

Video Games and Classroom Accommodation

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Abstract

As teaching pedagogy evolves beyond the traditional structure of lecture, readings, and discussion accommodating students with different disabilities will need to be reconsidered. One new innovative teaching method is using video games in the classroom. However, video games pose accessibility challenges for a range of students - including those who do not have disabilities because they require high levels of coordination and may expect players to enter having background knowledge. In this article I review existing literature to help identify challenges to incorporating video games into the classroom and then suggest considerations for educators when selecting games and ways to make video games accessible to students with a variety of backgrounds and abilities.

Background

New pedagogical strategies have pointed to video games as potential learning tools. This can include games that are created specifically for educational purposes such as *Spent* - a game about the high costs and difficult decisions of poverty, or *Survive the Century* - a game about climate change policy, to games that were created for entertainment but that contain important societal messages such as *Night in the Woods* - a roleplaying game about a young adult living in a mining town on the decline (see Briscoe 2023 for other video games incorporated into a syllabus). Video games are becoming a ubiquitous form of entertainment among Gen Z, with around 87% of Gen Z playing them at least weekly (Westcott et al. 2021). Incorporating them into the classroom allows educators to reach students in new and engaging ways.

Video games present new opportunities in the classroom, but also pose accessibility challenges. Bierre et al. (2005) identify four categories of disability that make video games inaccessible: visual, auditory, mobility, and learning disabilities. These four categories as well as general other disabilities that do not fit neatly into one category or another make up a total of 25.5% of the population (Bierre et al. 2005). Another review categorized accessibility challenges into phases: 1st phase sensory disabilities, 2nd phase cognitive disabilities, and 3rd phase motor disabilities (Aguado-Delgado 2018, see also Yuan et al. 2011). First and second phase accessibility challenges are more fundamental and therefore harder to address. Whatever the reason for lack of access, it is clear that video games are currently not accessible to a large group of people and of students. It is tempting to put the onus for changing this on the game industry, and they should be responsible for making their games accessible, but waiting for them to catch up will delay the implementation of new engaging pedagogical practices.

Addressing Accessibility Challenges

Reviews of video game accessibility have given suggestions to video game developers on how to make games more accessible. While developing video games independently has become more feasible, this is probably not a viable strategy for most educators. Here I provide considerations that educators can make with existing games to make them more accessible to students.

Considerations When Selecting a Game

Some questions you may want to consider when selecting a video game are:

1. What languages are supported?
2. Does the game have full audio or require extensive reading?
3. Does the game have subtitles?
4. What level of mobility does the game require?
5. Does the game have complex puzzles?

1. Languages

Thus far I've discussed accessibility primarily in the context of disability, but language can also be an accessibility barrier. Many video game digital stores provide this information on their storefront (see Figure 1).

2. Full Audio

Games with full audio mean that the game has narration, or that when someone is speaking in-game you will actually hear their voice. This is an important consideration because games without full audio will require higher amounts of reading.

3. Subtitles

For hearing impaired students, subtitles can be an excellent tool to make video games more accessible (Yuan et al. 2011). However, these are NOT an indicator that a game is fully accessible to hearing impaired students, as many games incorporate sounds into gameplay elements (movement cues for example) that may not be captured by subtitles.

Figure 1: An Example of Language Information for a Game on Steam

Languages:			
	Interface	Full Audio	Subtitles
English	✓	✓	✓
French	✓	✓	✓
Italian	✓	✓	✓
German	✓	✓	✓
Spanish - Spain	✓	✓	✓
Japanese	✓	✓	✓
Korean	✓		✓
Polish	✓	✓	✓
Portuguese - Brazil	✓	✓	✓
Simplified Chinese	✓		✓
Spanish - Latin America	✓	✓	✓
Traditional Chinese	✓		✓

4. *Mobility Requirements*

Some games, such as first-person shooter (FPS) games require high levels of mobility and dexterity, as well as quick response time. This can pose challenges for all types of students. Even navigating in first person perspective can be a challenge for students who are not used to this. You should consider this when selecting games. Many educational games such as *Spent* or *Survive the Century* require players to simply make a selection from a menu of options, and do not have timers on these decisions. Microsoft's Xbox has been working to make video games more accessible for people with a range of physical disabilities through the creation of their adaptive controller (see Figure 2). Still, for many games and players, traditional controllers or mouse and keyboard setups can present challenges depending on the

Figure 2: Xbox Adaptive Controller



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5. *Complex Puzzles*

A final consideration is whether or not the game includes complex puzzles. Again, these puzzles can pose challenges for any student, but may pose additional barriers to students with cognitive impairments.

These are straightforward considerations that educators should think about when selecting games to incorporate into class, but there are other ways to accommodate students as well.

Let's Play and Group Play

"Let's play" is a term describing a popular type of video where someone online plays a video game, often (though not always) while giving commentary on the game. Let's plays have risen in popularity. The website www.twitch.tv is a site primarily dedicated to watching people play video games, and currently boasts 140 million monthly active users (Ruby 2023). Around 68% of Gen Z watch gaming-related content (Knezovic 2023). For students who are unable to play games, watching others play games can provide a similar experience. For most games there are multiple playthrough videos, often including videos without commentary if preferred. Another similar option would be to allow students to play games with others in the class. This could help overcome some challenges such as puzzles as students could solve them together or trade off working and controlling the game.

Needs Assessment

So far, a review of the literature has suggested different needs and considerations in video games. There is an ongoing need for needs assessment of students, but there is also a need on the part of instructors to know which games can accommodate their students. Here, I perform an assessment of 13 games that I originally selected for my Introduction to Sociology: Understanding Society through Games syllabus. I evaluate these games based on the five criteria above and identify areas where there are accessibility challenges with these games (red), and accessibility considerations (yellow). Each game is assigned an accessibility score based on these identified areas. Beginning with 5, each game loses 1 point for categories with accessibility challenges and 0.5 points for categories with accessibility considerations.

Game	Languages	Full Audio	Subtitles	Mobility Requirements	Complex Puzzles	Score
Democracy 3	English, German, French, Italian, Spanish, Polish, Portuguese, Russian, Simplified Chinese	N	NA	Requires clicking, no timed events.	The game itself is a complex puzzle, but it does not require “passing” the puzzle to move on. There is no solving the puzzle.	4
Spent	English	N	NA	Requires clicking, no timed events.	No puzzles.	3.5
Headliner: NoviNews	English, French, Japanese, Korean, Simplified Chinese	Y	Y	Requires clicking, no timed events.	No puzzles.	5
Coming Out Simulator	English	N	NA	Requires clicking, no timed events.	No puzzles.	3.5
Parable of the Polygons	English	N	NA	Requires clicking and moving	Puzzles are a key part of the game - dragging shapes to	3

				shapes.	specific locations. However, they are not required to solve in order to progress.	
Fair Play	English	Y	Y	Requires navigating a 3D world from 3rd person perspective through clicking. No timed events.	No puzzles.	4
Gone Home	English, French, Italian, German, Spanish	Y	Y	Requires navigating a 3D world from 1st person perspective with both mouse and keyboard. No timed events.	The game requires exploration and puzzle solving, including finding keys and what they unlock.	3.5
For the People	English, Russian, Simplified Chinese, German	N	Y	Requires clicking, no timed events.	No puzzles.	4
Bury Me, My Love	English, French, Italian, German, Spanish	N	NA	Requires clicking, no timed events.	No puzzles.	4
911 Operator	English, French, German, Spanish, Polish, Simplified Chinese, Russian,	Y	Y	Requires quick selection of options, directing emergency vehicles through	The game itself is a puzzle, and does require quick responses and correct selections in conversations and responses to progress.	3

	Japanese, Czech, Korean, Portuguese, Turkish			clicking on an overhead map. There are some timing options to allow for slower response.		
Night in the Woods	English, Japanese	N	Y	Requires navigation of a 2D world from 3rd person perspective. Some quick time events and platform navigation.	No puzzles.	3
That Dragon, Cancer	English	Y	Y	Requires navigation of a 3D world from a 1st person perspective. Some quick time events in the form of minigames like racing.	Navigating the world is somewhat of a puzzle at times, and is required to progress.	2.5
Survive the Century	English	N	NA	Requires clicking, no quick time events.	No puzzles.	3.5

Based on this analysis, there are several changes that should be made to this syllabus, the biggest is completely replacing the game *That Dragon, Cancer*. It presents too many accessibility challenges for students. Several other games should also be reconsidered as they have challenges as well.

Of course, this is a preliminary study with a biased sample of games. However, a method like this could be used to create a digital list of games that could be shared with educators as well as just individuals looking to play accessible games. One major step to improve this process would be to incorporate a measure of inter-observer reliability. Or, in other words, to have

multiple people evaluate these games for their accessibility - especially people with disabilities who could give specific feedback on game accessibility.

Conclusion

Incorporating video games into pedagogies is a way to engage students in exciting and experiential learning, but it also poses new challenges in terms of accommodation. Rather than shying away from these challenges, educators can be proactive in addressing them and perhaps in the process simultaneously improve game and educational design. In this article I have outlined several considerations that professors should consider when incorporating video games into their classes including language, subtitles, audio, mobility requirements, and puzzle complexity, and also given some suggestions on how video games can be incorporated into classes for students who are unable to play them alone. More work on this area is needed, but accommodation will always be a consideration as both video games and pedagogical practices continue to develop.

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