

From Physicswallah to SDGs: Evaluating the Effectiveness of Anime-Based Storytelling in Promoting Sustainable Development Awareness among Indian Youth



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Abstract

This study aimed to find out the effectiveness of Anime as a modern age mass media tool and further use to educating and awareness of Indian youth about the importance of Sustainable Development Goals (SDGs) in context of analysis of effectiveness of YouTube Anime Web series by Physicswallah as an open source for learning Physics & Maths for secondary class students in India. Animation that originated or was produced in Japan is referred to as "Anime," and it is one of the major visual forms of Japanese popular culture that has drawn a large following worldwide. Anime programming is extremely popular in India alone, with the second-largest audience. On the basis of the Social Learning, Narrative transportation, and Cognitive theory of multimedia learning the researcher wants to study the impact of Anime as a mass media tool in shaping the cognitive and social behavior of an individual. The research design included the analysis of comment sections of "Physics Wallah" Anime YouTube web series and audience responses of young Anime fan followers and students.

The finding shows that anime-supported learning improves student motivation, improves concentration and memory retention, and simplifies difficult concepts through visual narrative and visualization. Additionally, respondents reported that they felt more emotionally linked to the material they were learning, which made learning more engaging and relatable. However, the study also identifies certain limitations, including the possibility of students perceiving anime primarily as entertainment, difficulties among learners unfamiliar with anime styles, and the risk of distraction from core academic objectives. Overall, the findings suggest that carefully integrated anime-based awareness & learning can serve as an innovative and effective educational approach that positively influences students' cognitive engagement and learning experiences.

Key words:- Anime, Mass Media, Sustainable Development, Social Learning Theory, Narrative Transportation Theory (NTT), Edtech Ecosystem.

Introduction

From the dice of United Nations General Assembly, Brundtland (1987) clearly raised the issue of interrelationships between people, resources, the environment and development that satisfies current demands without compromising the potential of future generations to fulfil their own needs, known as sustainable development, which ultimately all about ensure the "our common future" in easy words. In the age-old race of development, climate changes and preservation of natural resources have become topics of the global debates for decades and key responsibility to be looked after. The active and passive participation of each individual is must to achieve the laid out Sustainable Development Goals (SDGs). The need for sustainable development is primarily to effectively deal with climate change and preserving the oceans and forests natural resources for present and future generations. The Sustainable Development Goals (SDGs) emphasize how the economic, environmental, and social aspects of sustainable development are interconnected (Sustainable Development, 2020).

SUSTAINABLE DEVELOPMENT GOALS AND YOUTH

The accomplishment of the SDGs can be greatly aided by young people's innovation, energy, and digital literacy. Since they represent a significant portion of the global population, this youth is important to concerns over global development. They are positioned as vital contributors to social advancement, innovation, and the accomplishment of the Sustainable Development Goals. This youth population must be well-informed and educated regarding sustainable development goals on a regular interval so that they can participate in the initiative whether directly or indirectly through every possible medium.

ANIMATION AND SUSTAINABLE DEVELOPMENT GOALS

The Animated content can be a decisive mass media tool for educating and making aware about any personal, social or global issues according to Saba et al. 's 2023 finding. Through their research study "Effects of Animated Movies on the Aggression and

Behavior Performance of Primary School Students" and Their "Control Using a Cognitive Behavioral Anger-Control Training (CBACT)" Program," they affirmed that youth behavior and awareness can be positively shaped by well-crafted animated media with targeted narratives.

Anime being as an audio-visual medium that combines narrative storytelling, music, sound effects, conversation, and moving visuals can be an effective multimedia learning tool and in addition to that its mass reach and low cost production make it one of the decisive mass media tools in educating and achieving the Sustainable Development Goals.

Mitra & Banerjee, (2025) in their study "Reimagining Adventure Tourism Memories through Ghibli-Style AI Portraits: A Phenomenological Study on Emotional Sustainability," arrived at the conclusion that the Ghibli-like anime style memorable photographs reconnected the tourists' deepest emotional way and provided an immersive travel experience. The therapeutic value of Studio Ghibli Anime aesthetic is based on the art therapy and narrative psychology which further enables Introspection and healing in response to creative output. (Malchiodi, 2022) Through aesthetic transformation and emotional engagement, Studio Ghibli storytelling Anime also serves broader sustainable tourism goals by enhancing psychological well-being, cultural belonging, and mindful environmental insight. The authors Mitra & Banerjee (2025) connected these phenomena of improved well-being and emotional stability with SDG 3 (Good Health and Well-Being), even if the participants' experience insights and reflective learning were in line with SDG 4 (Quality Education).

"ORANGE ECONOMY" AND SUSTAINABLE DEVELOPMENT GOALS (SDGs)

Over time, the "Orange Economy" also called as "Creative Economy" includes any of the industry involved in creation and distribution of any products which could be primarily result of Creative-intellectual efforts like animation, advertisement, design, architecture, fashion, VFX, film, video, photography, music, performing arts, publishing, R&D, software, computer games, electronic publishing, and TV/radio are some of these businesses. As stated by **Ferreiro-Seoane et al. (2022)** in their study, the creative industries are also viewed as a crisis-resistant sector both a driver

and an instrument of steady growth, which is further reinforced by the UN's efforts to include the "Orange Economy" into its sustainable development goal. It maintains sustainable growth from the triple economic, social, and environmental perspectives while growing at a faster rate than the overall economy.

INDIA AND AVGC

Digital India, the Atal Innovation Mission, Start-Up India, Make in India, and laws pertaining to intellectual property and foreign direct investment are some of the national industrial policies that are significantly influencing innovation in the creative industries.

AVGC Task force along with "Atmanirbhar Bharat Abhiyaan" or Self-reliant India campaign are the major developments by the Indian government recently to boost up the Indian creative Industry and emerging policies on working toward the UN Sustainable Development Goals by 2030 (**Tulsyan, 2026**). India's Union Budget 2026–27 positions the country's "Orange Economy"—which includes a wide range of creative industries and the major focus of the announcement, during the budget speech by Nirmala Sitharaman, was the rapid expansion of the Animation, Visual Effects, Gaming and Comics (AVGC) sector and highlighted that the industry is expected to experience significant growth in the coming years and could require nearly two million skilled professionals by 2030 (**PIB, 2026**).

ANIME POPULARITY & REACH

The Japanese Animation genre known as Anime worldwide has been more popular among the youth especially after Covid-19. Anime being as an audio-visual medium that combines narrative storytelling, music, sound effects, conversation, and moving visuals can be an effective multimedia learning tool and in addition to that its mass reach and low cost production make it one of the decisive mass media tools in educating and achieving the Sustainable Development Goals. The anime market in India is expanding more quickly, indicating a structural change from a niche subculture to a mainstream entertainment economy, according to a recent industry research by **Market, P. (2024)**. According to the analysis, the market is expected to develop at a compound annual growth rate (CAGR) of 13.3%, from an estimated USD 1.64 billion in 2023 to over USD 5.03 billion by 2032. Market P. (2024).

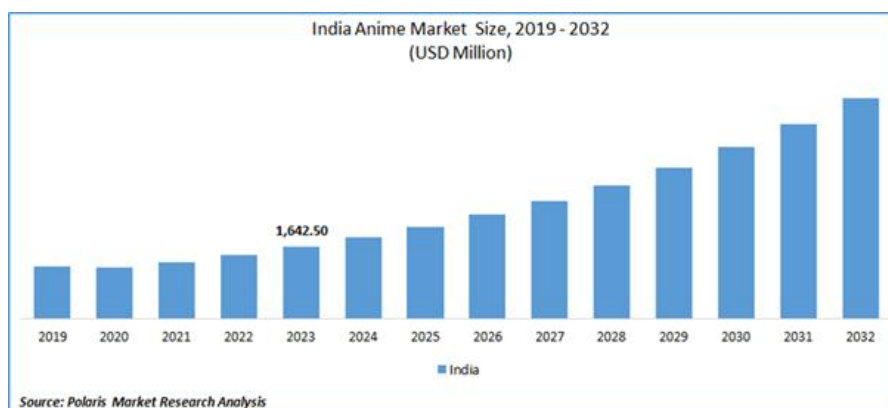


Figure1-

<https://www.polarismarketresearch.com/assets/images/media/India%20Anime%20Market%20Share.png>

As Brzeski (2022) found and reported in the Hollywood Reporter, the growing international streaming distribution, transmedia monetization models, and highly active fan communities, are the key reasons for the sky-high popularity of anime. On the other hand, Kumar (2026) through his report also has indicated a broader transnational convergence between Indian epic cinema and Japanese animation aesthetics after Indian filmmaker S. S. Rajamouli showed the increasing interest in adoption of the anime genre and identifying its potential as a unique narrative form of storytelling with greater emotional effect and opening up new creative opportunities. He has positioned anime as one of the most profitable and globally significant genres in modern media economics as compared to live-action production industries even in the COVID-19 epidemic which further enhanced its commercial reputation and quoted it as **“World’s Most Bankable Genre”**.

THEORETICAL FRAMEWORK

SOCIAL LEARNING THEORY

With observational learning, individuals can learn new behavioral patterns by observing role models and then using what they’ve learned in real-world situations as framed by The Social Learning theory of Albert Bandura, (1977). In accordance with this theory, a person can learn from everyday interactions in addition to standard learning models by seeing patterns and copying them. In the context of animation, teenagers often observe the actions, attitudes, and problem-solving approaches of animated characters and may adopt similar behaviors in their real lives (Sanusi and Akinola, n.d.). When animated characters display positive qualities such as honesty, teamwork, empathy, creativity, discipline, and social responsibility, teenagers are more likely to internalize and imitate these constructive behaviors. In this way, animation can positively contribute to personality development, moral learning, communication skills, and cognitive growth among teenagers (Bandura, 1977; Sanusi and Akinola, n.d.). As proposed by

Albert Bandura, children often repeat activities they see in animated characters, especially when those scenes seem satisfying or socially acceptable. As a result, well-narrated animation can serve as a useful teaching tool for encouraging good social values among the children and shaping their future behaviors and social responsibility. Ling & Muhamad, (2025) have found the potential effect and advocated an appropriately animated narrative design for ensuring a positive impact on the behavior formation of the audience provided excluding depiction of unrealistic stunts or violence with suitable disclaimer. Similarly Mohamed & Abd Aziz, (2021) in their research also identified that up to some extent, respondents have improved cognitive and affective abilities through media exposure and are effectively abled in expressing emotions through appropriate emotional responses. The researcher tries to highlight the impact of animated contents on masses by pointing out about the animation giants like Disney and Pixar, who through their respective animated movies, have already been challenging year old gender norms in society by focusing on “soft feminist” narratives as identified by Schiele et al., (2020).

Their study argues that these films provide youngsters different perspectives of identity, aspiration, and relationships by showing girls overcoming patriarchal expectations, ignoring strictly household responsibilities, displaying characteristics usually labeled as masculine, and redefining love through sisterhood, friendship, and familial ties. By diversifying female leads and reframing love, Disney and Pixar helps young audiences to value Gender Equality & Reduce Inequality and have set-up a creative model for others.

NARRATIVE TRANSPORTATION THEORY

Green & Brock (2000) have given a communication and media theory which says that an individual deeply engaged at the deep mind states in a story like in a meditated realm resulted in highly focused and abstaining from real world named Narrative

Transportation. It is a kind of experience where imaginative, attentive & emotive senses are focused on all the narrative events. Individuals experience narrative transportation when they are fully immersed in a story, empathizing with characters and imagining future events. This immersion is an effective tactic for communicators since it can have a beneficial impact on attitudes, beliefs, and behaviors (Thomas & Grigsby, 2024b).

People temporarily depart from reality and enter the "story world" when they are fully engaged in a story. They develop an emotional bond with the characters, vividly imagine the events, and become more open to the concepts, principles, and lessons conveyed in the story during this process. According to Green & Brock (2000), audiences interpret stories differently than they do regular informational content, which gives narratives a special ability to influence.

Animation & Cognitive theory of multimedia learning (CTML)

As analyzed by Mayer (2024) in his research article "The Past, Present, and Future of the Cognitive Theory of Multimedia Learning", the "Cognitive theory of multimedia learning (CTML)" provides a

blueprint for students in acquiring and constructing a meaningful knowledge from words and images. According to the theory, meaningful learning occurs whenever a combination of verbal and visual information activates balanced cognitivism in processing information and activating prior knowledge likewise when an instructor presents a scientific idea using an animated sequence, the learner can process the lesson through the auditory channel while also processing the animation visually.

According to Mayer & Moreno's (2002) study article "Animation as an Aid to Multimedia Learning," animation holds great potential to improve human learning if the seven principles of the cognitive theory of multimedia learning are applied effectively. Animations that follow specific, scientifically proven design principles are more effective like replacing long written descriptions with animated images or images in motion, the use of symbols, and highlighting important details with color. Multimedia presentations should be created in a way that encourages the cognitive processes of organizing, integrating, and choosing that are necessary for meaningful learning

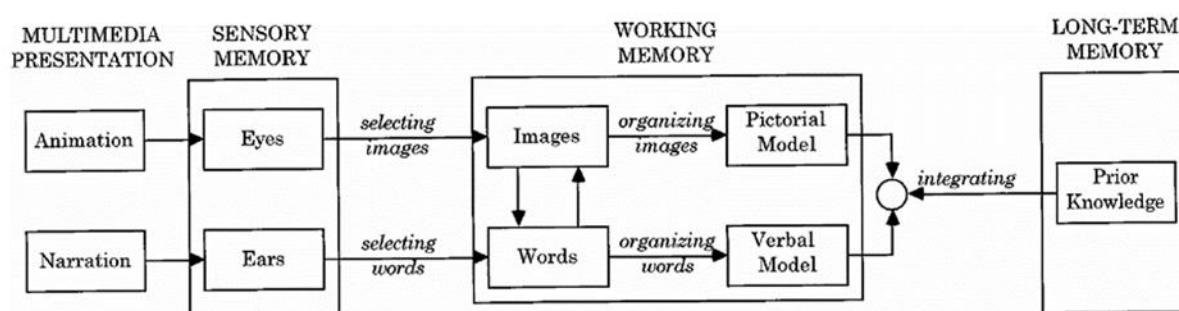


Figure 2- Mayer, R. E., & Moreno, R. (2002). Animation as an Aid to Multimedia Learning. *Educational Psychology Review*, 14(1), 87–99. <https://doi.org/10.1023/a:1013184611077>

As described in the Figure-1, overall, a multimedia presentation would be successful in providing information to both types of learners if some favour verbal presentations and others prefer visual ones. Learners could choose their preferred delivery method in this way. Multimedia presentations should therefore lead to higher learning than single medium presentations. **Khurshid et al., 2018, Hernandez-de-Menendez et al., 2020; Inangil et al., 2022 and Knapp et al., 2022; Yeh and Yang, 2024**, all have concluded that animation is a new age teaching aid and motivational factor in learning because of the effectiveness of this moving imageries in conveying complex concepts & information and the interactivity of Animated learning resources.

A strong theoretical ground laid by The Cognitive Theory of Multimedia Learning (CTML) for Multimedia learning environments & tools to

contribute better interpretation and retention of knowledge and information. Numerous previous studies have shown that Anime has the ability to impact its audiences through both the visual and auditory channels of cognition. Narrative engagement encourages learners to follow the sequence of events, which promotes deeper cognitive processing and helps them remember information more effectively.

PHYSICS WALLAH ANIME WEB SERIES

The founder and CEO of Physics Wallah, Mr. Alakh Pandey is an Indian educator, motivational speaker, and entrepreneur who in 2016 began his teaching journey through YouTube by uploading Physics lectures for JEE, NEET, and CBSE students. Today Physics Wallah grew into one of India's leading edtech platforms and India's first anime-based open source educational web series for Class 10 students, integrating AI-driven animation, storytelling, and

curriculum-based learning in Mathematics and Science and available on the new YouTube channel

PW-Creations.



Figure 3-Alakh Pandey - Class 9th & 10th. (2025, December 20). Launching CLASS 10 ANIME Webseries || @PW-Creations1 Complete Maths & Science || FREE. YouTube.
<https://www.youtube.com/watch?v=NhaIjNpNuS8>

OBJECTIVE

RO1. To evaluate the effectiveness of anime-based storytelling in enhancing educational engagement and conceptual understanding among Indian youth.

RO2. To analyse the future possibility of anime-style educational content promotes awareness and perception of Sustainable Development Goals (SDGs) among the youth.

RESEARCH DESIGN & APPROACH

These Anime based web series videos are only focusing on Math, Physics & science. The Science stream has more videos, views and more comets.

(Figure 4 & 5). The study's qualitative exploratory methodology is enhanced by content analysis techniques. YouTube comment sections were used to study audience responses to educational videos based on anime in order to understand their emotional, cognitive, and educational reactions. Top 30 comments from one video from each stream with highest viewed and comments has analyzed. On the other hand a total of 6 participants were asked to watch these videos and responses were collected from them through a structured Likert-scale questionnaire

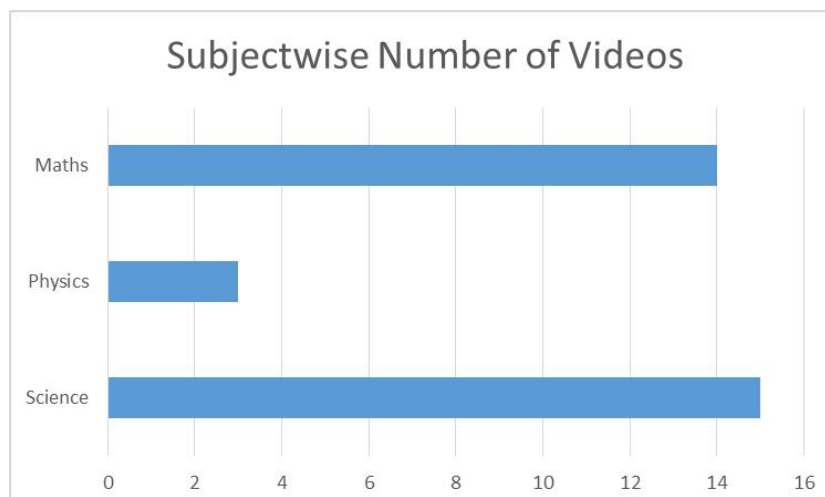


Figure 4- Alakh Pandey - Class 9th & 10th. (2025, December 20). Launching CLASS 10 ANIME Webseries || @PW-Creations1 Complete Maths & Science || FREE. YouTube.
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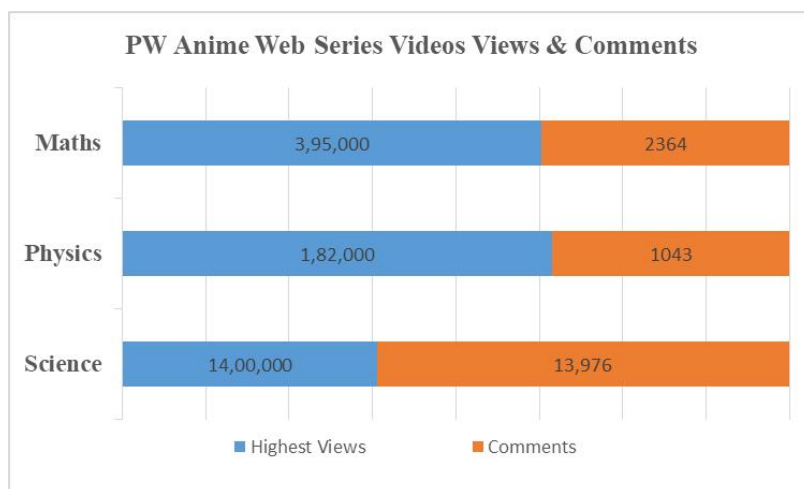


Figure 5- Alakh Pandey - Class 9th & 10th. (2025, December 20). Launching CLASS 10 ANIME Webseries || @PW-Creations1 Complete Maths & Science || FREE. YouTube.
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FINDINGS

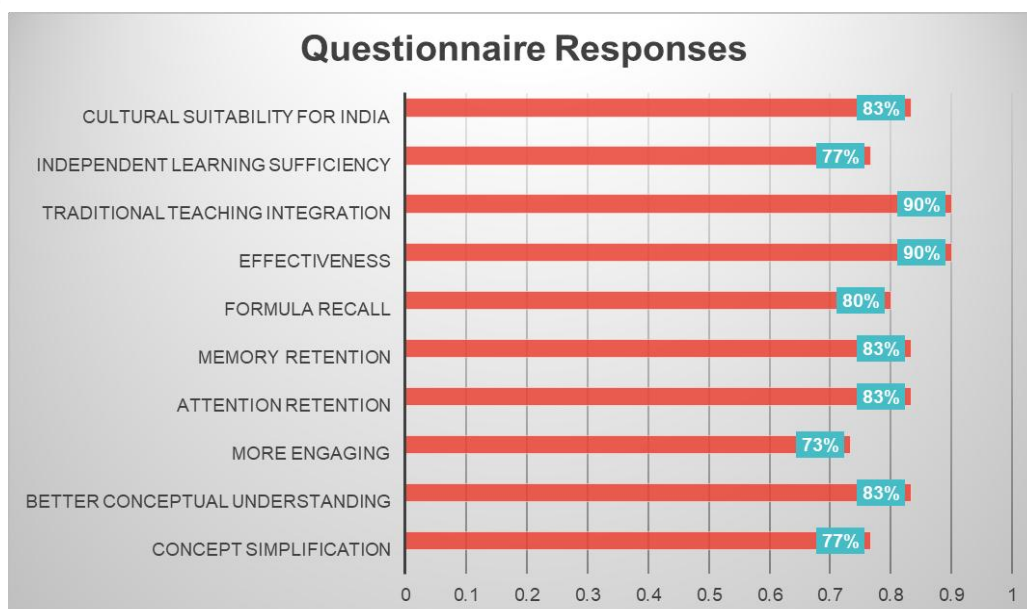


Figure 6- Questionnaire Responses

The statistical findings based on responses from 6 animation students reveal highly positive perceptions toward Anime as an effective Media Tool for education and awareness. Respondents significantly agreed that visual storytelling improves conceptual understanding and engagement among learners compared to traditional old methods. The findings indicate that anime-based storytelling enhances memory recall, emotional immersion, and attention retention when learning mathematics and physics (Figure 6).

Main Themes in Discussion

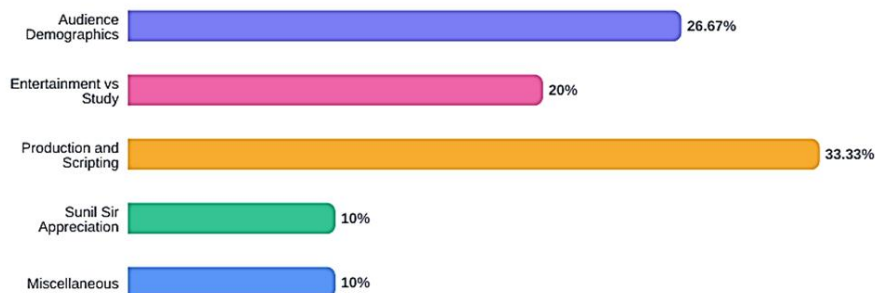


Figure 7-Chemical Reactions & Equations One Shot Class 10 Chemistry Oops I Joined Spy School Ep 1

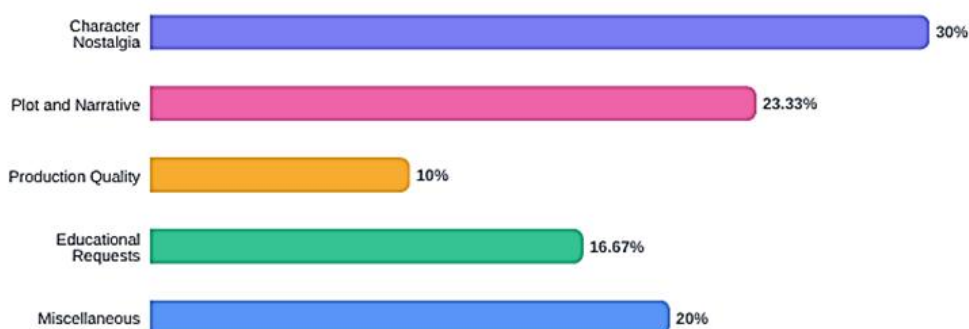


Figure 8- Real Numbers One Shot | Class 10 Maths Anime Series Ch 1_Trust Issues Ep 1

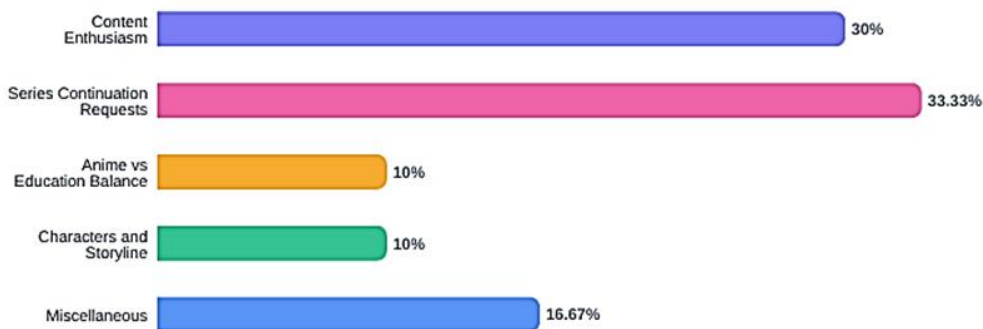


Figure 9- Magnetic Effects of Electric Current Class 10Anime FULL EPISODE Complete Chapter 12

A comparison of the three anime-based educational videos revealed that the audience's engagement with anime-integrated learning was overwhelmingly positive. Among the primary subjects of discussion were production quality, character nostalgia, instructional efficacy, and striking a balance between enjoyment and knowledge. Viewers frequently commended this strategy for making challenging subjects more fascinating and emotionally engaging through the use of animation and storytelling which makes difficult subjects more interesting and emotionally engaging. High virality scores revealed a huge organic demand for anime-style educational

content among Indian youth in modern digital learning contexts, while Sentiment analysis demonstrated great audience agreement and high favourable reactions across all videos.

Conclusion

Despite the consideration as "World's Most Bankable Genre" and a massive popularity of Anime among the Indian youth current literature largely focuses on conceptual learning, emotional engagement, and edutainment, there is a lack of research examining its effectiveness in promoting sustainability awareness and SDG-oriented thinking among youth audiences. The role of anime

storytelling in shaping social responsibility, environmental consciousness, and sustainable development awareness remains underexplored. The novelty of this research is that it raises question about the potentiality of Anime as a medium for promoting sustainable development awareness among Indian youth through emotionally immersive digital narratives.

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