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Assessment as Instructional Activity: How I Apply Principles of Criterion-Referenced Mastery Learning in My Teaching

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What did my course grade depend on for my first-semester freshman-level General Psychology class?

My first encounter with norm-referenced grading.



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One Version of Norm-Referenced Grading

A: top 10% of the class

B: next 25% of the class

C: next 30% of the class

D: next 25% of the class

F: bottom 10% of the class

What did my course grade depend on for each of my two semesters of General Physics (sophomore year)?

How to pass two semesters of physics without really achieving the course learning outcomes.

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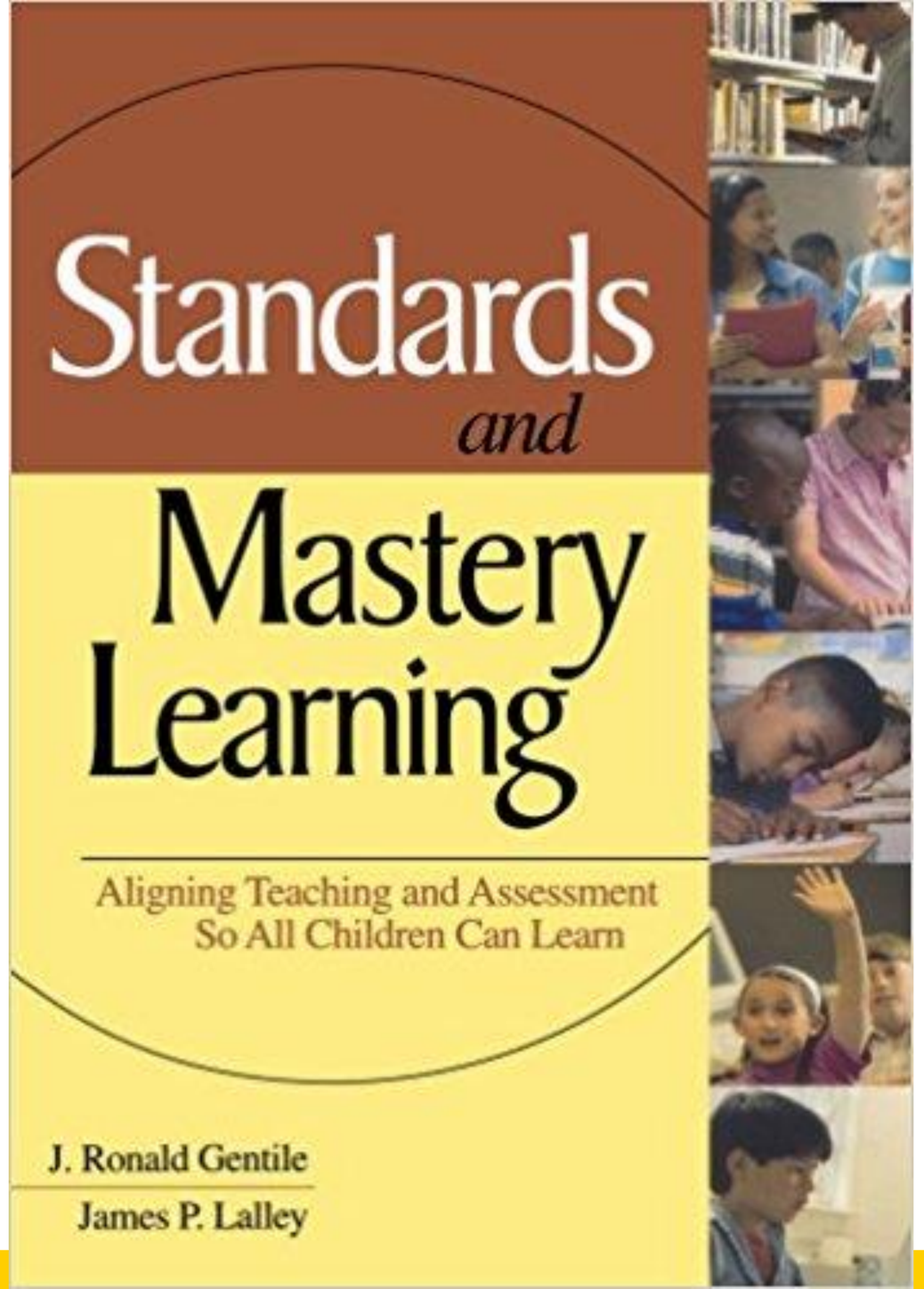
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Some Other Versions of Norm-Referenced Grading

- Set the course grade distribution (regardless of what the syllabus might say) only after you see how well students perform and give most students decent grades. Sub-C grades go only to outliers at the low performing end of the distribution.
- Add a fudge factor to boost grades so that the vast majority gets decent grades.
- Create extra-credit opportunities (that may or may not relate to CLOs) to boost grades to limit the sub-C grades.

Problems with Norm-Referenced Grading

- Norm-referenced grading does not fit the goal of promoting actual achievement.
- Implementing it fairly is more difficult than instructors are likely to realize.


Standards
and
Mastery
Learning
Aligning Teaching and Assessment
So All Children Can Learn
J. Ronald Gentile
James P. Lalley

Key Features of Criterion-Referenced Mastery Learning

- clear mastery objectives, properly sequenced for transfer of previous knowledge to future lessons
- pre-established standards of acceptable achievement (mastery)
- opportunities for student learning from unsuccessful efforts toward achievement
- expectations that students will achieve acceptable levels of proficiency
- enrichment activities that go beyond mastery levels of knowledge, skills, and principles
- equitable grading procedures

Criterion-Referenced Mastery Learning in Student-Teaching 7th Grade Physical Science

- Classroom set up with work stations (similar to a T-FLeC-space) with lab equipment for learning physics.
- Students were instructed in using the equipment for learning tasks designed to illustrate physics concepts.
- Clipboard listing each student in a row and each concept in a column.
- Each time a student could explain a concept to me, the student got a check mark.
- Some students get checks faster than others and they proceed toward more learning tasks.

Criterion-Referenced Mastery Learning for Exams in My Courses

- Very specific statements of tssbat or study questions (with or without key terms) are given to students in advance of instruction toward each exam.
- Students are advised in advance about the proportion of exam questions addressing each week of instruction or each assigned textbook chapter.
- Two versions of each exam are generated accordingly, each addressing a subset of tssbat statements or study questions.
- After version one exam is administered, it is reviewed with students.
- The second exam is administered right after review or during the next class meeting.
- Only the higher of each student's two exam scores counts.

Criterion-Referenced Mastery Learning for Projects in My Courses

- Explicit rubrics for grading are given in advance.
- Feedback is given at steps in the project development process (like dissertation advisement)

How My Application of Criterion-Referenced Mastery Learning Principles Falls Short

- I give only two attempts on each exam. Some students need more opportunities to achieve.
- Sometimes students lack prerequisite knowledge and skills for some courses. The system cannot overcome that.
- Enrichment beyond mastery is difficult to provide. Students have rejected grading systems that require enrichment activities for A grades.
- This is a system for boosting achievement and evidence of it, not a graduation initiative booster.

Is criterion-referenced mastery learning a best practice?

Perhaps the wrong question.

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A Toothpaste Analogy

Famous advertising copy:

- Keep this in mind… In direct comparison with the well-known fluoride brand, published research confirms: Colgate unsurpassed in reducing new cavities!

- Keep this in mind… Criterion-referenced mastery learning is unsurpassed in helping students to achieve course learning outcomes.
- Even if you don't like Colgate, you might want to apply some criterion-referenced mastery learning principles in your classes.



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