

**Between genius and dummy, good and evil,
Rotwang, Frankenstein and Wernher von Braun
The portrayal of scientists in the TV-cartoon *Kim Possible***

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Abstract

Current research indicates that children hold stereotyped views of scientists. Mass media products, such as films, television series or comics, are often considered the source of those images. However, we know little about how contents addressed to children portray science and scientists. This paper aims to make a contribution in this direction, presenting the results of a qualitative analysis on scientists' representation in the popular series *Disney's Kim Possible*. The study examines the depiction of scientists, scientific work, impacts of scientific products, and the overall image of science transmitted to children through this TV-program. It focuses on two main characters, Dr. Drakken and Dr. James Possible, who play a significant role in the overall plot of the series. The analysis shows that these researchers present stereotypical and counter-stereotypical features respectively. By contrasting these characters and their contexts, the series conveys a clearly demarcated image of what constitutes good and bad science. Additionally, the analysis illustrates how popular images of scientists represent an essential source of science images for animated cartoons and emerge in the series symbolic structure. Finally, the study shows that Dr. Drakken's stereotypical portrayal is explicitly employed as a device to reflect on stereotypes about science in mass media.

Introduction

Science has been a recurrent topic in animated series since the origins of the genre, and the fictional worlds of cartoons have given life to well-known scientists characters, such as Dexter, Gyro Gearloose or Dr. Heinz Doofenshmirtz. Embedded in comics, novels or films, these characters - and the images of science they embody - circulate in the public discourse, contributing, as other depictions of science do (e.g. journalistic or advertising accounts), to shape the image of science in society. Science popularization initiatives address children with the aim of awaking or fostering their interest in science, to avoid that the complexity of scientific knowledge, the opacity of scientific language or a stereotyped image of scientific practice influence negatively the pursuit of a career in science. Promoting science among children and young students not only aims to improve the public image of science among the general public. It constitutes an effort to ensure that young researchers give continuity to scientific work and the production of scientific knowledge. Thus, it is more than public relations: it is an essential factor in sustaining science as a societal endeavor.

Yet, studies on perceptions of science show that children and adolescents hold stereotyped views of scientists (Mead & Métraux 1957; Chambers 1983; Steinke u. a. 2007; Ruiz-Mallén & Escalas 2012; Christidou u. a. 2012). These studies, conducted in different countries and along five decades, show a consistent and stable perception of scientists across time: scientists are predominantly male, wear a lab coat and glasses, and work indoors, mostly in laboratories. Additionally, research on science's portrayal in mass media show that the depiction of scientists is stereotypical (Haynes 2003; Weingart 2003; Pansegrau 2009; Gorp u. a. 2013; Flicker 2003). Although the specific stereotypes of scientists vary across the different media genres, scientists are depicted as atypical or even eccentric persons. The stereotype of the "mad scientist" seems to be a strong referent regardless of the media type.

If we want to know more about the images of science conveyed to children by mass media, animated cartoons are certainly a good place to start. Television remains the most used medium among American and German children (Feierabend u. a. 2013; Common Sense Media 2011). Animated cartoons, one of the first media contents with

which children come into contact, continue to be the most dominant media genre in German children's television (Krüger 2009).

From a sociological perspective, animated cartoons can be approached as constructions of our social reality (Luhmann 2000), i.e. as descriptions of the diverse spheres of social life -among them, science-. Cartoon series constitute a media genre (Luckmann 1986), a recurrent and consolidated form of reality construction, which offers fictional and accentuated (even exaggerated) images of social reality. Thanks to the formal and technical possibilities of animation, cartoons build a fruitful soil for the visualization of fictional worlds. They also build a form of moral communication, in which good and bad become central topics and are clearly demarcated within the plot, for example in the configuration of characters. Thus, through the analysis of Dr. Possible and Dr. Drakken, a helper and a villain in the *Kim Possible* series¹, this case study aims to examine what view of "good science" and "bad science" these characters embody and convey to the series audiences.

Methodology

The qualitative analysis was conducted with the analytic model of "the clock of character"². According to this model, four dimensions of the character are taken into consideration: the character as a) **fictional entity** (describing his/her individual physical, social and personality characteristics), b) as **artifact** (describing its means of characterization), c) as **symbol** (interpreting on the basis of the two previous aspects, the meaning associated to the character), and d) as **symptom** (interpreting the character's emergence within a specific social context). The objective is to create a model of the character based on its stable features, and then test and/or update it as the series develops. Simultaneously, and following the same analysis structure, the character was also

¹ *Kim Possible* is an American cartoon series produced by Walt Disney Television Animation. Along 87 episodes, the series narrates the adventures of Kim Possible, a high school student, who fights crime in her spare time. With the help of her friends (Ron and Wade) and the support of her parents (Ann and James T. Possible), Kim travels around the world to capture criminals. Her biggest challenge is to combine her life as agent with her normal life as teenager. The series was first broadcasted in 2002 (USA) and its production ceased in 2007 (Lenburg 2008). In Germany, *Kim Possible* has been rebroadcasted several times both on free-to-air and cable television. Science is a recurrent topic in the series. Along the episodes, many scientists in minor or non-recurrent roles appear. However, due to the amount of data, this case study focused only on the two scientists in plot relevant roles: Dr. Drakken and Dr. James T. Possible.

² See (Eder 2008)

examined in its embedment within the fictional, formal and symbolic contexts of the series, interpreting what message the series conveys about science through these characters.

To capture the characters' development along the series, the analysis sample gathered exposition, climax and conclusion phases of the series. The corpus of analysis includes episodes in which the characters make their first and last appearance, as well as intermediate episodes, in which science or the scientist played an important role. A total of six episodes were coded inductively to gather the main physical, social and personality features of the characters. On the basis of the coded material, a profile was built, which took into consideration the four dimensions of the character mentioned previously. Nine additional episodes were viewed to test and update the character's model.

Results

The analysis showed that the character of **Dr. Drakken** presents many features of the mad scientist stereotype. Dr. Drakken is a malicious, arrogant and megalomaniac scientist in a quest for world domination. To reach his objectives, he is willing to lie, commit betrayal or criminal activities. He uses his knowledge against society and for personal purposes, seeking, for example to build a "horrific doomsday device" or to create an army of killer plants. Dr. Drakken is not only an outsider in social life, but also in science: he first left the scientific community when he abandoned the university without finishing his studies, and as a criminal, he is positioned at the margins of the fictional society. In his secret laboratory, Dr. Drakken works alone and builds all kinds of machines and devices. The lab, which is also his hideout, has different locations, but it is always situated in isolated and non-accessible places. Dr. Drakken claims to be a genius, however, his competence is constantly called into question. For example, while able to understand complex scientific knowledge, he lacks daily knowledge or even common sense, making him look dumb and naïve.

Dr. Drakken is the villain of the series, but he is not intrinsically evil (e.g. he loves his mother and tries to be a good son). Due to negative experiences in his childhood and as a university student, his actions are dominated by frustration and anger. For this reason, even if he is asocial, he wants to succeed and longs for the acknowledgment of

his peers (scientists and/or villains). In the last episode, of the series, he collaborates with Kim Possible (the protagonist) to save the world. For the first time, his plan and his current invention work. As he uses his expertise for the benefit of society, he receives the acknowledgement he wanted (see figure 1).

This character is not only depicted as a mad scientist, but it is also explicitly presented as such in the series. In the first encounter of Kim Possible with Dr. Drakken, she affirms: “we are definitely putting this guy in the mad-scientist category”, to which Ron (Kim’s sidekick) answers: “Mad angry, or mad crazy?” Additionally to references at the level of dialogue, the character is visually associated to other mad scientists of popular culture. As Rotwang, the inventor (*Metropolis*, 1927), Dr. Drakken aims to create (artificial) life and to build the perfect female robot. His scar evokes the scar of Frankenstein’s monster (*Frankenstein*, 1931).

Dr. James T. Possible is the scientist counterpart of Dr. Drakken. He is a rocket scientist, who works at the Space Center of Middleton. While he has some of the characteristics of a prototypical scientist - he is male, middle-aged, white/Caucasian, etc. (Weingart 2003) -, he shows also one important overall counter stereotypical feature: while scientists are commonly depicted as atypical or “somehow” unconventional persons, Dr. Possible is portrayed as a normal, ordinary person. He doesn’t have notorious or unusual physical features, such as Dr. Drakken’s scar or blue skin. He has a normal weight, height, physical constitution and wears ordinary clothes (khaki pants, white shirt and a dark tie). Even if he occasionally gets distracted at work, Dr. Possible is intelligent and a competent scientist. A key feature that distinguishes him from Dr. Drakken, is the place that science has in his life. While he seems to enjoy his work at the space center, scientific work belongs to his professional life and is just as important as other activities. Science is his profession, but not his life’s project. For example, he is not only seen working, but also at home reading the newspaper, taking care of the kids, playing golf, going dancing, washing the car, etc. Unlike stereotypical scientists, who wear a lab coat at all times, Dr. Possible is seen wearing all kinds of outfits. This, together with the diversity of social roles that he fulfills along the series, shows that he is a sociable character and an active member of society. In other words, Dr. Possible is a man like many others, who also happens to be a rocket scientist. His expertise, just as

everyone else's, comes in handy from time to time. While his role as scientist tend to remain in the background, his project at the Space Center turns out to be crucial for saving the world in the last episode of the series.

The scientific activities of Dr. Possible take place in an academic and institutional context. The Space Center, a research facility located in a white, illuminated and spacious building, connotes openness and transparency. In spite of this, the building has many security systems and Dr. Possible works to some extent in secrecy. The institutional character of Dr. Possible's workplace reflects directly in the social character of scientific work. Unlike Dr. Drakken, Dr. Possible works in a team; he is part of a hierarchical, but collegial, organization. Through Dr. Possible, science is depicted within society, and this integration is indicated, among other things, by the efforts of Dr. Possible to communicate science to the public. He is for example, an enthusiastic participant of a science popularization event for children. While Dr. Drakken produces (or steals) a new invention on each episode, Dr. Possible works mainly in one long-term project.

As the previous examples show, the main overall characteristic of this scientist is that he is depicted as a regular person. In contrast to Dr. Drakken, who is associated to fictional scientists, Dr. Possible is related to a prominent scientist outside the fictional reality: to the rocket engineer Wernher von Braun. The character resembles the image of von Braun, as he appears in the *Disneyland* series episode *Man in Space*³, where he explains the requirements for human space flight. This reference aims to evoke the positive image of the engineer as space flight pioneer by explicitly dissociating the character from any reference to weapon production. As an ethical and moral scientist, Dr. Possible draws a clear line between civilian and military research. In one scene, a villain states: "From the space station we will rule the world. All the weapons there must be incredible". Dr. Possible's answer to him is unequivocal: "There are no weapons on the space station. It's dedicated to peaceful research".

³ In this case, a character in a television program (*Kim Possible*) makes a reference to a persona in an episode of another television program (*Disneyland*). At the level of the character as symptom, it is impossible to oversee that both programs were produced by the Disney Company, with which Wernher von Braun personally collaborated as consultant (Wright 1993).

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	Character	Drew Theodore P. Lipsky/ Dr. Drakken	Dr. James Timothy Possible
Character as fictional entity	Physical appearance	Hunchbacked Blue skin, scar Always wears a villain uniform	Good posture, normal weight and height No distinctive features Wears different, but ordinary clothes
	Verbal expression	Makes grammar mistakes, uses scientific terms without exactly knowing what they mean, and is impolite and rude to others	Speaks formally, has a wide vocabulary, makes an appropriate use of scientific language, is polite to others, and has good manners
	Sociality	Personal relationships: No romantic partner or friends. Good relationship with his mother and cousin Professional relationships: With other scientists: competitive With sidekick: cooperative, but problematic	Personal relationships: Has a love partner and children. Good relationships with family members and friends Professional relationships: Collegial and cooperative
	Personality	Arrogant, irritable, grumpy, self-centered, immature	Modest, good tempered, easygoing, self-critical, mature
	Cognitions	Intelligent, but lacks daily knowledge and common sense	Intelligent
	Values	Unethical, lies, cheats and participates in illicit activities	Ethical, righteous
	Motivations	Revenge	Enjoys his work
	Other	Drives a hovercraft	Drives a regular car
	Biography	Dropped out of college Works as an amateur scientist	University graduate Has a job as researcher in the Space Center
	Workplace	Laboratory is also the character's lair	Laboratory in an academic institution
	Scientific work	Science is a profession Works in a team in a long term project Beneficial for society	Science is an instrument to control the world Works alone and constantly develops (or steals) new inventions Prejudicial for society
C. as artifact	Character type	Secondary character	Secondary character
	Narrative role	Villain, buffoon	Helper, adviser
Character as symbol	References and associations	Real scientists: Wernher von Braun Other media texts: Factual program <i>Man in Space</i>	Fictional scientists: Victor Frankenstein, Rotwang, the inventor Other fictional characters: Frankenstein's monster Other media texts: <i>Frankenstein</i> (1931), <i>Metropolis</i> (1927)

Figure 1: A comparison of Dr. Drakken and Dr. Possible

Discussion and conclusions

Through the characters and their contexts, the series conveys a clearly demarcated image of what constitutes good and bad science: an institutional, professionalized, ethical and useful science vs. an individual, amateur, unethical and dangerous science. According to this contrasting depiction, good scientific work is conducted collectively; scientific knowledge is generated in regulated conditions and – even if it is produced in secrecy - shared not only among scientists, but communicated also to society. The characters embody an ambivalent view of science, which oscillates between the potential benefits for society and the risk or dangers that scientific and technological products represent. In spite of the differences in the portrayal, the characters have one thing in common: they both work on technological developments, thus mainly portraying science as applied science.

Yet, the series not only contrasts good and bad science, but also stereotypical and counter-stereotypical features of scientists, providing moments of reflexivity to the viewers. The numerous explicit references to the mad scientist stereotype and to the narrative conventions of cartoons illustrate this at best. The cartoon series *Kim Possible* reproduces, on the one hand, the stereotype of the mad scientist, including its typical characterization devices (e.g. isolated lair, world domination ambition, etc.) and contributes to build up the repertoire of pattern representations required to recognize and understand references to the mad scientist archetype in popular culture. On the other hand, through the character of Dr. Possible, it offers a diversified and, to some extent, balancing image of science.

At the symbolic level, the references to Frankenstein and Wernher von Braun, mark a difference between fictional and real science, a disparity embodied by Dr. Drakken and Dr. Possible. The constant questioning of Dr. Drakken's intelligence, expertise and motives call also his role as researcher into question, suggesting that he is not a real scientist. The character's association to fictional scientists emphasizes this aspect. Thus, and as a consequence of the contrasting depiction of Dr. Drakken and Dr. Possible, it is suggested that there are other kinds of scientists: "real" scientists, which conduct "real" science. In this context, "real science" is beneficial, regulated and open to

society. In the end, both characters contribute to this depiction, which constitutes an undoubtedly positive representation of science in society.

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