Coordinating video game creation with your students

Recruit a team of teachers to coordinate the video game production over a period of time, it can be several weeks or an entire year.

For example, the language, literature or theatre teacher can be responsible for the creation of the story, characters and dialogue steps. The visual arts teacher can be responsible of the game atmosphere, animation and graphic design steps. The music teacher can be responsible of the sound design and music creation steps. The maths or physics teacher can be responsible of the implementation of the actual game, using a game engine and logic to put together the assets produced with the other teachers.

The preparatory and game design specific steps can be done by any combination of the teachers.

Game design workflow

1. **Pre-production (time: 30%)**

   o **Concept Development**

      ▪ **Brainstorming and refining core concept**

You can start by thinking about a theme or concept for your game. See: ‘So You Wanna Make Games?? | Episode 10: Game Design’ by Riot Games.

- **Definition of game genre and ambiance**

Perform pedagogical sequences 1 and 2 with your students.

- **Research and Development**

This video explains the concept of a game engine:

💡 'Make Games Without Coding by Using These Engines!' by Ask Gamedev'.

Use pedagogical sequence 0 to help you choose an engine. For each engine, tutorials and documentations exist. You should ask your students to start doing jlmlm.tutorials at home as soon as possible, even if the tutorials do not fit exactly your type of game.

Engine	Accessibility	Hardware	Power	Teaching	Documentation	Time	Money	2D	3D	OS
Construct3	+	--	=	=	+	-	9€ /month/ seat	v	x	web
Gdevelop	+	--	-	=	+	-	0	v	x	Win, Linux, Mac, web
GameMaker	=	-	++	++	++	=	0/10€	v	x	Win, mac
Core	+/-(if scripting)	+	++	- / + (if scripting)	++	=	0	v	v	Win, mac
Crey	+	=	=	+	-	=	0	x	v	Win

- **Definition of game objectives**

This is the **overarching goal** of the game or **what you need to do to win the game**.
Common game objectives: Capture/destroy, Territorial control, Collection, Solve,
Chase/race/escape, Spatial alignment, Build.

- **Content research**

It is a good moment to perform the pedagogical sequences on content research (step
3). The found content will be useful for the next steps, concept art, and story elements.

- **Creation and approval of concept arts**

This video presents the process of concept art:

💡 ['So You Wanna Make Games?? | Episode 2: Concept Art'](#) by Riot Games.

Have your students scroll through art sites like Art station or Deviant art and use
Artbreeder to merge their selected arts. Have a voting session to elect your favourites.

💡 https://www.artbreeder.com/browse

💡 https://artbreeder.fandom.com/wiki/How_to_use_Artbreeder

- **Definition of the Storyline**

Use the pedagogical sequence corresponding to step 5 (Creation of the story) to
define the plot points, characters, story arcs, action sequences, climactic scenes of
your game.

- **Storyboarding**

Use the pedagogical sequence corresponding to step 5 (Creation of the storyboard).
The point here is to pre-visualize the script and gameplay via storyboards.

o **Macro mapping**

Define where the game is going, how it is played, how the player is led through it. Use the pedagogical sequences "Designing game rewards using experimental psychology" (step 11) and "Game balancing" (step 12). They present the concepts of rewards, flow, difficulty and counters in game design.

o **Game Development Documents**

Each production from previous steps should be recorded in documents. Every time you perform a pedagogical sequence or compound student productions, update these documents. They will serve as the memory of your projects to keep track of changes.

o **Prototyping**

First prototype the core gameplay of your game. Then tackle the features/levels of your game. You can have your students do prototypes as assignments and evaluate them in plenary. Multiple students can work on the same problem and elect the best solution in plenary or work in groups tackling different parts of the game.

- **Production (time: 50%)**
  Once you have iterated several prototypes on your core gameplay and other features, levels that exploit them can be built.

o **Level Action**

You can warm up students on level design using the pedagogical sequence "Create a new level at Crayon Physics Deluxe".

You can use these resources to help you in your levels design:

💡 'A Beginner's Guide to Designing Video Game Levels' by Mike Stout.

💡 'Blocktober: Your Quick Start Guide to Blockouts for Level Design and Game Environment Art' by World of Level Design.

💡 'Level Design Workshop: Designing Celeste' by GDC.

- o **Asset creation**

Most engines have marketplaces where you can obtain graphic assets. But you can also try to make it yourself using the following resources:

- 2d art basics to begin with: https://www.gamedev.net/tutorials/visual-arts/the-total-beginners-guide-to-better-2d-game-art-r2959/

- Understanding 2d art for games and choosing a software: https://blog.felgo.com/game-resources/make-pixel-art-online

- 2d art tutorials reference website: https://2d-game-art-tutorials.zeef.com/chris.hildenbrand

- 2d character generator software: https://gamefromscratch.com/universal-sprite-sheet-character-creator/

- o **Animation**

The specificities of this step will depend on the game creation software you use: most will already provide an integrated set of animations or tools to create animations.

💡 '2D Animation Software -- Free Game Development Series' by GamesFromScratch.

💡 'So You Wanna Make Games?? | Episode 6: Character Animation' by Riot Games.

- **Post Production (20%)**

o   **Sound Design and Visual Effects**

Use pedagogical sequences "Creating sound effects and dialogues in video games" and "Adding Music theme in video games" (step 10) to create sound assets to use in your game engine.

Add visual effects, like particles or camera shakes to enhance the game feel.

o   **Quality Assurance**

Bring in students from other classes to test your game at different maturity levels. They should push it to its limits and provide valuable feedback on its playability and any glitches that need smoothing over.

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