
REGULAR ARTICLES

Applying the Principles of Human Motivation to Pharmaceutical Education

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ABSTRACT. Motivational theories from the general management literature were analyzed to diagnose and address complaints about pharmacy student motivation. A list of common motivation-related complaints was solicited from pharmacy faculty and students via town hall meetings, student organization gatherings, personal interviews, and satisfaction surveys. Findings from four motivational theories—Maslow’s Hierarchy of Needs, Herzberg’s Two-Factor Theory, Equity Theory, and Vroom’s Expectancy Theory—were used to diagnose and explain the reasons for the complaints. Consequently, the theories were employed to develop and describe six basic principles that pharmacy faculty can use to reduce motivation-related complaints and to enhance motivation. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: <getinfo@haworthpressinc.com> Website: <http://www.HaworthPress.com> © 2001 by The Haworth Press, Inc. All rights reserved.]*

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INTRODUCTION

Student learning and competency are critically important goals of pharmacy schools. Student learning depends greatly on a student's own internal motivation, yet the educational environment has a tremendous impact on the development of a student's potential. When the faculty and administration provide an environment that maximizes motivation, student learning will be enhanced.

Educators share many of the same responsibilities of managers, including that of motivator. Managers set objectives for employees, help organize and control employees' work, and motivate employees to achieve those objectives. Educators develop curriculum goals and objectives, develop lesson plans for students, design and administer courses, and monitor student progress—all aimed at ensuring that students graduate with the proper professional skills and amount of pharmacy knowledge. Both educators and managers work through their subordinates to achieve their objectives. As a result, many managerial and educational practices originate from the same motivational foundations.

This paper describes how motivation theories commonly taught in management classes can be applied to the process of pharmaceutical education. Theories of interest for this paper were foundational theories (e.g., Maslow's Hierarchy of Needs) rather than meta-theories which incorporate several theories into a single integrative model (e.g., Porter-Lawler model). Additionally, educational theories not commonly seen in the management literature, such as social learning theory and self-efficacy theory, were not considered. The focus of this paper is to examine the role of pharmacy faculty as managers of student education and to determine how manager/educators can enhance student motivation to learn.

The idea for this paper originated in a classroom exercise designed to teach about the connection between management and educational practices. Second-year pharmacy management students were asked, "How do pharmacy educators attempt to motivate students to learn, and are those methods consistent with what might be recommended by motivation theory?" At the end of the class, a student and the professor decided to explore the issue further, incorporating ideas from both student and professor viewpoints.

To answer these two questions, a list of common motivation-related complaints reported by both faculty and students was collected (see

Table 1). The list was compiled from complaints raised in a variety of student/faculty forums (e.g., town hall meetings, student organization gatherings, personal conversations, satisfaction surveys). Although the method of collection was not systematic and may have overlooked some issues, the authors felt that the list was representative of motivation-related problems.

These complaints were then reviewed for their relevance to employee motivational issues identified in the class managerial textbook (1). It appeared to the authors that many of the motivational issues that concerned educators and students were similar to those that troubled managers. Furthermore, it appeared that more effective understanding of motivational theories and application of simple, logical motivational principles could possibly address many of the educators' and students' complaints. This paper represents an attempt to develop those principles.

This paper is composed of two sections. The first section reviews four motivational theories and discusses them within the context of pharmaceutical education. The second section lists basic principles that pharmaceutical educators can follow to enhance student motivation.

MOTIVATION THEORIES

Although there are many motivation theories discussed in the management literature, this paper only mentions four: Maslow's Hierarchy

TABLE 1. Complaints by Faculty and Students Relating to Student Motivation.

Complaints
Faculty Complaints <ul style="list-style-type: none"> • Students only want to know the material on which they will be tested. • Students commit class material to short-term memory rather than long-term memory. • Students whine about fairness in assignments and testing. • Students skip class or do not pay attention while in class. • Students are only interested in topics that are perceived to be immediately applicable to their expected career on graduation. • Students lack commitment to their education and profession.
Student Complaints <ul style="list-style-type: none"> • Faculty practices force students to "study for the test." • Faculty practices reward students who are good at memorization more than those who truly learn. • Faculty are unfair in assigning grades. • Faculty make too many demands on student time. • Faculty often teach topics that are outdated or irrelevant to practice. • Faculty do not inspire commitment to pharmacy education and the profession.

of Needs, Herzberg's Two-Factor Theory, Equity Theory, and Vroom's Expectancy Theory. These four were chosen because they were deemed most applicable to the complaints identified in Table 1, based upon the personal experiences of the authors. The theories discussed in the paper are listed in Table 2, and a short description of each follows.

Maslow's Hierarchy of Needs

Abraham Maslow stated that human beings have categories of needs that they attempt to meet in a hierarchical fashion (1). Maslow argued that human needs are derived from five need categories (i.e., physiologic, safety, social, esteem, and self-actualization) which are arranged in ascending order from the most basic to the most complex. Maslow found that, in general, humans act to satisfy lower level needs before meeting higher level needs. For example, people normally do not attempt to meet social needs until their concerns about physiological and safety needs are satisfied.

The process of learning is associated with meeting higher level needs such as self-actualization. In accordance with Maslow's theory, students may have trouble learning until their physiological, safety, and social needs are met. Faculty and administration may reasonably assume that the majority of students already have these lower level needs met, concluding that student motivation should focus on addressing self-esteem and self-actualization needs. This assumption may not be true for all students (2).

Some time during their education, students may become preoccupied with meeting lower level needs. Some may have marital difficulties or other serious problems in personal relationships. Financial difficulties may threaten the ability of certain students to pay for school and housing. Still others may suffer a personal illness or a serious illness or death in the family, which may affect feelings of safety or social well-being. Until these lower level needs are satisfied, learning will be difficult.

Herzberg's Two-Factor Theory

Herzberg's Two-Factor Theory addresses the effect of working conditions on worker satisfaction and motivation. Herzberg found that certain aspects of a person's job affect overall job satisfaction, which in turn affects job motivation (1).

Some job conditions tend to dissatisfy workers when they are *not* present and thereby reduce worker motivation. Herzberg labeled these

TABLE 2. Motivational Theories.

Theory	Description
Maslow's Hierarchy of Needs	<p>Human needs derive from five need categories in a hierarchical fashion. In general, humans act to satisfy lower level needs before attempting to satisfy higher level needs. The needs, in descending levels of importance, are:</p> <p>Need Categories Student Examples</p> <ul style="list-style-type: none"> – Self Actualization Mastery of complex topics of personal interest – Esteem Congratulations by faculty member or student peers – Social Working with fellow students on group assignments, interacting with faculty at school social functions – Safety Reliable transportation, reduced threats of failing, affordable health insurance – Physiologic Money for school and supplies, good personal health
Herzberg's Two-Factor Theory	<p>Working conditions are made up of maintenance and motivational factors which affect worker satisfaction and motivation. Maintenance factors dissatisfy when they are not present but do not affect satisfaction after an acceptable level is reached. Motivational factors do not dissatisfy when absent but result in satisfaction when present. Maintenance factors are provided in exchange for completing certain tasks. Motivation factors are associated with the completion of the task.</p> <p>Factors Student Examples</p> <ul style="list-style-type: none"> Maintenance Acceptable grades, comfortable learning environment, financial aid, fair school policies, fair treatment by faculty Motivational Feeling of professionalism and educational achievement, enjoyment of learning, recognition by peers and faculty
Equity Theory	<p>Individuals keep a mental tally of what they get versus what they have contributed to any relationship. If the relationship is judged to be unfair, then individuals will act to correct this perceived inequity. Student feelings of fair treatment may be based on false perceptions. Student responses may be productive or counterproductive.</p>
Vroom's Expectancy Theory	<p>Intensity of work depends on the perception that effort will result in a desired outcome. That effort depends on expectancy, the belief that increased effort will result in increased performance; instrumentality, the perception that higher performance will be rewarded; and preference, the feeling that the reward is of value. If expectancy, instrumentality, or preference is not present, then individuals will not be motivated.</p>

dissatisfying conditions *maintenance factors*, of which he found ten: policies, supervision, interpersonal relations with one's supervisor, interpersonal relations with peers, interpersonal relations with subordinates, salary, job security, personal life, working conditions, and status. Whenever a worker feels any of these conditions (also called dissatisfiers) insufficient, job dissatisfaction is likely to result. However, when sufficient maintenance factors are present to satisfy a worker, increased levels of these factors have minimal long-term effect on satisfaction or motivation. According to Herzberg, individuals who are generally satisfied with their salary or working conditions are not significantly motivated to work harder by promises of higher pay or better conditions above this satisfied level.

Other job aspects promote higher levels of job satisfaction and motivation when present, but they do not dissatisfy workers when the conditions are absent. These job characteristics are called *motivational factors*, and Herzberg described six of them: achievement, recognition, advancement, the work itself, possibilities for personal growth, and responsibility. When these conditions (or satisfiers) are absent, workers are neither satisfied nor dissatisfied. But when they are present, workers tend to achieve greater satisfaction in their job and job motivation. For example, workers might not be significantly dissatisfied if they are *not* recognized for a job well done, but they may derive significant satisfaction when they are formally recognized for excellence.

The distinction Herzberg makes between maintenance factors and motivating factors is similar to what psychologists call *extrinsic* and *intrinsic* motivators (1). Extrinsic motivators are rewards provided in exchange for working. They are furnished by employers as part of a verbal or written contract to get employees to complete tasks related to their job, but they have little impact on satisfaction with these job tasks or the job itself. Satisfaction only results when the extrinsic reward is received, and then only for a short time. Pay and working conditions are good examples of extrinsic motivators. When sufficient levels are present to satisfy, employees render the contracted levels of work activity. If sufficient pay or work conditions are not present, employees become dissatisfied and respond by reducing their productivity.

Intrinsic motivators are inherent features of the process of work. Intrinsic rewards result when the work itself is rewarding. This type of work might lead to personal growth, recognition, and potential for advancement. An additional benefit of intrinsic motivators is that they lead to higher tolerance for dissatisfaction arising from insufficient maintenance factors (1). In other words, intrinsically satisfied workers

are less likely to be dissatisfied by lower pay or poorer working conditions.

For students, maintenance factors may consist of acceptable grades, comfortable desks and chairs, good lighting, student social activities, and efficient financial aid and scholarship programs. Students, in exchange for attending pharmacy school and completing required work, expect delivery of these factors. If these and other maintenance factors are not present, then students will be dissatisfied and motivation will likely be reduced.

Student motivators might include responsibility, autonomy, challenge, recognition, and development of independent and critical thinking skills, to name a few. These are an inherent part of the learning process and are a reward of the process itself. Students who are provided with an educational environment that fosters these intrinsic motivators will be more likely to study for the sake of learning rather than to achieve a grade (3, 4).

Equity Theory

Equity Theory argues that workers are motivated to act to correct perceived instances of unfair treatment (1). The theory asserts that workers keep a mental tally of present and past experiences with their employer. The fairness of these experiences is judged by comparing what was received from the employer versus what was contributed by the worker. If workers judge this relationship to be equitable, workers will be motivated to reciprocate with a fair level of productivity. If the employee/employer relationship is viewed as unfair, workers act to correct the inequity by reducing output or finding a more equitable employer. It is important to note that equity judgments are based on employee perceptions, which may have little relationship to what actually occurs.

In the education system, student reactions to unfair treatment can have positive or negative consequences (5-7). If a truly inequitable situation occurs, the corrective action may prove beneficial. For example, students who are not given sufficient time to prepare for a test may approach the professor with an alternative test date that will be mutually satisfactory to both the professor and the students. Alternatively, perceptions of unfair treatment may result in counterproductive corrective actions. Students may take direct action by confronting the professor or take indirect action by complaining about the unfair treatment to other

students, skipping class, spreading harmful rumors, or refusing to learn the class material. None of these actions benefits the learning process.

Vroom's Expectancy Theory

Vroom's Expectancy Theory asserts that intensity of work effort depends on the perception that an individual's effort will result in a desired outcome (1). This intensity of effort is governed by an individual's expectancy, instrumentality, and preferences. Expectancy is defined as a perceived effort-performance relationship, which means that the individual needs to believe that increasing effort will result in greater performance. Instrumentality depends on a performance-reward relationship, which means that perceptions of higher performance on the part of an individual will be associated with greater rewards in return. Preference is the perception that the reward resulting from work effort will be of value to the individual. In summary, expectancy theory states that individuals will work harder to achieve a reward if they:

- Believe that greater effort will result in greater performance
- Believe those higher levels of performance will be rewarded
- Believe the rewards will be worth the effort.

If expectancy, instrumentality, or preference are not present, then individuals will not be motivated.

The pharmaceutical education system uses grades as one of the principal rewards to motivate student learning. According to expectancy theory, the assignment of grades as a reward must have expectancy, instrumentality, and preference to be motivational (1). This is not always the case (8, 9). Sometimes grades lack consistent expectancy because students may not believe that studying harder will result in better performance on exams or will improve the final grade. The authors report student complaints that frequently the amount of effort spent studying has little relation to how well they perform on exams.

In other cases, grades may lack instrumentality, especially when performance is defined as "learning" rather than "getting a high grade." Although better performance on an exam almost always results in a higher grade, it may not always indicate the level of student learning. There are instances when students do not really understand the course material yet get excellent grades on tests, and there are other cases when knowledgeable students do poorly on a test.

Finally, some students may not value high grades enough to work for them. An average pharmacy student may conduct a mental cost-benefit analysis and decide that a B or C will be adequate reward for his or her efforts.

Having reviewed these four motivation theories, it is clear that no single theory provides a complete explanation of what motivates people to work or to learn. However, a set of principles for motivating pharmacy students can be developed by combining and applying ideas from each of these theories. Based on an analysis of the complaints in Table 1 and the four motivational theories described above, a series of basic principles to enhance student motivation is presented (Table 3).

BASIC PRINCIPLES TO ENHANCE STUDENT MOTIVATION

Meet Student's Lower Level Needs First

Although most pharmacy students in the United States live relatively safe and comfortable lives, some students still feel periodic threats to their physiological, safety, and social needs. Financial pressures, serious illnesses, or marital and relationship problems can threaten a student's ability to concentrate on schoolwork. Admittedly, neither faculty members nor college administration have significant ability to affect or influence the outcome of such crises. Their primary role should be one of understanding and assistance.

Pharmacy schools need mechanisms that can allow students to man-

TABLE 3. Basic Principles to Enhance Student Motivation.

Principles
1. Students must have their lower level needs satisfied before they can be motivated to learn.
2. Educators should attempt to use intrinsic rewards whenever possible to motivate student learning rather than extrinsic rewards.
3. Clear expectations of performance must be established and maintained for students to ensure that students understand which efforts will result in desired performances.
4. Effectively linking student performance to rewards requires that students perceive that the reward system is fair.
5. Developing personal relationships with students can help faculty understand how students can best be motivated.
6. Student motivation can be enhanced when students see a clear link between what is being taught and their career plans.

age crises with minimal damage to their academic status or personal well-being. Financial aid and emergency loans can assist with monetary threats to student well-being. Counseling can be provided for students who have problems with personal or family issues. Time off can be given to students to deal with personal or family illnesses. Many of these forms of assistance are already available to students in pharmacy schools.

The solution of giving students time off in times of personal crisis can be a problem in itself because missing pharmacy school may impose a significant hardship on students. Many pharmacy curricula are too rigid to permit students to take time off without falling behind in their studies. This inflexibility can force students to make a choice between pursuing their academic career or placing it on hold to deal with personal issues. Time may be so precious during some periods in the school year that even a week's absence can render some students unable to recover. This may force some students to fall one year behind their classmates, or it may even cause them to leave school. Schools should examine whether changes in curriculum flexibility could help students keep their academic career on track.

If schools find that the rigidity of the curriculum causes significant hardships on their students, they have a number of options. One might be to offer makeup classes during holidays or breaks. Another option having less impact on individual instructors might be independent study options using Internet technology. When instructors place their course lectures on-line, students have greater ability to catch up with course work, independent of the professor. Although the professor will still need to be available to answer questions, students will have the flexibility of viewing the lecture material and readings on their own.

Use Intrinsic Rewards to Motivate When Possible

Educators frequently use grades to provide feedback to students about their progress. Faculty rely on grades to measure educational progress because grades are easy to use and are widely recognized by both students and faculty as a way to discriminate between students who have mastered educational objectives and those who have not.

Despite their widespread acceptance, grades may not actually motivate students to learn. Educators use grades to extrinsically motivate students similar to the way that managers use pay to motivate workers, and there is significant evidence that extrinsic rewards, such as pay, are poor motivators of desirable behavior in workers and students (3,

10-12). Grades are unlikely to motivate learning for several reasons. The most obvious reason is that grades encourage students to seek a grade, but not necessarily to learn. The correlation between good grades and student mastery of a subject is not perfect. Often busy or overwhelmed students must choose between truly learning about a topic and learning it well enough to get a good grade. This behavior is reinforced when postgraduate opportunities such as residencies and graduate schools focus on grade point average rather than mastery of pharmaceutical knowledge when selecting students.

Another reason that grades do not motivate is that they encourage students to look at pharmaceutical education as a transaction rather than as a desirable end in itself. Some students see grades, in part, as compensation for completing class assignments; therefore, the assignment becomes a vehicle for getting a grade rather than a vehicle for learning. For example, students who are given a writing assignment often spend significant time clarifying rules for the assignment of grades in order to comply with their portion of the transaction. When these students feel that they have completed all of the technical requirements for achieving a grade, they expect faculty to complete their portion of the transaction by assigning a desirable grade. The focus becomes not on learning through completion of the assignment, but on the assignment of a grade.

People who expect to receive a reward in exchange for completing a task do not perform as well as those who expect no reward at all (10). Extrinsic motivators such as grades succeed only in generating temporary compliance with educational outcomes. The assignment of grades encourages students to complete tasks at a minimally acceptable level because there is no reward for doing more than required.

Finally, grades do not engender the type of commitment that is necessary for higher levels of learning. A professional degree program should require more than compliance from students. It should require a commitment to learning. However, motivational systems that rely on extrinsic rewards do not create enduring commitment. Rewards-based systems do a poor job of motivating open-ended thinking and processes of cognitive sophistication (10). Rewards systems encourage students to "learn for the test." Reinforcing the behavior of "learning for the test" may inhibit the development of the habit of lifelong learning. If students learn only when grades are present, then motivation to learn ceases when formal education ceases.

This discussion does not imply that grades should be abolished as a student performance measure. Grades can be a valuable source of feedback to both students and faculty. Grades can communicate deficiencies

in performance and suggest where improvements are necessary. In addition, grades can motivate students to engage in the *process* of education.

Learning can be hard work, and students often need a push to engage in activities that lead to learning. It would be naive to believe that a love of learning will inspire every student to attend all classes and labs, complete assigned readings, and finish each assigned project. Even mature, motivated students can benefit from having deadlines set and consequences established for not meeting course requirements. Most students cannot be expected to do this by themselves. The benefit of assigning grades is to enhance student compliance with attendance and the completion of assignments. However, grades cannot stimulate the commitment to learning necessary for pharmacy professionals.

Grades are a poor substitute for personal feedback from faculty. Faculty who rely on grades as a form of feedback may not be giving students what they really need to learn. Although grades are more efficient, students may be better served if faculty members take the time and effort to provide an educational environment that creates a sense of responsibility for learning. Providing students with tasks and assignments that truly motivate learning requires ingenuity, commitment, and time on the part of the faculty.

Establish and Maintain Clear Expectations of Students

Vroom's Expectancy Theory predicts that student expectations have a significant effect on motivation. As a result, faculty members need to communicate what they expect of students in each course and reinforce those messages continually.

The syllabus is a valuable tool for setting expectations at the beginning of each semester. It should delineate issues such as the course philosophy, quantity of required reading, assignment descriptions and deadlines, examination procedures, and grading. The syllabus should do more than set faculty expectations of students. The syllabus should also establish student expectations of faculty. Time to return exams and homework or class assignments, advance notice of new assignments or changes in the schedule, and advance distribution of assignments are examples of such information.

Expectations set in the syllabus need to be reinforced throughout the semester both through words and deeds. For example, if the syllabus states that a grade of 90% or above will result in an "A," then it may be useful to verbally reinforce the message during the semester (i.e., pref-

erably before the first exam) that a grade of 89.9% will result in a “B.” This is especially important if faculty members in other classes do not adhere to these same expectations. Some faculty may reject the notion that they need to reinforce information that is explicit in the syllabus but doing so can head off potential misunderstandings on the part of students.

Actions are just as crucial to meeting and reinforcing expectations as verbal communications. For example, if exams are to be graded and returned within 10 to 14 days, every attempt should be made to adhere to that expectation. Each time words or deeds fail to reinforce expectations, mixed messages are sent to students about the behavior appropriate in professionals.

Setting consistent expectations can be difficult with team-taught courses. Individual instructors may have differing expectations of students, causing some confusion in students about which learning behaviors are most appropriate. Testing can be especially problematic in team-taught courses. Each instructor may have a unique style of writing test questions and emphasizing different material. For example, some instructors may emphasize assigned readings while others may highlight lecture material. Students are often forced to guess which ideas are most important to each lecturer and how to prepare for their distinct testing styles.

To maintain consistency between initial and day-to-day expectations, course coordinators for team-taught courses need to reinforce to each instructor the importance of following course policies. When individual instructors feel that they need to stray from the established boundaries set in the syllabus, the instructors should communicate those changes explicitly to the students. Communication is essential for ensuring that students understand expectations and the consequences of their actions on course performance.

Examine Issues of Fairness from the Student Perspective

Equity theory argues that, when motivating students, faculty should consider perceptions of fairness from the students' perspective. Although student perceptions may not always be based on reality, these perceptions can affect student behavior. Therefore, faculty may wish to be sensitive to how each interaction with students might be perceived or, ultimately, misperceived by students. For example, a common source of student/faculty conflict originates from the issue of testing and the distribution of test grades. In large class settings, multiple-

choice test questions are often used to assess student performance because they are less time-consuming to administer and grade than short-answer or essay exams. Multiple-choice exams have both advantages and disadvantages in establishing perceptions of fairness in the distribution of grades.

Multiple-choice tests may be perceived as “fair” by some students because there is typically only one “best” answer to a question. In contrast, short answer and essay exams can be answered in a variety of ways. Students may be less likely to question the grading of a multiple-choice test because the rules for grading are more explicit and objective. Essay and short-answer questions can be subject to claims of unfairness because assignment of grades is more judgmental and subjective. Some students may claim that multiple-choice tests are more “fair” because they can offer a systematic, defensible procedure for the distribution of student grades.

On the other hand, other students may claim that multiple-choice tests are “unfair” because they can only test lower levels of student learning and do not discriminate between students who can recall facts and students who understand content. Since the ability to practice pharmacy successfully requires a higher level of learning, multiple-choice exams may be declared poor measures of a student’s ability to integrate or apply knowledge and skills. Students may claim that short-answer and essay questions are fairer because they test higher levels of learning. This example illustrates the frustrating “no-win situation” that some faculty can feel when trying to be fair to students.

Faculty who wish to achieve fairness in student interactions should focus more on establishing procedural fairness than distributive fairness. Distributive fairness refers to the relative distribution of rewards and burdens in interactions between people. Students might perceive distributive fairness when students studying equal amounts of time receive the same grade. In real life, however, distributive fairness cannot always occur in each interaction with students. It is more reasonable for students to hope that faculty practice procedural fairness.

Procedural fairness occurs when faculty members establish a clear set of policies and procedures for grades and assignments that *over time* will result in the equal distribution of grades and class work. Students who recognize that the procedures for assigning rewards are fair are more likely to accept occasional incidents that might be perceived as unfair. Therefore, the best thing that faculty can do to maximize perceptions of fairness is maintain consistency in interactions with students and watch for instances of misunderstanding in students. These efforts

will not guarantee that each student will feel fairly treated, but they will help minimize negative perceptions in students.

Finally, students should be encouraged to question faculty when they feel that they are being treated unfairly. This is a more appropriate response than complaining to fellow students, and it can clarify misunderstandings that lead to conflicts between faculty and students. The educational environment should be receptive to students' feedback. The curriculum should foster programs such as open-door policies; course and professor evaluation forms; and group forums for discussion, such as informal curriculum committees. If students do not learn to resolve conflicts while in pharmacy school, their effectiveness as pharmacists may be hindered.

Develop Personal Relationships with Students

Both students and faculty can benefit from the personal relationships that they develop with each other. These relationships can take many forms, from cordial, professional ones to mentor-type relationships. No matter which form they take, relationships can help students and faculty learn about one another both personally and professionally.

Student/faculty interactions can promote understanding of the values and desires of both parties. Faculty can use these encounters to convey professional and scientific values to students, an important element in the professionalization of students. Students can remind faculty what it is like to be a student and the things that students consider important.

Relationships can also be used to individualize rewards to each student, a goal emphasized by each of the four motivation theories previously discussed. A personal relationship with a student can help faculty understand what motivates each student and help faculty to develop rewards that will meet the individual needs and circumstances of the student. For example, some students are motivated by responsibility and challenge, while others are motivated to develop skills that they can immediately use upon graduation. This information can be used to design assignments and methods of grading that are more likely to enhance learning.

Student/faculty interactions can facilitate communication, an important factor in developing strong relationships between faculty and students (13). If students and faculty understand each other's motivations, there will be fewer opportunities to misinterpret each other's actions. This communication can reduce conflict resulting from misunderstandings.

Draw a Link Between What Is Being Taught and the Student's Future

Expectancy Theory states that individuals are motivated when they can see that their actions will result in an outcome desired by the individual. From a student perspective, two important outcomes of a pharmacy education are a license to practice and a successful pharmacy career. Some students overemphasize the pharmacy licensing exam as a goal because it is an easy, concrete goal to work toward. This overemphasis can lead them to concentrate on some courses and downplay the importance of other courses. For example, with some educational topics, such as therapeutics, students can see clear relationships between what they are learning and the licensing exam. Students know that they must understand these topics to pass. For other subjects, such as some basic science and pharmacy administration topics, students may not feel that passing the licensing exam will be dependent on mastering these subjects. Therefore, students may rely on short-term memory skills and focus only on passing the exams but not on retaining what they have learned.

The goal of having a successful pharmacy career is vague and difficult to grasp for students who lack sufficient life experience. Students often have difficulty understanding the relevance of some of the subjects taught in pharmacy school because they have not worked in the higher level positions in which those subjects might be useful. Students with pharmacy technician experience may not notice pharmacists using much of the information or skills taught in school, even when the pharmacist does use these skills. If students cannot see themselves in settings other than those in which they practice as technicians, they may dismiss some topics as irrelevant to their career. Consequently, faculty may need to spend time selling the value of their class material to students.

Faculty should not assume that students are able to recognize the situations in which many topics may be of value. Students may need clear examples about how an understanding of the seemingly "less relevant" topics, such as pharmacoeconomics or medicinal chemistry, is critical to understanding issues relating to the so-called more relevant subjects, such as therapeutics. Testimonials from pharmacy school graduates about the value of topics such as pharmacy administration to their career can also enhance the perceived value of what is being taught.

CONCLUSION

Many of the ideas presented in this paper will not be new to experienced faculty, and they may appear to be common sense to newer faculty members. Nevertheless, the issue of student motivation is a persistent and recurring problem in pharmacy schools. Most faculty members and students will recognize the complaints listed in Table 1 as very common. They will also recognize their importance in motivating students to learn.

We have attempted to develop a list of principles that faculty can use to motivate students based on the management literature and personal experience. To our knowledge, this is the first paper in education to do so in this manner.

This paper has several limitations. First, faculty and student complaints were collected in a nonsystematic manner and in a single geographic location. This leaves them open to challenge as to their validity. The authors leave it up to the reader to determine the validity of this paper to educational practice. Second, only four motivational theories from the management literature were selected. Selection was based not upon objective criteria but the authors' personal preferences and experiences. Other theories in the management and educational literature were ignored, such as Skinner's Reinforcement Theory, Social Learning Theory, Cognitive Development Theory, and Self-Efficacy Theory. It is very likely that these other theories can provide further understanding of student motivational behaviors. The authors leave it up to others to discuss the applicability of other theories to pharmacy educational situations. Finally, the exploratory nature of the methods limits the paper. Although the conclusions of the paper may make sense to experienced faculty members, further research is needed to explore the validity of issues raised.

Some faculty may question the idea that it is their responsibility to motivate students. They may feel that it is the student's job to come to school prepared and willing to study and learn. Alternatively, they may feel that motivation comes from within and efforts might be better spent recruiting students who have a strong personal motivation.

However, shifting the responsibility to the student ignores the tremendous impact that faculty and colleges have on motivation. In a statement that echoes the importance of faculty and colleges on student motivation, Robert Smith, president of the AACP, stated: "Our role as teachers is to set free the greatness in each of our students in the same way a great sculptor releases the image within the marble before he be-

gins to carve. The future of pharmacy rests upon our ability to unleash the greatness in each of our students. What we do with our students today will determine what they will be and do tomorrow" (14). We hope that this paper will be able to assist some faculty in helping students achieve the greatness spoken about by Smith.

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