Chapter 2
Graphic Novels and STEAM:
Strategies and Texts for Utilization in STEAM Education – Graphic Novels and STEAM

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EXECUTIVE SUMMARY

Focusing on the interdisciplinary connections between STEAM education and graphic novels, this chapter first establishes historical and educational contexts for the use of graphic novels in STEAM education. A literature review focusing on the use of graphic novels in a science course as well as how graphic novels have been used in secondary classrooms will be discussed. Literature that is reviewed includes books, articles, and edited volumes. The strategies for implementing graphic novels in STEAM education promote constructivist learning as students are asked to access their intellectual and cultural capital in order to ascertain meaning from given content. Additionally, multimodality and multiliteracies are highlighted throughout the chapter. Finally, this chapter ends with linking the use of graphic novels in STEAM education to the power of narrative inquiry in educational contexts.

INTRODUCTION

In *All-Star Superman* (Morrison and Quitely, 2011), the superhero Superman finds himself in a laboratory full of amazing and bizarre science experiments. After having saved pioneer astronauts who were exploring the outer atmosphere of the sun, Superman tests his strength levels in this futuristic menagerie of scientific

extravagance. The head scientist tells Superman, "You're now pushing against the equivalent of **200 quintillion tons**, Superman" (p. 20). However, Superman's trip to the sun to save the astronauts had a side-effect:

Your trip to the sun exposed you to critical levels of stellar radiation, more raw energy than your cells are able to process efficiently. Apoptosis has begun. Cell death. There can be only one outcome even for You. (p. 20)

Superman's exposure to the sun is more than he can take, and within one year, The Man of Steel will meet his end. This is the premise of Morrison and Quitely's acclaimed graphic novel *All-Star Superman*, which has been used as a text to teach composition (Romagnoli, 2015).

The value of this text doesn't end with the story, though. Looking back at the scenario that was just presented, unmistakable teaching moments have arisen. 200 quintillion tons? Solar atmosphere? Apoptosis? Cells processing solar energy? A science lesson has just taken place.

LITERATURE REVIEW

The STEAM and Comic Connection

Comic books have traditionally been associated with science and technology, and Jones (2004) even traced the connection of science and popular literature to the "pulps" of the early twentieth century:

In the archaeology of popular culture, the August 1928 issue of Amazing Stories appears again and again as a pivotal memory of a generation of moviemakers, science fiction writers, cartoonists, astronomers, futurists, and rocket engineers. Against a lucid yellow background floats a man in a skintight red costume, leather pilot's helmet, and sleek black boots, his body prone but angling upward in an attitude of nascent flight. (p. 30)

Most important to note from Jones' historical study of comic books is his implicit connection of various and diverse disciplines: cartoonists, astronomers, moviemakers, and rocket engineers. This is the essence of STEAM (science, technology, engineering, arts, and mathematics) education: the idea that the logistics of scientific realities are informed by the aesthetics of the scientists' and engineers' imaginations who are responsible for the creation and implementation of new machines. Most importantly, this has been the case for quite a long time.

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