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Project Based Learning: Outline for Game Development Basics

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Action Plan Template

This template is offered to help you shape your PBL design and implementation plan. It is not meant to be prescriptive and should be adapted to your specific project goals.

STEP 1: Project Description and Goals

1. In which course do you expect to use project-based learning?

Norco College, GAM 70: Game Development Basics

Description: Introduction to fundamental computer concepts related to typical functions required of a game artist. Understanding computer navigation and peripherals used to input information which is unique to Game Design and Digital Media will be the focus. Standard file management, navigation, storage, and multiple backup techniques for files are taught as well as basic scanning techniques, appropriate use of internet resources, copyright issues and an introduction to graphic file formats.

2. What learning goals do you plan for this project to address? At what level(s)?

This class is designed to teach students basic computer skills and give them an introduction to the technical skills required by artists and game designers in the video game industry. Not only will they learn individual skills for isolated tasks, but more importantly they will learn how these tasks affect other parts of the development that are typically are not their responsibilities. In doing so, the students will be given a project for the course of the semester that will expose students, many which have no experience, to the process of game development. Their project-based learning assignment will be to take an existing prototype that will be provided, deconstruct it, then recreated the same kind of prototype using their own assets and pieces they create throughout the course of the semester.

3. What is your project? How will it address the learning goals identified? Be as specific as you can.

The Project: What are the skills does it take to create a video game prototype?

Students are often surprised on how much planning and technical skills that can go into the development even the simplest of games. This class will focus on all the skills required to create the initial process of a prototype which is the beginnings of a modern video game. We will address pre-production skills such as industry research, document writing and concept development, level design, team communication skills, communication skills with currently used technology, task management, current industry game engine technology, current industry digital tools such as 2d drawing and 3d modeling applications, the pipeline from start to finish of the implementation of art assets created by the students, and the iterative process that makes a mediocre game a good one.

They will have their skills assessed throughout the process across many scaffolding assignments which would be associated with several profession specializations in the industry. The learning goals will easily be identified if they can complete the tasks required to recreate the prototype with the edits as they intended to implement based on the pre-production portion of course. Students will likely gravitate to certain aspects of this development which would be recommended to them focus on in future courses in their education of game development. But will have developed a general knowledge of how the pieces of the development process fit together which can apply to their specialty and make them eventually more successful at their chosen profession.

4. What makes your project PBL vs. “just” a project?

This is a team-based project emulating real world conditions in which the class will be broken into a team of developers who will be working for a mock publisher (the instructor) and they will each be the developers for sections of the game project. This will result in the development of a completed vertical slice for a prototype that would be playable and showable which in the industry could be used to show to publisher or potential investors. The process the students will learn will have them work in a team environment and have the basic skills required to understand how almost all aspects game production aspects in the industry. From this point they will learn on how to improve the areas they need work on or want to specialize in but understand how all the parts interconnect.

5. How will you assess the impact of your project on student learning? What evidence will you collect, and how will you analyze it?

The best measurement of the skills learned will be their contributions to the project. Additionally, they will be completing entry surveys at the beginning of the semester which will help determine their focused tasks. Students will all be responsible for completing the minimum in every category of skill scaffolding they have developed during the course but will be broken into roles as the semester continues. At the end of the semester students will complete a common measuring of the project used in the industry known as a “post-mortem” which is their reflections and recording of their contributions in the project. This will be compared to the entry survey and their work monitored by the instructor and their team to evaluate the retention of the materials taught throughout the semester.

STEP 2: Complete “Project Design Primers Worksheet”

Project Design Primers Worksheet

Subject

Norco College, GAM 70: Game Development Basics - An introductory class into the design and development of a video game through the look of production pipelines that are common in the industry to create video games.

Key Concepts

- How to turn a game idea into reality and what skills are required to make a great game.
- Game creation is often a team effort, how do those team work with each other is a key factor in the success or failure of a project.
- The importance of game production professions roles and who usually does what kinds of tasks.
- The “work” behind the “play”

Significance and Relevance: Why are these subjects important to teach?

Many students who are interested in video games are those who play video games and while it is a fun rewarding career path, it is a lot of work. It is an art that requires a fair amount of technical skill to create a product that we associate with as a video game. There are often large skill gaps that need to be filled for a student who plays videos to a developer of video games. This class shows what those gaps are, where the student will likely want to be focused on in the industry, and what steps they need to take in order to improve on those skills to eventually be part of a game development team in a real and professional capacity.

The video game industry is a major business that generates more money than even the film industry. With this much money involved, game production is a highly competitive and quality driven industry in which generally mostly the experienced developers' products usually shine. For beginning students, they need to know the skills required so they begin meaningful development of them.

Out of the classroom, who engages in these topics? How might students engage in these topics in an interdisciplinary real-life way?

Game development requires many different skills sets to develop and they need to know how these skill sets connect with one another to create the best possible product. The project-based learning assignment will teach the students how to connect these pieces together or decide which part(s) they want to be. But importantly they will learn how to work with those with different skill sets and how to work as a team for the best possible product.

Engage Critical Thinking

They will make a product that will have parameters of an industry standard video game prototype using all technical and creative skills required. The process will involve the dissection of video game development philosophy and mechanics and will implement their own ideas in this framework. The teams will be forced to divide the work and tasks of the development based on their desires and skill sets and work with each other in order to finish in a timely manner.

Project Sketch

To create a video game prototype using industry standard skills that can be used as a presentation model for industry professionals to showcase the work for potential development into a full video game title.

Project Title

Video Game Prototype Creation

Entry Event

The creation of the video game prototype with a series of scaffolding skill building lectures that focus on different aspects and roles within the development process. Students will each take different roles but will be exposed and demonstrate basic skills from each role. Students will focus later their assigned roles during the project, "owning" aspects of the development.

Driving Question

What does it take to make a good video game? Does it take more than just be good at playing video games? What skills are required?

STEP 3: Design and Implementation Actions - (consider the PBL essential elements)

Action	Details (e.g. what, when, where)
(e.g., develop a central probing question)	

STEP 0: Self Evaluation of skills / knowledge	Survey of skills / knowledge to assess the start points of the students. To be used to also place them in groups with complimentary skills or desires.
STEP 1: Gameplay Critique	Reverse engineer game prototype that will be used for the project. Discuss and critically analyze the game play functions, game loops, and technical construction of development.
STEP 2: Photoshop and level design	Scaffolding of a technical skill required by almost all developers. Specific skill building for game designers. Develops ideas and gives them form.
STEP 3: Asset list and production pipeline scheduling	First draft in task management, team production roles, and communication software that is used in the industry.
STEP 4: 3d Modeling Basics	Skill scaffolding for some roles, exposure to the process for other roles in order to understand what specific tasks would require when asked for.
STEP 5: 3d Texturing Basics	Skill scaffolding for some roles, exposure to the process for other roles in order to understand what specific tasks would require when asked for.
STEP 6: Unity Development Basics	Skill scaffolding for some roles, exposure to the process for other roles in order to understand what specific tasks would require when asked for.
STEP 7: Level Building	Assembly of production assets into prototype final form. How the different roles play in the building process.
STEP 8: Testing / Bug Tracking / Task Tracking	The evaluation process of their own work, the same critique process done at the beginning but on a much narrower focus.
Iteration	Repeat of all steps above, until game is fully developed.

Opportunities and Challenges

1. What do you bring to this work?

A wide breadth of knowledge in the game development process and how the art pipeline connects to the technical aspects of game development for production. Experience in many projects that have succeeded and failed in a commercial capacity in the production. The ability to create prototypes with minimal programming support focusing on design and art aspects of the development.

2. What will you need to learn in order to accomplish your goals?

More team communication support software from an administrator level.

3. What resources will you need in order to design and to implement the project?

None, but if the class wishes to move beyond the scope of the prototype provided it would require support from accomplished and experienced programmers to do so. The class is an introductory class so it is not recommended that students attempt to do this, but it could be an area to explore if we ever wished to create an advanced version of the class.

4. In what ways can we support your work?

At this time there is no known ways administrators can support the work of this project. But likely in the second iteration of the class we could explore presentations of the student's projects to others as a showcase of their skills for a beta testing and/or mock presentations to a business representative they would be pitching their work to.