Characteristics of Students Failing Medical Education:
An Essay of Reflections

Caven S. Mcloughlin, Ph.D.

School of Lifespan Development and Educational Sciences
Kent State University
Kent, Ohio, USA

Abstract: This essay offers a series of reflections by a psychologist who has evaluated and provided remediation and counseling to medical school students who are experiencing failure despite an intellectual capacity to succeed. The common thematic indicators for students who stumble in their medical education are described. Markers for potential-to-fail are suggested that relate to students' Information Organization, Planning Processing, and Preparation for Examinations.

There can be no greater nightmare for the intending physician than the prospect of failing medical school. For students part-way through their medical education the pressures to be successful are multiplied. Yet, quite expectedly, some find their chosen career path does not parallel their developing interests, abilities, sensitivities, or their maturing understanding of the world-of-work. Others, reluctantly, discover that despite their own strong interest in continuing in medicine they are no longer welcome due to academic shortcomings. A smaller proportion of the many that nonetheless **do** have acceptable academic standing find that because of their lifestyle, use of restricted substances, personality characteristics, or interpersonal idiosyncrasies, they are destined never to be accepted as full members of the medical fraternity.

Unusually large loans support medical graduate study. The atmosphere within medical education can reflect an almost religious fervour for climbing ladders toward preferred specialties. When this scenario is intensified by a cajoling family, students have few legitimate alternatives when reappraising their initial decision to enter medical school. However, continuing is not always a decision which is theirs alone to make.

Medical schools' dismissal rates, whether or not including the number of students 'counseled' to discontinue, reflect an inconceivably high wastage-rate when compared to that of business, industry and commerce. This is not to suggest that medical schools *intend* in their selection processes to include a proportion of 'failures' in each class. To the contrary, efforts expended in monitoring 'failure rates,' and the reasons for the failure of a *minority* of students, probably outweigh in both time and effort what it would take to revise the curriculum so as to increase retention rates.

There are good reasons to better understand the characteristics and functioning of the failing medical student that include earlier recognition of the student destined for difficulty. With earlier detection it might be possible to diminish unreasonable burdens on students, and rearrange environmental circumstances to promote success. Finally, with forewarning it may even be possible to counsel, tutor, motivate and otherwise 'save' the wastage of a massive investment (both individual and societal) through the expenditure of relatively minimal resources.

The commentary in this essay will not propose a method for selecting medical students, nor will it suggest comprehensively the reasons why some students are dismissed from their medical education programs. Rather, several patterns and themes will be described which appear to characterize the learning, social, and psychological styles and dispositions of students who fail in their medical preparation programs. These are simply observations and reflections; they are unsupported by an empirical foundation and are based entirely on clinical observation. There should be no doubt that these remarks are a result of potentially idiosyncratic study of medical school students experiencing difficulty. Following the commentary will be a brief outline of some potential remediation.

While not empirically based, the trends I note here are the result of data and impressions collected when interviewing, tutoring and counseling students in severe academic difficulty at a Midwestern USA medical school compiled over several years. Only those features evident in a majority of failing students are discussed. No single student reflected all the illustrated features; while each had problems, none was so burdened as to have them all. With the caveats that I have noted and an awareness that face-validity is the only measure against which these data

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doi;10.3885/meo.2009.L0000029
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may be tested, I will first provide some reflections on basic themes characterizing students who experience difficulty attaining and maintaining academic success.

Some Basic Themes

It is almost never necessary to use exhaustive, diagnostic testing-to-limits to discern the nature of the specific problems experienced by medical students in *severe* difficulty. The student who is failing for apparently unaccountable reasons is rare indeed. Generally, the problems are so dramatic that the causative agents are identifiable with minimal detective work. With problems clear from the outset, the primary task is in checking that, in fact, the *apparent* precipitating problem is the real cause. Thus, it is generally true that presenting problems are discernible from the individual's history; if you read for clues then the data are incontrovertible. Of course, that does not mean that the problems are simple to remediate—only that they are relatively easy to differentiate.

Failing students appear to value a frank, candid appraisal. When discussing with a student the 'clues' that I see in their background their response is all too frequently a sincere lack of appreciation of the double-edge embedded in the evaluations they have received from Professors, Clinical Directors, and their Medical School Dean. Typically the 'clues' implying a prospect for failure are embedded in coyly worded statements that intimate, but rarely fully-explain the depth and implication of the unsatisfactory performance. Statements that objectively and quantitatively identify a failing standard are tempered with qualitatively phrased compliments that act to diminish the impact of the intended message. Appraisals are cloaked in positive, kindly terminology; and, it is almost solely the positive upon which the student has focused. In their reading of written evaluation all they see is the encouraging tenor. Is this a case of selective attention? Almost certainly it is; however, the responsibility for accurate communication lies equally with the message-provider as it does with the recipient. It is likely that faculty concern to ensure that messages are conveyed 'positively' in fact blunts the message's true intent.

Typically, the individual who is failing is no less committed to their success as a medical student than any peer. While highly motivated to be successful in academic study and examinations, this student rarely thinks further ahead than graduation. Only infrequently do they visualize themselves as a medical *provider*; rather, they are overly focused on being an acceptable medical *student*. Superiority, they presume, can directly be equated to a facility to remember increasingly higher mountains of facts.

It should come as no surprise that intelligence, as measured by IQ tests and reflected in secondary education grades, is an imperfect measure for predicting success in medical education. Native ability is clearly a necessary but insufficient criterion for performing well in medical school. In fact, whereas medical students do not have to be located in the IQ stratosphere to be successful, they do have to be exceptionally well organized in their management of information. For many medical students, success has come at the expense of, and sometimes despite, grossly inefficient study habits. The existence of efficient study habits or a willingness to 're-learn' study systems are themselves critical indicators for identifying a candidate likely to benefit from remediation strategies.

Most students who approach the stage of no-return in medical studies say they were not particularly academically-stretched prior to entering medical school. Consequently, we should never be surprised that most approach their medical studies using the exact same strategies as they used (albeit successfully) in secondary education settings. That is, they generally practice a strategy of 'when in doubt simply read, read and read again.'

The failing student rarely expected to fail. This novel experience of failing is emotionally painful and often without precedent for the medical school failure. Consequently, it is common to see avoidance of contact with peers, and a parallel demeanour toward the school's academic review and promotions process. Failing students have a generalized reluctance to approach appropriate academic personnel for advisement—despite their clear recognition of its importance. The feeling of abandonment, experienced by many failing medical students, causes some to drop out completely from *all* study related activity, which further compounds their difficulties.

The failing-group includes a disproportionate number of individuals from vulnerable social situations, and a high proportion of persons living fringe-lifestyles. They appear overly represented by women and racial minority individuals, non-traditional students in terms of age and background preparation, those in socially demanding family arrangements, people without a ready social resource system, individuals lacking a family-legacy in medicine, and those living with non-medical roommates.

Since an active social and academic resource system is more typical for those who experience success, then there is no surprise that the failing group includes many loners. While not flattering, I have heard many students in marked academic difficulty portray themselves as 'socially retarded.' Almost universally these are also individuals who are not part of any organized study group

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system. They rarely can identify a 'study-buddy.' They may have attempted to gain study-group membership but as one student explained: 'When I pulled myself together enough to ask, I was given too hard a task. It was intended to dissuade me from ever asking again.' As typically dependent rather than independent characters they seem to allow the world to act on them, rather than 'take charge' of their life. Perhaps significantly, whatever their level of unhappiness as a 'failing' medical student, it is usual to hear a resounding sigh of relief once the school's academic review and promotions process makes a final decision to sever the student from the medical track.

An associated social difficulty relates to the student's severely limited horizons about the World in which they live. Failing students tend not to read newspapers, nor do they watch television news programmes or participate in discussions about current events. Invariably, they cannot recall the last poem or novel they read. In an apparent contradiction, they seem overly focused on 'things medical'; perhaps at the cost of viewing medical problems in a similar way as the auto mechanic who sees a disabled automobile without regard to its owner.

There is another class of difficulties more directly associated with efficiency and accuracy at managing academic and clinical tasks. These problems can be categorized in terms of **Information Organization, Planning Processing,** and **Examination Preparation.**

A. INFORMATION ORGANIZATION

Problem-solving skills are clearly independent of native intellectual ability. Usually, those students with specific disabilities in problem-solving are also fundamentally naive about the gravity that such a deficit has for success in medical practice. These are people who typically use a linear approach to trace relationships, or who are without a 'filter' mechanism for determining the relative 'weight' of chunks of information. Too frequently, the failing student does not understand the difference between central postulates and marginal detail; all 'information' is given equal priority. Also, they may think *linearly* or *successively* rather than use *simultaneous* strategies—that is, they have an inefficient cognitive route-map to help in making judgments at critical decision points. Unfortunately, the traditional tertiary education system does little to teach problem-resolution strategies as a formal skill aimed at improving efficiency.

It may help to contrast the elements of successive and simultaneous processing for adult learners, with examples of behavioural clues and observations for each approach demonstrated by medical students. It should help to keep in mind that whether successive or simultaneous in basic orientation, the student still needs to have access to a variety of efficient planning processing strategies. Clearly, the preferred processor is the student who makes use of a simultaneous approach, but who also has access to efficient planning processing strategies. Thus, conceptually, the successive/simultaneous processing style represents higher order functioning, while the specific problem management strategies (represented by planning processing) serve to make the general approach more, or less, efficient.

Successive Processing: **The focus is on the linear, serial relationship of ideas and information**.

Key points

- Student arranges information in specific linear sequences.
- Orientation of 'parts' into a 'whole' is not easily or frequently accomplished.
- Each segment of a reading (or task) is related only to the next one in the sequence (i.e., the whole cannot be surveyed without recourse to considering every element of the detail in the chain-like progression of information). The successive-processing student cannot 'jump' to the central thesis.

Student's behavioural clues, and examples of activities: Over-repetition of, and emphasis on, serial events; incorrect use of syntax (or over-rigid, uncreative reliance on semantic-clues in a reading); jerky, rather than smooth, motor movements; almost no linkage or reference to related information from alternative sources (whether medical education units, modules or courses); relative absence of strategies for ordinating ideas within a reading (e.g., few subheadings within lecture notes), and little understanding of the concept of hierarchically arranging information based on priority within that information-set. When confronted by a patient with diffuse or multiple symptoms the student fixates on a single element of the presenting symptomatology, misses crucial and 'obvious' clues, and after-the-fact is sincerely unaware that the analysis was incomplete (i.e., he/she is dangerously single-minded in symptom pursuit). The student engaged in successive processing strategies does not seek to link data by creating bridges between informational elements. When this student uses someone else's memory device, a mnemonic for example, they invariably incorporate it *without any change or modification.*

Observation: This problem-solving strategy results in an extremely time-consuming and inefficient approach to managing complexity. The inefficiency results from

the student's need to 'cycle-back' each time a higher-order interpretation or advanced information-retrieval is demanded. The student treats information as though it originates from within encapsulated, discrete and separate entities; without regard to the possibility that linkages between otherwise apparently unrelated information might need to be sought out, or even cultivated. Essentially, the symptom-pursuit strategies are grossly and dangerously inefficient because the significance of *relationships* across information units is unappreciated.

Simultaneous Processing: The manipulation of information through the thoughtful selection of personally relevant strategies and the imposition of 'meaning' upon a databank of otherwise disparate facts.

Key points

- Requires the student to arrange information into a group or network.
- Requires that the student thoroughly comprehend the information being confronted; rather than approaching it as a series of unrelated facts susceptible to being learned using rote memory devices,
- Each segment of a reading (or diagnostic task) is related to every other part of that task (i.e., the whole can be surveyed as a consequence of considering the relationships within the whole). Thus, simultaneous-thinking students can 'jump' to the central idea because they can see the relevance of each main idea to all other main and subordinate ideas.

Student's behavioral clues and examples of activities: The student using simultaneous processing strategies seeks out logical relationships between sets of information. And, where these are not immediately evident, this student attempts to impose a personalized interpretation of meaning onto the data set. The student can perceive abstract relationships, identify higher-order meaning, and differentiate the relative importance of ideas embedded in a complex reading (or task). The student creates several *personalized* strategies for manipulating information (e.g., develops personally meaningful mnemonics). Thus, when the student incorporates someone else's mnemonic it is purposely modified to make it personally meaningful.

Observations: This personalized-study-approach makes it easier for an evaluator of the student's 'study skills' to assume that each stratagem is inefficient or irrelevant since the student's approach does not reflect that of the evaluator. However, idiosyncrasy is inherent within personalizing. The true measure of the efficiency of the student's approach is answered by the test of pragmatism: *Does it work?* It would be wrong to deduce that the simultaneous processing student studies effort-free; however, the time that is expended brings more lasting results and an improved outcome when compared to the linear thinker.

A rule-of-thumb **problem solving index** that I use is to ask about the student's selection of a medical specialty. Whatever their stage in medical education this is a universal experience. It is remarkably typical for failing students to have made their initial selection—then never to have gone back to re-evaluate that choice with updated information learned on the journey through medical school. Many times the trigger for the initial choice was itself ill-informed (a television portrayal, someone they once knew in a particular specialty, a traditional family role, or presumed higher income prospects). Particularly frightened to evaluate their own initial decision to go to medical school are the very same students who themselves see their options for continuing as being snatched away.

In this exercise I ask the failing student to tell me what data they accrued to make their current choice. Do they know the influences on their choice? I also evaluate their degree of self-knowledge. Have they factored in their own values, needs and desires into the selection of a medical specialty? Do they ever engage in self-assessment as a personal-retreat? That is, do they ever attempt an appraisal of their professional and social aspirations? Typically, students in difficulty have a poor understanding of self. At the most basic level, some even appear not to know where their strengths lie in the traditional triad— people, information, and things.

Efficient information-organization involves meaningfully **storing data** so as to be later able to **retrieve** it efficiently. Most students-in-difficulty focus on *retrieval,* assuming that the *storage* mechanism will take care of itself. They have forgotten (or perhaps never knew) that efficiency in storage is the primary limiter to one's later ability to retrieve. When they do organize information, it is done idiosyncratically and exclusively according to class topic, organ system, or even the academic year when it was initially taught. Such a study-approach treats academic lecture classes as though each teaches discrete pools of medical knowledge that are unitary and ultimately separate; knowledge units are thoroughly compartmentalized. These comments also address the student's approach to **planning processing**, which now will be briefly addressed.

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B. PLANNING PROCESSING: How a person decides to solve problems and consequently their proficiency at finding resolution.

Key points

- Planning allows the student to regulate, modify and evaluate their activities.
- Planning is a conscious, learnable activity; reflected in the strategies a person uses to pursue difficult-to-interpret information, and in the systems students use to codify information into their memory-storage for later retrieval of that information.
- Planning is demonstrated by the existence of a course of action for solving tasks that can be articulated by the user.
- Planning allows for the inspection of the performance of strategies, so as to determine their effectiveness.
- Planning is the 'thinking person's' system for impulse control and the regulation of their activity patterns.

Student's behavioral clues, and examples of activities: An efficient plan-processor evidences efficient completion of tasks with clear, concise, organized notes; ordination and heading within notes is commonplace; student makes a conscious effort to differentiate unimportant from mundane or trivial information; student appears to be able to visualize relationships within pools of information, even across apparently disparate fields; student tries to impose a pattern or meaning onto the mountains of information that contemporary medical practitioners experience.

Observations: Students correct, modify, or in some way fine-tune their strategic plan whenever it leads to error, or becomes inefficient or time-consuming. This requires that the student regularly and consciously reflect upon the plan that is being used. If a student cannot, after a few moments of thought, articulate the strategy being used to solve problems then most typically that student is not using any strategy (i.e., they use true 'trial-and-*error*' in the hope of hitting some instances of 'trial-and-*success*'). Coding information for storage is the most vulnerable link in the three-part chain: Codify → Place-into-Memory → Retrieve

C. EXAMINATION PREPARATION

Students who stumble at the hurdle of formal examinations use characteristically inefficient strategies for preparation. They are not particularly test-wise (seen, for example, in their failure to recognize that multiple-choice tests planfully embed incorrect answers as intentional distracters). These are students who fare particularly poorly when questions are not identified as originating from a particular content or subject area. Their study preparation invariably anticipates that examinations will comprise a set of separate quizzes, each of which will be exclusive to a particular domain—*and labelled with that domain name*. For example, if the student does not have a prompt to tell in which domain the knowledge might be located (Biochemistry, NeuroAnatomy, etc.), then there is a high probability that the question will go unanswered. This student, too, has difficulty whenever information from more than one domain needs to be combined to establish a whole that is greater than the sum of the parts. This particular difficulty relates to a failure to develop an understanding of conceptual linkages between information learned across different medical topics or domains.

Rarely does the failing student see the totality of the medical class's content in any holistic sense. Their singular approach to facts is distinctive*; information is deemed meaningful only in its particular, rather than universal, context*. This is the very student who will later approach a case presentation in a particularistic way (for example focusing exclusively on organ failure and foregoing the 'whole-patient' appraisal). The student's study-notes reflect this approach; for, material taught in each class is encapsulated—without cross referenced bridges to tie together concepts taught in linked-courses. Universally, class content is viewed as disparate and essentially unrelated, except to itself.

REMEDIATION

Procedures for providing assistance to the students described in this essay are based more in art than in science. Nonetheless and not surprisingly, the method of choice relates specifically to the identified shortcomings—which itself is the medical model of targeting treatment to the 'pathology.'

Emphases are placed on multiple strategies so that the student can *take charge* of study preparation and management. This can mean that the student will need to be counselled in:

- Systems for personal time management.
- Strategies for initially *organizing* (rather than later *retrieving*) information provided in classes or clinical rotations.
- Recognizing the *relative importance of context* within a recommended reading—which means that the student must be prepared to seek out backward-acting and forward-acting textual cues that illuminate essential meaning.
- Considering the advantages/disadvantages of pro-

prietary study schools examination preparation programs.

- The personalizing of the student's responsibility for study preparation.
- Recognizing the appropriateness of supplementing examination preparation through attending extra classes, taking 'mock examinations' or 'shelf-boards.'
- Incorporating personally-relevant mnemonics and diagramming or charting information (e.g., with colour coded systems).
- Developing 'picturable notes' so as to be able to visualize material.
- Explaining traditional study strategies; for example, the *S*tudy, *Q*uestion, *R*ead, *R*ecite, *R*eview paradigm (*SQ3R*).
- Developing a dictionary-habit for discovering the meaning of uncertain terms.
- Searching texts for keywords, definitions, and linking concepts, and such like.

Most of all is the need for students to construct meaningful linkages between information and concepts learned across different areas of medicine. This can be done by cross-referencing information and concepts learned in various courses of study, and finding multiple 'hooks' for single chunks of knowledge.

True to scientific form, most medical students in trouble become very objective and deny their valuable subjective feelings. That is why most of these suggestions are not particularly novel. They represent fairly common sense approaches which most of us will reflect on having used at one time or another. However, common-sense is in remarkably short supply for the medical student who begins to sense failure on the horizon.

Correspondence

Caven S. Mcloughlin, Ph.D.
Professor of School Psychology
School of Lifespan Development
and Educational Sciences
405 White Hall
Kent State University
Kent, Ohio 44242 USA

Phone: 330-672-2928
Fax:330-672-2675
E-mail: caven@kent.edu