Student Composers and Sound Designers in the Context of a Game Design Course

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ABSTRACT

We present an established program of study that we developed to provide substantial music and sound contributions to an undergraduate Game Design course. We present the approach that we took in the context of our cross-disciplinary curriculum at The College of New Jersey. We describe the training and preparation undertaken by the student composer and sound designer, and demonstrate the benefits and successful outcomes both to the students and to the game itself.

Categories and Subject Descriptors

K.8.0 General Games

General Terms

Music, Audio, Game Design

Keywords

Interactive video games, Computer Science education, audio and music integration, student composers, student sound designers

1. INTRODUCTION

The stages of development in game design projects typically include scriptwriting, character design, development or selection of the game engine, character/object modeling, and the integration of AI and story triggers in the development environment. Often relegated to the end of the process are dialogue recording, sound effects integration, and music. We took a different approach in the context of a large collaborative undergraduate course, with positive results.

We focused on the need for high-quality music and sound from the beginning of the project. This was because as composers and musicians, we understand that the effective use of music and sound can dramatically improve the perception of an entertainment experience. A great composer can vastly influence the reception of a film, and this is increasingly becoming true in the game world as well. Music often acts as a subconscious delivery mechanism for conveying elements of emotion, mood, and even plot elements such as foreshadowing. Therefore, we were sure that music could also positively affect the result of an undergraduate Game Design project. This paper will present our findings and feature links to sample audio selections.

2. INTER-DISCIPLINARY CONTEXT

Our institution identified the need for a new Game Design curriculum in 2004. As a result, our faculty developed a plan that focused on the need for the experience to be multidisciplinary with shared teaching from across several disciplines. Our model also featured as a core component the inclusion of student “specialists” who would work independently but interact with larger groups. Music provided a wonderful avenue for this component, because of the extensive specialized expertise required to create effective musical compositions.

Our plan enabled a specific advantage in the sense that it changed the dynamics of group management – we were able to avoid some of the standard problems in running large Tech and Art and Story groups, and instead motivate the individual members through their interactions with the Composer and Sound Designer. This paper will describe in some detail how those with specialized skills in music and sound were able to interact quite effectively with larger groups of Computer Science and Interactive Multimedia students.

Our plan was endorsed with a grant from Microsoft Research, which enabled us to go forward with a large faculty team representing Computer Science, Art, Interactive Multimedia, Communications, English, and Music. Lead by Principal Investigator Professor Ursula Wolz, our team developed and ran two semesters of a new course during the 2005-2006 school year.
These courses were cross-listed in both the Interactive Multimedia and Computer Science departments, and contained approximately 22 students in each semester.

Early in the faculty’s planning process, it was decided that a student composer would be recruited from the Music Department and trained separately for specialized musical tasks. This student was chosen in the summer, undertook Independent Study in the Fall semester, and joined the Game Design class in the Spring. At the beginning of the Spring 2006 semester, we invited students in the Game Design course to volunteer for the Audio Team. Within the first week of the class we amassed our Audio Team members, including the composer (Music Director), sound designer (Audio Director), technical integrator, voice actors, and faculty coordinator. The members of the Audio Team worked in parallel with other students in the Story, Art and Tech Teams to produce and integrate all the assets for the final game.

3. DEVELOPMENT OF THE STUDENT COMPOSER

With the working assumption that strong music and audio content would positively affect the final product, we jointly selected a promising upcoming senior Music Major during the summer of 2005 to be the game composer. This student enrolled in an Independent Study project with Prof. Nakra in the Fall of 2005, during which time he undertook a rigorous series of compositional tasks. These tasks were designed to extend his existing skills in composition, orchestration, and production with weekly composition assignments. These projects included the following musical activities:

1. constructing a musical theme
2. revising and reworking that theme with variations
3. identifying the dominant emotion of a musical theme and creating variations that preserve the theme’s structure while varying its emotional effects
4. associating the theme with a story character and constructing variations to reflect plot and action changes
5. studying film music (playing particular attention to the scores of John Williams and Danny Elfman) and analyzing how Hollywood composers use themes and variations to convey character, plot, action and mood
6. recomposing selected sections of films with original music that either reinforced or contradicted the original composer’s intentions
7. analyzing the ways in which recent commercial game composers have made use of film music techniques in scoring the games.

During the Fall 2005 semester, our composer attended the Game Design class twice to meet the other students, participate in class discussions, and present his compositional work. During the Spring 2006 semester, our composer enrolled in the class and worked directly with the other students and faculty members to create musical themes and incidental music for the game. Our composer’s final output included seven final compositions that were integrated into the game, including music for a cinematic Cut Scene. In all, approximately 30 minutes’ worth of original, high-quality student-composed music is represented in our game.

4. DEVELOPMENT OF THE STUDENT SOUND DESIGNER

Also important to the overall impression of a game are the dialogue and sound effects. Our student Audio Designer volunteered for the job at the beginning of the Spring 2006 semester. His tasks included:

1. working with the Story Team to arrive at a final script as quickly as possible
2. organizing separate reading and recording sessions with three voice actors (including two local professional actors and a child actor)
3. arranging for the use of the audio recording booth in the Communications Department
4. editing and processing the recorded audio with reverb and other effects; developing the final library of dialogue recordings
5. combing through the sound effects library of our game engine (ValvE’s Source) for appropriate sound effects for the game
6. working with the student Audio Team Technical Integrator to ensure that all sound effects and dialogue segments were properly imported into and triggered within the game
7. working directly with the composer to ensure high production values in the final musical realization of the score.

Our Sound Designer delivered on all these tasks and proved a terrific asset to the final game. His role became a central and critical part of the overall project development, particularly because his job required interfacing with many different people. His helpful personality and collaborative working style made him a particularly valuable member of both the Audio Team and the class as a whole.

5. RELATIONSHIP OF THE COMPOSER AND SOUND DESIGNER TO THE GAME DESIGN PROCESS

We found that the student Composer and Sound Designer contributed enormously to the success of our game design process. Their presence in the classroom and regular delivery of new creative work added a level of professionalism and expectation of high production values among their peers. Their individual dedication to their creative tasks inspired several other students, particularly among the members of the Art Team, to deliver similar results.

We found that the integration of dialogue recordings into the game added believability and realism to the characters, which in turn positively affected the way the game was received by users. This experience reflects a growing sentiment in the game industry, where increased attention to dialogue and story are reaping commercial rewards. David Murrant, the Sound Design Manager for Sony Computer Entertainment America, recently said that
“Dialog now is telling the story – the backstory – and has become the action of the game itself.”[2] We found this to be true even in the context of an undergraduate class. The Sound Designer’s contributions were crucial to the perceptions of the gameplay itself.

The Composer did not retreat to his studio but rather had to interact with nearly every member of the team – story writers, artists, the Sound Designer, and especially the member of the Tech Team who integrated sound into the final game. Most importantly, he had to work with the Director to ensure that the music matched his overall creative conception. We believe that the early selection of the Composer and Sound Designer roles greatly affected the final outcome of the project, especially with regard to the combination of talent and personality that they brought to the project.

The course seemed to have very beneficial pedagogical effects on the individual students, boosting their confidence and eliciting a large volume of strong work. We believe that the momentum of the class project forces the student Composer and Sound Designer to come to terms with tight deadlines and high expectations. This experience prepares them well for future opportunities in the professional world. The constraints imposed by the Game story, script, and other factors also created challenges that they had to overcome in order to deliver their assets. We believe that there is great pedagogical value from these experiences, and we are currently using the same approach for a second year of the Game Design class.

The order in which tasks are completed is also an important element of the process. Our approach allowed the composer and sound designer to create their work in parallel with the Art and Story and Tech teams, which may have motivated the other students. This is in contrast to the way that the process usually works in industry. According to Gal et al [1]:

“Unfortunately the sound is generally integrated in the game at the end of the realization, when the whole interactive graphic part is finished. Generally the sound designer has to prepare his elements without being able to test them before this step of the process.”

Our relative lack of commercial motivation in the classroom setting gave us some freedom to tinker with the process. As a result, we found that changing the production order (and thereby increasing the importance) of the music and sound contributions had a beneficial effect on the overall game.

6. MUSIC AND AUDIO ASSETS

By the end of the Spring 2006 semester, the game Composer and Sound Designer had created a large set of materials that were ready for inclusion in the game. These assets included six original musical compositions (five for use in the game; one in the Cut Scene) and approximately 300 individual dialogue segments. Most of the music was included in the final game, triggered at various points in the environment. A few of the dialogue segments were included in the game as well, with several more included in the Cut Scene. However, much of the dialogue integration was not finished due to the fact that the game script was not fully implemented. This was a disappointment to many of the students, but also created the opportunity for a “teachable moment” in revealing to the students the tremendous difficulties and hard work required to fully implement a full game. Rather than feel defeated by the lack of inclusion of all 300 dialogue samples, the course faculty were encouraged by the tremendous volume of creative output of the Audio Team.

Examples of the Audio Team’s creative output are available for listening through our college website. Below is a list of the assets that we have made available for general listening:

1. Cut Scene – this is a video sequence that was created by the student Creative Director of the Games course, in collaboration with the Composer and Sound Designer. A Quicktime movie of the Cut Scene has been made available for downloading and viewing at: http://www.tcnj.edu/~Games/Music/cutscene.mov

2. Joel’s theme – this is the theme of the game’s main character, Joel, who is a young boy aged 10. The music was written to reflect elements of his character and personality and is downloadable here: http://www.tcnj.edu/~Games/Music/ joel.mp3

3. Maddy’s theme – this is the theme of the game’s secondary character, Maddy, a young girl, who is Joel’s sister. Her music is available for download at: http://www.tcnj.edu/~Games/Music/maddy.mp3

4. Playground theme – this is the theme of the primary setting in Level 1 – a children’s playground: http://www.tcnj.edu/~Games/Music/playground.mp3

5. Junkyard theme – this is the theme of the Level 2 environment – a junkyard: http://www.tcnj.edu/~Games/Music/junkyard.mp3

6. Ending (credits) music:
http://www.tcnj.edu/~Games/Music/ending.mp3

7. Dialogue recordings – here are some examples from among the approximately 300 recordings that were made:
http://www.tcnj.edu/~Games/Music/Backpack.wav
http://www.tcnj.edu/~Games/Music/Hehe.wav
http://www.tcnj.edu/~Games/Music/Joel.wav
http://www.tcnj.edu/~Games/Music/WooHoo.wav

7. CONCLUSIONS

The effects of interdisciplinary work are sometimes hard to measure, but we assert that the strong emphasis on music and sound in our student-created game positively affected all the students who took the class. Uniformly, our students expected a high-quality product by the end of the semester. Many of them
contributed substantially to this effort, putting in more work than they might for another course of the same academic weight. Ultimately, we believe that the strong contributions from the Arts motivated the Computer Science students to deliver a stronger result.

Gal, et al state that “The main goal of sound in most games is to increase the feeling of immersion.” We found this to be true. In addition, we found that promoting the role of the Composer and Sound Designer within the classroom context motivated the other members of the team.

Our student Composer and Sound Designer were great assets to our Game Design class. We have presented aspects of our curriculum with experiential and anecdotal evidence from the course that indicates that this is a promising model to use. The numbers of students are not yet significant enough to make definitive or quantitative claims. However, we suspect that our results might be helpful to the wider Academic Game Development community. We are currently preparing a new Composer for the Spring 2007 semester and are using of the same model for a second year in a row. Our second year’s results will be achieved by May of 2007.

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9. REFERENCES