

June 25, 2007: Final report on “Pilot Study to Measure the Pedagogical Benefits of Incorporating *Dance Dance Revolution* into the Undergraduate Music and Dance Curriculum”

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As of June 1, a great majority of the projected work with the *Dance Dance Revolution (DDR)* lab has been completed. The lab was set up and run in accordance with the initial proposal and the Interim report of January 4, 2007. Students at UMass, Amherst that enrolled in Music 214 (Aural Skills III) participated in a 10-week curriculum designed to improve their abilities in performing and sight-reading rhythms.

Project accomplishments may be divided into two categories: student achievement/feedback and pedagogical research advances.

Student Achievement/Feedback:

Aural skills students gained much through their hard work with the program, which totaled 350 minutes (minimum) of in-lab drilling and exposure to over 35 dance routines of graded difficulty for each of them. From my own extended observations I was able to determine that students’ abilities to execute these complicated rhythms increased significantly from the beginning to the end of the semester. To be specific, it was common to find in the first two or three weeks that many students could not go more than 30 seconds on a particular song without giving up and stepping off the dance pad. By the end of the semester, such occurrences were far rarer, indicating a high level of comfort with the *DDR* interface. Moreover, at the last three sessions, students’ confidence had been raised to the point where they were almost all able to complete songs at medium and high levels of difficulty.

In terms of student satisfaction with the novel drill exercises, the relevant responses to a mid-semester survey are reproduced below. Answers ranged along a five point scale, with 5 signifying strong agreement and 1 strong disagreement.

1. “The DDR lab is an enjoyable portion of this course”

Average value of all responses: 3.909

Number of favorable responses (4-5): 22

Number of neutral responses (3): 6

Number of unfavorable responses (1-2): 5

Percentage of favorable responses (22/33): %66.67

2. “Practicing with *DDR* feels like it helps with rhythmic/sight-reading accuracy”

Average value of all responses: 2.897

Number of favorable responses (4-5): 13

Number of neutral responses (3): 4

Number of unfavorable responses (1-2): 11

Percentage of favorable responses (13/28): %46.43

3. “I would like the *DDR* component to return in later semesters of study”

Average value of all responses: 3.406

Number of favorable responses (4-5): 19

Number of neutral responses (3): 0

Number of unfavorable responses (1-2): 12

Percentage of favorable responses (19/32): %59.38

On the whole, it may be seen that approximately two-thirds of the students enjoyed the experiment with the *DDR* curriculum and would be willing to continue their studies with it. Fewer students, but still a relatively high percentage, reported that they felt the time they spent with *DDR* helped their general performance accuracy and/or sight-reading ability.

As for any more objective measure of the success of the *DDR* regimen, such will have to wait until the Fall '08 semester. There can be no doubting that a regular routine of practice with *DDR* improves one's abilities to play the game. The key question is whether the improvements in *DDR* necessarily translate to the purely musical realm, where a performer reads notes instead of arrows and executes rhythms with a voice/instrument rather than a dance pad.

To answer this question, a cognition experiment will be run in the next few months in which three groups of students will be trained to read and perform a fixed set of rhythms. All groups will take a diagnostic skills test on a computer at the opening and close of the study. In the interval between the tests, the control group will receive no rhythmic instruction of any kind, a second group will receive rhythmic instruction purely through the *DDR* interface, and a third group will receive only conventional classroom aural skills instruction. The degree of improvement on the final diagnostic for all three groups, as well as a possible fourth receiving both instructor and *DDR* training, will then be measured.

Pedagogical Research Advances:

Much of the pilot study's "Project Deliverable" has been completed at this time. First, as projected, the methods and preliminary findings of the project were presented at three separate venues for musicians and academics. A version of the paper, "Pedagogical Applications of the Video Game *Dance Dance Revolution*" was given on November 3, 2006 at the national meeting of the Society for Music Theory. Other talks were given at UMass's conference on Academic Technology in Sturbridge last May and as part of the Music Theory Lecture series at UMass, Amherst. From this exposure, I have received two independent invitations to submit materials for publication in the *Journal of Music Theory Pedagogy*, and have been contacted by scholars at the University of Chicago and Nazareth College (Rochester, NY) who are interested in learning more about using *DDR* to teach aural skills.

Further national exposure is assured as musicians, academics, students, gamers, and the general public discover the site, "The Pedagogy of *Dance Dance Revolution*," newly launched on the world wide web at the following address:

<http://people.umass.edu/brent/DDR>

The website – which is published on Google and hyperlinked from the homepage of the music department at UMass, Amherst – provides an overview and summary of the entire pilot study. It furthermore allows visitors to download files that list the full *DDR* curriculum, to see results of past and current research, and to contact me with any questions they have concerning the philosophy and design of the *DDR* lab.

Conclusion and Acknowledgments:

The "Pilot Study to Measure the Pedagogical Benefits of Incorporating *Dance Dance Revolution* into the Undergraduate Music and Dance Curriculum" has been successful. It provided undergraduates an exciting and highly innovative program for drilling aural skills that exposed them to the genre of Electronic Dance Music. Additionally, it required students to speedily adapt to a new visual/performance interface and fostered a "culture of fluency" in the classroom (where no stopping is allowed when mistakes are made). That the students found this type of practice valuable only has made the experience of running this project more rewarding. The study has also helped to open up new avenues in music theory pedagogy, encouraging educators across the nation to adapt cheap, flexible, and commercially-available programs like *DDR* to their own classrooms. From feedback I have received, I am convinced that many music instructors at colleges, universities, and high schools will soon follow the *DDR* model initiated here at the University of Massachusetts.

With that said, it is important to note that the pilot study has not truly concluded. The aforementioned cognition experiment into the measurable benefits of *DDR* still needs to be undertaken. Fortunately, funds on the order of \$400 from the original Professional Development Grant remain for this purpose. While these monies will go a long way towards carrying out this modest experiment, it is hoped that they may be

supplemented by a very modest addition of funds during the upcoming academic year. An official request for this supplement will follow in the coming weeks.

In closing, I would like to offer my deepest thanks to the UMass Information Technology Council's Subcommittee on Academic Technology for their support, without which the *DDR* lab could never have been brought to fruition. I would also like to thank the Department of Music and Dance at UMass, Amherst, specifically Chris Thornley for making room in the music building both for the new equipment and for finding time in the schedule to place the lab. My most sincere thanks go to Professor T. Dennis Brown, former Interim Chair of the Music Department, who prodded me on more than one occasion to translate my gestating ideas about *DDR* into a fully, functioning grant proposal. None of this would have happened without his support. Last, I would like to thank the students enrolled in Music 214 at UMass, Amherst during the Fall semester, 2006. Their good cheer and flexibility, in addition to making class meetings enjoyable, ultimately made this project a success.

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