

ORIGINAL ARTICLE / ARTICULO ORIGINAL

Manga and anime as a fun way to teach biomedical foundations in medicine

Manga y anime como una forma divertida de enseñar fundamentos biomédicos en medicina

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ABSTRACT

Issue. An interdisciplinary approach that provides opportunities for application of knowledge in communications arts and technology would be beneficial in health sciences education.

Evidence. The use of medical illustrations in cartoon-like style is an old method of conveying intricate information. Manga (Japanese comic) and anime have been suggested as potentially useful in motivating learning, helping novices learn particularly difficult material through visual aids. Given their accepted function as an educational medium, manga could be used to teach medicine.

Implications. Medical educators should carefully choose the material to be used in lessons, and must revise the story's content when considering using manga and anime in medical education.

Keywords: Manga; anime; biomedical; medicine

RESUMEN

Asunto. Un enfoque interdisciplinario que brinde oportunidades para la aplicación del conocimiento en las artes y la tecnología de la comunicación sería beneficioso para la educación en ciencias de la salud.

Evidencia. El uso de ilustraciones médicas en estilo tiras cómicas o dibujos animados es un método antiguo para transmitir información compleja. Se ha sugerido que el manga es potencialmente útil para motivar el aprendizaje, ayudando a los novatos a aprender material particularmente difícil a través de ayudas visuales. Dada su función aceptada como medio educativo, el manga podría usarse para enseñar medicina.

Trascendencia. Los educadores médicos deben elegir cuidadosamente el material que se utilizará en las lecciones y deben revisar el contenido de la historia al considerar el uso de manga y anime en la educación médica.

Palabras clave: Manga; animado; biomedicina; medicina

BACKGROUND

The use of medical illustrations in cartoon-like style is an old method of conveying intricate information. However they are relatively absent in medical classrooms today.¹ Most Animation is increasingly being incorporated into medical schools learning materials.² Despite enthusiasm about animation among learners and medical educators, evidence of its effectiveness is still limited.

I was a visiting medical student at UT Southwestern Medical Center (UTSWMC) when I attended a ground rounds lecture where a Professor talked about the benefit of using cartoons to teach immune processes, while showing an image of adventure hero Buck Rogers punching and shooting rays against invading pathogens. Not only I was impressed by the lecture, but also by the fact that UTSWMC had a Medical Illustration

Department, and it was the first school in the world to offer a graduate degree in medical illustration.³ Such program was designed to be an interdisciplinary approach that provided opportunities for development of the skills and knowledge needed in the application of communications arts and technology to the health sciences.

People like comics because the visual format, which effectively combines images and text, allows readers to become engrossed in the story. Comics are extremely popular in Japan, where they are known as manga, and cover a wide range of genres, with some even involving medical community settings like autopsies, surgery, or transplants.^{4,5} Having lived in Japan for nearly 10 years, I can testify about the great influence of anime and manga in modern society culture.

More than 173 manga titles in the medical genre have been released, some of which have been translated into English.⁶ Some examples include Black Jack, which follows the adventures of a clandestine surgeon with medical knowledge and skill in the operating room well beyond what any human could ever hope to do.⁷

The comic inserts very accurate anatomical depictions of the human body and organs. In a similar way, Super Doctor K is a mysterious surgeon who comes from a lineage of physicians and wanders the world helping anyone who needs his skills. Cells at Work! first released as a manga and then as an anime, i.e. a Japanese animation, features humanized cheerful and energetic blood cells (all with different faces and distinct personalities.) working in the blood stream of a human body that looks like an enormous city. Although simplified, it includes sidebars explaining how specific cell types actually work.⁸ This production is reasonably informative and up to date.

EVIDENCE

Since comics rely on visual metaphors to communicate their message, the content does not need to be fully realistic. It rather relies on useful representational, promoting critical thinking skills involving interpreting and filtering information.⁹

This new field of “Graphic Medicine”, a term coined by British physician Ian Williams, proposes that medical graphic narratives, i.e. comics, could be used as teaching tools to foster empathy, promote observational skills, and cultivate awareness of medical-related issues.¹⁰

Manga and anime have been suggested as potentially useful in motivating learning,^{11,12,13} helping novices learn particularly difficult material through visual aids. Given their accepted function as an educational medium, manga could be used to teach medicine. Gazing at illustrations and recognizing them, leads to a better recall, and possibly a deeper mental elaboration with the illustrations.¹⁴ Medical students reported reading more of the material and achieved higher post-learning test scores when provided with cartoon-style material, compared to handouts with a “traditional-style”.¹⁵

IMPLICATIONS

The accuracy of the story’s content must be, nevertheless, revised when considering using manga in medical education, as it may stretch certain facts for dramatic effect. Medical educators should therefore carefully choose the material to be used in lessons.⁴ Simple animations can be created at low cost without requiring sophisticated software. We developed a series of such anime stories to teach microbial pathogenesis.¹³ We should encourage medical education faculty to use creative teaching methods, and maybe consider manga and anime as an effective tool for teaching and learning biomedical foundations of Medicine.

Conflict of interest

No interest to declare.

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