Teaching Soft-skills:
Digital Game Development in a Multi-Discipline Environment
Presented at Eurographics 2008

Paul J. Diefenbach, Ph.D.
Co-Director RePlay Lab
Asst. Prof Digital Media
Drexel University
Philadelphia PA USA
pjdieff@drexel.edu
On the eve of opening the new paleontology wing, a fierce discussion ensues between artist and curator over the accuracy of certain details in the murals.
Multi-Discipline

- Art vs. Science
- …Well, Computer Science anyway
- Art
- Digital Media: Art, Modeling, Animation, Music,…
- Other: Scriptwriting and Playwriting
- Engineering, Business
Digital Media curriculum

- Digital Art
  - Photoshop, Illustrator
- Design
- Web design and development
  - HTML, CSS, Flash, PHP...
- Programming
  - C++, scripting
- Modeling
  - Maya, 3dsMax
- Animation
  - Maya, Houdini, Massive
- Rendering
  - Renderman, shaders
- Digital Audio
- Digital Photography
- Compositing
- Theory

- One 6-month Co-op
- Sleep?
Drexel Gaming

• Computer Science curriculum
  • Programming
  • Programming
  • Programming
  • ...just kidding

• Three 6-month Co-ops
• Sleep?
Cross-listed Gaming Curriculum

- Game-based CS I & II
- Gaming Overview
- Computer Game Development*
- Scripting for Gaming
- Gaming Development Workshop I*
- Gaming Development Workshop II*
- Educational Game Design*
- Experimental Game Design*
- Graduate Game I & II

*CS Gaming Track
Soft Skills?
Soft Skills?

“I always keep my mouth shut during meetings and don’t contribute anything. That’s how I won Most Valuable Employee.”
US Secretary of Labor appointed a commission to determine the skills people need to succeed in the modern workforce. This new framework for workplace skills was based on three components:

- **functional skills** that describe what people actually do at work (real-world)
- **enabling skills** which are specific knowledge and procedures developed through the traditional teaching and learning activities of schools
- **the scenario**, a communication device to demonstrate the way in which work integrates these skills into a productive outcome.

The gaming curriculum assumes a foundation of enabling skills and focuses on teaching the functional **soft-skills** through the use of workplace scenarios. More on this in a moment....
Game Development Workshop

- GDW 1 (11 weeks)
  - pre-production effort
  - 4–6 person teams
  - Concept, design, prototype, sell
  - 1 page sell, 5 page executive summary, GDD
  - Instructor is External Executive Producer
  - Open “pitch” gets voted on by faculty and students
Game Development Workshop

- GDW 2 (11 weeks)
  - full-production effort
  - 10–20 person consolidated teams
  - Full GDD, Gantt charts, Project Production Journals (PPJ)
  - Multi-level game, video trailer, promotional material (i.e. poster)
GDW: Soft Skills

- Leadership
  - Team leaders
- Interpersonal communication
  - Stop the emails! Talk! Record meeting minutes
- Punctuality
  - Deductions for absence or lateness
- Respect for deadlines
  - Pay (grades) for meeting deadlines
- Working well with others
  - Conflict management
- Time management
  - Weekly assessment and pay
Skills: Asset Management

- Revision control
- Asset lists
- Templates
- Naming conventions
  - Or why not to name something:

Wall47.jpg
midtermWorkingMattRevis_07_csc29NORMAL.wrl
Dan_screwed_up_first_model_so_heres_mine_2.mdl
Brainstorming

Theme exercises: i.e. Music, Color, Story

Brainstorming vs. Groupthink

Yale Psychologist Irving Janis devised 7 ways of preventing groupthink:

1. Each member is “critical evaluator”. This allows each member to freely air objections and doubts.
2. Higher-ups should not express an opinion when assigning a task.
3. Set up independent groups working on the same problem.
4. All effective alternatives should be examined.
5. Discuss ideas with trusted people outside of the group.
6. The group should invite outside experts into meetings.
7. At least one group member should be assigned the role of Devil’s advocate.

Living design

Reviews

Playtesting

Iterative
Brainstorming

Theme exercises: i.e. Music, Color, Story

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Living design

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Design Skills
GDW: Project Management

- Mirror Industry (with caveats)
- Internal Producer
- Budget & pay for meeting milestones
- Gantt charts, Basecamp, Bugzilla, etc.
- Product Production Journals
- PPJ follows SCRUM
  - Last, analyze, next, samples
What the $#!%@ is Scrum?

- Waterfall    vs    Iterative/Agile/Scrum

Relay race    Rugby scrum
A pig and a chicken are walking down a road. The Chicken looks at the pig and says "Hey, why don't we open a restaurant?" The pig looks back at the chicken and says "Good idea, what do you want to call it?"

The chicken thinks about it and says "Why don't we call it 'Ham and Eggs'?"

"I don't think so" says the pig, "I'd be committed but you'd only be involved"
Agile Development

- "Pig" Roles
  - the ones committed to the project and the Scrum process; their "bacon is on the line".
  - Product Owner
  - Scrum Master (or Facilitator)
  - Scrum Team

- "Chicken" Roles
  - not part of the actual Scrum process, but must be taken into account. Provides feedback into the outputs for review and planning of each sprint.
  - Users
  - Stakeholders
  - Consulting Experts

- Scrum weekly sprints
Project Management

• Open and Free Project Management Tools – http://proj.chbs.dk/
• Dot Project – http://www.dotproject.net/
• Poseidon for UML – http://gentleware.com/
• Open Source Project Scheduling for Windows – http://www.openworkbench.org/
• Gantt Charts: http://ganttproject.biz/
• Online project: http://www.basecamphq.com/
Development Resources

- Tackle
  - [http://www.codeplex.com/Tackle](http://www.codeplex.com/Tackle)
- ScrumProduct
- XPlanner – pretty close to Scrum other than the "time to completion" thing
  - [http://www.xplanner.org](http://www.xplanner.org)
- Bugzilla
  - [http://www.bugzilla.org](http://www.bugzilla.org)
- MS Project (through Drexel)
- XP Web
Workshop Games
Workshop Games: Project: Bolt

3D music-based action game where the player runs down hallways smashing up waves of enemy robots to the beat of the music...
Workshop Games: Chroma Chaos

- Fight enemies based on color matching
Workshop Games: Moach Rotel

- Story-based adventure
Characters age and die permanently
Must reproduce to continue family tree
  • Mendelian genetic models
Forced to make morally ambiguous decisions
  • Do you sacrifice yourself to save your child, or turn tail and run?

Form lasting bonds with other players that actually effect gameplay
Graduate Work:

- Multi-touch God Game (feed, move, scare, etc.)
- Homemade FTIR table
- Microsoft Surface donations welcome!!!
- Multi-user kiosk game
- Competitive play – collect (steal) diggums
- Cooperative play – two person slingshot or zoom
- Physical interaction between players

Digital Media
Dr. Paul Diefenbach
William Muto
Matthew Smith
Chester Cunanan
Justin Dobies
Arvind Neelakantan
Sara Colucci
James Grow

Electrical Engineering
Dr. Youngmoo Kim
Timothy Kurzweg
Vijay Balchandani
Eric Effinger
Jeevan Kotha
Pannha Prak
Joseph Romeo

Computer Science
Dr. Frank Lee
Louis Kratz
Ko Nishino
Craig Polakoff

Drexel infinitouch
Boris Block
Dan Hennessey
Zenko Klapko
David Millar
William Morgan