

Video games as a teaching tool:

Using video games to teach social studies, model careers, and develop environmental identities within our classrooms

By: Luke Stahlmann

A capstone submitted in partial fulfillment of the requirements for the degree of Master of Arts in Education: Natural Science and Environmental Education

Hamline University

St. Paul, Minnesota

August 2022

Capstone Project Facilitator: Kari Ross
Content Expert: Kelly Armstrong & Alex Stahlmann

Project Summary

Research Question: *How can we use video games to teach social studies, model potential careers, and develop environmental identities within our classrooms?*

Project Description:

The objective of my project was to advocate for the greater use of video games as instructional tools by educating and inspiring a general audience ranging from professionals to parents. Through research on using video games as an educational tool within schools in general, as well as more specific lenses focusing on video games being used to teach social studies concepts, model careers, and develop environmental identities, it was found that video games do carry a great amount of potential when used as an educational tool, although that potential is currently unrealized due to more experience of actual implementation being needed, as well as academic works not having cohesion in regards to games being studied, methods of instruction in application of the games, or common measurables of success. Additionally many of the studies on games were conducted upwards of twenty years ago. The findings and academic merit of video game play being used for learning may hold up over time, but the games being studied might not appeal to students in 2022, and game capabilities could arguably have improved due to advances in technology in that time

This research based insight led to the creation of the Low Five Education Project. The Lowfive Education project is housed in its own section within the website Lowfive.com, a casual video game entertainment podcast that predates the project. The project is a multimedia offering including a video essay, written articles, and podcasts that take key

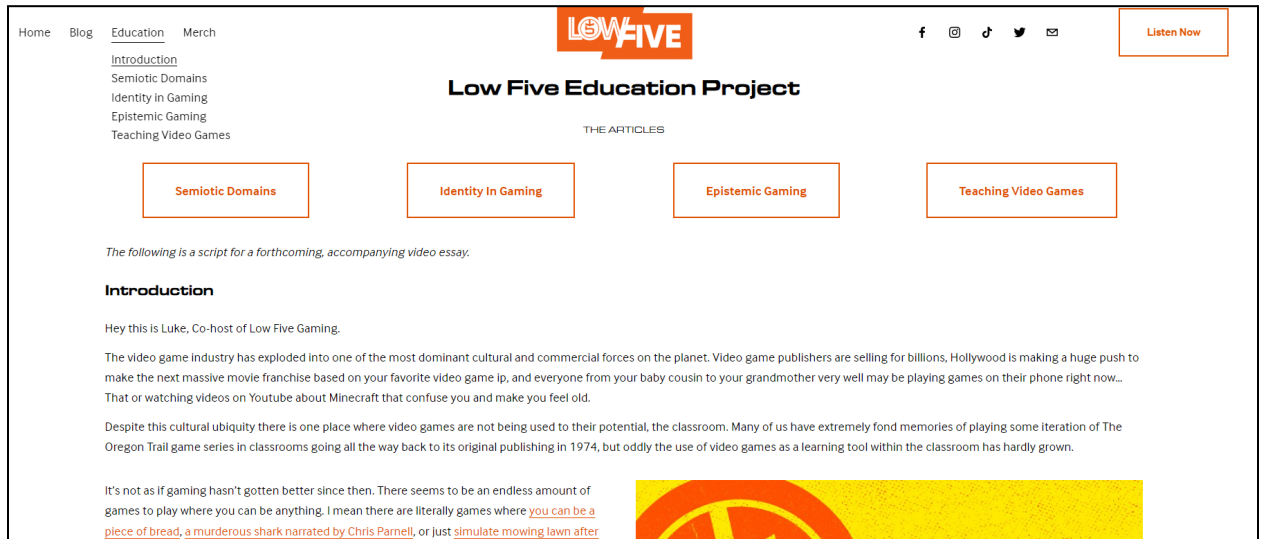
academic findings, relate them to a general audience, and pairs them with specific modern games that exemplify learning principles or lenses covered. The idea was to familiarize both education professionals as well as parents of school aged children with the idea that video games are exciting educational tools and not just childish pursuits or purely for entertainment. Articles include pieces on identity teaching within gaming, semiotic domain learning, job or career skills within gaming, and a list of helpful tips for any educator looking to use games within the classroom backed by research. There are four podcasts falling under two categories. One is a feature podcast highlighting the game *Cities Skylines* by explaining the game as well as all the ways it could be used to teach within schools or even expand your learning at home. The other three are companion podcasts that pair with articles on semiotic domains, identity, and career focuses respectively. In the companion podcasts I focus and expand upon ideas from an educational lens, while my co host relates the learning principles impact in a more general or at home setting.

All artifacts within the project serve to inform the audience of the validity of video games being used as an educational tool while also providing advice on different games that could be used within classrooms. The idea is that a teacher looking into the idea of teaching through video games could be emboldened by the source and given some of the foundational resources and reasoning to start developing lesson plans or curriculum to do so. More experience in teaching through games is needed which means we need more professionals to take a chance. That being said fellow educators are only part of the intended audience. Lowfive Gaming has a previously established and growing following. Video game players are also parents and students themselves. By reaching this audience

we are also equipping more interested individuals with solid information that helps change the narrative on video game playing being purely casual and could change the way individuals look at the games they play.

Video games do hold the potential to engage, excite, and inspire our students, but only when paired with intentional and skillful teaching. Video games are a readily available resource currently underutilized within American education given all that they offer. The Lowfive Education Project serves as a foundation for greater implementation moving forward. Hopefully by taking academic work that highlights the educational merit of video games and relating that information to a general audience in a more digestible manner, we can see more progress being made. The idea to pair learning concepts with specific modern games, as well as providing research backed advice on implementation was done to hopefully give professionals, parents, or even more casual players ideas and inspiration moving forward.

Project Website:



Low Five Gaming predates this project and has its own casual games podcast, so all education materials can be found under the education tab or section of the website seen in the top right corner. In this early state of website build, articles are linked at the top of the page. Each of the articles above has a companion podcast embedded within them that was designed to enrich the conversation from the article with greater detail and application to both schools and casual gamers. An introductory script is also included on the home page that introduces the project and motivations for, which will later be recorded and turned into a video essay.

Links to Article PDF and Website:

Video Essay Script: Video essay script is a written introduction that serves as the emotional home to the project. The who, what, when, where, and why of the project are given. It can be seen as a public facing version of chapter one of my capstone paper.

[As currently published on the Website](#)

[PDF Format](#)

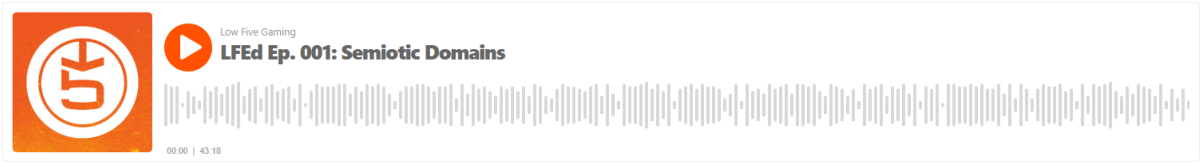
Semiotic domains article and companion podcast: Semiotic domains are an academic learning concept from academic author James Paul Gee. This article and companion podcast explain the concept for a general audience and then relate how video games can be used for learning for both school and general settings.

Low Five Education

Semiotic Domains and Learning Through Video Game Play

If you told somebody before 1985 that the character who would surpass Mickey Mouse in household popularity was an Italian plumber named Mario who travels through colorful worlds battling a giant dinosaur named Bowser that, once again, kidnapped a princess named Peach, you would have sounded insane. If you continued that he is aided by a helpful and significantly more cute dinosaur named Yoshi, and a small [mushroom human?](#) named Toad, they probably wouldn't continue listening when you explained that Mario gets bigger when he eats mushrooms or can shoot fireballs when he eats a red flower. Why is it exactly that Mario eats mushrooms to gain power or an extra life, but also stomps on different mushrooms that are his enemies working under the tutelage of Bowser? It doesn't really matter because the Super Mario games are fun and the characters and world they inhabit are cuter than heck. We accept all absurdities and ignore reasonable truths of life, aka basic logic, when we play video games in a phenomena lovingly called [video game logic](#). When taken seriously you'll learn that although video game logic is often [goofy](#), it also serves as an example of ingenious game design. The developers are teaching you how to interact with their world, which means that you are definitely learning. I'm not here to tell you that your kids need to learn about Mario, but there are tons of games that actually teach valuable content through their gameplay and they could really help school come alive for our students.

Companion Podcast



LFEd Ep. 001 Semiotic Domains

[As currently published on the site](#)

[PDF format](#)

Identity learning articles and companion podcast: In two articles and one companion podcast, identity learning with video games is explored in great detail. Topics include learner identity, exploring outside of one's identity, and both environmental and civic identity.

Low Five Education

Identity in Gaming

Although certainly not a perfect person, I've always struggled to play as the bad guy when given the choice in video games. hilariously, the sweetest most gentle friend I had in high school had no such issues as he relished the ability to follow the dark side. Both of us turned out fine so this isn't a critique of how video games shape players, but instead an example of how video games allow players to try out and explore different identities. Books, movies, and board games have long offered the ability to explore different perspectives or see the world through a new set of eyes, but the interactive nature of play within video games means you can literally *be whoever* or *whatever* you want. They take the imaginative nature of childhood games or the more serious and structured play of dungeons and dragons and visualize the realities for the player. You can poke and prod the worlds you play in, test them to their limits, or simply enjoy an expanded reality through active role playing.

Civic and Environmental Identity in Gaming

When looked at as a tool, video games offer an excellent opportunity for students to engage and learn within a classroom. Through the lens of identity, video games offer an opportunity for students to explore their identities as learners, different or unique perspectives outside of themselves, as engaged citizens within a local or global community, and as environmental stewards. [After previously discussing learner identity and role playing outside of one's own identity](#), there is still a lot of ground to cover. This article serves as a continuation of how video games offer unique learning opportunities related to identity exploration. The following sections cover civic and environmental identity. They are each identified and explained before offering suggested video game pairings that could help strengthen them in schools.

Companion Podcast



LFEd Ep. 002: Identity in Gaming

[As currently published on the site](#)

PDF format ([Part One](#) / [Part Two](#))

Epistemic gaming article and companion podcast: Epistemic games are defined and discussed alongside conversations on using video games to inspire and teach career related skills. Within the companion podcast the conversation is given greater detail alongside reflections on our own academic and professional careers.

Low Five Education

Using Video Games to Spark Student Careers

A small but meaningful piece of advice I would give to any new teacher going fresh faced into education, especially middle school, is that they should have some playful and serious responses ready for the inevitable question of "when are we ever going to actually use this?" It's basically the coolest most counterculture anti establishment thing that a 13-14 year old is going to come up with that perfectly encapsulates their growing teenage angst. They have every right to question you given it is their education and future, but in my experience it's often more about the act of rebellion than actually seeking answers, which is why I suggested playfulness in the potential response. Despite not being perfect, educators work tirelessly year after year to equip students with the tools they'll need for a future we can't read. Therefore the best we can do is make students well rounded, provide them with experiences, and hopefully help them figure out who they want to be.

Companion Podcast



LFEd Ep. 003: Epistemic Gaming

[As currently published on the site](#)

[PDF format](#)

6 Things to keep in mind when gaming for class article: In this article advice is given on the best ways to implement using video games as a tool within a classroom. Advice is based on both research and personal teaching experience. The article is scheduled for a later publishing date and is not yet on the website.



[As currently published on the site](#)

[PDF format](#)

Cities Skylines feature podcast: This full length podcast was created and published for the preexisting section of the casual games website Low Five Gaming. The podcast associated with the site has an established and growing fan base that we wanted to pull into the project in order to widen the audience. In this podcast the project is introduced

and explained before going into great detail on the video game Cities Skylines both in general, and its potential for learning in and out of the classroom.



LFG Ep. 013: Cities Skylines

Luke and Alex talk *Cities: Skylines*.

Cities: Skylines is a city-building game developed by Colossal Order and published by Paradox Interactive. The game is a single-player open-ended city-building simulation. Players engage in urban planning by controlling zoning, road placement, taxation, public services, and public transportation of an area. They also work to manage various elements of the city, including its budget, health, employment, and pollution levels. It is also possible to maintain a city in a sandbox mode, which provides more creative freedom for the player.

Cities: Skylines was first released for the Windows, macOS, and Linux operating systems in March 2015, with ports to the Xbox One and PlayStation 4 game consoles being released in 2017, for the Nintendo Switch in September 2018, and for Google Stadia in May 2022 developed by Tantalus Media. The game received favorable reviews from critics, and was a commercial success, with more than twelve million copies sold on all platforms as of June 2022.

Both Luke and Alex played *Cities: Skylines* on their Windows PCs.

Read Luke's capstone project at lowfivegaming.com/education.

Join the Low Five Gaming [Discord](#).

Have questions? Comments? Email us at hello@lowfivegaming.com and you could be featured on a future episode!

[As currently published on the site](#)

REFERENCES

Websites:

<https://www.epistemicanalytics.org/our-projects/>

www.Icivics.org

www.Kotaku.com

www.Lowfivegaming.com

www.PCgamer.com

www.Polygon.com

www.Rockpapershotgun.com

www.Stratedgygamer.com

<https://www.taminggaming.com/en-us/home>

www.theringer.com

Academic Works:

About. Social Studies. (n.d.). Retrieved May 3, 2022, from

<https://www.socialstudies.org/about/about>

Akkerman, S., Admiraal, W., & Huizenga, J. (2009). Storification in history education: A mobile game in and about medieval Amsterdam. *Computers & Education*, 52, 449–459. doi:10.1016/j.compedu.2008.09.014

Annetta, Leonard, A. “Video games in education: Why they should be used and how they are being used.” *Theory Into Practice* 47, no. 3 (2008): 229–39.

Beckett, & Shaffer, D. W. (2005). Augmented by Reality: The pedagogical praxis of urban planning as a pathway to ecological thinking. *Journal of Educational*

Computing Research, 33(1), 31–52.

<https://doi.org/10.2190/D5YQ-MMW6-V0FR-RNJO>

Bereitschaft. (2016). Gods of the city? Reflecting on city building games as an early introduction to urban systems. *Journal of Geography (Houston)*, 115(2), 51–60.

<https://doi.org/10.1080/00221341.2015.1070366>

Boots, & Strobel, J. (2014). Equipping the designers of the future: best practices of epistemic video game design. *Games and Culture*, 9(3), 167–181.

<https://doi.org/10.1177/1555412014536631>

Brad M. Maguth, Jonathan S. List & Matthew Wunderle (2015) Teaching social studies with video games. *The Social Studies*, 106:1, 32-36, DOI:

10.1080/00377996.2014.961996

Chen, Yang, C.-H., Huang, K.-S., & Fu, S.-L. (2019). Digital games for learning energy conservation: A study of impacts on motivation, attention, and learning outcomes.

Innovations in Education and Teaching International, 56(1), 66–76.

<https://doi.org/10.1080/14703297.2017.1348960>

Clayton, S. (2003). Environmental identity: A conceptual and an operational definition.

In S. Clayton & S. Opatow (Eds.), *Identity and the natural environment: The psychological significance of nature* (pp. 45–65). MIT Press.

Cloud, Jaimie P., ed. "Education for a sustainable future, benchmarks: For individual and social learning ." *Journal of Sustainability Education* (2017): 1-66. Web

Collett. (2020). Researching the complex nature of identity and learning: positioning, agency, and context in learners' identities. *International Journal of Qualitative*

Studies in Education, 33(5), 524–548.

<https://doi.org/10.1080/09518398.2019.1687955>

Crowley, Silk, M. J., & Crowley, S. L. (2021). The educational value of virtual ecologies in Red Dead Redemption 2. *People and Nature* (Hoboken, N.J.), 3(6), 1229–1243.

<https://doi.org/10.1002/pan3.10242>

Day, Suzanne. 2012. “A reflexive lens: Exploring dilemmas of qualitative methodology through the concept of reflexivity.” *Qualitative Sociology Review* 8(1):60-85. May, 2022 (http://www.qualitativesociologyreview.org/ENG/archive_eng.php).

Devlin-Scherer, R., & Sardone, N. B. (2010). Digital simulation games for social studies classrooms. *Clearing House*, 83, 138–144. doi:10.1080/00098651003774836

English language arts standards " history/social studies " grade 6-8. English Language Arts Standards " History/Social Studies " Grade 6-8 | Common Core State Standards Initiative. (n.d.). Retrieved May 4, 2022, from

<http://www.corestandards.org/ELA-Literacy/RH/6-8/>

Fisher, Yoh, N., Kubo, T., & Rundle, D. (2021). Could Nintendo’s Animal Crossing be a tool for conservation messaging? *People and Nature* (Hoboken, N.J.), 3(6), 1218–1228. <https://doi.org/10.1002/pan3.10240>

Gaber. (2007). Simulating Planning: SimCity as a pedagogical tool. *Journal of Planning Education and Research*, 27(2), 113–121.

<https://doi.org/10.1177/0739456X07305791>

Gee. (2007). *What video games have to teach us about learning and literacy* (Rev. and updated ed.). Palgrave Macmillan.

- Heath, C., and D. Heath. 2010. *Switch: How to change things when change is hard*.
New York: Broadway Books
- Jacobson, & Mustafa, N. (2019). Social identity map: A reflexivity tool for practicing explicit positionality in critical qualitative research. *International Journal of Qualitative Methods*, 18, 160940691987007–.
<https://doi.org/10.1177/1609406919870075>
- Janakiraman, Watson, S. L., & Watson, W. R. (2021). Exploring the effectiveness of mixed methods study in India. *TechTrends*, 65(3), 331–347.
<https://doi.org/10.1007/s11528-020-00571-8>
- Kahne, Middaugh, E., Evans, C., & Evans, C. (M. C. (2009). *The civic potential of video games*. MIT Press.
- Kim, & Shin, J. (2016). The Pedagogical benefits of SimCity in urban geography education. *Journal of Geography (Houston)*, 115(2), 39–50.
<https://doi.org/10.1080/00221341.2015.1061585>
- Lee, J. K., & Probert, J. (2010). Civilization III and whole-class play in high school social studies. *Journal of Social Studies Research*, 34, 1–28.
- Moore, & Yang, J. Z. (2020). Using eco-guilt to motivate environmental behavior change. *Environmental Communication*, 14(4), 522–536.
<https://doi.org/10.1080/17524032.2019.1692889>
- Ouariachi, Olvera-Lobo, M. D., Gutiérrez-Pérez, J., & Maibach, E. (2019). A framework for climate change engagement through video games. *Environmental Education Research*, 25(5), 701–716. <https://doi.org/10.1080/13504622.2018.1545156>

Pollard, & Filer, A. (2007). Learning, differentiation and strategic action in secondary education: analyses from the identity and learning programme. *British Journal of Sociology of Education*, 28(4), 441–458.

<https://doi.org/10.1080/01425690701369400>

Reichert, & Print, M. (2018). Civic participation of high school students: the effect of civic learning in school. *Educational Review (Birmingham)*, 70(3), 318–341.

<https://doi.org/10.1080/00131911.2017.1316239>

Shaffer. (2006). How computer games help children learn. In Palgrave Macmillan.

Palgrave Macmillan. <https://doi.org/10.1057/9780230601994>

Shaffer, Squire, K. R., Halverson, R., & Gee, J. P. (2005). Video games and the future of learning. *Phi Delta Kappan*, 87(2), 104–111.

<https://doi.org/10.1177/003172170508700205>

Shepardson. (2019). Students' conceptions of and feelings about land use: Building a conceptual framework for teaching and learning about land use. *Journal of Geography (Houston)*, 118(6), 252–265.

<https://doi.org/10.1080/00221341.2019.1593487>

Silk, Correia, R., Verissimo, D., Verma, A., & Crowley, S. L. (2021). The implications of digital visual media for human–nature relationships. *People and Nature (Hoboken, N.J.)*, 3(6), 1130–1137. <https://doi.org/10.1002/pan3.10284>

Social Studies. (n.d.). Retrieved May 3, 2022, from

<https://education.mn.gov/MDE/dse/stds/soc/>

- Squire, Giovanetto, L., Devane, B., & Durga, S. (2005). From users to designers: Building a self-organizing game-based learning environment. *TechTrends*, 49(5), 34–42. <https://doi.org/10.1007/BF02763688>
- Squire, K. D. (2005). Changing the game: What happens when video games enter the classroom? *Innovate: Journal of Online Education*, 1(6). Retrieved from <http://www.innovateonline.info/index.php?view=article&id=82>
- Squire, Kurt, and Henry Jenkins. “Harnessing the power of video games in education.” *Insight* 3, no. 5 (2003): 4–33.
- Stanford History Education Group. (2018). Multiperspectivity: What is it, and why use it? *Teachinghistory.org*. Retrieved May 3, 2022, from <https://teachinghistory.org/teaching-materials/ask-a-master-teacher/23610>
- Stapleton. (2015). Environmental identity development through social interactions, action, and recognition. *The Journal of Environmental Education*, 46(2), 94–113. <https://doi.org/10.1080/00958964.2014.1000813>
- Tavinor, Grant (2008) "Definition of videogames," *Contemporary Aesthetics (Journal Archive)*: Vol. 6 , Article 16.
- Watson, W. R., Mong, C. J., & Harris, C. A. (2011). A case study of in-class use of a video game for teaching high school history. *Computers & Education*, 56, 466–474. doi:10.1016/j.compedu.2010.09.007
- Young, Carsten Conner, L. D., & Pettit, E. (2020). “You really see it”: environmental identity shifts through interacting with a climate change-impacted glacier

landscape. *International Journal of Science Education*, 42(18), 3049–3070.

<https://doi.org/10.1080/09500693.2020.1851065>

Young, S., Slota, S., Cutter, A. B., Jalette, G., Mullin, G., Lai, B., Simeoni, Z., Tran, M., & Yukhymenko, M. (2012). Our princess is in another castle: A review of trends in serious gaming for education. *Review of Educational Research*, 82(1), 61–89.

<https://doi.org/10.3102/0034654312436980>