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# Game Design as a Catalyst for Learning

TRACEY E. WONG

If you ask any child or *screenager* what their dream job is, the most frequent answer is they want to become a video game designer.

As makerspaces have become commonplace in many school libraries across the country, teacher librarians are now taking it to the next level by offering game design as a catalyst for learning. Logically, since the school library has established the ideal setting for students to be able to explore their interests, passions, and curiosities, game design has provided a special opportunity for students to become more creative and innovative and to practice thinking beyond the expected. Game design drives greater learning, since it creates a rich environment where every scholar can learn at a high level.

## CHALLENGE LEARNERS

Today’s students are already using various devices and playing electronic games at home, on public transportation, and everywhere else. Children are already navigating and manipulating digital worlds. By meeting scholars where they are and utilizing their strengths, teacher librarians are able to reach a new audience and modernize the concept of school libraries without walls or boundaries. In a constantly changing digital world, fostering the ability to create games rather than just consuming them, educators challenge children and teach them to explore, experiment, and learn without fear. By better understanding technology and game design, not just using it, children are assisting in shaping the digital world. Investing time and energy into teaching technology creation, rather than consumption, better prepares students for use and understanding of technology and future jobs.

Three programs that enable students to be able to design and create their own video games without violence are Touch Develop, VR Quest, and Minecraft Education. Many school librarians are now giving children the opportunity to build and create video games. While this may seem like an unusual approach to teaching, video game creation promotes team-building skills, collaboration, and communication. Additionally, game creation drives greater learning and assessment as depths of knowledge are triggered, since scholars are harnessing critical-thinking and problem-solving skill sets. All of these are necessary skills in preparing students for college and career and to compete in a global economy.

## THE PROCESS

Many different aspects go into developing games. Students learn about storytelling, conceptualizing, and formatting. Scholars work in groups to apply the software and the ideas behind the 3D pictures. In order to create video games, students use relevant, nonfiction information. Transliteracy plays a

key role, as children research and read text online, use multimedia formats and tutorials, and incorporate audio into the designs. Rather than being focused on playing video games, scholars concentrate on creating artificial worlds that are sustainable. Students use storyboards to plan their games as they combine art and technology. An illustration of how video games are becoming mainstream, Robert Morris University of Illinois is offering 50 scholarships to student video game players to battle others in video games; this is an organized approach to gaming called *e-sports* (Kamenetz, 2014). As a natural extension of this kind of movement, the field is being redefined. The video game sector cannot find enough trained developers. With the rapid evolution of technology, many teacher librarians have readily acknowledged that they are educating scholars for jobs yet to be created in the technology sector. The following are examples of tools that can be used to help prepare students for creating through technology.

### **Touch Develop**

Touch Develop ([touchdevelop.com](http://touchdevelop.com)) is an introduction to computer science. Scholars learn creative coding through apps and games. This free site allows students to use their smart devices, laptops, or desktops to create scripts that are at various stages of coding. Touch Develop provides teacher librarians with a day-to-day curriculum, as well as lessons, helpful short tutorials, assignments, homework, and a range of projects and tests. The basis of this program involves interactive tutorials, and no installation is required.

Students live online in their waking hours. They breathe through their

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smartphones and devices. Using Touch Develop, which can also be accessed through their phones or any other devices, provides a way for students to become future ready by forming a thorough understanding of the practices and principles of computer science and coding. By instilling a foundation of computer and problem-solving skills in the context of learning basic computer science concepts, the teacher librarian can make learning powerful, creative, and interactive.

### **VR Quest**

An innovative New York based company called VR Quest ([vrquest.com](http://vrquest.com)) immerses students in literacy and history, as well as science and technology, as they create their own virtual reality video games and test them with 3D goggles. Students build and create their own video games and use gaming software. They generate their own adventures as they research objects, places, and personalities to include in their games. In the process, scholars learn team-building skills. They not only design their games but also take them

home to share with friends and family.

Many New York City politicians and council members have funded VR Quest for schools on Staten Island. Numerous educators use VR Quest to teach characteristics of a hero by combining history and science, while using technology responsibly. Children gain confidence in problem solving through the building process. Video game creation helps sharpen the imagination and develop resilience. Through video game design, scholars learn it is okay to fail as they regroup and approach their task from a different angle. While VR Quest does have an associated licensing fee, it provides unlimited use and is well worth the money.

### **Minecraft**

Minecraft ([education.minecraft.net](http://education.minecraft.net)) is Microsoft's latest addition to its repertoire of free classroom tools like Office 365, OneNote, Class Notebook, and Sway. Minecraft has proven to be unique, since it brings great depth to student learning. Rather than just reading or hearing about sustainability, deforestation, loss of urban sprawl, cli-

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## JUNIOR FICTION

### MIDDLE SCHOOL ESCAPADES

Buyea, Rob. **Because of Mr. Terupt** (Mr. Terupt, Bk. 1). Delacorte Press, 2010. 208 pgs. \$16.99. ISBN: 9780385738828. Grades 3-7. When a classroom of normal fifth-graders - the prankster, the brain, the new kid, the shy kid, the kid who hates school, the bully, the kid who never stands up for herself - meets up with a brand-new and enthusiastic teacher, you can bet change is going to happen. However, most of it comes about after Mr. Terupt, who has started teaching them about teamwork and getting along and kindness, ends up in the hospital in a coma after an accident at recess. Told month by month by his students in short alternating chapters, they sort through everything they've learned from him both before and after the accident, as they struggle to get through the rest of the school year and wonder if he'll ever be back. Included in the book is a fun math project/word game, Dollar Words, which would make a great classroom activity.

Davies, Jacqueline. **The Candy Smash** (Lemonade War, Bk. 4). Houghton Mifflin, 2013. 240p. \$15.99. ISBN: 9780544022089. Grades 2-5. When someone starts passing out personalized candy hearts to the 5th graders in room 4-0, Jessie and Evan Treski end up on opposite sides. Jessie, youngest and smartest kid in the class, wants to be an ace investigative reporter like their dad and wants to publish the person's name in her self-written newspaper, *The 4-0 Forum*. Evan, whose hearts just say things like "Be Mine" and "For You," feels hurt and left out. Meanwhile, the class is studying poetry and Evan likes it despite himself. But when Jessie finds a poem he writes about the 4-0 girl he likes and decides to publish it in her paper, he is furious. Jessie doesn't understand why "liking" is such a big deal. She's about to find out.... Includes a mock-up of Jessie's paper, a list of poetry definitions, the poems used in the class, and an interesting poetry drafting technique using Post-Its.

Frazier, Sundee T. **Cleo Edison Oliver, Playground Millionaire**. Arthur A. Levine, 2016. 213p. \$16.99. ISBN: 9780545822350. Grades 3-7. Cleo's loved Fortune A. Davies, the famous and brilliant African-American business woman, since she first saw her show, *Fortune*, at the age of three. Unlike Cleo's brothers, she doesn't know anything about her birth mother - maybe it's Davies! Anyway, she can't wait to grow up and be an entrepreneur, just like her. To that end, she's memorized all of her business precepts, has a poster of her on her bedroom wall, and sells everything from hand-drawn tattoos to avocados off their backyard tree. Then, she has an awesome idea: Why not pull baby teeth, using a Nerf gun, Nerf missiles, and dental floss, for \$1.00 a tooth? In her excitement, she neglects her best friend, who is going through a crisis; breaks school rules; "borrows" her dad's tablet and her mom's best kitchen knife, and gets into a fight with the school bully when she taunts Cleo about being adopted. How can she make it right again?

Jung, Mike. **Unidentified Suburban Object**. Arthur A. Levine Books, 2016. 265p. \$16.99. ISBN: 9780545782265. Grades 4-7. Chloe Cho is tired of people who think the reason she's first chair in orchestra on her violin and she gets good grades is because she's Asian. She's Korean, not Asian, the only Korean girl in town, and it's lonely sometimes. Still, her best friend, Shelley, is fascinated with Chloe's culture, which helps. Really, though, neither of them know much about it, since Chloe's parents refuse to talk about their past in Korea. Then, she gets an assignment from her new teacher, who is also Korean, which requires talking to her parents about their past. Now she'll hear about her heritage! However, although her parents have always insisted on the importance of school, they refuse to help. And when she finally talks her dad into telling her a bit of family history, it turns out to be plagiarized from a novel. Why won't they tell her the truth? The truth is beyond anything she could have imagined.

mate change, biodiversity, solar planning, or animal farms, etc., children internalize and retain more through project-based learning. To support further implementation in classrooms, Microsoft provides free workshops and training to teachers, as well as a multitude of lesson plans aligned to the Common Core learning standards.

Children love Minecraft because they are in control of their own worlds. It is not uncommon to see 5-year-olds engrossed in the game. They get to build freely, take responsibility, and learn lots of cool secrets. Many very young children become transliterate by learning how to create and overcome obstacles in Minecraft. They enthusiastically read the handbooks and watch lots of Minecraft fact videos on YouTube in order to learn how to become pros and earn badges. Minecraft uses a transdisciplinary approach that not only fosters creativity but also harnesses critical thinking and problem solving, which are often lacking in traditional curriculum.

For example, through Minecraft, very young children develop amazing articulation and high vocabulary levels as they explain things called mobs, which make the game more enjoyable. There are many layers of story and history in the characters of Minecraft, making the game enormously fun and challenging for kids. Minecraft is important to children, because they are able to take ownership by building and creating. Scholars learn to collaborate as they perform complicated tasks. According to history teacher Seamus Toman, Minecraft is ideal for spatial learners, since "they're very hands-on. They don't learn through chalk and talk and traditional learning, they like to discover" (Moore, 2016).

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### **REDEFINING THE SCHOOL LIBRARY AND LIBRARIAN**

As games become more of a cultural phenomenon, leading this initiative in the school library is the perfect segue into STEAM and advocating the relevance of the teacher librarians in leading future-ready schools. By implementing innovative learning opportunities and providing resources and strategies to empower student voice, teacher librarians are fostering responsible digital students. Students are prompted to learn how to use the school library in order to conduct research for their games. This in turn will translate to citizens that work for positive change in their communities and the world. With transformational digital leadership, teacher librarians are poised to efficiently and effectively advocate for school libraries as they redefine their roles and advocate for student learning.

As teacher librarians continually search for new methods to reach and engage today's scholars and introduce new technology, game design is a powerful and stimulating tool. As one English teacher observed after a student independently created a video

of Minecraft characters re-enacting a scene from *Romeo and Juliet*, "Minecraft is about freedom, a trait sorely lacking in education. Kids can build what they want, how they want, block by block" (Aviles, 2016). Game design serves as a catalyst for learning, since it meets children where they are in their lives and it is, by its own definition, differentiated. It incorporates computer science, engineering, and design while fostering blended learning. It is student centered and utilizes digital arts like podcasting and editing (Aviles, 2016). Video game creation is really not about the building aspect, but more about developing skills that last a lifetime. Through curiosity and exploration, scholars learn to research, navigate, and problem-solve.

Lastly, children are well versed in the subject, since they are already online navigating virtual worlds and playing games at home. By bringing game design into libraries, scholars become more receptive to learning and interested in subjects they would have traditionally overlooked. In addition, it transforms the library into a new and different learning space, offering a unique opportunity for the teacher librarian to lead the effort.

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