A Revised Approach To Teaching Audio Mixing Techniques: Applying The Deliberate Practice Model

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An overview of the Mixing Techniques course offered at Middle Tennessee State University, designed to help students develop substantive foundational knowledge and technological competencies regarding the aesthetic and technological aspects of audio mixing techniques by applying the principles of the Deliberate Practice model. Relevant studies in human performance, characteristics of Millennial students, and pedagogy for developing mental models of audio engineering systems are considered as they apply to recording arts course and curricular design. This study suggests that implementing rigorous, formal practice of foundational skills in audio mixing courses significantly improves students' capabilities.

What does it take to be great?

- ~~Experience~~
- ~~Innate ability~~
- ~~High IQ~~
- ~~Simple repetition ("Just do it.")~~

Deliberate Practice is the key to high-level performance in every area of human endeavor.

Rising standards of performance worldwide
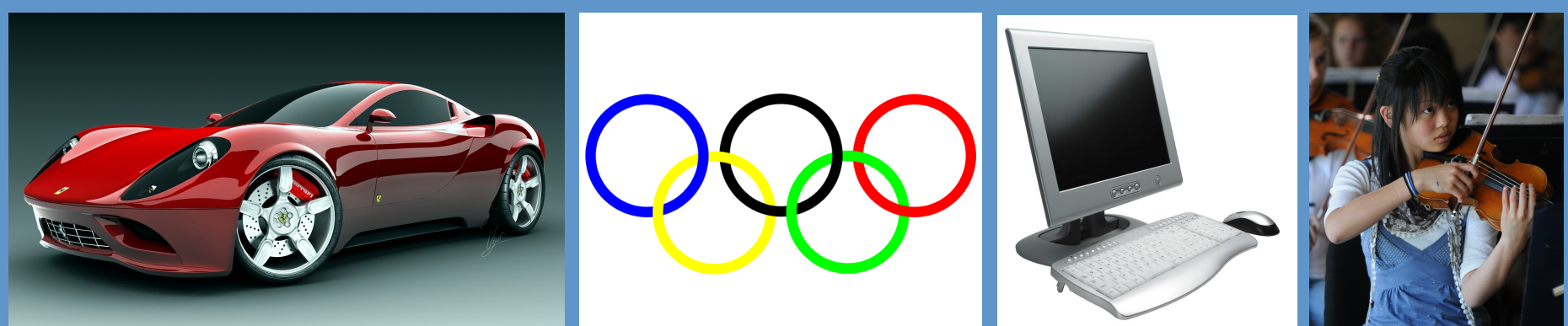
Cars now routinely run longer with better performance
Former Olympic records now achieved by H.S. athletes
Computer performance increases as costs decrease
Musicians perform works previously considered "unplayable"

10 Year Rule/10k hours

Minimum of 10 years of intensive study required for mastery
Some may require 20+ years before producing best work
Repetition alone is insufficient, however

Requirements of Deliberate Practice

- Process designed to improve performance
- Can be repeated *lots*
- Continuous feedback available
- Work with a mentor for guidance
- Demanding mentally
- Not much fun

Problem solving

When faced with a difficult task, a student's options are

Give up   Guess   Practice*
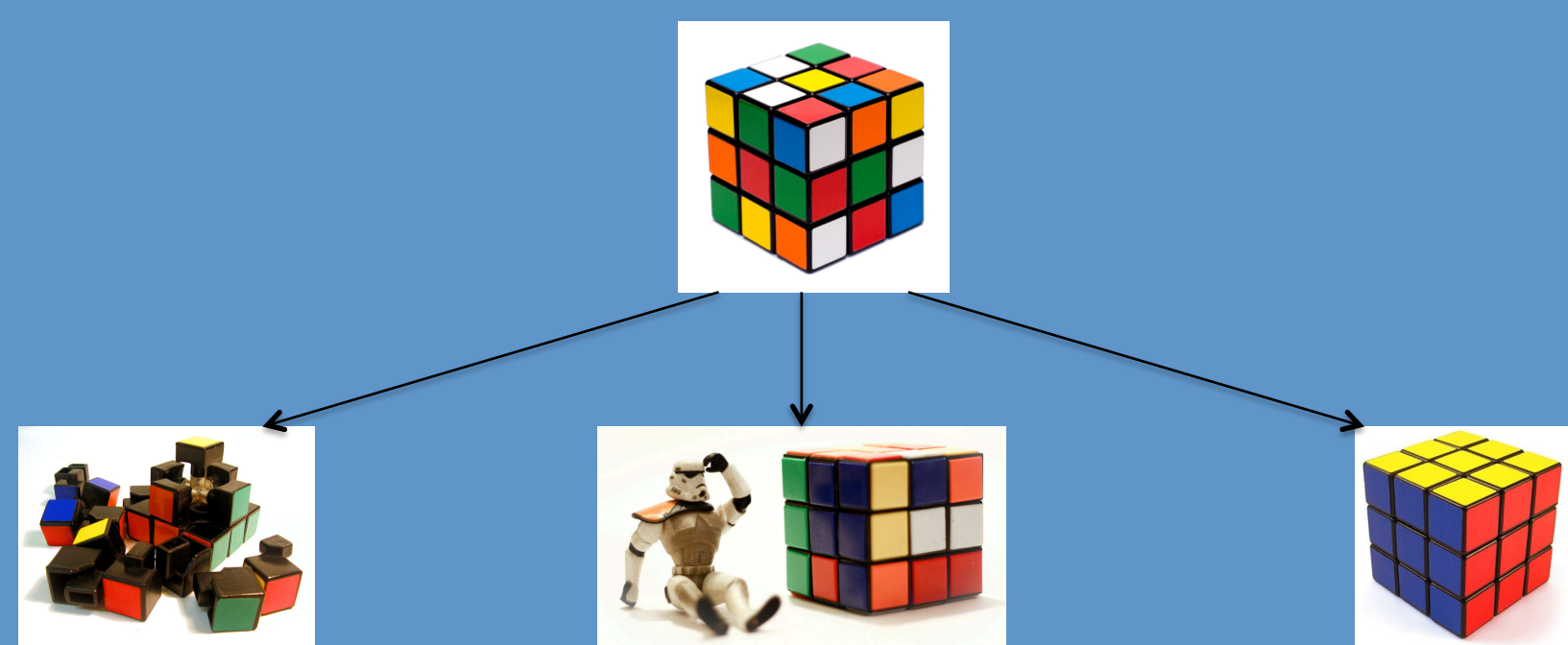
* Set clear goals, analyze performance, seek new information
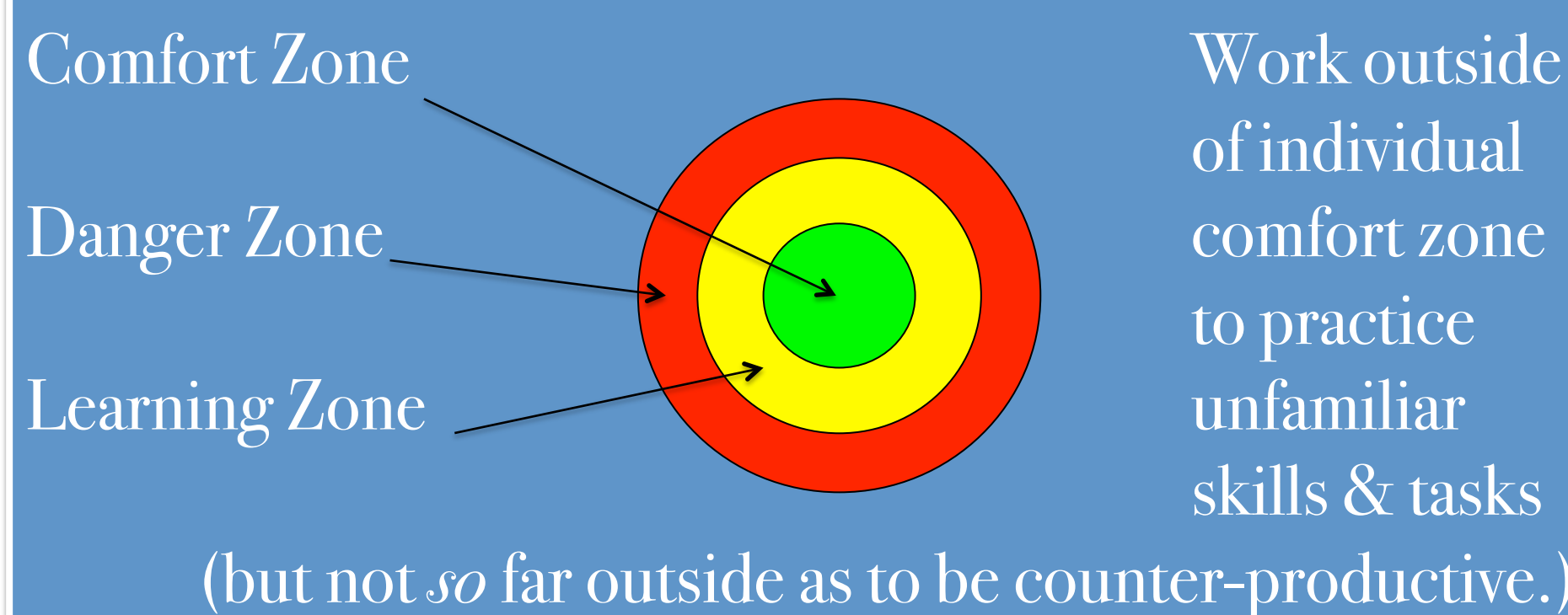
Mental model

Framework on which individuals support knowledge of a domain

Distinguish relevant information from myth and conjecture

Individual's mental model is constantly in development through research, practice, real-world interactions, and the process of *metacognition* (thinking about thinking).

Progress happens outside of the comfort zone

Comfort Zone
Danger Zone
Learning Zone

Work outside of individual comfort zone to practice unfamiliar skills & tasks

(but not *so* far outside as to be counter-productive.)

Challenges of mixing course design

- Developing effective and compelling materials
- Motivating & engaging Millennial students
- Preparing for 21st century professional requirements
- Bridging the divide between concept and application
- Providing comprehensive understanding of audio systems
- Developing students' problem solving skills

Solutions using *Deliberate Practice* model

- Follow widely accepted methodologies
- Develop students' foundational knowledge
- Provide rigorous practice regimens
- Mentor student workflow and outcomes
- Reinforce concepts through guided practice
- Encourage self-analysis

Mixing course overview

14-week course
Graduate and undergraduate sections
Open forum discussion format
In-class demonstrations
Individual problems
Guest speakers: perspective, networking opportunities
Reading/texts

Projects, assignments

Exercises: foundational skills; repetition
Labs: larger context
Written analysis (metacognition)
Session exchange and delivery
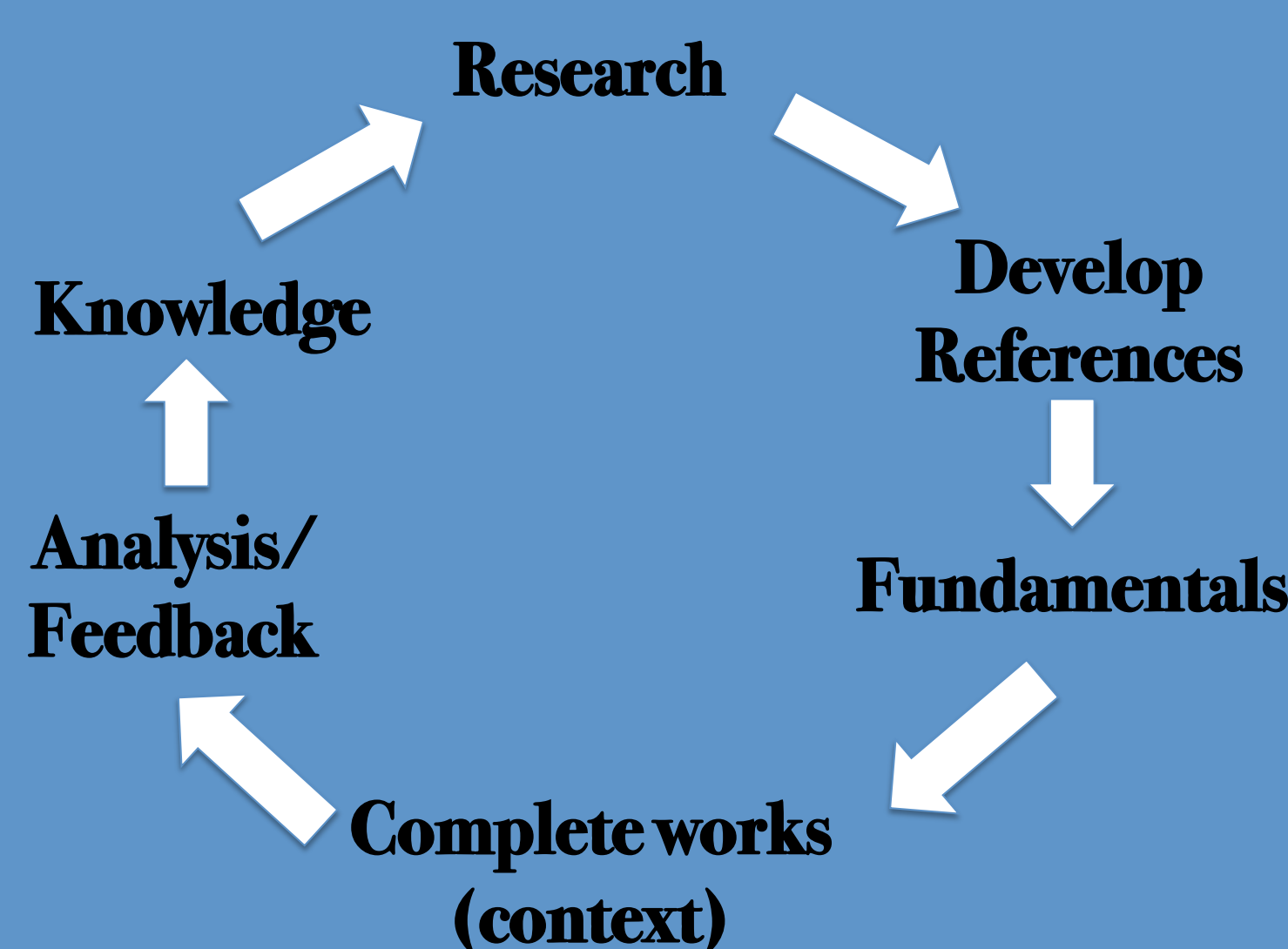Reference materials
Peer reviews
Proficiency exams

Foundational exercises

Series of exercises that focus on core mixing competencies
Intended to encourage consistent practice techniques
Concentrate on a single technique and analysis
Mentor reviews offer prescriptive revisions

Table of core foundational exercises

- Soundstage
- Equalization: clarity, fit, weight, correction
- Dynamics: compression, expansion; individual, busses
- Serial processing chains
- Effects: time-based, distortion, pitch-based
- Pitch and timing adjustments
- Foundation mixing (bass and sub-bass octaves)
- Focus mixing (automation)

Mixing is more than just *tips*, *tricks,* or *secrets*
Process that develops over time with experience

Research → Develop References → Fundamentals → Complete works (context) → Analysis/Feedback → Knowledge → Research

Study of scores *before* and *after* inclusion of mix exercises

Single mix lab with same given session files and guidelines
Offered at the same point in the semester (last 2 weeks)
Review of critical analyses posted with scores
Pre-exercises: Spring 2007 – Spring 2009
Post-exercises: Fall 2009 – Spring 2011

Critical comments cited most frequently

Before exercises: *Errors in fundamental techniques*

- Errors in session signal flow (e.g. submixes, effects)
- Ineffective application of EQ
- Poor level management, inconsistent levels
- Unacceptable application of dynamics processing
- Limited use of automation; static mixes

After exercises: *Focus on finer mixing details*

- Focal mix techniques
- Insufficient contrasts between sections
- Spectral balance issues
- Relative balances of elements
- Inner details are lost in mix

Conclusion

Significant time invested in rigorous, guided practice appeared to have measurably improved students' performance of core mixing skills and allowed them to concentrate on higher-level mix refinements.

Recommendations

Develop improved metrics for measuring performance
Produce mix exercises that target specific skills
Appraise educational needs of Millennial students
Consider teaching mixing as individual lessons
Begin guided practice early in students' careers

"Success is the ability to go from one failure to the next with no loss of enthusiasm." Winston Churchill

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About the author

John Merchant earned a degree in Music Engineering from the University of Miami. While in school, he began working at Middle Ear Studios on South Beach, owned by Barry, Robin & Maurice Gibb, where he advanced from assistant to Chief Engineer. In 2011, he opened his studio, RedDoor (Mix Magazine, Best of Class).

Over the course of his career, Merchant has had the opportunity to work with a wide array of musicians, producers & engineers. His credits include Barbra Streisand, Michael Jackson, R. Kelly, Toni Braxton, Celine, and Lenny Kravitz, as well as producers Arif Mardin, David Foster, Russ Titelman, Phil Ramone. In 2008, he was nominated for a Grammy Award as producer for Mika.

Having completed his masters' degree in Recording Arts & Technology, he continues recording and producing while teaching. In 2009, he produced a top-selling DVD on mixing techniques for Multiplatinum Productions.
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Middle Tennessee State University's Recording Industry Department is one of the oldest and largest of its kind. Located near Nashville TN, MTSU's Recording Industry Department offers undergraduate and graduate programs in audio production, music business and songwriting with faculty, students, and facilities among the best in the world.

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