

Research on the Mechanism of New Media Platforms in Promoting Innovative Behavior of Youth: Based on the Case of Tiktok

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ABSTRACT

With the rise of new media platforms, more and more popular science videos are becoming increasingly popular. An increasing number of studies focus on the relationship between TikTok platform and innovative behavior. Based on the development cases of TikTok, combined with case studies and in-depth interviews, this article studies how new media platforms affect the innovative behavior of young people, so as to provide scientific basis for the design optimization of new media platforms such as TikTok, help the platform better serve young people users, and create a good environment conducive to the development of innovative thinking. At the same time, relevant government departments can draw on the data and conclusions provided in this study when formulating policies on youth internet use, digital literacy education, etc., to ensure that policy measures are more precise and effective.

KEYWORDS

New media platform; Youth; Innovative behavior; Social psychology

1 Introduction

The Internet is regarded as the foundation of the new media platform, and the commercialization of the Internet began in the early 1990s, so it can be said that the concept of the new media platform was roughly formed at that time. On this basis, many scholars and technical experts have begun to explore how the internet change the way information is disseminated, such as Nicholas Negroponte's 1996 book "Being Digital" discussing the impact of the digital revolution on society^[1]. As time goes by, the study of innovative behavior has gradually developed. With growing emphasis on education and psychological development, researchers have started to focus on adolescents' creativity and innovation abilities. J.P. Guilford (1950s) proposed a structural model of intelligence, which includes divergent thinking, an important aspect of creativity research. The uncertainty of the meaning of "creation" has led to diverse perspectives on the meaning of creativity. A representative viewpoint emphasizes that creativity is the ability to produce novel and useful products^[2]. J. P. Guilford's work laid the foundation for later research on adolescent creativity; Robert J. Sternberg (1980s-present): The development of the theory of creativity emphasizes the relationship between creativity, intelligence, and knowledge, which is of great significance for understanding how adolescents demonstrate innovative abilities in different contexts. Therefore, the purpose of this article is to explore how Tiktok can promote teenagers' innovative behavior, and finally build a theoretical model of new media platform to promote teenagers' innovative behavior.

2 Literature review

2.1 New media platforms

New media platforms can be roughly divided into the following genres: social media, such as Facebook, Twitter, Instagram, TikTok, etc., which focus on interactive communication between users; Content sharing platforms, such as YouTube and Bilibili, primarily allow users to upload and share videos and other content; Instant messaging applications such as WhatsApp, WeChat, etc., focus on providing instant messaging services. With the rise of these new media platforms, researchers have begun to pay attention to the impact of social networks on individuals and society. For example, Dana Boyd and Nicholas Christakis conducted in-depth analysis of social behavior on social media.

2.2 Innovative behavior

The research on adolescent innovative behavior can be roughly divided into the following schools: the cognitive development school emphasizes the development of adolescent cognitive abilities, especially abstract thinking, problem-solving skills, and critical thinking. Researchers in this school attempt to understand how these cognitive skills promote innovative behavior; The socio - cultural school believes that social and cultural backgrounds have a significant impact on young people's innovation ability, which includes the roles of family, school, and social environment. Researchers are concerned with how different cultures and social practices shape the innovative thinking of adolescents; The educational

practice school focuses on how to cultivate the innovative ability of young people in educational practice, including curriculum design, teaching methods, and evaluation methods. Researchers are concerned with what kind of educational strategies are most effective.

Each school also has certain shortcomings. The cognitive development school overemphasizes the importance of cognitive skills, neglecting the role of emotional and social factors. Although social and cultural schools emphasize the influence of social and cultural backgrounds, their explanations of specific mechanisms are not deep enough. The educational practice school lacks systematic research on the applicability of different educational strategies in different cultures and environments.

3 Research methods

This study adopts a case study: a detailed description and analysis of a case of the Tiktok platform, and uses one-on-one interviews: in-depth discussion of the interviewees' personal experience, views and feelings, so as to solve the following problems: study which functions or characteristics on the Tiktok platform can stimulate teenagers' curiosity and exploration; How do teenagers' interactions on TikTok (such as likes, comments, sharing, etc.) affect their innovative behavior? Study whether adolescents engage in innovative attempts due to following trends or group pressure in certain contexts; How educational science popularization videos can promote innovative behavior activities among young people across disciplines and multiple fields. Ultimately, a theoretical model was constructed to promote innovative behavior among young people through new media platforms.

3.1 Functions and characteristics of Tiktok platform and teenagers' curiosity and exploration desire

3.1.1 Curiosity and Exploratory Desire of Adolescents

The curiosity and exploratory desire of teenagers are subjective factors that cannot be ignored ultimately in promoting their innovative behavior

3.1.2 Generation mechanism

Physiologically speaking, adolescence is a period of rapid brain development, especially in the prefrontal part, which is responsible for advanced cognitive functions such as decision-making, problem-solving, and complex thinking. With the changes in brain structure, teenagers have more thoughts and questions about the world around them, which promotes the development of curiosity. Considering psychological development, adolescents are at a critical stage of finding their own identity, trying to understand who they are and their position in society. This internal need drives them to try new things in order to better understand their interests, abilities, and values. From the perspective of social and cultural environment, sharing, games, and collaborative activities among friends often bring new perspectives and inspirations, promoting exploration among them. The rich information channels in modern society (such as the Internet and social media platforms) provide teenagers with opportunities to contact various cultures and ideas, greatly broadening their horizons.

3.2 How can the functions on new media platforms stimulate teenagers' curiosity and exploratory desire

3.2.1 Community Building^[3]

The new media community provides rich and diverse content, covering multiple fields such as science, technology, art, culture, etc., to meet the needs of young people with different interests and hobbies. It also proposes special activities or challenges to encourage young people to participate and explore new knowledge and skills. By creating interactive spaces such as discussion forums and Q&A sections, teenagers can freely ask questions and receive answers from other users or experts. Simultaneously organize online and offline communication activities, such as live lectures, workshops, field visits, etc., to promote face-to-face communication and learning.

3.2.2 Personalized Content

The platform uses algorithms to analyze teenagers' interests, browsing history, and interactive behavior to recommend articles, videos, and other resources closely related to their personal interests. The platform provides functions such as "guess what you like" or "select based on your interests" to help teenagers discover more content that suits their taste, and designs personalized learning plans or skill improvement programs for teenagers. In participatory creative opportunities, invite teenagers to participate in content creation, such as writing blogs, creating short videos, or

participating in online competitions, to become a part of the content.

3.2.3 Cross border integration

In the cross - border integration of TikTok, interesting experiments and performances are combined. For example, in activities such as "TikTok Science Night" and "Mobile Science Class", scientists and TikTok experts work together to explain scientific knowledge in a way that is easy for young people to accept. For example, associate professor Zheng Chen and physics teacher Yongle Li , together with the creator of Tiktok Intangible Cultural Heritage, performed a large-scale experiment "lightning bath", revealing the unique performance of Tesla coils. Teenagers who see their favorite influencers interacting with scientists will pay more attention to scientific content, thereby stimulating their interest and curiosity in science.

3.3 Interaction (such as comments, shares, etc.) on Tiktok and teenagers' innovative behavior

3.3.1 Multiple interactive functions of Tiktok

So far, the interactive function of Tiktok software mainly includes three functions: like, comment and share. Through the influence of the three functions, it has greatly helped the generation of young people's innovative thinking

3.3.2 Thumbs up

Thumbs are a simple way for users to express their love, recognition, or support for video content. When the user likes a Tiktok video, a red heart icon will be lit below the video. For the audience, liking can help them quickly record the content they are interested in. For example, if a user likes a food making video and likes it, it can be easily viewed again in the future.

And the videos that are liked will be saved in the user's like list, and users can review these contents at any time. For creators, the number of likes is one of the important indicators to measure the popularity of a video. A higher number of likes can increase video exposure, because Tiktok algorithms tend to recommend videos with more likes to more users.

3.3.3 Comments

Comments are a way for users to express their opinions, thoughts, suggestions, questions, and other written content about video content. There is a comment box below the Tiktok video, in which users can enter text and post comments. Viewers can communicate directly with creators through comments. For example, in an electronic product review video, the audience can ask specific questions about the product's performance, price, etc., and the creator can reply, allowing the audience to obtain more detailed information.

Comments can also facilitate communication among audiences. Different audiences may have different opinions on the video. Users' interaction in the comment section, such as discussing a certain viewpoint in the video or sharing similar experiences, can broaden users' thinking.

3.3.4 Sharing

The sharing function enables users to send TikTok videos to other platforms or share them with other users. Users can click the share button below the video to choose to share on platforms like WeChat and Weibo, or directly with friends and fans on TikTok. For creators, user sharing can help videos gain wider dissemination. If a video is shared by a large number of users to other platforms, it will attract more viewers to pay attention to the creator's Tiktok account^[4].

3.4 Group effects and innovative behavior

3.4.1 Group effect

The group effect in Tiktok mainly shows that the audience likes, comments and shares the popular short videos after seeing them, thus forming a collective behavior. Social psychologist Archie proved the existence of the conformity effect through multiple experiments. Conformity refers to individuals changing their behavior or beliefs under group pressure to align with the majority of the group. He proved through multiple experiments in the 1950s that for experimental questions, if only one member of the group intentionally gives the wrong answer, group pressure will be generated, and the number of times the subjects accept the wrong answer reaches 13.6%; If three members intentionally answer incorrectly, the rate of participants accepting incorrect answers increases to 31.8%.

3.4.2 Imitation behavior^[5]

During adolescence, self-awareness is enhanced but psychological maturity is not yet complete, emotional regulation ability is weak, and emotional fluctuations are easily caused by external influences. When they see content on social media that triggers emotional resonance, teenagers will imitate this behavior and innovate to integrate into specific social circles, to gain a sense of belonging and emotional satisfaction. Therefore, a positive cycle has emerged, namely imitation and innovation.

3.4.3 The impact mechanism of group effects on innovative behavior

There are a variety of interest groups on Tiktok, such as popular science, handcraft, painting. In these groups, teenagers can be exposed to different knowledge and experiences. At the same time, the sense of competition within the group will encourage teenagers to strive to improve their innovation abilities. For example, in the dance challenge of Tiktok, when other teenagers jump out of the new and unique dance moves and get a lot of praise and attention, it will stimulate the competitive psychology of other teenagers and urge them to make efforts to innovate dance moves or performance forms to gain more recognition. Not only that, the group also provides opportunities for teenagers to collaborate. They can form teams to jointly create video content. During the collaboration process, the ideas and skills of different teenagers collide and merge with each other, resulting in more innovative works.

Teenagers will imitate the video content they are interested in when they see it on Tiktok. In the process of imitation, they will adjust and improve the original content according to their own characteristics and ideas, integrating their own creativity and style, and thus achieve innovation. Imitation is an important way for teenagers to learn new skills and knowledge. By imitating professionals or excellent creators on Tiktok, teenagers can quickly master some new skills and techniques, such as video editing, photography skills, painting methods. When they master these skills proficiently, they can apply them to their own creations and innovate and expand on this basis. In the process of imitation, teenagers will constantly try different contents and forms. By observing their own imitation works and feedback from others, they can better understand their interests and strengths, and discover their unique innovative directions.

3.5 Educational popular science videos and youth innovative behavior activities - based on case studies

3.5.1 Tiktok blogger—"Grandma Wu without brushing the question"

The blogger "Laolao Wu, who doesn't practice questions" is named Yuren Wu. She has been teaching college physics courses at Tongji University for many years and has served as the director of the Physics Demonstration Laboratory, the director of the Teaching and Research Office, a master's supervisor in educational technology, and the first station master of the Tongji University Physics Practice Workstation. After retiring in 2010, she continued to focus on popular science education for teenagers. In 2018, ten professors and PhDs from Tongji University jointly established the "No Brushing Questions Club" and began to try to spread popular science content through short videos in the same year.

3.5.2 The mechanism by which educational popular science videos promote innovative behavior among young people

Grandma Wu often uses everyday objects to conduct physics experiments and explain knowledge, such as using a badminton racket to talk about the positron electron collider, using a pot to talk about the spherical radio telescope FAST, and using a paper basket to talk about the CSNS scattering neutron source. She tightly combines physics knowledge with real-life situations, allowing teenagers to experience the existence and application of physics in familiar scenes. Not only that, Grandma Wu mentioned that physics is related to medicine, astronomy, chemistry, and biology, and interdisciplinary knowledge is also involved in science popularization. For example, when explaining physics knowledge in skiing, it may involve multidisciplinary knowledge such as the physiological structure of the human body and sports mechanics, helping teenagers establish interdisciplinary thinking.

Her video content will also start with the current hot topics. For example, during the 2022 Beijing Winter Olympics, taking the video of "Bing Dwen Dwen wants to learn Gu Ailing's difficult movements" as an example, Grandma Wu used the mascot Bing Dwen Dwen to imitate Gu Ailing's flying and rotating process in the competition, explaining how skiers use kinetic energy, potential energy, and center of gravity to complete difficult movements, and explaining the physical concepts involved, such as "friction" and "Galileo thermometer". Inspire teenagers' interest in physics through popular events, guide them to think about problems from different perspectives, and cultivate innovative thinking.

In the summer daycare class, Grandma Wu embarked on a scientific exploration journey with a fun question like "Can frogs fly?" She delved into the principles of strong magnetic fields and their wide applications in the field of science with her classmates. She cleverly turned the topic to "gliding" and asked, "What inventions do you associate with gliding?" This

instantly ignited the students' imagination and creativity, and the children rushed to the stage to express their ideas. Through this interactive approach, young people are encouraged to think actively and innovate boldly. These short videos of educational science popularization are bound to send out teenagers' innovative thinking, thus promoting the generation of innovative behavior and forming a positive cycle.

4 Conclusion

Based on the discussion of the above issues, we can construct a theoretical model for new media platforms to promote innovative behavior among young people.

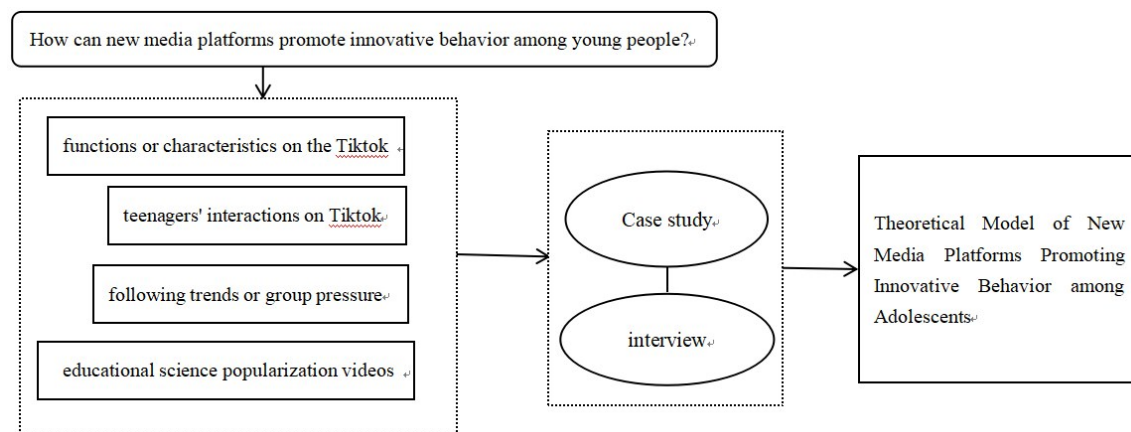


Figure 1 Theoretical Model of New Media Platforms Promoting Innovative Behavior among Adolescents

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