set; steps 2-3 are more holistic.	Holistic.	Holistic.	Holistic.	Holistic.
Grade Point Average (GPA)	Required minimum cumulative 3.00 GPA or ≥3.20 for 60 most recent semester credits.	Required pre-vet courses:≥2.75 GPA for 45 most recent semester credits: ≥2.75	No minimum.	2.70 minimum	3.00 minimum baccalaur-eate GPA; "Each applicant [is] considered individually for any ex-ception to the stated require-ments."	GPA ≥3.00 is preferred; no stated minimum. Applicants are awarded points based on GPA ranges (e.g., 3.76-4.00 GPA = 7 points).
Weighted	No. Minimum threshold exists for GPA, but extenuating circum-stances are taken into considera-tion.	Step 1 (of 3) in the process is completely weighted by GPA and GRE score. For interviewed applicants: the final score consists of equal weight between the non-academic score and the interview score. Once a student moves to step 2, "the slate is wiped clean" in terms of scoring.	N/A	20% - DAT (standardized test) 20% - GPA 35% - non-academic factors 25% - interview	N/A	GPA is one of 7 areas for which applicants are awarded points. The maximum points possible for the GPA is higher than the maximum points for any other section.
Assessment of Non-cognitive Character-istics	Via interview, essays, application information, and letters of reference.	Via behavioral interview.	Via recom-mendation letters, interview, responses to	Via interview, essays, application information, and letters of	Via interview and review of references.	Via targeted questions in the personal statement, letters of

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
(cont.)			questions on the supplemental application, scope and nature of post-secondary experiences, and breadth of under-graduate education.	reference.		recommenda-tion, and, "a far third," writing sample question
Interview	Yes.	Yes.	Yes.	Yes.	Yes.	No. SSW receives 350-450 applications a year and can not handle that many interviews. There is also a belief that "interviews can be fraught with biases and can be discrimina-tory."
Interviewers	Faculty members who are not on the admissions committee.	Admissions committee members, faculty (not all), full-time professional staff from the College office, veterinarians in the community.	A medical school faculty member and a current medical student.	Generally, faculty, director of admissions (if needed), and a community representative.	Faculty members; they may also be members of the admissions committee.	N/A
Interviewer Training	Yes. Annual training is done by College staff.	Yes. An outside consulting firm trains all new interviewers.	Yes.	Yes, annually. Interviewers also have an interview guide.	No. Interviewers have an interview guide.	N/A

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
Number of Interviewers	1 interviewer per candidate in a single session.	2 interviewers per candidate in a single session.	2 inter-viewers per candidate in a single session.	2 interviewers per candidate in a single session.	Usually 1 interviewer per candidate in a single session.	N/A
Question Type	Combination of behavioral, situational, and knowledge-based.	Behavioral. Interview Guide includes warm-up questions and 8 questions that match the College's 8 character-istics. There are 2-3 options for each question (the inter-viewer may choose) and sample prompts for follow-up questions.	Structured set of questions.	Behavioral.	Behavioral, for the most part.	N/A
Length of Interview	1 hour	1 hour	30-60 minutes	45 minutes	45-60 minutes	N/A
Evaluation of Interview	Interviewer rates the applicant on a scale of 1-5 on 6 different areas. Inter-viewer enters ratings and comments into an online form.	Interviewers must come to consensus on each candidate's score.	Interviewers make recom-mendations to the Admissions Committee, which then makes a final decision.	Interviewers rate the applicant on a scale of 1-5 on 8 different competencies. The two interviewers try to come to a consensus or average score for each competency.	Interviewers make recommenda-tions to the Graduate Admissions and Progression committee, which gives final approval. For high-demand specialties, all interviewers make the decisions together.	N/A

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
Interview Days	6-7 interview days are scheduled each year. Includes the interview, a welcome presentation, tour of the college, overview of the curriculum, and a student panel.	3 weekend interview times. 30-40 ambassadors (DVM students in years 1-3) volunteer. Includes the interview, a 1-on-1 tour with an ambassador, student panel with small group (4 students and 12 or so applicants), and pizza party the night before the interview.	Several interview days are scheduled each year.	Several interview days are scheduled each year. Includes the interview, a welcome presentation, tour of the facilities, session on financial aid, and lunch with current students.	3-4 interview days are scheduled each year.	N/A
Personal Statement/ Writing Sample	PharmCAS requires a personal statement.	Analytical writing section of the GRE (applicant must earn >3.5) plus a 1-page online statement to include a personal story of interest in the profession, strengths toward success in the field, and goals.	Statement to highlight either the applicant's motivation to study medicine or the influence and connected-ness of life experiences.	The dentistry clearinghouse application requires an open-ended personal statement.	Brief statement (approxi-mately 500 words) regarding the applicant's short- and long-term professional goals.	Statement; includes 3 questions.
Essay	Pharmacy's supplemental application includes essay questions.	See Personal Statement/ Writing Sample.	See Personal Statement/ Writing Sample.	Dentistry's supplemental application includes two essay questions.	The DNP program requires a project that focuses on identifying and analyzing a nursing	An essay regarding a current debate or issue in social welfare.

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
(cont.)					practice problem. Applicants are required to provide a description of the problem they want to study and initial ideas about how to address it.	
Professional Exam Required	PCAT	GRE	MCAT	DAT	GRE	No.
Elimination at Set GPA or Professional Exam Score	No.	Yes. "It's very cut and dried." Approximately 50% of applicants meet the requirements to move to the next step. See Grade Point Average and Professional Exam.	No.	No.	No.	No.
Personality Inventory Adminis-tered	No.	No.	No.	No.	No.	No.
Letters of Recom-mendation Required	Yes. 3 individual recommenda-tions are required.	Yes. 3 are required; at least one must be from a veterinarian who can document the applicant's veterinary experience.	Yes. 3 individual recommenda-tions are required.	Yes. 3 letters are required; 2 letters must be from science faculty and the third from an employer/ supervisor.	Yes. 3 professional references from past or current professors, supervisors or professional colleagues.	Yes. 3 letters are required. SSW prefers 2 to be from professionals who have worked with or supervised the applicant in a human services environment.

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
Bachelor's degree required	No.	No.	Yes.	Yes.	Yes. Baccalaureate degree with a nursing major required.	Yes. An undergraduate degree must be completed prior to the applicant beginning the MSW program in the fall.
Experience or work in field required	Work experience in the pharmaceutical field is not required, however, some knowledge of the field is.	Yes. Applicants are judged on the following: "Experiences with veterinarians, experience in a research setting, experience in a public health setting, experiences with and responsibility for the care and management of animals, and goals in the profession."	No, but applicants must demonstrate a "sustained and meaningful commitment" to human services and a desire to improve the human condition. Examples include (but are not limited to) volunteer, work, or academic experiences.	Work experience in dentistry is not required, however, some knowledge of the field is.	Some specialty areas have experiential requirements.	No. 1 year of work experience in human services (paid, volunteer or internship) is preferred.
Resume required	No.	No.	No.	No.	No.	Yes.
Automated application system	Yes. Pharmacy College Application Service (PharmCAS) is the online application.	Yes. National online application, which includes GPA/ academic information; details of animal and veterinary experience, employment history, and	Yes. American Medical College Application Service (AMCAS). Qualified applicants receive a supplemental application for the	Yes. The American Dental Education Association operates an on-line application service.	Yes. On-line application system hosted by the U of M Academic Health Center.	Yes. Beginning fall 2009, SSW uses Apply Yourself, a program through the U of M Graduate School.

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
(cont.)		community involvement; and awards/ honors.	U of M Medical School.			
Applicant file review	Applicant files are scored by selected Admissions Committee members.	Completed by the admissions committee. Approximately 450 files are reviewed; each file is reviewed by 3 faculty members (one from each academic department), thus each of the 12 faculty members reviews approximately 125 files.	Admissions Committee members review applications. Each file is reviewed by 2 members, who must agree on admitting or denying the applicant. If they disagree, a third committee member is brought in to cast the deciding vote.	Admissions committee members complete an evaluation sheet for each applicant.	Graduate Admissions and Progression Committee makes final decisions.	Each applicant file is reviewed and scored by 2 faculty. If the score totals are more than 5-6 points apart, a third review is done by the admissions committee. (Note: It is unclear if the review is done by the entire admissions committee or a subset thereof.)
Admissions Committee	8 faculty and 5 students comprise the Admissions Committee. Committee members are assigned applicant files to review. The full Committee meets to make final admissions decisions.	12 faculty (3 from each academic department) plus 2 ex-officio members (the admissions director and the associate dean of academic affairs). Many faculty are practicing veterinarians, as the U of M's hospital is a teaching hospital.	Admissions Committee evaluates all components of the application and makes a final decision.	The admissions committee, which is made up of faculty members, reviews all applicants that have interviewed and scores them between 1 and 5. The committee then votes on who should be offered admittance.	Graduate Admissions and Progression committee makes final decisions	All tenure/ tenure-track faculty and full-time P/A faculty review applications; approximatel y 30-35 each. This creates “a culture of investment among the faculty.”

	College of Pharmacy: Pharm.D. Program	College of Veterinary Medicine: DVM Program	Medical School: MD Program	School of Dentistry: DDS Program	School of Nursing: DNP Program	School of Social Work: MSW Program
Top three character-istics of an applicant	Character-istics were discussed in a faculty focus group. The group did not rank a top three.	1 – Academi-cally qualified 2 - Knowledge of the profession and compassion for animals 3 - Skills to permit success in the profession	1 - Commit-ment to improving the human condition 2 - Professional conduct 3 - Outstanding interpersonal skills 4 - Effective dedication to lifelong learning	1 - Seeks client satisfaction 2 - Readily adapts 3 - Manages work effectively	1 - Promise/ potential as a practitioner 2 - Maturity 3 - Readiness for the program	1 - "Clear identity with values and ethics of the profession and a commitment to social justice, i.e., an under-standing of what social work is" 2 - Intelligent 3 - "Ideally" the candidate brings important aspects of diversity into the program and profession
Top three character-istics of a professional in the field.	Character-istics were discussed in a faculty focus group. The group did not rank a top three.	Same as for applicant.	Same as for applicant.	1 - Seeks client satisfaction 2 - Concise coherent communica-tion 3 - Builds collaborative relationships	Same as for applicant.	Same as for applicant.

Appendix D: Multiple Mini-Interview Structure

The MMI is comprised of stations that are designed to evaluate one's personal characteristics and are not based on clinical knowledge. These characteristics are assessed in three types of stations: discussion, interpersonal skills, and cooperation. All of the stations are broad and allow the rater a chance to hear a candidate's views on various topics, including education and political or ethical matters, or to see the how the candidate reacts to or behaves in certain situations.

While the number of stations may vary, several stations are required for the MMI to be effective. A popular format for the MMI is one 10-station cycle, each station lasting 10 minutes. The applicants rotate through all 10 stations over the course of the cycle. In most cases, the applicant completes each station independently, but the MMI does provide the flexibility to incorporate stations designed to evaluate applicant-to-applicant interaction.

1. A bell sounds to start the process, and the applicant has two minutes to read the scenario presented before entering the assigned room, where the rater awaits the applicant.
2. Another bell sounds to signal that the applicant may enter the room to begin the scenario, activity, or discussion.
3. The candidate has eight minutes to work through the scenario with the rater observing or interacting, depending on the station.
4. Another bell sounds at the end of the time period. The rater then has two minutes to score the applicant, while the applicant proceeds to the next station to read the next scenario.
5. The cycle continues until the applicants have moved through each of the stations.