GAMIFICATION: INCORPORATING IT INTO TL PRACTICE

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Lisette Robey is a veteran educator with an impressive career span. She curates vibrant and engaging learning products, specialising in gamified and tech-led educational experiences. Lisette has worked with students and educators across the ACT in K-12 settings. She is an expert in information literacy, with an infectious ability to incite student interest and scaffold their success when navigating complex information spaces. As a Teacher Librarian, Lisette is driven to transform education through information literacy and capacity building of teachers to become experts in disciplinary literacy, digital content and pedagogy.

Curating Content Using Gamification

Using computer and video games to supplement or enhance curriculum and pedagogy has been a career long passion. More recently, the development of digital humanities has inspired me to take another view of what gamification might mean to school libraries. Digital humanities presents a problem of practice in school environments that can be solved in a few ways of which gamification is just one. The ultimate benefit of using a gamified strategy to collaborate with school staff in curating content for students is one of engagement and enhanced pedagogical practices. At Melba Copland Secondary School (MCSS), teachers collaborate with Teacher Librarians (TLs) to develop curated content to support increased engagement in learning, improved access to a greater variety of resources, and to teach critical information literacy skills. Recently, collaboration between HASS, English teachers and myself facilitated the development of a bespoke game experience used as stimulation to launch an integrated unit on Aboriginal land rights.

Digital Humanities

Digital humanities (DH) developed from academic libraries or 'scholar-librarians' with graduate degrees engaging with faculty to research, exercising both their academic training and library skills (Sacco, 2015). Some definitions relate to ideas that are appropriate for a school setting and some do not. There is a common thread that runs throughout and that is the realisation that technology allows humanities work to be both more engaging and more accessible. DH defined as digitisation projects and development of metadata are not useful in thinking about school library work – but it is also about curation of experiences. In schools we consider the information needs of our users, staff and students, and we take a user-centred approach focused on curation and collaboration. It's not necessarily that digital humanities are the partner of secondary libraries, but the output of DH work is fundamental to the role of TLs in facilitating access to content in such a way that is more engaging for our students. It's pedagogy that influences our application of DH in school library digital spaces.

Learning Guides

Many would recognise learning guides (library guides) as essential for curating content. At MCSS, TLs at both high school (Years 7 - 9) and

senior (Years 10 – 12) campus' use the LearnPath feature in *Oliver* and develop original webpages to work with teachers in delivering content that supports both teaching, and students access to quality information.

Figure 1. Learning Guide, L. Robey – This guide developed with Teacher Librarian and art teacher collaboration.

Research undertaken at the school following the introduction of learning guides demonstrated that students were more likely to complete assessment tasks and performed better. They also identified a greater range of sources (71%) than they did before learning guides were implemented. The connection between curating content, providing it in an engaging platform familiar to our 'digital natives' (Prensky, 2001), and scaffolding students into more academic information sources was clear. Students need opportunities to use 'good information' and TLs take responsibility to both curate that opportunity and to teach the skills they use in making information selections.

Gamification

Games are rich and immersive environments often including concepts that are directly applicable to the discipline approach to school curricula (Klopfer, Osterweil & Salen, 2009). No one game is either good or bad for learning but must be assessed for its usefulness in terms of how it will be used by the teacher (Becker & Gopin, 2016). In an environment where schools are criticised for providing the manual but not the game (Gee, 2003), implementing game-based learning strategies should be seen as essential to engage our students.

Gamification of education is the process by which game-based techniques are used within the pedagogical practices of curriculum development to increase learner motivation and engagement (Kapp, 2012; Dicheva &Dicheva, 2017). Gamification is not new; however, it is not widely implemented. Digital games are used in education to support traditional subjects and are particularly useful in bringing two subjects areas together. Narrative games have proven especially useful in engaging students in learning (Schaaf & Mohan, 2017). Teachers and TLs play a crucial role in making good decisions about what, how and when to use games (Becker & Gopin, 2016) because when it comes to games, they are not all created equal.

James Paul Gee (2003) describes many features of 'good games', which are almost exclusively found in commercial games. While not explicitly designed to 'teach' school curriculum, they are filled with learning opportunities and success in them requires learning behaviour. A player makes a decision, in a good game, that matters about every three seconds. This is why they are so engaging. How many times do our students make a decision that matters in their lessons?

Gamification experts identify a list of game elements that are required to gamify the curriculum such as points, levels, badges, leaderboards, rewards, achievements and narration (Chujitarom, 2020). Many edugames (games specifically designed for an education market) aim to meet gamified criteria such as these and leave out other elements that are required for a satisfying game experience.

Therefore, many do not have long term playability for students.

Prodigy Math Game, added to the suite of offerings for ACT students during the Covid-19 pandemic, is an example of an edugame. It claims to promote learning; however, it is little more than a skill and drill opportunity, with loosely incorporated game elements. There is limited opportunity for the player to engage in real world problem solving or to make any 'big decisions' about how to progress through the game. It is also plagued with advertising and players quickly hit 'pay for play' areas which limits the already poor potential of the game for learning. Few students engaged with this game beyond the first few levels of repetitive skill and drill; the hidden costs excluded many.

Teachers have always added gameplay elements to their classroom practice. Stars on a chart or perhaps a subscription to a game that includes achievements or leaderboards. This is simple gamification. In the digital space, the Web 2.0 environment continues to provide toolsets that are easy and free to use for people to design their own games. While schools may not develop games on the scale of *World of Warcraft*, or *Call of Duty*, the games educators design for specific purposes will increase student engagement as well as have other positive impacts in areas such as cognitive, emotional and social benefits (Shapiro, J. et.al., 2014). The jury is out on that point. The research clearly shows that digital games increase motivation and engagement. Motivation gained playing games ensures students achieve a sense of immersion (Erickson, 2015) commonly described as flow (Csikszentmihalyi, 1991).

Two of the elements that make a game engaging are character (the opportunity to play a role) and narrative (being taken on a journey). These two elements, essential for good games, are two of the most important elements to use when gamifying the curriculum. When teaching a Year 7 media unit about video games, the only game-based element I included was character. For five weeks the students thought and worked like journalists and for the next five weeks, they thought and worked like 'uni professors',

analysing and researching the impact of video games on society. The results were astounding.

More recently, when working with a considerably disenfranchised senior English class, desperate to provide a useful learning experience before students completed high school, I replaced the final unit on literature about journeys with a philosophical based approach with a unit about ethics in which the text studied were *Tuesdays with Morrie* and the narrative-based decision-making game *The Walking Dead*. Students who had demonstrated low levels of engagement were actively debating the utilitarian approach to decision making in the game and developed their own statements for approaching ethics in their lives with close to 100% completion and success. Students also completed an eight-part journal exploring the philosophical dilemmas presented to them by me, through studying the novel, and playing the game – more writing than they had completed for the previous three terms – a clear sign of increased engagement and motivation. For their final term of Year 10, these students made decisions that mattered every lesson.

Gamification is generally discussed in terms of digital games, and this is the context from which specific gameplay elements are taken to describe gamification in education, but you can use these techniques without including digital games. If an aspect of gameplay makes sense from a pedagogical point of view, then it should work regardless of technology. While that's not quite the point of this article, it is important to point out that what we have learned from 50 years of digital gaming research has broader relevance to practice.

Protest '72
At MCSS, during the pandemic, an opportunity arose to collaborate with the Year 10 Humanities team to develop an interdisciplinary unit of work about the Aboriginal Land Rights movement in Australia. The goal was to provide students with a carefully curated experience of archival materials that would increase motivation and engagement at the commencement of the unit. The result was *Protest '72*.
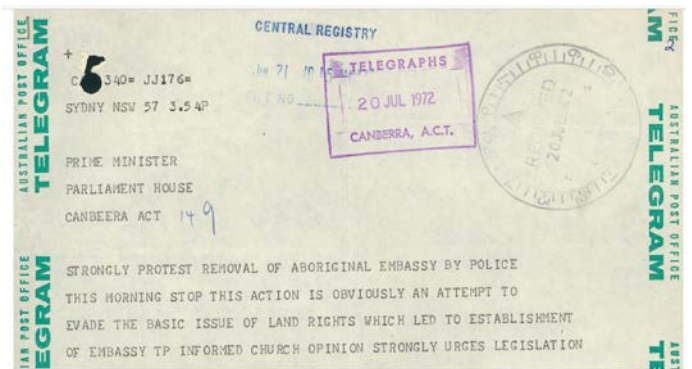

Figure 2 Telegram, L.Robey – In game example of documentary material presented to students. The aim is to expand their understanding of primary source evidence.

Protest '72 is an interactive historical situated documentary; specifically, a place-based, augmented reality, interactive mobile game for iOS devices focusing on teaching late 20th century Indigenous Australian land rights history. Centred on the 1972 Australia Day protest, the story also takes in The Wave Hill Walk-Off and the Mabo Decision. The situated documentary is a blend of fiction and non-fiction. The player is engaged in a story generated around fictional characters which lead them to experience documentary material during game play. Their time-hopping journalist character is sent back in time to understand these historical events before producing a piece for their employer.

The term augmented reality (AR) refers to the use of digitally delivered overlays or supplements to existing material environments (Wang, Callaghan, Bernhardt, White & Pena-Rios, 2018).

AR content is associated with a specific object or location and in the case of *Protest '72*, the locations included in the game were the Museum of Modern Democracy (Old Parliament House), the Aboriginal Tent Embassy, Reconciliation Place, and the High Court of Australia. Users trigger access to resources with a downloadable smartphone app. The content might include an image, a sound file, a 3D object, a video, a weblink, or a document to suggest a few.

AR is distinguished from virtual reality by the fact that it supplements, rather than replaces, a field of view. As the player moves through
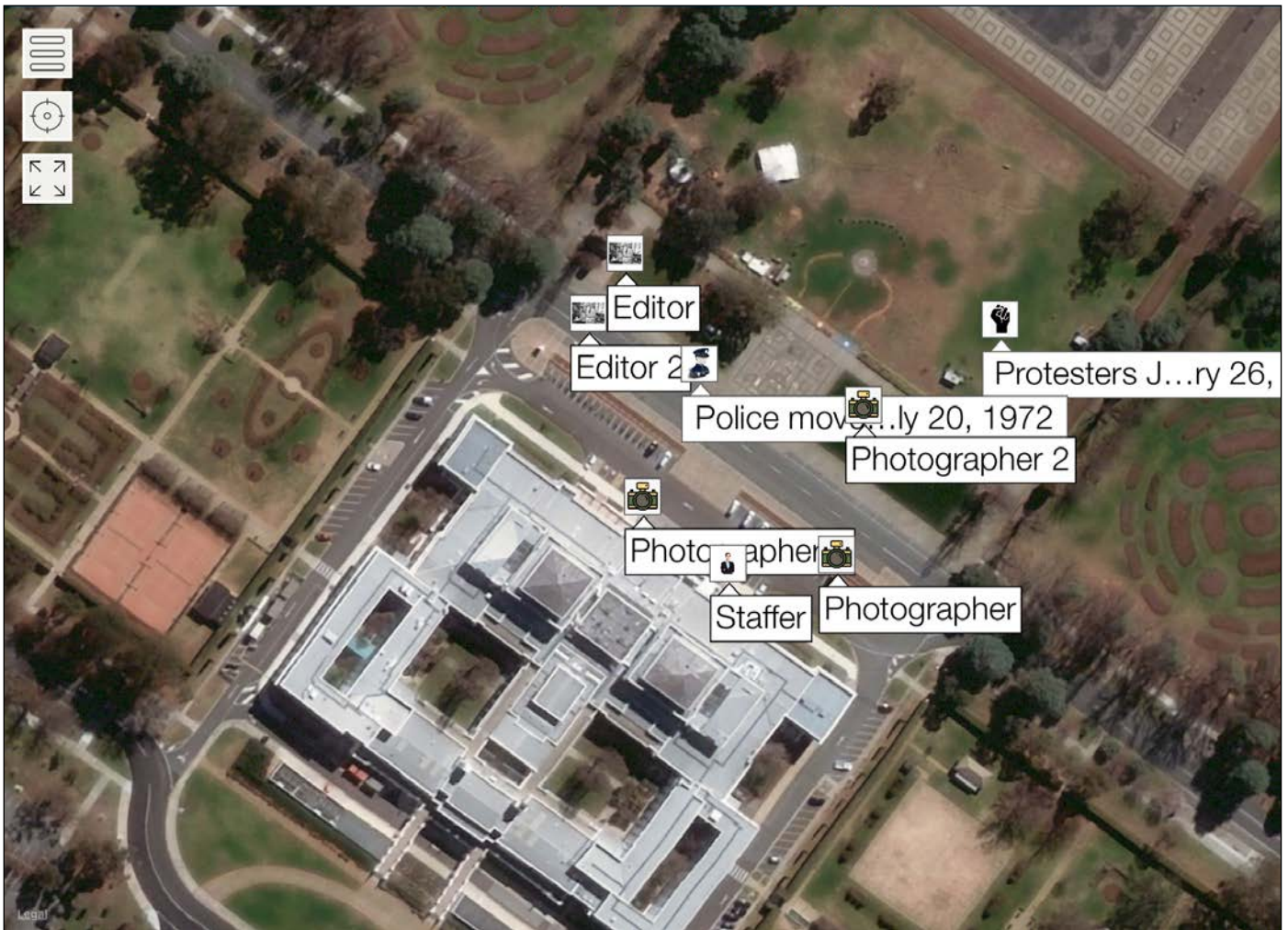
Figure 3 MoMD Location Triggers, L. Robey – Location based events are triggered on location as players move through the playing environment.
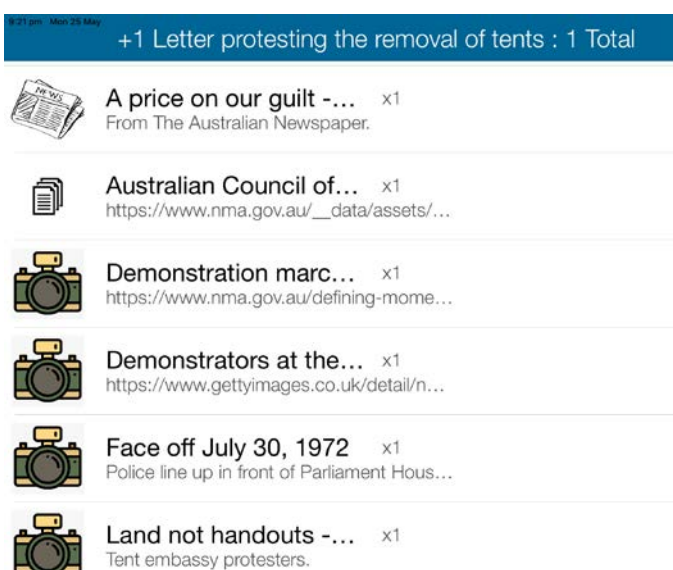

Figure 4 Inventory, L.Robey – In game inventory of documentary material received when playing Protest '72.

the environment, they interact with many non-player characters that provide footage and documents relating to the events surrounding the establishment of the Aboriginal Tent Embassy and the subsequent protests that are experienced in real space and time. AR combines material elements with virtual components to create a zone of interactive engagement. That zone can be anywhere with a phone signal.

The gameplay elements in AR are not like other location-based gaming where play is completely open-ended e.g. *Pokémon Go*. AR is a curated experience and for educational purposes should always be combined with explicit instruction. In the case of *Protest '72*, it was designed to be the stimulus material and background characterisation for an interdisciplinary unit of work in English and History that culminated in a formal assessment

Figure 5 Play on Location, L.Robey – Historical events are overlayed onto real locations.

item which required students to conduct their own investigation into land rights and produce a piece of research journalism in a format of their choosing, leveraging on the understanding that games can be used effectively to support subsequent writing activities (Wang, 2017). This final aspect of the assessment allowed students to customise their character and develop a digital skillset appropriate to the way they chose to work. For example, students generated podcasts, websites and TV interviews to name a few.

By combining an intellectual approach to historic content with a gamified experience, students participated in a more nuanced and immediate sense of the presence of the past in our lives today. Through *Protest '72*, meaningful access was provided to archival materials by presenting them in a relevant spatial context that encouraged active engagement.

Challenges of Gamification

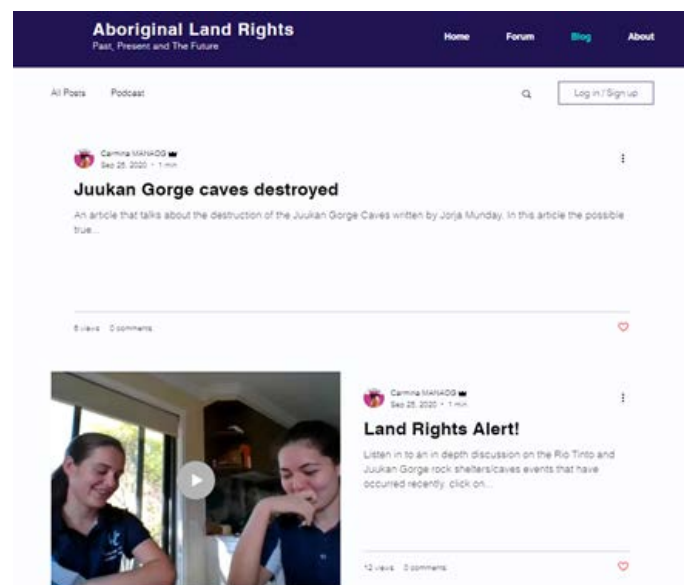Using a gamified approach to curating content for classes is not without its challenges.

Figure 6 Student Website, L.Robey – Students investigate and produced assessment about Juukan Gorge Caves.

Technology changes rapidly and it can be frustrating to keep digital creations current as hardware and software keep changing (Thornburg, 2014). Investment in a product may have a relatively short lifespan in the context of

curriculum development and certainly careers. Some theories of gamification suggest that you need a shopping list of theories derived from digital game theory to do it right. I don't subscribe to that point of view. The element that best enhances learning is the right one to select. The element that doesn't naturally fit and enhance pedagogy will detract from an authentic experience. The best way to try gamification is to give it a go. Maybe your next library orientation will be a gamified experience.

The success of gamified experiences often depends on the energy, creativity, and goodwill of a few overextended professionals. It is essential for TLs to develop relationships with faculty to make gamified DH projects work. They need ownership by more than one person. Teachers need to be on board and familiar with the content of the game to teach it.

Key Takeaways
1. Digital humanities thinking is important and relevant to our work.
2. Gamification can be challenging, require learning new skills and takes time. But it's worth it – the evidence stacks up.
3. Gamification doesn't have to be challenging, require lots of new skills, or take lots of time. It's still worth it!
4. Gamification is great with technology but doesn't require technology. The best part of it is selecting the elements that have a sound pedagogical impact for each learning need.
5. Select one or more game elements when gamifying learning. If it doesn't fit, don't force it.
6. Edugames are often not fun! It's as simple as that. Skill and drill is still skill and drill when it's on a computer. If it doesn't enhance pedagogy, then don't use it.
7. Commercial games used wisely can offer more benefit than educational games.
8. The best games for education really are the ones produced by teachers directly in response to need. They require time and support to do this. Collaboration might be key.

Conclusion
Incorporating game development into the role of the TL is a natural fit when you consider the opportunity to curate content in new and interesting ways and to support the pedagogical practices of staff. While there are challenges, the rewards can be enormous. Not everyone has experience with games and launching into this space can be daunting. The best way to do so is to play and try out some software or borrow an idea from someone else, see what you like and what might best fit in your environment.

References

Becker, K. & Gopin, E. (2016). Selection criteria for using commercial off-the-shelf games (COTs) for learning. *Learning, Education & Games. Volume two: Bringing games into educational contexts.* ETC Press. https://press.etc.cmu.edu/index.php/product/learning-education-and-games-volume-two-bringing-games-into-educational-contexts/

Csikszentmihalyi, M. (1991). *Flow: The psychology of optimal experience.* Harper Perennial.

Chujitarom, W. (2020). Digital storytelling through teamwork gamification model to encourage innovative computer art. *TEM Journal. 9*(2), 560 – 565. http://doi.org/10.18421/TEM92-18

Dicheva, C., & Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. *International Journal of Educational Technology in Higher Education*, *14*(9). https://doi.org/10.1186/s41239-017-0042-5

Erickson, J. J. (2015). To play or to learn?: A review of game-based math learning for motivation and cognition. In *Gamification: Concepts, methodologies, tools and applications.* IGI Global. http://doi.org/10.4018/978-1-4666-8200-9.ch104

Gee, J, P. (2003). *What video games have to teach us about learning and literacy.* Palgrave Macmillan.

Kapp, K. M. (2012). *The gamification of learning and instruction. Game-based methods and strategies for training and education.* Pfeiffer.

Klopfer, E., Osterweil, S. & Salen, K. (2009). *Moving learning games forward: Obstacles, opportunities, and openness.* The Education Arcade, MIT. https://education.mit.edu/wp-content/uploads/2018/10/MovingLearningGamesForward_EdArcade.pdf

Prensky, M. (2001). *Digital natives, digital immigrants.* https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf

Sacco, K. L. (2015). *Supporting digital humanities for knowledge acquisition in modern libraries.* IGI Global. https://.doi.org/10.4018/978-1-4666-8444-7

Schaff, R & Mohan, N. (2017). *Game on: Using digital games to transform teaching, learning and assessment.* Solution Tree Press.

Shapiro, J. et.al. (2014). *MindShift: Guide to digital games and learning.* https://drive.google.com/drive/folders/1im9qchgCC850EzLiV3WbsS3Jl7q_3nr4

Thornburg, D. (2014). *From the campfire to the holodeck: Creating engaging and powerful 21st century learning environments.* Jossey-Bass.

Wang, M., Callaghan, V., Bernhardt, J., White, K., & Pena-Rios, A. (2018). Augmented reality in education and training: Pedagogical approaches and illustrative case studies. *Journal of Ambient Intelligence & Humanized Computing.* Springer, http://doi.org/10.1007/s12652-017-0547-8

Wang, Y. (2017). Exploring the effectiveness of integrating augmented reality-based materials to support writing activities. *Computers & Education. 113*, 162 – 176.

Bibliography

Alexander, B. (2017). *The new digital storytelling: Creating narratives with new media.* Praeger.

Chess, S., & Booth, P. (2013). Lessons down a rabbit hole: Alternate reality gaming in the classroom. *New Media & Society. 16*(6), 1002 – 1017. http://doi.org/10.1177/1461444813497554

de Sousa, F.M., Rasmussen, I., & Pierroux, P. (2018). Zombies and ethical theories: Exploring transformational play as a framework for teaching with videogames. *Learning, Culture and Social Interaction, 19,* 40 – 50. https://doi.org/10.1016/j.lcsi.2018.04.011

Gee, J. P. (2007). *Good games and good learning: Collected essays on video games, learning and literacy.* Peter Lang Publishing.

Johnson, M., Buhler, A. G., & Hillman, C. (2010). The library is undead: Information seeking during the zombie apocalypse. *Journal of Library Innovation, 1*(2), 29 – 43.

McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world.* Penguin.

Prensky, M. (2006). *Don't bother me mum, I'm learning.* Paragon House.

Prensky, M. (2007). *Digital game-based learning.* Paragon House.

Qian, M., & Clark, K. R. (2016). Game-based learning and 21st century skills: A review of recent research. *Computers in Human Behaviour. 63*, October. 50-58. http://doi.org/10.1016/j.chb.2016.05.023

Reed, K. N., & Miller, A. (2020). Applying gamification to the library orientation: A study of interactive user experience and engagement preferences. *Information Technology and Libraries, 39*/3. https://doi.org/10.6017/ital.v39i3.12209

Restrepo Acevedo, I.C. (2018). Interactive narratives: Addressing social and political trauma through new media. *The Routledge Companion to Media Studies and Digital Humanities.* Routledge.

Schrier, K. (Ed). (2014). *Learning education & games: Volume one: Curricular and design considerations.* ETC Press. https://press.etc.cmu.edu/index.php/product/learning-education-and-games-volume-one-curricular-and-design-considerations/

Schrier, K. (Ed). (2016). *Learning education & games: Volume two: Bringing games into educational contexts.* ETC Press. https://press.etc.cmu.edu/index.php/product/learning-education-and-games-volume-two-bringing-games-into-educational-contexts/

Sheldon, L. (2012). *The multiplayer classroom: Designing coursework as a game.* Cengage Learning.

Wardrop-Fruin, N., & Harrigan, P. (2004). *First person: New media as story, performance and game.* MIT Press.