Proficiency-Based Learning with Muscle in a Music Theory Classroom

Teaching in a traditional music theory sequence, I am continually baffled by intelligent students who fail music theory courses. Class rankings at the end of the theory courses often produce a very nice bell curve. However, since a “D” grade is not passing in our program, 15-20% of the students have to retake the course.

As a regional university, the music theory background of our students spans the gamut between multiple years of private lessons and AP Music Theory courses in high school to players/singers who can only read one clef. Keeping the class on task requires the pace to be too slow for the former group of students and too fast for the latter.

These traditionally structured music theory courses include lecture, demonstration, practice, and assessment. Students who do not understand the concepts may be frustrated and fail to finish assignments or to turn them in, and absenteeism becomes a problem. This has resulted in [student failure and retention issues](http://eric.ed.gov/?id=EJ782824). Thus, our traditional model in the music theory classroom may not address the disparity of student preparedness. The challenge was to structure a model that would accommodate both ends of the preparedness spectrum while offering the best chance of success for all students.

Enter competency-based learning. [Competency-Based Education](http://files.eric.ed.gov/fulltext/ED514891.pdf) (CBE) has been around since the 60s andeven earlier. Recently, higher education has been a-buzz again with the concept since [federal funding](https://www.insidehighered.com/news/2014/07/23/competency-based-education-gets-boost-education-department) has been made available for these education models. Although there are many variations, competency-based models primarily differ from the traditional model in two ways: 1) time is flexible and variable and 2) multiple assessments are available until competency is attained.

The two principles of flexible time and multiple assessments are inherent in competency-based learning, but are also techniques associated with standards-based grading. In reviewing the literature, particularly that of [Robert J. Marzano](http://www.marzanoresearch.com/assessment-grading), it is clear that where competency-based education quickly veers into models outside the traditional classroom, [formative assessment and standards-based grading](https://www.ocps.net/lc/southwest/mso/parents/Documents/Grades%20That%20Show%20What%20Students%20Know.pdf) offer additional guidance inside the traditional classroom. There is, of course, overlap with regard to a flexible time frame, clearly defined standards/competencies, and formative assessment.

Not long ago, when asked my opinion of the idea of competency-based education, I remember saying “When everyone is competent, no one will be excellent.” This attitude may have been related to the term, *competent*. It is not a particularly lofty term, with descriptors such as “adequate” and “well-enough” according to [Merriam Webster](http://www.merriam-webster.com/dictionary/competent). I prefer the term, *proficient*, a higher connotation meaning “well advanced in an art, occupation, or branch of knowledge” ([Merriam Webster](http://www.merriam-webster.com/dictionary/proficient)).

I propose a model in which the benefits of competency-based learning (flexible time and multiple assessments) are combined with [peer-tutoring](http://www.nea.org/tools/35542.htm), and even components of other research-driven models, such as [games-based learning](http://connection.ebscohost.com/c/articles/78120341/motivations-playing-computer-games-tertiary-education-level-comparison-further-education-higher-education-computing-students). Course content in this model is structured in modules. A proficiency-based model will allow some students to move more quickly through the curriculum, completing individual modules at their own pace. Those students can follow a self-directed path to that proficiency with the incentive that when finished, they will not be required to attend lectures or take additional assessments. The remaining students will experience a lower student-teacher ratio. As each student completes the modules, the student-teacher ratio decreases so that the students who need the most help to gain proficiency in the concept modules will receive the most faculty attention.

Self-directed learning is a concept that works well for some learning styles, but some students may need more of a mentor relationship to master course content. The proficiency-based model combines both self-directed learning and options for individual attention for the purpose of mastering course content. For example, each student is able to choose whether to move through a module using only the online and practice resources available or to get individual help from the instructor or a peer-tutor. The same student might well fit into either category depending upon the module in question and his/her understanding of the concept.

Another interesting area of educational research applied to this model is [gamification](http://inside.rotman.utoronto.ca/behaviouraleconomicsinaction/files/2013/09/GuideGamificationEducationDec2013.pdf). Associating some of the [motivating factors of gamification](https://community.lithium.com/t5/Science-of-Social-blog/Gamification-101-The-Psychology-of-Motivation/ba-p/21864) enhances the learning experience in competency-based learning. For example, one of the defining factors in gaming is ‘[levels](http://dl.acm.org/citation.cfm?id=2583017).’ The difference between acquiring a grade (in itself, a level when described from F up to A) and a [level in a game](https://en.wikipedia.org/wiki/Level_%28video_gaming%29), is that in a game, the player can make multiple attempts to attain the level. In a traditional course, the high-stakes testing is often not repeatable as in mid-term or final exams. The competency-based model is “WHEN you can show me that you are proficient in this module, it will be complete.” The traditional model is “WHEN this amount of time has passed, I will determine if you are proficient.” Moving from level to level is also a concrete indication of improvement. Whereas various grades in a course may fluctuate, attaining a higher level of competency within the course has a greater potential for motivating the students.

Below are the levels for the proficiency-based model. Note that the “Proficiency” designation is not the highest level possible. This assuaged my distaste for the bare minimum connotation of ‘competency.’ The Expert level is for the high achiever and the Master level is for those who go beyond to a further teaching application. This [peer-tutoring initiative](http://eric.ed.gov/?id=ED305016) provides benefits for the tutor as well as the tutored.

**1. Master**

Master students understand a concept to the degree that they can effectively teach others how to understand and apply the concept.

This level does not correspond to a grade because Masters go above and beyond all requirements and compensation.

**2. Expert**

Expert students understand a concept thoroughly, apply it fluidly, and consistently recognize it in context.

This level corresponds to a grade of “A.”

**3. Proficient**

Proficient students can vary application based upon unique situations. This is a higher level of competency.

This level corresponds to a grade of “B.”

**4. Competent**

Competent students can perform tasks to basic standards. They will need additional practice to get better/faster at applying the concept and recognizing it in context.

This level corresponds to a grade of “C.”

**5. Novice**

A novice is new to the concept. This student must be shown/taught the basics and guided through the process to understanding.

To remain at this level is not a passing grade.

Another motivational aspect is [gamer identity](http://nsuworks.nova.edu/cgi/viewcontent.cgi?article=1081&context=innovate). Students invent their own identifiers (gamer names). When any level (above Novice) is attained, their gamer name is identified for recognition at the appropriate level as in a ‘leaderboard.’ The leaderboard is one of three main elements often applied in gamification that include points, badges, and leaderboards ([PBL](https://gamification21.wordpress.com/learning-content-2/10-pbl/)).

The proficiency-based model also applies three basic psychological needs identified as motivations in game playing: competence, autonomy, and relatedness. The need for [competence](http://www.gamasutra.com/view/feature/130155/rethinking_carrots_a_new_method_.php?page=2) is satisfied as a student progresses through different levels, [autonomy](http://www.gamasutra.com/view/feature/130155/rethinking_carrots_a_new_method_.php?page=3) is achieved as students take on a decision-making role, rather than a passive one in the classroom, and [relatedness](http://www.gamasutra.com/view/feature/130155/rethinking_carrots_a_new_method_.php?page=4) is applied as students work together through peer-tutoring in symbiotic relationships.

The proficiency-based model can be applied to any course of study that can be divided into modules. Here is an example of this model applied to Chromatic Harmony:

There are eight content modules in Chromatic Harmony: secondary dominants, secondary leading tone chords, borrowed chords, Neapolitan chords, augmented 6th chords, altered dominants, tritone substitutions, extended chords, and chromatic modulation. For each module concept, proficiency assessment requires four levels of understanding, demonstration, and application. Students identify (as isolated chords), construct (isolated chords), identify (in musical context), and compose (construct in a musical context) within each content area of chromatic harmony. The standard assessment for each content area contains each of the four types of assessment (identify, construct, identify in context, and compose or ICIC).

Students are provided with a course outline that contains links to online resources including video tutorials and interactive tools for mastering the prescribed content at a proficiency level. Traditional class time is maintained for students who have not yet assessed at the proficiency level.

Students take a bench-mark assessment on each content area to establish a baseline grade and to prevent students from postponing assessments. These bench-mark assessments are scheduled at designated intervals (one per module) throughout the semester. Two additional assessments (the multiple assessment opportunities) per content area are available for students who wish to improve their grades. The best attempts count toward the proficiency level. These are proctored and can be taken during class time or at additional designated times throughout the semester.

Traditional lecture demonstrations are available during the first class of the module. Students who have already met the proficiency of that content (having watched a similar video lecture) have the option to listen to the lecture for review and to ask questions, or to spend that time in the adjoining computer/piano lab moving forward through the modules. During the second class of the module, students work on practice materials assisted as needed by the instructor and peer tutors. On the third class day of the module, students take the bench-mark assessment if they have not already passed the proficiency on the current module. This assessment score not only provides a baseline grade, but indicates areas for remediation. This is an application of [standards-based grading](http://www.mtosmt.org/issues/mto.15.21.1/mto.15.21.1.duker_gawboy_hughes_shaffer.html), with a goal of mastery of material, rather than class ranking. For those who wish to review the material and/or work with the instructor or peer tutors for better understanding and application, two additional parallel (comparable) assessments are available for students to take during subsequent class days or other times designated by the instructor. The additional assessments are available throughout the semester as students may attempt to achieve higher level designations and consequently, greater mastery of content.

The result is a classroom of [differentiated instruction](http://www.casenex.com/casenet/pages/readings/differentiation/whatdiffer.htm) in the spirit of the [one-room schoolhouse](http://www.dpe.org/publications.htm). Students are able to move through the content at their own pace. Class attendance is taken to encourage students to attend consistently until each module is assessed at proficiency level. Studies confirm that [class attendance](http://web.ccsu.edu/retentionandgraduation/files/attendance.pdf) has strong relationships with both class grades and GPA. At the point that a student completes the proficiency of all modules of designated content, full credit for attendance is granted for the remainder of the semester.

Benefits to advanced students:

* less time spent dealing with basic content
* more active than passive learning
* ability to move forward when ready
* reward of time off when finished
* experience in tutoring for those who choose to do so

Benefits to novices:

* online video demonstrations and other resources can be viewed multiple times for clarity and understanding
* teacher-student ratio continues to decrease as the semester continues
* availability of peer-tutors
* ability to improve grade with multiple assessments

**Conclusions**

Competency-based learning is most often associated with online courses and distance education. I submit that the benefits of competency-based learning can be incorporated into the classroom setting, adding the benefits of flexible time and multiple assessment opportunities without removing the classroom structure that some students need. Peer-tutoring and a bit of gaming flavor just add muscle to the hybrid form.

In addressing the dilemma of student differences in learning styles and preparedness, the proficiency-based model can be a formidable weapon in the educational arsenal. Just because a student has attended a class does not mean learning has taken place. Even with student learning objectives in place, assessments of these objectives can result in student failure. This is the difference between summative assessment in the traditional model and formative assessment in the competency-based education and standards-based grading models. A white paper from the [Oregon Educational Roundtable](http://orbusinesscouncil.org/docs/archive/BestPracticesWhitePaper-Final.pdf) describes the benefit of the proficiency model most succinctly: "In a proficiency system, failure or poor performance may be part of the student's learning curve, but it is not an outcome."

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