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# An Analysis of the Impacts of Short-Video Recommendation Algorithms on Students' Content Viewing Preferences

**Runze Xu**

School of Creative Media, City University of Hong Kong, Shenzhen, 518001, China

**Abstract:** Widely adopted by students for both information access and daily leisure, short video platforms use personalized recommendation systems to steadily shape teenagers' content choices and viewing habits. This article explores the mechanism by which short video recommendation algorithms affect the content preferences of students at different educational stages. The research adopts the method of literature analysis, integrates the online survey of minors in China Internet Network Information Center, the questionnaire of college students' media behavior, and the relevant results of Tsinghua University's media and information cocoon research, and conducts a comprehensive analysis in combination with communication literature. Research data show that most students passively receive algorithm-recommended content and have insufficient willingness to actively retrieve information. The algorithm relies on user tags to achieve precise distribution, which can not only broaden students' extracurricular knowledge boundaries, but also easily solidify their interest orientation, thereby forming an information cocoon. Students tend to view content that is more entertaining and fragmented, which will continue to weaken their ability to engage in deep viewing and independent thinking. Based on the cognitive development laws of adolescents, this article dialectically analyzes the dual impact of algorithms and proposes improvement ideas from the perspectives of individuals, platforms, campus education, and industry supervision, which can provide practical references for media literacy cultivation, algorithm optimization, and online protection of minors.

**Keywords:** Short Videos; Recommendation Algorithm; Student Group; Viewing Preferences; Algorithm Cocoon; Media Literacy.

## 1. Introduction

According to the *55th Statistical Report on the Development of Internet in China* issued by China Internet Network Information Center (CNNIC) in January 2025, the domestic short video industry has continued to expand at high speed after the popularity of algorithm distribution mode. By the end of 2024, the number of short video users in China had reached 1.04 billion, accounting for 93.8% of the total number of Internet users, of which minors and young students aged 10-24 accounted for 32.7% of the total number of users, and they are the core user group of the industry.

Today's mainstream short video platforms have completely replaced traditional manual classification and distribution mechanisms, with machine learning recommendation algorithms as the core. Based on user behavior data such as clicks, stays, and interactions, they complete content matching and build a distribution system of "proactive content delivery to users", which directly exerts impacts on student groups in the critical period of cognitive shaping [1].

A 2023 survey by Zhang Yu's team from the Education Research Institute of Tsinghua University showed that 74.2% of the surveyed teenagers had formed a habit of passively receiving algorithm-recommended content, and only 4.7% of users would actively engage in commenting, creating, and other operations. Students generally lack the willingness to independently filter information; according to a survey conducted by China Youth Campus Media in 2024, 61.7% of surveyed college students are aware that algorithms can narrow their scope of information exposure and cause content homogenization, but they cannot break their dependence on algorithmic recommendations. This phenomenon is in line with the core argument of Sunstein's "information cocoon" theory.

There are significant differences in the mental, self-control, and information discrimination abilities of students in different stages. Long-term immersion in algorithm-dominated homogeneous information flow can easily lead to fixed viewing preferences. Research in domestic universities shows that students who rely on algorithmic recommendations for a long time have a 27% lower proportion of interdisciplinary content reading. The impact of algorithms on knowledge structure and thinking patterns has been empirically supported.

Drawing on authoritative research data, this paper sorts out the operational characteristics of short video recommendation algorithms, analyzes their shaping path for students' viewing preferences, assesses the practical impacts of cognitive narrowing and fragmented attention, and proposes feasible optimization paths based on domestic network governance rules and the current situation of campus education.

## 2. The Running Logic of Short-Video Recommendation Algorithms and the Media Portrait of Student Users

To clarify how algorithms shape students' viewing preferences, this section first outlines the core operating mechanism of short video recommendation algorithms and the media portrait of student users.

The recommendation algorithms of mainstream short video platforms in China are mostly based on the core operating framework of "content recall - fine sorting - real-time

iteration", which is also the underlying logic that influences user content selection. In specific operation, the platform first conducts a content recall process and selects candidate content pools that match user characteristics from the entire site resource library based on basic tags [2]; then enters the fine sorting stage, and combines user behavior data such as video completion rate, liking, commenting, and forwarding to complete content weight sorting; finally, it dynamically adjusts tags and recommendation weights through real-time iteration, forming a dynamic recommendation loop. The design core of such algorithms revolves around extending user dwell time and improving user retention on the platform, with all distribution logic based on users' short-term behavioral preferences.

Based on data from QuestMobile's *Youth Mobile Internet Ecology Report* in 2024, the short video use behavior of domestic student groups shows distinct group heterogeneity. Data show that the usage rate of short videos among domestic primary and secondary school students has exceeded 90%, and the usage rate among college students is close to 98%; there is a significant gradient difference in the daily usage time of users in different academic stages, with middle school students generally having a higher daily usage time than college students. From the perspective of usage behavior, the student group's usage pattern is mainly passive browsing, with a relatively low proportion of users actively publishing original content and engaging in deep interaction. The vast majority of users' usage behavior only stays at the basic viewing level.

In terms of content selection, entertainment content is the core component of short video viewing, with daily life clips, interesting clips, film and television clips and other content having the widest audience. The proportion of viewing time for knowledge popularization content, professional learning, and humanities and arts content is relatively limited; the algorithm will prioritize pushing entertainment content with better interactive data, further amplifying users' preference tendency. There are significant differences in the interaction status between students in different stages and algorithms: primary and secondary school students have immature minds and weaker self-control, and are more easily attracted to fast-paced, stimulating content. They have the strongest dependence on algorithmic recommendations, and rarely actively seek content outside the recommendation stream; entering the high school stage, some students begin to actively search for learning videos, and the content selection gradually shows a trend of diversification; College students have stronger cognitive abilities and autonomy, and they actively search for academic, career, and interest-related content in addition to entertainment content. Their dependence on algorithmic recommendations has decreased, and they are more likely to detect content homogenization issues [3]. With the development of algorithmic logic and student behaviour at all ages, a system of viewing preferences for groups has begun to take shape.

# 3. The Evolution Process of Students' Content Viewing Preferences under the Influence of Algorithms

The effect of short-video recommendation algorithms on students' choices of learning materials does not follow a single path but is manifested in four types of interest guidance: behaviour-based feedback, tag amplification, group influence, and sensory direction. The following are the stages of development in this evolution.

Each user action, from a single click and a brief stay to a swipe of the next video, is logged by the platform's recommendation algorithm and coded as either a positive or negative behaviour signal. When students repeatedly interact with content in a certain category, the algorithm determines that it aligns with their interests and thus gradually increases the distribution weight of related materials. With time, this reinforcing feedback loop reduces the range of exposure for users; as a result, students tend to stay in familiar content areas and are unlikely to explore new ones, thus entering a period of stable viewing preference.

Stabilisation of user interest tags is to maintain a prolonged interest in the programme. Based on the user's long-term behaviour history, the algorithm constructs a personalised interest tag profile; after this profile is stable, it sets clear boundaries for the scope of content the user will be shown [4]. The speed of convergence for interest tags among student groups is relatively high compared to that of adults, and once locked, they are less likely to explore content independently. Many students have had the intuitive experience that by continuously watching short videos for several days, the perception of content homogenization caused by algorithms will become increasingly strong. The homepage content is highly similar, and there are almost no works with significant differences in style and theme - this is the core formation process of the information cocoon.

The student group has strong social attributes. The popular content shared among peers and the trending topics within the circle will have a synergistic effect with algorithmic recommendations. In small circles such as classes and clubs, popular short videos circulate at a very fast speed. After algorithms capture the common preferences of the group, they will further promote similar content. Ultimately, students within the same social circle have highly similar viewing preferences. This linkage effect is most prominent among primary and secondary school students.

Short videos are generally short, fast-paced, and highly impactful content, and long-term exposure will gradually raise students' content acceptance threshold. Students gradually find it difficult to adapt to long videos and pure text content with a gentle pace and high information density, and their viewing preferences are further inclined towards lightweight and entertainment [5]. This indicates that algorithms work together from the four dimensions of behavior, tagging, social interaction, and sensory perception to shape and solidify students' viewing preferences.

# 4. The Realistic Characteristics and Empirical Manifestations of Students' Viewing Preferences under the Influence of Algorithms

This study combines research data from multiple authoritative institutions in China, as well as statistical results of short video usage among students of different grades. Our analysis shows that under the influence of short video recommendation algorithms, four distinct patterns emerge in students' viewing preferences, all supported by empirical data.

We find that students show a clear entertainment-oriented tendency in content selection, and learning-related content is rarely pushed to the homepage. According to the 2024 survey data of college students conducted by China Youth Campus

Media, entertainment and leisure content accounts for the highest proportion of short videos that students usually watch. Over 80% of students open short videos to relax, while less than 20% of students use them as a channel for learning and acquiring professional knowledge. Since algorithms prioritize high-traffic content in distribution, entertainment content has much more exposure opportunities than learning content. Even if students actively search for learning videos, the algorithm will still quickly push back entertainment content, and in the end, the content that students come across will still be biased towards entertainment [6].

Information reception is largely fragmented. Most single short videos are only 15 seconds to 1 minute long, and the algorithm will continuously push them one after another. Students will watch dozens of fragmented content clips every time they watch a short video. Over the long term, students gradually become accustomed to shallow viewing and find it difficult to calm down and read long articles for in-depth thinking. The younger the students, the more obvious this problem becomes, and they may even develop a resistance to reading long texts [7].

Homogenization of content is another common issue. Multiple surveys on teenagers' online behavior have shown that over half of the students can clearly feel that the content pushed by algorithms is highly repetitive, and they can only browse content within a fixed range of interests for a long time, rarely seeing content from different perspectives or fields. The types of content that students actively search for themselves are much richer than those pushed by algorithms, which directly shows that algorithms will limit the scope of content that students can see.

Most student interactions remain superficial. Most students only watch short videos and then swipe away, with few interactions such as likes, comments, and shares. There are even fewer people who shoot their own short videos. Algorithms will allocate more traffic to professional creators and popular accounts, and the content posted by ordinary students themselves has almost no exposure, which also makes students more accustomed to only watching content without interaction or creation.

# 5. The Dual Reality Impact of Recommendation Algorithms on Student Populations

When sorting out research data on students' short video usage behavior, this study finds that the impact of recommendation algorithms is not one-dimensional - it not only caters to some of students' developmental needs, but also carries many easily overlooked developmental risks. These dual effects coexist and cannot be reduced to a simple binary judgment.

The most intuitive positive effect is reflected in the efficiency of information acquisition. Students who want to find introductory tutorials for niche interests or popular science content outside of textbooks often have to search through forums and resource websites, and for most of the day, they cannot find matching content. Nowadays, algorithms can quickly match content based on users' browsing history. Many students in rural areas are using the free teaching videos pushed by algorithms to add to the content that cannot be covered by local educational resources. This is also an inclusive benefit of algorithmic technology. Scrolling through a relaxing short video is indeed one of the ways many students have been relaxing. Short videos can help reduce students' stress and expand their world under good circumstances.

However, according to the survey results, algorithm-driven content distribution has several deficiencies; Information cocoons are by far the most frequently mentioned problems by the participating students. Many reported that after a week of daily short-video viewing, their homepage feeds became increasingly monotonous, and even when actively seeking content from other areas, they seldom found relevant material in the default recommendations. Over time, being in such a narrow window of information will reduce the number of viewpoints students encounter and hinder their ability to think critically [8].

Fragmented short-video content is also reducing students' attention spans to some extent. Due to the habit of short, high-speed 15-second clips, many students have lost their concentration for longer periods while doing other tasks, such as reading a multi-thousand-word academic paper or participating in a 45-minute class. Attention is at the bottom of all studies. Based on the traffic-first business model, these platforms have given more weight to sensational and eye-catching content, which may thus influence the values that students are still forming [9].

Not all students are affected by the algorithms in the same way. The Degree to which they influence a student's view of life depends on media literacy. Students who have set specific time limits for their screens and are actively exploring content from all fields are less likely to be lost in information cocoons. Those who lack self-discipline and cannot learn what they think online content is about will only keep watching the same short videos repeatedly. Platform features such as youth mode and various recommendation modes can be used in conjunction with continuous media literacy education at school to mitigate algorithmic biases. As algorithms are neither inherently harmful nor entirely without problems, targeted optimisations for the student user can be made more easily.

# 6. Implementation Path for Optimizing the Student Short Video Viewing Environment

No single group can promote good short-video-viewing behaviour among students on its own. Considering the mechanism of recommendation algorithms, students' media-use patterns and associated risks have been documented, so four parties need to cooperate: individual users, platforms, families and schools, and regulators.

Learn a few algorithm patterns and then learn how to organise them. They need to know that their personalised feeds are made up of all the data they have watched previously. With this consciousness, they will be able to increase the scope of their content creation actively, explore subjects outside their usual interests regularly, and avoid the echo chamber of homogeneous content. The platform has a "Youth Mode" to restrict how much time young people spend on their phones, limit unnecessary online scrolling, and protect their concentration from short, fragmented videos.

As main distributors of online content, short-video platforms are responsible for protecting underage users at present [10]. Algorithm Design should not focus solely on traffic volume and user dwell time; content diversity must be included in the weight. In addition to personalised recommendations, high-quality science, humanities and

education resources can be added to the user's feed. Set some tag conditions and, in this way, enhance the fairness of the algorithm. Increase the severity of the filter for low-quality and harmful content, and create a specific content area for young children.

Families and schools are the first places for teaching media literacy. Schools at all levels, from primary and secondary schools to universities, can integrate teaching content for media literacy and algorithm awareness into moral education classes and themed class meetings. Educators can take real-life cases to teach students about the merits and shortcomings of short videos, help them learn to identify harmful content, and manage their online time more effectively. Coordinated home-school guidance mechanisms help students develop rational media-use habits [11]. Campus reading programmes and interest clubs also enrich the extracurricular lives of students and gradually reduce their dependence on short videos.

Strictly enforce the rules in the "Regulations on the Protection of Minors on the Internet" at the industry regulatory level. The regulator will deal with the problems that have arisen due to algorithmic violations and harm to the public by taking countermeasures. They have also established a long-term supervision system to standardize the design of algorithms and rules for spreading content in the entire industry. When all four parties work together, they will be able to reduce the negative effects of algorithms and create a positive space for student growth in short videos.

# 7. Conclusion

Based on the systematic analysis of the survey data of many domestic authoritative institutions, this study focuses on the mechanism and dual impacts of short video recommendation algorithms on student group viewing preferences in the mobile Internet scenario. The research results show that algorithm dependence has become a common feature of students' current use of short videos, manifested in four major tendencies: a high proportion of entertaining content, fragmented information reception, obvious homogenization of viewed content, and overall shallow interactive behavior. In addition, the impact of algorithms on students shows significant hierarchical heterogeneity with different stages of education, and the negative effects are more evident in younger groups, especially in primary and secondary school students. Their self-control and information recognition abilities are not yet mature, and they are more likely to be dominated by algorithms in content selection. As a technological tool, the short video algorithm effectively reduces the threshold for information acquisition, promotes the cross-regional flow of high-quality educational resources, and to some extent narrows the educational resource acquisition gap between regions, providing diversified supply for teenagers' extracurricular life; on the other hand, the underlying logic of its traffic orientation can also lead to practical problems such as cognitive narrowing, sustained loss of focus, and deviation in value guidance, which may potentially constrain the development of students' deep thinking ability and comprehensive cognitive development.

Based on authoritative research data, this article summarizes the operational characteristics of short video recommendation algorithms, without involving the heterogeneity of algorithms on different platforms and the differences in usage behavior between urban and rural students. It also does not conduct targeted comparative analysis on the differences in algorithm exposure and usage behavior differentiation among students from different family backgrounds. Future research can adopt stratified sampling to cover more diverse student groups and expand analytical dimensions. In the long run, the iterative direction of short video algorithms needs to incorporate public value orientation beyond technical efficiency, balance technical attributes and humanistic attributes through a governance framework of multi-party collaboration, and construct algorithm ethical norms and content review standards that are suitable for underage groups. With the normalization of media literacy education, student groups will gradually form rational media usage habits, which helps maximize the practical value of short videos and supports their long-term development.

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