

# Carpe Librum: Seize the (YA) Book

## From STEM to STEAM: Finding and Redefining Female Tech Innovators in Literature

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*Innovation* is a trendy term in education today. Everyone from school administrators to parents to edtech companies seems eager to foster the next generation of innovators—particularly among young women. Although most of their attention centers on STEM (science, technology, engineering, mathematics) fields, there is a growing movement toward reconceptualizing this term as STEAM, with the additional A referring to the influences of art and design. This emphasis on art opens up new ways of thinking about how young women innovate and how such innovations are portrayed in literature.

The “problem” of women in technology fields is a growing concern because there are fewer women entering these fields today than there were 30 years ago (Gardner). In 1971, art historian Linda Nochlin famously wondered, “Why Have There Been No Great Women Artists?” Nochlin

argues that it is both the concept of greatness and the definition of art itself that must be reconsidered to contextualize the role that women have, and will continue to play, in the arts. Judy Chicago’s 1979 installation *The Dinner Party* is a brilliant response to Nochlin’s question. Chicago collaborates with a series of artists, most of whom are unknown, but are masters in sewing, pottery, and other art forms not typically considered “great” or high art to develop an elaborate table for a dinner party where the guests of honor are famous women, many of whom have excelled in a broad definition of artistic endeavors. Chicago’s *Dinner Party* is a significant moment in art history, an “iconic example of how art can change the world” (“Components”). Women in technology face a similarly misconstrued position, and YA literature is poised to positively influence how female innovations are defined and recognized.

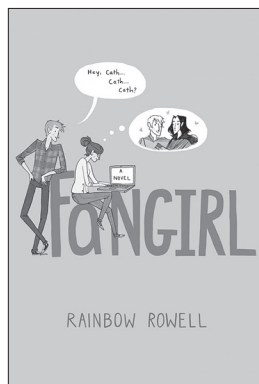
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Despite media emphasis on women in tech and a proliferation of new products and initiatives geared toward bringing girls into STEM, there is insufficient attention paid to the role that literature can play in both encouraging girls to enter STEM sectors and affirming the innovative and artistic ways that young women participate in the digital world. The teenage countess Ada Lovelace designed the first sketches for the modern computer in the 19th century. Grace Hopper created COBOL, an object-oriented computing language that uses words, rather than numbers, and revolutionized code. It is often forgotten that coding was initially a job reserved specifically for women (Sydell). Young women continue to be innovators in tech domains. This is something that Danah Boyd explores in her book *It’s Complicated: The Social Lives of Networked Teens*. Boyd argues that young people are cultural creators who resist the stereotypes of typical teen consumers: “[T]eens are as they have always been, resilient and creative in repurposing technology to fulfill their desires and goals. When they embrace technology, they are imagining new possibilities, asserting control over their lives, and finding ways to be a part of public life” (212).

Fanfiction and social media marketing empires exemplify two of the many ways in which young women demonstrate their creative innovations.

### ***Fangirl* by Rainbow Rowell**

Cath Avery is a seemingly unpopular first-year college student with a wild twin sister, Wren, who is the life of the party—in more ways than one. In the digital domain, however, Cath is a star. She is the highly regarded author of *Simon Snow FanFiction*, a euphemistic stand-in for Harry Potter, which she pens under the name magiCath. By the age of 18, she has created thousands of pages of prose for millions of adoring fans, but the problem with fanfiction is that it is considered neither high art nor high tech. The product that emerges from fanfiction relies on neither the authoring of original characters nor new lines of code; instead, it adapts and iterates on preexisting texts and crowdsources the results in a social and interactive environment where the commentary of fans determines the direction the author takes. This process of rapid prototyping, often referred to as bootstrapping, is the cornerstone



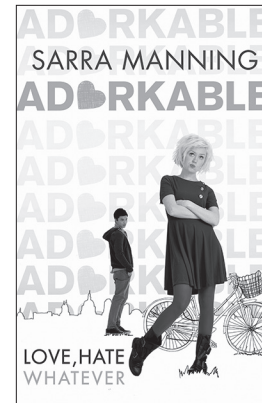
of contemporary technological innovation (Ries, 2011).

Despite her expertise in the fanfiction universe and the many hours she has logged writing *Simon Snow FanFiction*, these accomplishments are not recognized as a literary art by the university. Cath's writing professor dismisses fanfiction as plagiarism. This teaches Cath that in order to have success within the university, she needs to demonstrate how the skills she acquired over her many hours of writing fanfiction translate into her mastery as a writer. As Cath finds success in her professor's eyes, she continues to devote her passion and energy to building and maintaining magiCath's fan base. This is what most early innovators do—they keep their day jobs. Cath's current job is to be a full-time student, but the magnitude of her fanfiction base suggests a promising future.

Rowell's story exemplifies the struggles that young writers, particularly young female writers, face when their work is created in popular digital domains. Young women are the primary writers and consumers of fanfiction (Thomas). In fact, *Fangirl* has itself inspired young women to write and respond to one another's work, creating a monument of digitally connected stories.

### ***Adorkable* by Sara Manning**

Like Cath Avery, Jeanne Smith is highly successful and influential in the digital sphere, but not quite so popular in the bricks-and-mortar world. She is a social media maven: the empress of the Adorkable empire, a personal lifestyle brand she created to connect



dorks and DIY (do-it-yourself) makers around the world. Jeanne has a half million twitter followers, yet she is isolated from her family and has almost no true friends at school until she becomes heavily involved with Michael Lee, the most popular boy in her class. Where this novel differs from other boy-meets-girl plotlines is that both protagonists emerge as fully developed complex characters, each burdened by emotional baggage.

Although the honest portrayal of teen interactions and intimacies is refreshing, what is particularly remarkable is the attention paid to how Jeanne navigates the "context collapse" between the digital and face-to-face worlds (Boyd 31). Whereas Michael uses the Internet to mask his identity and explore feelings he is not yet ready to own in the physical world, Jeanne presents a fairly consistent persona across spaces. This initially presents problems for her at school because her classmates perceive her to be overly opinionated and aggressive. Through a series of humbling experiences, she begins to readjust her approach to her peers, both online and off, and to construct a more palatable persona.

As a maker and an entrepreneur, Jeanne is an inspiration. Beyond her blogging and tweeting for Adorkable, she is recognized as a global expert on teen culture and the DIY (do-it-yourself) strategies that (mostly) young people use to create sustainable products. Her astute and vocal musings about millennials garners an invitation to a prestigious Ted Talk–esque event in New York City and an op-ed in the *New York Times*. Where Michael might be headed for Cambridge or Oxford, Jeanne is poised for the type of start-up success that made Mark Zuckerberg famous. Unlike like in many YA texts, Manning doesn't avoid exploring the reality that many well-educated teens are conflicted over the rewards of traditional university life.

Jeanne's portfolio of social media acumen offers an important glimpse into the complexities

of the maker movement. STEM celebrates the maker, but to be a maker has historically been considered a masculine pursuit (Chachra). Where making originally referred to tangible, three-dimensional things, it now can refer to intangibles such as code, social media "likes," and digital content "shares." These new interpretations of making insist that we acknowledge the cultural and the financial capital of social media making. Jeanne redefines the maker movement and emerges as an innovative leader among young women. 

#### Works Cited

- Boyd, Danah. *It's Complicated: The Social Lives of Networked Teens*. New Haven: Yale UP, 2014. Print.
- Chachra, Debbie. "Why I Am Not a Maker." *The Atlantic*. Atlantic Media Company, 23 Jan. 2015. Web. 11 Aug. 2015.

- "Components of the Dinner Party." *Brooklyn Museum*. Elizabeth A. Sackler Center for Feminist Art. Web. 11 Aug. 2015.
- Gardner, Sue. "Why Women Are Leaving the Tech Industry in Droves." *Los Angeles Times*. Los Angeles Times, 5 Dec. 2014. Web. 11 Aug. 2015.
- Manning, Sarra. *Adorkable*. London: Atom, 2012. Print.
- Nochlin, Linda. "Why Have There Been No Great Women Artists?" *ARTnews* Jan. 1971: 22–39. Print.
- Ries, Eric. *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. New York: Crown, 2011. Print.
- Rowell, Rainbow. *Fangirl*. London: Macmillan, 2014. Print.
- Sydell, Laura. "The Forgotten Female Programmers Who Created Modern Tech." *NPR*. NPR, 6 Oct. 2014. Web. 11 Aug. 2015.
- Thomas, Angela. "Blurring and Breaking through the Boundaries of Narrative, Literacy, and Identity in Adolescent Fan Fiction." *A New Literacies Sampler*. Ed. Michele Knobel and Colin Lankshear. New York: Peter Lang, 2007. 137–66. Print.

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