Evaluation of Student Attitude Toward Learning From Homework Assignments in a Nonprescription Drugs Course

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INTRODUCTION
In “Background Paper II: Entry-Level, Curricular Outcomes, Curricular Content and Educational Process,” the Commission to Implement Change in Pharmaceutical Education challenged academic pharmacy to facilitate the acquisition by entry-level students of a relevant knowledge base, skills, attitudes, ethics and values(1). The Commission’s recommendations have become an impetus for remarkable innovation and creativity among faculties to actively involve students in the learning process. The literature in pharmaceutical education is a testimony to its impact(2-4). Suffice to say, however, besides having faculties change their approach to educating students, these efforts must successfully help students change their view of how they are to learn. In essence, academic pharmacy must change the paradigm of how students view educational experiences with the intent to help them become practitioners who can become decision-makers, solve problems, and demonstrate performance-based abilities which will be central for successful future practice (e.g., developing practice niches, interdisciplinary primary care, contributing citizen).

In the same Background Paper II, the Commission also provided a model to teach problem solving(1). In this model, simulations (e.g., case studies) were advocated as a means to have students evaluate data and make decisions to develop problem solving skills. Well-designed problem sets (e.g., homework assignments) were also advocated to hone problem solving, critical thinking, application, and integration skills. In addition, this paper also cited skills proposed by Woods(5) as necessary for the development of problem solving capability. Included among these was an ability to cope with ambiguity, fear, anxiety and procrastination.

Homework assignments afford a significant learning opportunity for the student and foster learning principles(6). In case or scenario format, these can provide the student with challenging situations, some more ambiguous than others, that mirror the “real world.” These ensure the student is active by encouraging them to use class notes and literature references to solve the problem presented. Further, homework assignments encourage student writing ability development through practice and feedback. Constructive feedback on assignments helps to guide and encourage the student and nurtures a positive expectation for his/her success on future assignments.

A shortcoming of using homework assignments as a learning tool, however, is that when they are graded and returned, students often do not read the comments and/or feedback and thus might miss additional opportunities to learn from this experience. This typifies Atkinson’s theory of achievement motivation which suggests motivation for all individuals is derived from their ultimate desire for success and the innate fear of failure(7-8). The use of a grade as a standard of success or failure often overpowers the learning factor as a motivational tool. A question that must be answered by every educator who uses written homework assignments is how one can encourage students to reflect upon the constructive/instructive responses to their work. What appears to happen is that the homework outcome (i.e., the assigned score) brings the assignment to closure and turns the student “off” to further learning from the assignment. The goal should be to get students to view the return of a homework assignment as the middle (not the end) of the process. Learning should be viewed as a continual process and includes instructor feedback on assignments. Hopefully, students will recognize and develop this attitude toward learning as a habit. Developing this habit then should enhance their continual pursuit of learning throughout their professional careers.

Another dilemma associated with returned homework assignments is that students do not always have a realistic
expectation of their work. There are some students who become angered or frustrated when the assigned grade is lower than anticipated. Typically, they brood about a score they believe is undeserved. Alternatively, there are some students who undervalue their achievement and breathe a sigh of relief when their assigned grade is higher than expected. Thus, attempts must be made to enable all students the ability to bring their sense of achievement more in line with the reality of what they have accomplished and to encourage those students who need to acquire more confidence in their work.

Hogan(9) shared these concerns and developed a mechanism to have students predict their homework grades as a means to involve them in their learning. He would return the assignment without a grade but with written comments. He also provided a rating scale used to evaluate the submittal. Students were instructed to read these and then at the beginning of the next class, hand in a slip of paper with the score they judged they earned on that particular assignment. Hogan then handed them a similar slip of paper with their actual score. Hogan subjectively observed that this process helped eliminate disappointed looks and unread papers. However, there was not an attempt to gauge students’ attitude and perception toward his approach, and whether or not they benefited from the experience.

For reference, Kerlinger(10) defines an attitude as “an organized predisposition to think, feel, perceive, and behave toward a referent or cognitive object. It is an enduring structure of beliefs that predisposes the individual to behave selectively toward attitude referents (i.e., categories, classes or sets of phenomena: physical objects, events, behaviors).” Perception is defined as consciousness or awareness(11). It is the process or faculty of perceiving. It is also defined as insight or intuition, as of an abstract quality.

To accomplish and evaluate this goal of having students learn from returned homework assignments and gain a realistic expectation of their effort, an experiment was conducted in an elective, undergraduate Nonprescription Drugs course. The objectives were to:

1. assess student attitude about learning from homework assignments in lieu of course examinations;
2. assess student attitude about learning from a returned homework assignment that initially does not contain the assigned grade;
3. assess student learning from having to predict the homework score;
4. assess students’ perceptions of the instructional value of a grader’s written comments on a homework assignment; and
5. assess students’ perceptions of the instructional value of prepared feedback sheets relating to homework assignments.

METHODOLOGY

PHPR 470—Nonprescription Drugs (Enrollment = 155 fourth collegiate-year students). A description of this team-taught, elective course has appeared previously in the literature(12,13). A key facet of this course is that it includes no formal examination mechanism (including quizzes). Course grades are assigned on the basis of classroom attendance (i.e., 40 percent) and the completion of ten, written homework assignments (i.e., 60 percent), with an overall course point value of 1000. A course manual, replete with lecture outlines/notes and related readings from the professional/scientific literature, is prepared for and purchased by the student.

Homework Assignments. For this study, a majority (i.e., 7/10) of the returned homework assignments although graded with the grader’s comments on the paper did not reveal the assigned grade (i.e., point total out of sixty possible points). For these papers, students were instructed to review their returned homework assignments (with written comments from the grader) and predict what they thought their score for the assignment would be. They were to resubmit their original homework assignment within one week’s time with their predicted score written prominently on the first page of the assignment. Their predicted score was recorded beside their assigned score in the grade book and the assigned grade was then written onto the homework assignment and returned to the student.

Two graduate teaching assistants split the responsibility of grading the homework assignments. Before grading the assignment, these assistants consulted the instructor responsible for teaching the content area covered on the specific homework to develop a framework of plausible answers/solutions. The first assistant graded homework assignments one through five, and the second assistant graded homework assignments six through ten. To help students gain familiarity with the grading style of each assistant, the first homework assignments graded by each assistant (i.e., number one, number six) were returned to the students with the numerical score appearing on the assignment. Subsequent homework assignments (i.e., two through five, seven through nine) did not initially have the assigned grade on the returned assignment. Homework ten was due the day before the final examination period began. Thus, it was impossible to grade this assignment, have all the students retrieve it, and hand it back with a predicted score.

When responding to the student assignments, the graduate assistants used guidelines developed by the Purdue University Writing Laboratory(14). For example, written comments on the homework assignments were stated in as specific and positive (i.e., constructive) manner as possible. Comments were written to help students further develop their thought processes(6). The graders also did not use “red” pens that might have provoked a negative response from the student. Sometimes written comments were intended to correct “faulty” thinking, while at other times, they were intended to encourage the student to be more thorough. Very importantly, negative comments were avoided. Whenever appropriate and deserved, the graders were encouraged to give praise through the written comments(6,14).

To enhance student ability on subsequent homework assignments, the respective teaching assistant prepared a written feedback sheet (Appendix A) for each assignment that summarized key aspects of written comments on the students’ individual homework assignments. These were generally provided to the students within one week of the initial return of the homework assignment. These were intended to highlight student strengths/weaknesses demonstrated on the assignment and to encourage students in developing their thought processes to solve the homework problems.

To determine student ability to predict one’s assigned homework grade, it was assumed that if a student had predicted his/her score within three points (i.e., five percent
Table I. Formal evaluation results and descriptive statistics (N=132)

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean (SD)</th>
<th>Mode</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Homework assignments are a good alternative to examinations to learn about OTC drugs.</td>
<td>4.62 (0.71)</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>2. The homework assignments helped me learn by allowing me to apply facts and concepts.</td>
<td>4.62 (0.49)</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>3. Besides doing the homework assignments, having them graded with comments helped me to develop a framework to solve the patient’s problem(s).</td>
<td>4.02 (0.83)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>4. I feel that I learned more in this class by listening than by writing down notes.</td>
<td>3.96 (1.00)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>5. Ordinarily, on returned homework assignments I pay more attention to the grade than I do to the written comments of the grader.</td>
<td>3.15 (0.98)</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>6. Not having the actual score on my returned homework made me pay closer attention to the grader’s comments.</td>
<td>3.26 (1.16)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>7. The grader’s comments on my homework assignments helped me accurately predict my score.</td>
<td>3.10 (0.98)</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>8. I was very effective at predicting my score on a majority of my homework assignments.</td>
<td>3.54 (0.98)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>9. As the semester progressed, I was able to better predict my score.</td>
<td>3.19 (0.98)</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>10. My predicted score was usually less in comparison to the actual score.</td>
<td>2.67 (0.95)</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>11. My predicted score was usually greater in comparison to the actual score.</td>
<td>3.25 (0.94)</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>12. Having to predict my score helped develop my ability to evaluate my original submission.</td>
<td>2.97 (1.03)</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>13. Knowing that I would have to predict my homework score made me put more effort into the homework assignment than I would have otherwise.</td>
<td>2.27 (0.85)</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>14. The grader’s comments were useful to me in preparation for the next homework assignment.</td>
<td>3.60 (0.86)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>15. In addition to the feedback written on the homework, having the prepared feedback beforehand would have allowed me to more confidently predict my score.</td>
<td>3.42 (0.95)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>16. The prepared feedback sheets DID NOT help me improve my scores on subsequent homework assignments.</td>
<td>2.96 (0.89)</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>17. Overall, having to predict my score was worthwhile in evaluating my homework submission.</td>
<td>2.79 (1.03)</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>18. I feel that the process of having students predict their homework scores should NOT be continued in the future.</td>
<td>3.47 (1.14)</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>19. The prepared feedback sheets helped remove the mystery surrounds how the homework was graded.</td>
<td>3.77 (0.74)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>20. The prepared feedback helped me to better understand the grader’s comments.</td>
<td>3.70 (0.80)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>21. After reading the prepared feedback sheets, I often could understand the rationale for my actual score.</td>
<td>3.42 (0.86)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>22. The prepared sheets were NOT useful to me in preparation for the next homework assignment.</td>
<td>2.94 (0.96)</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>23. Normally, I picked up a feedback sheet and read it when it was made available.</td>
<td>3.69 (0.96)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>24. I learned from the feedback sheets.</td>
<td>3.49 (0.91)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>25. The time span between completion and return of my homework did NOT influence how confident I was in predicting my homework score.</td>
<td>3.51 (0.92)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>26. Learning about OTCs without having to take course examinations has made me MORE responsible for my own learning in this content area.</td>
<td>4.10 (0.93)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>27. I feel that I have learned as much about OTC drugs this semester without examinations as I would have with examinations.</td>
<td>3.77 (1.19)</td>
<td>4.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Strongly Agree=5; Agree=4; Neutral=3; Disagree=2; Strongly Disagree=1.

of the total possible point total of sixty) of the actual score, he/she had accurately predicted the score. Any predicted value higher than five percent was assumed to be an overvalued score. Similarly, any value lower or less than five percent of the actual score was considered to be an undervalued score.
Evaluation of Student Attitude. To determine student attitude toward this instructional strategy, a questionnaire consisting of 27 evaluation statements was developed by the investigators and administered to the students during the last class meeting (i.e., post-course). The questionnaire used a five-point Likert-scale approach. Additional space on the questionnaire was provided for volunteered comments and suggestions. The questionnaire assessed student attitude towards the value of homework assignments as an alternative means to learn vs. examinations/ quizzes. It also assessed student attitude about predicting homework scores, the value of grader’s written comments, and the value of prepared feedback sheets.

The students also were asked to complete a two-page, open-ended course evaluation. This evaluation contained eleven questions, and asked students for their comments/thoughts about a number of course issues (e.g., course expectations, content, format) including that about the homework assignments. This allowed the investigators to get at the “whys” or reasons behind responses on the questionnaire if the students felt so inclined to share them.

RESULTS AND DISCUSSION

A total of 132 enrolled students (87 percent) completed the evaluation questionnaire. The descriptive statistics were performed on the statistical analysis system (i.e., SAS) for each of the questionnaire items and are presented in Table I. The Cronbach alpha, a measure of the internal consistency of the overall instrument, was 0.8190. A total of 104 enrolled students (79 percent) completed and handed in the two-page, open-ended course evaluation. For purposes of presentation, the results will be discussed in terms of the homework assignments, student prediction of homework scores, and graders’ comments and feedback sheets.

Homework Assignments. The results demonstrated that students viewed homework assignments as a good alternative to examinations as a means to learn about OTC drugs (Item One). Students felt that these exercises enhanced learning by allowing them to gather information and apply facts and concepts toward the resolution of the individual scenarios (Item Two). This corroborated the results of an earlier study(13). Further, the students felt that having the grader’s written comments on the returned homework assignments also helped them develop a framework to solve the problem (Item Three).

In courses where there are formal examinations, it is common to have students feverishly writing notes rather than listening. As demonstrated in a previous study(13), having no examinations in this course allows students to listen more and write less. But, a question is whether the students learn by listening rather than by writing. Results of the current study illustrate that students felt they learned more in class by listening than by writing down notes (Item Four) and this was confirmed through written comments submitted. Students realize they do not have to write down every bit of information, and that they can learn through listening. This reinforces outcome-based learning principles(15-17) in which students are encouraged to achieve mastery of a subject by allowing them to more attentively focus on the instruction. It empowers them to make decisions about what to write or not write as class notes for their own reference purposes. They wrote to use later, such as through applying this knowledge on homework assignments.

A portion (i.e., 43 percent) of the class appeared to be grade oriented, and initially paid less attention to the comments of the grader (Item Five). Alternatively, about one third of the class did pay attention to the comments of the grader from the outset. Interestingly, an additional twenty percent of the class paid attention to these comments once the strategy was put into place (Item Six).

Prediction of Homework Scores. Thirty-nine percent of the students felt that having the grader’s comments on the homework helped them to accurately predict their score (Item Seven). The same percentage of students felt that as the semester progressed, they were able to predict their score more accurately (Item Nine). Theoretically, one would expect that with continued experience with the strategy, the students would be able to increase their accuracy in predicting their scores as the semester progressed. However, in defense of the students, there were two graders at work during the course of the semester who split the grading responsibility. It is conceivable that if only one grader would have had total responsibility for the homework assignments, the accuracy of the students’ predicted scores may have been increased over the course of the semester. With time and more experience with one grader, they would have understood the context of the grader’s comments and therefore, their accuracy of grade prediction may have increased.

Table II. Student prediction of homework scores

<table>
<thead>
<tr>
<th>Homework number</th>
<th>Outcome predicted</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>0^a</td>
<td>128</td>
<td>109</td>
<td>112</td>
<td>110</td>
<td>95</td>
<td>117</td>
<td>87</td>
<td>758</td>
<td></td>
</tr>
<tr>
<td>+^b</td>
<td>10</td>
<td>26</td>
<td>30</td>
<td>27</td>
<td>31</td>
<td>13</td>
<td>0</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>−^c</td>
<td>8</td>
<td>7</td>
<td>2</td>
<td>5</td>
<td>16</td>
<td>9</td>
<td>21</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>146</td>
<td>142</td>
<td>144</td>
<td>142</td>
<td>142</td>
<td>139</td>
<td>108</td>
<td>963</td>
<td></td>
</tr>
</tbody>
</table>

^aNumber of predicted scores within ± 5 percent of actual scores.
^bNumber of predicted scores greater than 5 percent of actual scores.
^cNumber of predicted scores lower than 5 percent of actual scores.

Item Eight assessed students’ perceptions about predicting their homework score. Sixty percent felt they could accurately predict their scores. Within the limits of the established rule (i.e., plus/minus five percent of a total 60 points), students were able to predict their scores seventy eight percent of the time (Note Table II). In retrospect, if students were asked this question knowing there was a plus/minus five percent range on either side of the actual score, the feeling of the authors is that more students would have agreed with the statement.

Interestingly, Table II demonstrates that during the interval when the second teaching assistant graded the homework assignments (i.e., homework assignments seven through nine), students overvalued their scores for the first two assignments, but then undervalued their scores for the third assignment. This was probably due to different expectations that the second assistant had for the students’ homework assignments. In fact, on the written open-ended evaluations several students commented about the difficulty of having to deal with a second teaching assistant with somewhat different expectations about student homework.

Students indicated that their predicted score was usually greater in comparison to the actual score (Item Eleven). In addition, this was supported by the slightly negative response to Item Ten which stated that their predicted score
was usually less in comparison to their actual score. Actually, as demonstrated in Table II, 14 percent of the time (i.e., 137/963), students overvalued their scores, nearly twice as often as those times they undervalued their achievement (i.e., 68/963). This corroborated the observation of Hogan(9) that more students overvalue rather than undervalue their scores.

Every attempt was made to return homework assignments in a timely fashion. Usually homework assignments were returned within one to two weeks after initial submission. However, the time span between the completion and return of the homework did not appear to influence how confident students were in predicting their homework scores (Item 25).

Through responses to Item Thirteen, 67 percent of the students confirmed that having to predict their assignment score did not provide the impetus to put more effort into the assignment. Indeed, several commented on the written evaluations that it seemed just to be extra work and they did not understand the value of it. So, with future use of this strategy, effort will have to be increased to share its intent. Regardless, however, there will always be a group of students who embrace the concept of the status quo and do not take advantage of the opportunity to learn and grow from the strategy. Perhaps, if this process was an iterative process, where the students could revise and resubmit their assignment, they would put more effort into it.

Forty percent of the students believed having to predict their scores was worthwhile in evaluating their homework assignments (Item 17). One reason for this may be explained by this item’s strong correlation (r=0.60, P<0.0001) with Item Six which stated that not having the actual score on the returned homework made one pay closer attention to the graders’ comments. However, 45 percent of-students believed that the process of having students predict their homework scores should not be continued in the future (Item 18). Is it really that some students do not want to do extra work and/or deal with the ambiguity of a new strategy? Students work on their homework, hand it in, and then expect an outcome. Having to predict their scores may create more anxiety and the need to do additional work. In some students’ minds this could be viewed as an added inconvenience and may render the extra effort not worthwhile.

Graders’ Comments and Feedback Sheets. Overwhelmingly, two thirds of the class agreed that the grader’s comments were useful to them in preparation for the next assignment (Item 14). However, only a third of the class agreed that the feedback sheets helped them improve their scores on subsequent assignments. This might be because of the time interval between getting their homework assignment back and when the feedback sheet for that assignment was ready. Conceivably, the next homework might have been due before they received the prior homework assignment’s feedback sheet. While the prepared feedback sheets value was not as high with all students (Item 16), probably the ones it did help were those who made an effort to secure a copy of the feedback sheet. To assess how many feedback sheets were actually picked up by the students, remaining copies were counted. The overall semester average number of prepared feedback sheets for each homework assignment not picked up by students was 21.8 percent.

A significant proportion of the class (i.e., 67 percent) indicated they normally picked up a feedback sheet and read it when it was made available. This value is consistent with the average number of feedback sheets not picked up (i.e., 21.8 percent). Most likely, as demonstrated by a high correlation (r=0.53, P<0.0001) of Items 23 and 24, those students who did not pick up or read the feedback sheets are the ones professing not to learn from them. Consequently, some students then may have continued to make the same mistakes on subsequent homework assignments. It would seem that if students wanted to be responsible for their learning, they would take advantage of every learning opportunity to improve themselves. However, it is possible that the graders’ written comments in some students’ minds were sufficient on returned assignments and the students, therefore, did not desire to secure a feedback copy. This was unfortunate because the feedback sheets were usually more expansive in terms of depth and breadth.

The feedback sheets generally expanded upon the comments which already appeared on the assignments and were intended to reinforce concepts. The feedback sheets also gave the opportunity for the grader to stress subtle points that did not dictate a point penalty but were important for the student to realize (e.g., communicating in lay person terms). These sheets were successful at helping students better understand the grader’s comments (Item 20), and after reading the sheets the students felt that they could understand the rationale for their score (Item 21). In response to Item 15, the students agreed that having the prepared feedback before having to predict their score would have helped students predict their scores more confidently.

Item 19 examined whether the feedback sheets helped shed light on how the assignments were graded. Seventy percent of the students felt these did accomplish this goal. This facilitated a project goal, i.e., allowing the grader to reinforce points written directly on the homework assignments. Typically, in this course students have the opportunity to submit papers for a regrade. The feedback sheets apparently allowed the students to understand the grader’s comments and the rationale for their actual score. Consequently, the number of regrade submittals actually dropped by more than half in comparison to prior years.

Written comments also serve as a function of outcome-based learning in that they provide feedback to students, giving support or constructive comments when appropriate. This facilitates the learning process by creating a personal dialogue between student and instructor rather than presenting an impersonal grade.

Summative Observations. In reflection, 80 percent of the enrolled students believed that learning about nonprescription drugs without having to take course examinations made them more responsible for their own learning (Item 26) and corroborated the findings of an earlier study(13). Students also agreed that including homework assignments was a good alternative (Item One), as it allowed them to learn by applying facts and concepts. Several students wrote that they routinely used the Handbook of Nonprescription Drugs, the course reference text, to help facilitate homework completion. Having to explain their solution rationale in the assignment also made them delve deeper into their own thinking and problem solving.

Two-thirds of the students felt they learned as much about nonprescription drugs without examinations as they would have with examinations (Item 27). In fact, some
students admitted that not having examinations gave them incentive to work harder and spend more time on the homework assignments. Still, there was a portion of the class who remained uncomfortable with this approach and questioned whether they would retain what they learned. A small number of students recommended there be some testing (e.g., weekly quizzes) mechanism in place that also would count toward their grade and assure them that they were learning.

In retrospect, it would have been valuable to create case studies through interviewing some students about their thoughts on this learning strategy. This would provide insights into how they make sense of homework assignment comments and how these help them in subsequent assignments. Hopefully, having students judge their own work on the basis of graders’ comments did present them with an opportunity to be reflective and more actively involved with the outcome process.

SUMMARY AND CONCLUSIONS

This project assessed the value of two learning strategies as a complement to homework assignments in a nonprescription drugs course. The first strategy (i.e., making students predict their homework score) was to have students focus and learn from the grader’s written comments on returned assignments. Initially, a portion of the class appeared to be grade-oriented and paid less attention to the comments of grader. But, as the strategy was implemented over the semester, more students began to pay closer attention to this feedback. Overall, forty percent of the class felt that predicting the scores on their homework was worthwhile in this regard. Alternatively, a third of the class wanted to maintain the status quo and did not view this additional task as worthy to expand their learning.

The second strategy was the implementation of homework feedback sheets. These were created by the graders with the intent to inform and educate the students further by building upon the grader’s written comments on the individual’s assignment. Some students felt that this was a positive strategy, whereas others failed to recognize the benefit as evidenced by not taking the time to secure them when they were made available.

These learning strategies were somewhat successful in that they accomplished their goal of having some students look beyond the assignment grade as a learning opportunity. Certainly, the time commitment to read, to write comments/suggestions, and to grade these assignments is enormous. However, the outcome in student development and growth is worth the effort.

It is crucial that faculty recognize the need to emphasize student growth and development beyond the mere acquisition of grades and instill in them the attitude and motivation to continually learn and develop their knowledge and abilities. Faculty must also persevere in their attempts through teaching strategies to motivate “passive” learners to become “active” learners. These passive students, programmed by faculty through traditional lecture/testing methods, have focused their concern first with the grade rather than learning for the sake of learning. So there is a clear challenge to change education in a way that establishes and fosters learning as a continual process in each student.

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References

(9) Hogan, M., “Taking the Angst out of returning papers,” The Teaching Professor, 8(10), 61 (1994).
(14) Harris, M., “Responding to Student Writing,” Purdue University Writing Laboratory, West Lafayette IN (March, 1992).

APPENDIX A. MEMORANDUM

PURDUE UNIVERSITY
Department of Pharmacy Practice
TO: Students enrolled in PHPR 470
FROM: Kim Plake, Graduate Teaching Assistant
DATE: March 3, 1995
SUBJECT: Feedback for Homework 3

Overall, the homework papers were very empathetic and well written. It is obvious that many of you continue to show improvement in counseling and writing skills. However, I would like to share, as always, some comments about Homework Number Three.

First of all, most of you were very descriptive about the proper use of the test. Terrific! Some of you, however, seemed to be confused about the differences between EZ Detect and ColoCARE. I wanted to clarify some information:

1. ColoCARE does have dietary restrictions, EZ Detect does not.
2. Vitamin C does NOT interfere with EZ Detect in normal doses. It should not be used at all in ColoCARE, and
3. EZ Detect does not have controls directly on the test pad. There are a total of five sheets in the test kit which allows for a water quality check and a positive control check. ColoCARE has the control blocks on the test sheet. This is an important difference because patients may get confused if the sheets are not exactly as you described.

Secondly, when counseling a patient, it is very important to share things in “layman’s” terms. For instance, many of you used the word “defecate” when explaining the use of the test. My experience as a pharmacist has taught me that many people would not understand the meaning of defecate. Because this is a sensitive issue, patients may be too embarrassed or simply reluctant to ask its meaning. So exercise judgment on how you phrase things. In addition, many of you stated that a positive result does not mean that the patient has cancer. When you share this, the patient could interpret this comment in many ways. A patient, who is afraid of cancer, may interpret “does not mean you have cancer” to mean that he will not have cancer with a positive result. However, the patient may learn after further testing that he does have cancer. He may then become somewhat angry and confused because he thought that a positive test does not mean cancer. In this case, you may want to insert the word necessarily into the phrase (i.e., “does not necessarily mean you have cancer”). I know this may be a little “picky”, but I think it important for you to understand that patients may perceive information differently than you do. Note: No points were deducted for this.

Again, many of the papers were well-done. I can really note improvement in your counseling skills. More of you are treating the case like a real counseling situation which is the purpose of the assignment. As always, if you have questions, feel free to contact me.

When you pick up your homework assignment Number Three remember that there will be no score at the top of the sheet. You are to review it and then place your “predicted” score at the top of the sheet and hand it back into Dr. P’s mailbox.