REVIEWS

Using the Structured Interview for a More Reliable Assessment of Pharmacy Student Applicants

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A greater focus on nontraditional factors such as compassion, altruism, respect, and integrity may enhance the likelihood of future pharmacists embracing pharmaceutical care and behaving in a professional manner in the workplace. A significant problem faced by pharmacy schools is how to objectively assess these characteristics. The present paper examines the use of the structured interview as one method of increasing the reliability and validity of assessing the nontraditional characteristics of pharmacy school applicants.

Although cognitive factors such as grade point average and Pharmacy College Admissions Test scores are important, they only explain between 9% and 16% of the variance in pharmacy school achievement. Furthermore, beyond a certain threshold, mounting evidence suggests that nontraditional characteristics such as those found in emotional intelligence may contribute significantly to job performance. The present study discusses the need for pharmacy schools to increase the weight given to these factors and provides empirical evidence that the structured interview is a reliable and valid method of assessing nontraditional characteristics.

Keywords: Structured interview, interview, cognitive factors, admissions, emotional intelligence

INTRODUCTION

Characteristics such as expert knowledge (as distinguished from practical skill), self-regulation, and a fiduciary responsibility to place client interest ahead of the self-interest of the practitioner have long been hallmarks of professionalism. According to Greenwood, professions are granted autonomy to a much greater extent than other occupations. In exchange for autonomy, professionals are expected to put societal needs ahead of personal needs. Professionals employ a code of ethics, in part, to convince society that they are worthy of professional status. By vigorously enforcing the code, professionals are allowed to practice autonomously.

Professionalism has become more challenging in recent years. Due to a rapidly increasing prescription volume and the market force changes associated with managed care, pharmacists are being asked to provide client care in an environment that is increasingly becoming less conducive to the provision of pharmaceutical care. Yet, pharmaceutical care is the profession’s mission, and deviation from it has the potential of reducing the legitimacy of the profession. Thus, it is imperative that schools of pharmacy admit students who are more likely to embrace the tenets of professionalism and place client interest above self-interest. A recent national study revealed that the moral reasoning skills (an integral component of professionalism) of pharmacy students may not be as high as those of students in other health professions. A greater focus on qualitative variables such as compassion, altruism, respect, and integrity may be useful during the admissions process. Of course, structuring the right policy for admission to pharmacy school is not an exact science. It is a balancing act: be fair to society by choosing applicants who have the potential to be good pharmacists, but also be fair to applicants who wish to become pharmacists.

The present paper examines the use of the structured interview as one method of increasing the reliability and validity of accurately assessing the personal qualities of pharmacy applicants during the admission process.

The remainder of this paper is organized as follows. First, the relevant literature pertaining to predictors of pharmacy academic success, nontraditional factors in pharmacy school admissions, and unstructured and structured interviews are reviewed. Next, an analysis of the challenges to reducing reliance on Pharmacy College Admissions Test (PCAT) scores and prepharmacy grade point averages (GPAs), while increasing reliance...
on nontraditional characteristics is presented. Finally, suggestions are provided with guidelines on how schools of pharmacy might develop items for the structured interview, and the role the structured interview might play in the total admissions picture.

LITERATURE REVIEW
Predictors of Pharmacy Academic Success

Several studies have been conducted to determine which preadmission criteria are the best predictors of various measures of academic success. These variables include the PCAT scores, prepharmacy GPA, math and science course grades, involvement in extracurricular activities, age, gender, marital status, ethnicity, achievement of a 4-year college degree, rank of the applicant’s undergraduate school, personal interview scores, Myers-Briggs Type Indicator (MBTI), and California Critical Thinking Skills Test (CCTST). There is general agreement that many of these factors are predictors of academic performance. For example, Churapatnanapong et al reported that those pharmacy students with lower prepharmacy GPAs and who were older were more likely to perform at lower academic levels.

Chisholm et al demonstrated that the greatest predictors of first-year GPA included prepharmacy math/science GPA and having a 4-year undergraduate degree prior to entering pharmacy school. Allen et al examined several prepharmacy predictors of success in pharmacy schools. The authors reported that the best predictors for the first professional year were overall GPA prepharmacy GPA, and PCAT scores. The strongest predictors of success in practice-related courses and clerkships were PCAT scores and the CCTST.

Hardigan et al, reported that mathematics GPA, prepharmacy cumulative GPA, verbal PCAT scores, faculty interview scores, and composite PCAT scores were all significant predictors of pharmacy students’ first-year GPA.

Kidd and Latif demonstrated that critical thinking skills were significantly related to both pharmacy students’ final GPA and their clinical performance. Studies that purport to demonstrate a link between traditional variables such as GPA and PCAT scores and pharmacy school performance are problematic because the magnitude of the aptitude-achievement correlation is typically in the 0.30s and 0.40s range (i.e., correlation between PCAT score and first-year pharmacy school GPA). The above pharmacy studies are supported by similar results from investigations done with medical students. This means that the most widely used cognitive variables explain ~9% (0.30) to 16% (0.40) of the variation associated with pharmacy school achievement. Stated another way, from 84% to 91% of variation in pharmacy school achievement, as measured by grades and tests, is due to other factors! One could make a cogent argument that traditional variables would explain a greater amount of the variation associated with pharmacy school achievement if the standard deviation on cognitive variables among admitted students was greater (i.e., restriction of the range). For example, if a large proportion of students was admitted with low GPAs and low PCAT scores, these cognitive factors would likely explain a greater amount of the variance associated with pharmacy school achievement. Further ameliorating the aptitude-achievement relationship is the fact that GPAs are not standardized due to the lack of educational controls at different institutions. In addition, as health professional students move from the lecture hall to their clerkships and then to their practice settings, the aptitude-achievement correlation drops further. This can be explained by the fact that practicing pharmacists do not answer pages of multiple-choice questions when practicing.

Nontraditional Factors and Pharmacy Admissions

Although in practice, many professional schools have valued traditional pre-admission academic scores at the expense of nontraditional factors (by weighting them higher), there is general agreement in medicine that a wider criteria than traditional measures of academic performance should be included in admitting health professionals to their respective professional schools. For example, this author has demonstrated a link between moral reasoning and clinical decision-making in pharmacists and has suggested it as one possible nontraditional criterion that schools of pharmacy might consider in admitting pharmacy students to their schools.

Assessing applicants’ emotional intelligence (EI) may be useful. Emotional intelligence refers to a type of social intelligence that involves the “ability to monitor one’s own and others’ emotions, to discriminate among them, and to use this information to guide one’s thinking and actions.” According to Goleman, emotional intelligence is a better predictor of career success than intelligence quotient. For example, one study attempted to identify differences between star performers and average managers in 40 companies. EI competencies were twice as important in contributing to excellence as cognitive intelligence (IQ).

One reason why certain nontraditional factors receive little attention is the difficulty of measuring these characteristics quantitatively. Admission committees are concerned that subjectivity may cloud the decision-making process. According the Willingham, this concern is misplaced because all selection processes are intrinsically subjective since even cognitive factors require subjective decisions. For example, deciding
whether a student’s PCAT score or prepharmacy GPA holds more weight in the admissions process is subjective. Similarly, establishing a prepharmacy GPA cutoff and evaluating the rigor and reputation of the undergraduate institution require subjective decisions to be made.

Health professional schools have historically used the interview as a method of assessing applicants’ personal qualities. Approximately 60% of schools of pharmacy require or may request applicant interviews during the admissions process. Edwards et al state 4 purposes for the admissions interview: information gathering, decision-making, verification, and recruitment. According to the authors, the most important use of the interview is to assess nontraditional characteristics of applicants. For example, assessing characteristics such as motivation, conscientiousness, and interpersonal skills is virtually impossible through PCAT scores and GPAs.

Unstructured Interview

The types of interviews conducted vary widely from traditional, unstructured interviews to structured ones with specific scoring protocols. Many schools in the health professions use an unstructured interview format, which is characterized by a conversational, informal style. With the unstructured interview format questions are not specified in advance and are not standardized (interviewers may ask different applicants significantly different questions). Most importantly, unstructured interviews have no objective scoring protocols. This type of interview appears to be the most common in health care school admissions. Preference for the unstructured interview is quite surprising since its reliability and validity has been questioned since the early 1900s and in every review since. For example, Mayfield reported that his review of the interview literature supported the following statements concerning unstructured interviews:

1. General suitability ratings based on unstructured interviews have low reliability.
2. Material is not covered consistently in unstructured interviews.
3. Interviewers are likely to weight the same information differently.
4. Interview validity is low.
5. If the interviewer has valid test information available, his or her predictions based on the interview plus test information are usually no better and frequently less valid than the predictions based on the test alone.
6. The form of the question affects the answers given.
7. The attitude of the interviewer affects the interpretation of the interviewee’s responses.
8. Interviewers tend to talk most.
9. Interviewers are influenced more by unfavorable than favorable information.
10. The interviewer makes a decision as to the acceptance of the applicant quite early in the interview.

In the medical literature, Edwards et al, reported many sources of bias in unstructured interviews. These included rater tendencies (such as leniency, severity, and halo effects), demographic factors, stereotypes regarding “good” and “bad” applicants, and order effects. In addition, the outcome of the unstructured interview is susceptible to influence by applicants skilled at impression management. The following are assertive tactics applicants use to impress the interviewer:

1. Self-promotion (entitlements): Portraying an image of competence based on awards, diplomas etc.
2. Self-promotion (enhancements): Claiming credit for positive events related to one’s past (eg, when I was working at the hospital, we increased revenue by 20%).
3. Basting: Associating oneself with events, places, or people that are related to the interviewer (eg, Golf is my favorite sport to play, too).
4. Ingratiation: Attempting to be liked through flattery, conformity, reinforcements, etc.
5. Exemplification: Attempting to exhibit high moral standards.
6. Supplication: Appealing to the nurturing and empathetic instincts of the interviewer.

Because of the problems associated with unstructured interviews, several researchers have called for the use of structured interviews.

Structured Interview

According to Campion et al, at least 3 different forms of structured interviews have been observed: Semi-structured Interviews: The interviewing process is not completely specific. There are some predetermined interviewer questions, but the interviewer is allowed to ask different questions to different applicants.

2. Patterned Interviews: With this approach, questions are selected from a pool of questions to assess a particular characteristic, rather than using the same questions for each applicant.

3. Situational Interviews: The same questions are used for each job applicant with anchored rating scales and an interview panel. This approach is much more structured than the semi-structured or patterned interviews in that there is no devia-
tion between interviewer questions asked of one applicant and those asked of another. The situ-

ational interview is based on a systematic analy-
sis known as the critical-incident technique. The
incidents are turned into interview questions in
which applicants are asked how they would be-
have in a given situation. For example, an inter-
viewer might ask a pharmacy applicant, “Imagine
that you are encountering an angry patient
whose prescription had been filled incorrectly.
How would you handle the situation?” To facili-
tate objective scoring, each answer would be
rated on a 5-point Likert-type scale anchored at
“unsatisfactory” and “exceptional.”

Structured interviews can be evaluated for reliabil-
ity and validity.29-31 Thus, structured interviews can be
more scientifically and ethically defensible than un-
structured interviews. Several researchers have empiri-
cally demonstrated the reliability and validity of the
structured interview.24-29 In each study, the structured
interview was significantly more reliable and valid than
the unstructured interview. One study compared
the reliability and validity of the structured interview
to paper-and-pencil cognitive aptitude tests.29 Historically,
paper-and-pencil tests have been considered to be
the best predictors of job performance.30,31 Campion et al
demonstrated that, in a sample of 243 factory workers,
both the reliability and validity of a structured interview
was not significantly different from that of four paper-
and-pencil tests that applicants were required to take.29

Potential Challenges to Reducing Reliance on
PCATs and GPAs

In a presidential address to the Association of
American Medical Colleges, Cohen discouraged the use
of undergraduate GPAs and scores on the Medical Col-
lege Admission Test (MCAT) as the primary criteria for
selecting medical students.32 Rather, he suggested using
“MCAT scores and only as threshold measures.” He
argued that compelling personal characteristics may in
many instances trump one or two isolated blemishes on
students’ academic records. In order for schools of
pharmacy to increase their reliance on personal char-
acteristics, at least two basic issues must be overcome:
self-interest, and philosophical and historical factors.

Self-interest

A significant challenge that schools of pharmacy
(especially the older more established ones) face in re-
ducing their reliance on traditional measures such as
PCAT scores in the admission process has to do with
the impact such a change might have on the perceptions
of others. Specifically, will others perceive a school of
pharmacy as less prestigious if maximum weight is not
given to traditional cognitive variables in the admission
process? After all, PCAT scores and GPAs are tradition-
ally used by third parties, such as United States
News and World Report, in ranking pharmacy schools.

Further complicating the matter is the fact that several
pharmacy investigations, as discussed previously, dem-
strate that variables such as PCAT scores and pre-
pharmacy GPAs correlate significantly with success in
pharmacy school. However, the guiding question phar-

macy admission committees must ask is, “Is our goal to
accept the brightest students or to accept those most
likely to embrace the professions’ mission: to practice
pharmaceutical care?” These dual goals are probably
not mutually exclusive. Thus, the dilemma is whether to
ignore academic credentials beyond a certain threshold
and perhaps be perceived as “less competitive,” or to set
the academic threshold so high that it may weed out
many applicants who may perform slightly poorer aca-
demically, but will embrace pharmaceutical care.

Another challenge has to do with defending the
admission process. It is legally quite easy to defend an
admissions policy that bases admission decisions almost
solely on quantitative cognitive variables.20 However,
since qualitative nontraditional markers may be per-
ceived as more difficult to measure, it may be more dif-
ficult to defend an admissions policy that gives signifi-
cant weight to these factors. As discussed previously,
the structured interview is an excellent, defensible tool in
assessing applicants’ personal characteristics.

Philosophical and Historical Factors

Philosophical and historical factors could likely be
major impediments to schools of pharmacy adopting an
admissions policy that weighs nontraditional factors
more heavily. It is human nature to resist change. Many
faculty members will continue to believe that “we
should accept only the best and brightest” by academic
measures. For faculty members with this view it would
be an anathema to rely on nontraditional measures be-

yond a lower threshold of traditional measures. Taking
a chance on students who are not the best and brightest
academically can be a double-edged sword in that it
would only take a few students who struggle through
the curriculum to ameliorate faculty enthusiasm for
“taking the additional risk” of admitting students who
are not the best academically.20 One way to combat
these historical and philosophical differences is to col-
lect data, if available, on the performance of students in
various risk categories. By doing so, it might be that 1
or 2 failures out of 40 or 50 successes would be an ac-
ceptable tradeoff. If, after doing a risk analysis, the out-
come is not positive, admission committees must be
prepared to modify their admission policies. Perhaps the
academic threshold used must be raised slightly? When
proceeding with this exercise, at least 3 points must be remembered. First, those applicants with the best academic credentials may not necessarily make the best pharmacists. Since well over 90% of admitted health professional candidates complete their respective programs, admitting pharmacy students is tantamount to a decision to grant them a license. Thus, it is imperative that schools of pharmacy admit students who will become the best pharmacists. Second, beyond a certain academic threshold, the chances of passing the NAPLEX examination are probably exceedingly high.

The third point that must be remembered during the admissions process is, as discussed previously, GPA and PCAT scores explain a small amount of the variation associated with pharmacy school performance. Thus, other factors should be measured (ie, nontraditional).

Suggestions for Structured Interview Development

As discussed above, many studies have shown interview reliability and validity to be greater in the structured vs the unstructured interview. In order to reduce the subjectivity and inconsistencies found in traditional interviews, the following recommendations are advanced:

1. Develop questions based on critical incidents of nontraditional attributes of a good pharmacist (eg, high self-awareness, empathy, motivation, altruism). An expert panel of practitioners from diverse practice settings could be used to develop these incidents.
2. All candidates should be asked the same questions. There should be no prompting or follow-up questioning, although repeating questions should be permissible.
3. Anchor the rating scales for scoring answers with examples and/or illustrations. A scoring system should be developed for each question by determining examples and definitions of good (5), marginal (3), and poor (1) answers. One approach to this would be for the admissions committee and other faculty members to brainstorm about potential answers and discuss what constitutes good and poor answers. It is important to realize when evaluating good and poor answers that good answers do not substantially exceed what should be expected of an incoming pharmacy student. For example, should a pharmacy applicant be able to regurgitate the 9-step pharmaceutical care process? On the other hand, poor answers should not be so low that distinguishing between applicants becomes difficult. Predetermined answer-rating scales enhance consistency across interviews and the objectivity of judging applicant responses.

Appendix 1 provides an example of an item intended to assess knowledge of the changes occurring in pharmacy and an applicant’s motivation to be a pharmacist.

4. Use more than one interviewer to record and rate answers. This reduces the impact of idiosyncratic biases that single interviewers might introduce. Although it may not be realistic in schools of pharmacy, using the same members for all interviews enhances consistency.
5. Consistently administer the process to all candidates. Members should not discuss their applicants between interviews in order to avoid potential bias arising from applicant comparisons.

One fruitful domain to concentrate on when developing critical incidents for use in the structured interview is assessing applicants’ emotional intelligence. Goleman delineates emotional intelligence into 5 components:

1. Self-awareness: The ability to understand one’s emotions, moods, and motivations, and their effect on others. Characteristics include self-confidence, realistic self-assessment, and a self-deprecating sense of humor.
2. Self-control: The ability to control disruptive impulses and moods. Characteristics include trustworthiness and integrity, comfort with ambiguity, and openness to change.
3. Motivating oneself: A passion to work for reasons that go beyond money or status. Exhibiting persistence in pursuing goals. Characteristics include a strong drive to achieve, optimism (even in the face of failure), and commitment to the organization and profession.
4. Empathy: The ability to understand the emotional makeup of others and the skill needed to treat people according to their emotional reactions.
5. Interpersonal skills: Proficiency in managing relationships and building networks. Characteristics include persuasiveness, expertise in building and leading teams, and effectiveness in leading change.

Based on the research on emotional intelligence, one medical school developed an emotional intelligence instrument (EI) to assess medical school applicants’ emotional intelligence during the admissions interview. The authors reported that the developed EI instrument was successful in assessing the 5 dimensions of emotional intelligence among medical applicants. Reliability coefficients ranged from 0.66 to 0.95. The 34-item EI instrument demonstrated the ability to measure attributes that indicate desirable noncognitive skills.
in medical applicants. Specifically, the EI instrument allowed the medical school to quantify the qualitative characteristics of medical school applicants through a semi-structured interview format.

CONCLUSIONS

Pharmacy schools have an interest in admitting students who possess not only a high level of cognitive intelligence as measured by GPAs and PCAT test scores, but who have the personal qualities to provide a high level of patient-focused care to their patients. The present paper examined the use of the structured interview as one method of increasing the reliability and validity of assessing qualitative nontraditional characteristics of pharmacy school applicants. The structured interview was discussed as a reliable and valid alternative method of assessing applicants' personal characteristics. Suggestions for how schools of pharmacy might develop items for the structured interview and how the interview might be administered were also discussed.

REFERENCES

Appendix 1. Scoring guide used to assess applicant’s response to a question.

Assesses applicant knowledge of changes occurring in pharmacy and motivation to be a pharmacist.

The practice of pharmacy is changing rapidly, and as a pharmacist, you will be involved in this evolution. How do you see these changes affecting your role in the practice of pharmacy?

1 2 3 4 5

SCORING GUIDE
1 point: Poor knowledge base,
No focus,
No recognition of changes or of problem,
Anger at system without productive responses,
Passive response (e.g., “There’s not much I can do.”)

3 points: Knowledgeable answer but very broad without clear ties to the future,
Realistic appreciation of health care issues,
Straightforward answer but superficial link (e.g., we will have to practice pharmacy differently…more patient care.)

5 points: Concise analysis of specific area with a tie to personal future,
Clear demonstration of knowledge about important current issue(s) in pharmacy with connection to personal future,
Indication of plans to be actively involved,
Evidence of a balanced view of the changes occurring,
Patient advocacy