Theory Game: The Curse of the Lost Rules

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Introduction

Student engagement in theory is a key predictor of success in the core curriculum. Technology gives educators the tools to reach students inside and outside the classroom. We already use a flipped-classroom model in Written Theory, and I thought that trying to reach students using a medium with which most of them would be familiar would be a worthwhile project.

Gamification Principles

While much of the current gamification of music theory utilizes mechanics such as levels, points, and even elements of gambling to engage students, I was inspired by early childhood learning apps to integrate simple video game mechanics into practice exercises to make them fun while they reinforce the basic ideas of music theory.

Core Ideas:
- Each game should be playable by a person with no video game experience.
- Games each center around one concept, and the student chooses the order they want to explore these concepts.
- Games are built so that they can be scaled to different levels of theory with minimal extra coding.
    - For instance, the floor puzzle game could become "Only step on the notes of the V7/V in D Major."
- There needs to be an overarching story/goal that keeps students coming back.

Theory Game: The Curse of the Lost Rules

Story: Bach has been kidnapped. It is up to the student to help the composer super-friends rescue him by gathering special ingredients (such as the Golden Staff).

Levels: There are two main levels – one for students in fundamentals, and one for those studying chromatic harmony. Most of the core games stay the same, but the material changes to adapt to the level of the students

Mozart telling us what to do

Modular Games: Individual games reinforce basic concepts (the floor puzzle below teaches scales).

Games include: racing game (key signatures), shooting range (note names), 2D platformer (triads), a word puzzle-type game(naming chords), and an angry birds parody (intervals).

Screenshots
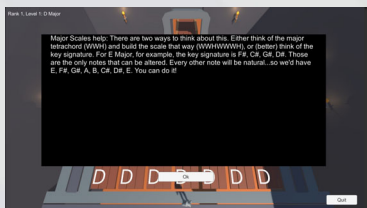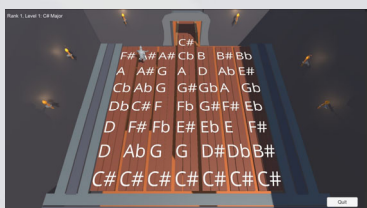
The scales puzzle requires students to pick the correct notes of the scale in order. The other notes are mostly generated randomly, although chromatically altered version of the correct pitch are always included (so we have D, D#, and Db on the same row). As the students move up the ranks, they practice minor scales and modes. If they fail more than 3 times at any one of these, they get some encouraging help text!


Another Game (triads))

Outcomes

This was our first year with this engagement tool and I was happy with student usage of it. All of my freshmen (around 89) were required to download it and play it. They wrote about it in their weekly journals and, on the whole, had positive experiences. Across the school year, the app has been downloaded 323 times across the country (and internationally) and picked up by other theory departments in institutions such as MIT.

Data:
- A series of achievements were built in to measure student progression within the game. Between these data points and student commentary in their journals, I was able to loosely correlate engagement to performance.
- Usage spiked before major tests, and students who consistently used the app tended to score better in the areas they practiced than they had on previous homework assignments.
- Analytics data (see below) shows great interest in the beginning of the semester (when we were studying the fundamentals unit), but continued practice throughout.
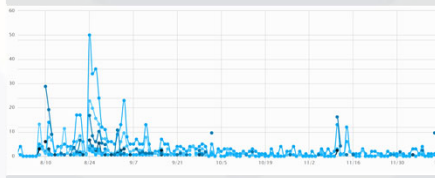
State of Play

My plans for next year include:
- Continuing to integrate the games more closely into the class to get clearer data about their efficacy.
- Fix some lingering bugs that are hurting the user experience.
- Start work on a follow-up game that will explore music theory around the world with more of an emphasis on listening and critical thinking rather than skill practice.