

1-1-1992

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Recommended Citation

Baker, Isabel and Kosar, Anthony (1992) "Remedial Theory Courses for Underprepared Students: An Experimental Program to Develop Successful Teaching and Learning Strategies," *Journal of Music Theory Pedagogy*. Vol. 6, Article 6.

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REMEDIAL THEORY COURSES FOR UNDERPREPARED STUDENTS: AN EXPERIMENTAL PROGRAM TO DEVELOP SUCCESSFUL TEACHING AND LEARNING STRATEGIES

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Students entering Westminster Choir College are required to take screening exams for placement in the music theory core courses. Those failing to receive an adequate score are placed in THO21, a non-credit remedial music theory course designed to prepare them for the required music theory sequence. The course covers the basic material for studying tonal music theory. This material includes constructing and identifying key signatures, scales, modes, intervals, triads, and seventh chords along with the notation of rhythm and meter. While the work deals primarily with written theory, there is an aural-skills and keyboard component.

For several semesters this remedial course had a one third failure rate, many students retaking the course one or more times to pass. To decrease this unacceptable failure rate and to reduce attrition, without lowering course standards or changing its content, the Music Theory Department initiated an interdisciplinary effort with the Arts and Sciences Department—an experimental program conducted by a music theory instructor and a reading skills specialist. The rationale behind this collaborative effort was that the two departments dealt with issues of common interest and could complement each other, sharing their different perspectives in a mutually beneficial enterprise.

Although low achieving students perceived their primary need as mastering the course content, the teachers determined that their most common need was the learning and thinking skills basic to content mastery. Therefore, rather than using a product-oriented teaching model that emphasizes correct answers to course content questions—*what* is the right answer—we decided to use a process-oriented teaching method, focusing on developing learning and studying—*how* the correct answer is obtained.

This teaching model concentrated instruction on the thinking and study skills involved in successful academic performance. We felt that teaching students the processes of efficient learning and studying would give them strategies they could use in other courses as well.

The objectives were to develop and improve student learning strategies and, at the same time, to examine and improve course procedures and teaching methods. An experimental program was launched that involved a teaching cohort of a music theory instructor, a reading specialist, and a graduate assistant. The student population consisted of 15 high-risk students, all of whom had previously failed THO21 one or more times. Admittedly this was an unrepresentative group of students; however, the department felt that these students with the most serious problems could provide a broad spectrum of possible student difficulties. As a result, we would be able to experiment with many strategies to facilitate learning and comprehension due to the special nature of the group.

EXPERIMENTAL COURSE FORMAT

To enable students to develop the study skills needed for success in college, a rigorous course format was instituted.

Classes: The music instructor taught the course three days a week. A process-oriented, interactive style of instruction was used. Time was set aside each class period for drilling students on the topic and for providing immediate reinforcement and review.

Each class was attended by the reading specialist and the graduate assistant. Having the specialist and assistant attend the classes enabled them to see the course from two perspectives simultaneously, that of teacher and that of student, and guaranteed the instructor immediate feedback about teaching strategies and student perceptions. Because the reading specialist would bring no background knowledge of the course material to the situation, she had the advantage of seeing the course from the viewpoint of an unprepared student. Furthermore, the specialist's familiarity with college classroom instruction in other disciplines enabled her to discuss with the instructor other strategies that could be useful in facilitating student comprehension. The specialist could also determine if there were any particular study strategies needed in learning music theory, as each discipline differs in its demands upon students.

The graduate assistant's attendance was essential to know what material was being covered and what approach was being used so he could consistently reinforce the content in the lab sessions. Relying on student

feedback about what goes on in a college classroom is untenable, as their perceptions are often distorted and may not provide the information necessary to get them the assistance they need. Attendance of both the specialist and assistant provided an objective record of what took place in the class.

Labs: The decision to institute compulsory lab sessions grew out of our perceptions of students' need for more engaged learning time. Required weekly one-hour lab sessions were conducted by the reading specialist and the graduate assistant. These sessions involved reviewing the material, clarifying any difficulties, discussing study strategies, and obtaining student feedback about the classes. The labs were an interactive study and practice period that encouraged students to reflect on the material and discuss their own learning strategies and academic progress. We felt it was important that students become active learners and learn to monitor their own comprehension and performance.

There were several other advantages to the lab session format. A major benefit was that the graduate student could extend, reinforce, and require practice of the class material, thus providing students with more engaged study time. Immediate reinforcement facilitates remembering for students learning new skills.

Students are usually hesitant to be candid to course instructors about academic concerns for fear of demeaning themselves. In the absence of the instructor, students could voice their concerns about academic problems in the more relaxed setting of the lab. We could therefore obtain feedback about the effectiveness of teaching methods and could get input and suggestions for course improvements.

Finally, both the specialist and the assistant could monitor student progress and provide feedback to the instructor about areas that might need additional clarification and reinforcement. After each session, a thorough written report was given the instructor, and he met often with the specialist and graduate assistant to evaluate course procedures and student progress.

Textbook: The textbook was John Clough and Joyce Conley's *Scales, Keys, Intervals, Triads, Rhythm, and Meter*, a programmed textbook that paced the students' learning and provided them with the questions and comprehension checks that competent students automatically use when learning. The step-by-step procedures reinforced the idea of learning as a process and walked the students through the mental procedures needed to learn the new concepts. The graduate assistant periodically checked the students' books in the lab session to ensure that they were completing their assignments.

Attendance: This particular student group averaged 13 absences per student for their previous semester of THO21, which equalled one third of the course. Since many of the students who failed THO21 may have done so because of excessive absences, for this experimental program we instituted a strict attendance policy. In the experimental section students were allowed only three absences during the semester. Each absence over three lowered the student's final average five points, and any time a student was late to class, the final average was lowered one point. This policy applied to both the class and the required lab sessions.

Assignments: Because each class session built on the mastery of previous material, it was important that students kept up with their work. To ensure that the students completed their required daily assignments on time, assignments turned in late received only 80% credit, and assignments more than one week late were not accepted. This policy, which applied to both written and keyboard work, had the added advantage of encouraging good study habits.

Grades: At the time of the experiment the theory department's policy was that in addition to maintaining a passing average of 65%, a student must also demonstrate a mastery of the material by obtaining a minimum score of 85% on the final examination. This policy was instituted to ensure a greater chance of success in subsequent theory courses, as the material in these courses builds on the material covered in previous ones. Therefore a higher level of mastery in earlier work should improve the chances of success in later courses.

TEACHING STRATEGIES AND PROCEDURES

Following are some of the teaching strategies and course procedures developed and employed during the experimental section of THO21 as a result of the collaborative effort of the teaching staff, based upon constant observation of students and input from students:

1. **Process-oriented instruction:** When presenting new material the instructor described the mental steps he used, literally modelling the procedures used by an accomplished learner, while demonstrating the self-questioning strategies that guide learning. For example, the following excerpt from a lecture:

"Suppose I want to construct a major 6th below E flat. Well, *what do I think?*

First, I have to find a pitch a 6th below E—and that's G. Then I think of the G Major scale and construct it, because I want to find out if there is an E flat in the G Major scale.

When I see that there is no E flat, I have a problem. I want a major 6th, but I can't use the G to make a major 6th. Well, let's see—*what do I know?* I know that from E to G is a major 6th. *What can I do now?*

Well, if I lower the E and the G the same amount—it has to be the same amount for both, I then have a major 6th. Now I have E flat and a G flat by lowering both the same—and the major 6th I wanted to construct."

Similarly, a student answering a question was required to explain the method. It was stressed that although correct answers are useful in specific situations, the process for arriving at the answer often has a much more general application. Because the focus was the process rather than the answer, students knew that it was "OK not to understand." An example of such reaction is a student who said, "I want to answer this question, because I *don't* understand."

This approach extended to the homework assignments. Students had the opportunity to revise assignments an unlimited number of times to correct their mistakes and raise their grades. Therefore the first submitted attempt at an assignment was not necessarily perceived as a completed product, but might be seen as part of the process of learning how to master that particular concept.

2. Relevance of Course Content: The instructor always explained how the approach and a particular topic related to other concepts covered in the class and in future music theory courses. For example:

"The reason for this emphasis on chromatic and diatonic semitones is that chromatic semitones are used in altering interval size; diatonic semitones are used in constructing scales. We will use them next week and throughout the course."

"Now I'm going to talk about combining Roman numerals with inversion symbols. There's nothing new here; you've already had Roman numerals; you've already worked with inversion symbols."

3. Immediate Practice and Reinforcement: Constant and varied drill with immediate evaluation and reinforcement was vital for this group.

Frequent homework and classwork assignments, graded and returned the following class period, were necessary as it was important that misunderstandings and errors not be built on and thus impede further learning. Outside drill with the graduate assistant and student tutors from the college tutoring program complemented the various types of written, aural, and keyboard drills in the classroom. The lab component of the course actually produced one-third more practice and feedback time for the students.

4. Visual Format: In general, "bigger was better." Students were able to perform better when manuscript paper with slightly larger staves was used.

Similarly, tests were put together with blank space between sections, to clearly limit the material in each part. Format was also considered in selecting a textbook; a textbook that doesn't look cluttered is easier for the student to read.

An additional example of efficient visual organization was a notetaking paper we designed (See Fig.1) which was half manuscript paper and half notebook paper. This facilitated lecture notetaking as students didn't have to flip back and forth to take notes or create their own staves as they were writing.

5. Use of the Overhead Projector: The overhead projector was used instead of the blackboard and proved to have many advantages:

a. The instructor was able to face the students constantly, so that they could hear him better. This also allowed him to respond to questions—or even puzzled looks—immediately.

b. Colors appeared exactly as on the printed page or piano keyboard. On the blackboard, the situation is reversed.

c. Material could be prepared beforehand, thus maximizing use of class time.

d. The instructor could go back to a previous topic, to review it or to clarify subsequent material, by simply returning to the relevant overhead projector sheet.

e. Material could be saved and reused in later courses.

REMEDIAL THEORY COURSES

Figure 1.

Page _____
Date ____/____/____

The figure shows a series of ten sets of five horizontal lines, each set followed by a vertical line and then two more horizontal lines, forming a grid for notes. The lines are evenly spaced and cover most of the page area.

6. No Prior Knowledge Assumed: The instructor assumed that the students had little prior knowledge and defined all required terms. The activity of defining terminology was most productive when it involved student participation. The instructor tapped into students' prior knowledge, finding out what meaning they associated with a term. He then worked with them as a group to elaborate on the meanings and create an adequate definition.

7. Elimination of Unnecessary Academic Stress: Test anxiety affects student performance on examinations, so we tried to eliminate any unnecessary stress. The minimum grade of 85% on the final caused great concern to the class; students were extremely anxious about taking the exam because their entire semester's success depended on this one measure. Allowing the students two chances to take the exam helped relieve some of the test anxiety. In the experimental class, six students took the final a second time; four of them improved their scores enough to pass the course. The following semester in the first post-experimental THO21 class, nine of the seventeen who originally failed the final passed when retaking the exam.

8. Study Skills Strategies: The weekly lab sessions focussed on discussing with students the study skills for success. Unsuccessful students often have an inadequate conception of the amount and type of work involved in doing well, believing that daily preparation for class may be desirable but not essential. Their concept of adequate preparation was often thirty minutes, whereas competent students think in terms of hours. As a result, time management and the amount of time needed for study were a focus of many of the sessions.

Efficient lecture notetaking techniques were discussed and shared, as were methods of studying and reviewing for tests. An example of student strategy is the mnemonic device one student developed for remembering the order of sharp keys: Can God Demand An Estimate Before Filing Charges? Mnemonic devices were helpful organizational systems; students using them discovered the value of organizing material when they were studying and were encouraged to use other organizational systems also.

Frequently students were unaware of the consequences of their test and homework marks. Therefore, a special form was provided for students to keep track of their grades so they could monitor their progress. Figuring out their current averages proved to be a useful method to alert them to their status in the course, and to motivate them to further efforts.

One of the most important components of the lab sessions was providing a forum for student feedback about assignments and teaching methods. As a result of student input, many of the teaching strategies here described were initiated or evaluated (e.g., use of the overhead; new lecture notetaking paper).

STUDENT FEEDBACK ABOUT TEACHING METHODS

At the end of the course, the reading specialist gave the class a survey listing teaching strategies used by the instructor with examples taken from the class lectures and asked the students to indicate which were most helpful. The results were:

1. Returning all written work promptly.
2. Providing daily timed drills on material.
3. Using the overhead projector.
4. Providing mnemonic devices to aid learning (e.g., to distinguish types of semitones, Diatonic—Different letter name; Chromatic—Same letter name).
5. Assuming students have no knowledge of new concepts and beginning with the most basic information when presenting new material.

Also helpful were:

1. Encouraging correction of written work by giving 1/2 credit for corrections.
2. Encouraging practice of standard music notation skills (e.g., "Don't just think it; write it down.").
3. Reviewing concepts causing difficulty in homework before moving on to something new.
4. Providing handouts for learning (e.g., Circle of Fifths, Steps to Identify Intervals).

5. Encouraging students to think of the mental processes they must use to solve a problem (e.g., "If you want to construct a Dorian mode on E, what questions must you ask yourself?").

Students were also asked to identify what parts of the lab sessions they found helpful. The following five strategies were selected:

1. Encouraging prompt performance of course requirements (e.g., lab grades were given for completing keyboard assignments on time).
2. Providing computer printouts of current grades so that students can check progress.
3. Providing staff/lined notetaking paper.
4. Encouraging discussion of course content so that students can share any solutions or difficulties.
5. Graduate student and study skills instructor attending classes to follow course progress.

STATISTICS

The approach in this section of THO21 lowered the usual 33% failure rate to a 23% failure rate, even for these high-risk students. While the results for the experimental group seem better than the usual results for the remedial course, and might even seem impressive considering the high-risk population of the group, any evaluation of the success of a fundamentals of theory course must include the performance of students in later music theory courses to ascertain how well prepared they were for work at a more advanced level.

Unfortunately, the students who participated in the experimental class described here did not fare well in their following theory courses. Only two students went on to successfully complete the following theory course and none of these students ever completed the third theory course in the sequence. As stated earlier, however, the students who made up this experimental class were not a representative sampling but consisted solely of students judged to be high-risk.

REMEDIAL THEORY COURSES

Many of the teaching strategies developed in the experimental section were employed by the same theory instructor when THO21 was next offered. There were three main differences: 1) there was no study-skills specialist working with the theory instructor; 2) the minimum passing average was raised from 65% to 72%; and 3) because of the large number of students in the two sections and the availability of only one graduate assistant, the lab sessions were limited to only those students experiencing the most serious difficulties.

In Figure 2 the percentages of students passing the pre-experimental section of THO21 and the two courses following it in the music theory sequence (TH121 and TH122) are compared with the percentages of students passing the post-experimental section of THO21 and the two courses following it. In the last pre-experimental class, 35.4% of the 48 students failed the class. Of the students who earned passing grades, only 33.3% succeeded in TH121 in their following semester and only 28.9% successfully completed TH122 two semesters later.

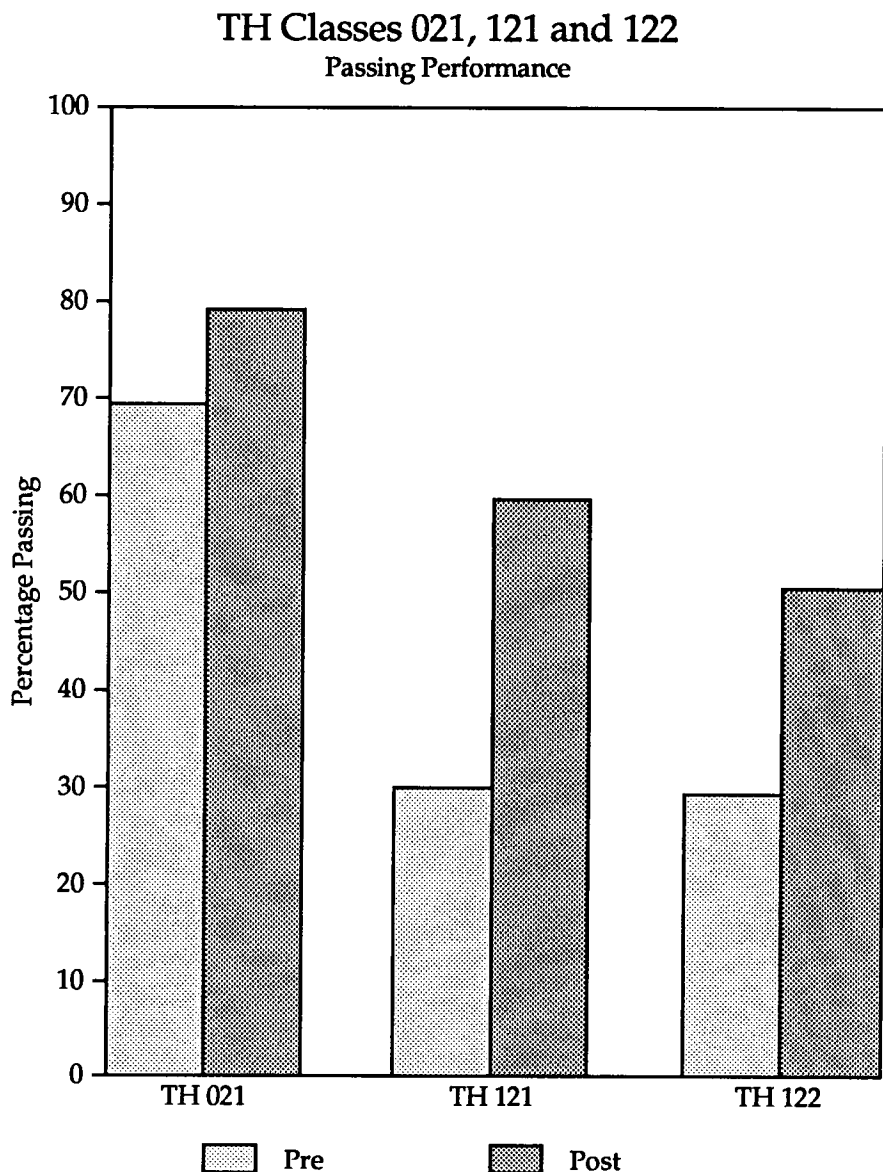
The statistics for the post-experimental class are much more impressive, especially when compared to statistics from the last pre-experimental class. Figure 2 shows that only 21.6% of the 60 students in the post-experimental class failed the course. Of the students who earned passing grades, 58.3% succeeded in TH121 the following semester and 50% successfully completed TH122 two semesters later.

These results seem to indicate that the teaching and learning strategies developed in the experimental section of THO21, when applied to a normal distribution of students, greatly enhance the success rate in that course as well as nearly doubling the success rate in subsequent theory courses.

IMPLICATIONS FOR TEACHING

Remedial music theory courses cannot be handled using the same methods as other college classes. Because the students must quickly "catch up" on material vital for their success in subsequent theory classes, and because many of these students are academically unprepared for college-level work—in our program this was indicated by their performance on the New Jersey Basic College Skills Placement Test as well as the theory placement exam—special care must be taken to meet their particular needs. The following procedures, therefore, should be considered in remedial theory courses:

Figure 2.



1. The experimental design for the pilot program used a unique format of a teaching staff composed of two faculty members, an expert in music theory and a learning specialist, and a graduate assistant. Other methods are possible. For example, a faculty instructor could teach the course aided by a graduate assistant or perhaps an undergraduate tutor who had been trained in the needed study skills and who could conduct laboratory sessions. These labs could be monitored occasionally by a reading/study-skills specialist. Should the aid of a graduate assistant not be possible, release time for the instructor could provide the necessary extra hours for the preparing and marking that this type of instruction requires.

2. Lab sessions with the graduate assistant can be required to work with the students on developing the study skills in addition to reviewing, drilling, and practicing class material. An alternative to this could be supervised study sessions conducted by the graduate assistant or trained tutors.

3. The assignments and classwork should be supplemented with drill and practice provided by computers and appropriate interactive software. This will allow drill to be tailored to individual needs.

4. The teaching strategies and course procedures developed in the experimental section of THO21 provide suggestions of useful methods instructors can use in remedial courses. Our student survey indicated which strategies students found most effective, and the statistical results provide data about the results of using these methods.

5. Students benefit when faculty members develop and share with each other new teaching and learning strategies. Interaction within and between departments is crucial in meeting the needs of underprepared students. As teachers, we should not regard student difficulties in our courses as exclusively our own problems. Our experience at Westminster Choir College indicates that a student inadequacy in one course is often mirrored by similar failures in other areas, and is often symptomatic of a larger academic problem. Working together and sharing expertise, we can develop instructional methods that will increase teaching effectiveness and facilitate learning for marginal students.

SUMMARY

The experimental section of THO21 attempted to develop strategies and procedures to individualize instruction in the remedial music theory course as part of a larger program to prepare the students to succeed academically in all college courses. The combined effort of two departments resulted in a model which, when used in later remedial courses, significantly improved the performance of students in the theory sequence. The issues of common interest and mutual benefit provided the impetus for the productive cooperation of two interrelated departments. This interdisciplinary cooperation was part of the college's effort to deal with the larger problem of underprepared students. The experimental program illustrates the advantage of departments sharing both problems and expertise for the common goal of improving student academic performance and reducing attrition.