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Opportunities,Risks, and Governance of Youth Value Formation in the Context of Algorithmic Recommendation

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Abstract. Algorithmic recommendation has both opportunities and risks in the process of shaping the generation of young people's values. In terms of practical opportunities, relying on big data and machine learning, algorithmic recommendation can break the resource barriers of traditional value dissemination, achieve segmented value immersion, aggregate positive interest-based communities, help mainstream media complete digital transformation, and rely on data feedback to promote the dynamic iteration of value guidance strategies, opening up digital practice paths for the cultivation of young people's values in the new era. In terms of potential risks, the capital traffic logic, the shielding effect of the algorithmic black box and the two-way cultivation effect between humans and machines are intertwined, which will narrow young people's cognitive horizons, aggravate the divergence of group views, amplify the influence of emotional information dissemination, induce media dependence and individual behavioral alienation, and interfere with the construction of young people's value systems. To resolve the value risks derived from algorithms, one should not simply negate the technical tool itself; instead, the top-level legal supervision of the government should be improved and the algorithm value review system should be perfected; the main responsibility of platforms should be consolidated to cultivate a clear and prosperous online content soil; the algorithmic communication effectiveness of mainstream media should be enhanced with layered and classified integration transformation strategies; and young people's algorithm literacy should be strengthened to awaken subject consciousness at the individual level.

Keywords: algorithmic recommendation, young people, the shaping of values, algorithm governance

1. Introduction

Against the background of the deep popularization of artificial intelligence and big data technology, algorithmic recommendation has become the mainstream mode of Internet information distribution, reshaping the operational pattern of social information production, circulation and reception [1]. Manuel Castells proposed that in the network society, the structural characteristics of information flows directly shape the cognitive frames and value orientations of social actors [2]. Young people are the most active practice subjects in cyberspace, and also a barometer reflecting the development and changes of the times. Because the ideological trends and value choices of young people are

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continuously and deeply influenced by the online information environment, the values of individual young people will, to a certain extent, reflect the changes of the digital media environment. As "information finding people" gradually replaces the traditional "people finding information", the main field where young people obtain information, understand society and complete the construction of ideas has shifted to the algorithm-driven information-feed environment; this both helps expand the practical boundary of value education and brings brand-new ideological risks [3].

Synthesizing the domestic results since 2021 on algorithmic recommendation and young people's values, algorithmic ideological risks and algorithm governance, academic research can be roughly summarized into three main research threads. The first type is positive research from the perspective of technological empowerment, focusing on the application potential of algorithm technology for the cultivation of young people's values. Some scholars pointed out that algorithmic recommendation has become an important carrier for the dissemination of mainstream ideological discourse, promoting new patterns in the subjects, methods and fields of discourse dissemination, significantly improving the precision of discourse production and dissemination efficiency, and providing new tools for the digital dissemination of mainstream values [4]; other scholars further proposed that algorithms can break through the limitations of the traditional unified supply mode of ideological and political education, achieve precise identification, precise matching and precise push, promote the deep integration of algorithm technology and online ideological and political education, and expand the practical boundary of value guidance [5]. The relevant results fully affirm the instrumental value of algorithms; however, some studies have a tendency of technological optimism, and the discussion of the structural constraints brought by the embedding of capital logic into algorithms is insufficient [6].

The second type is ideological research from the risk-critique perspective, criticizing around the algorithmic black box, traffic logic and information cocoons. Scholars analyzed the ideological risks embedded in algorithms, revealed how the commercial traffic logic amplifies emotional narratives and aggravates the cognitive narrowing and group polarization of young people [7]; systematically analyzed the generation logic of the ideological risks of intelligent algorithms, pointing out that capital logic is an important root of algorithm alienation [6]; based on the contemporary extension of cultivation theory, explained how the information streams continuously output by algorithms subtly reshape adolescents' cognitive attitudes; and on this basis proposed that youth research should establish algorithm consciousness and be alert to the erosion of young people's subjectivity by algorithms [8]. This type of result sharply reveals the value concerns brought by technology, but some studies directly equate algorithms with the source of risk, and the excavation of the empowering potential of technology itself is insufficient, easily falling into one-sided critique of technological pessimism.

The third type is institutional and practice-oriented algorithm governance research, focusing on exploring risk resolution paths. Some scholars argued that algorithm governance should go beyond single-dimensional control of technology itself and turn to the systematic reconstruction of the algorithm-driven content ecology [9], proposed a multi-subject collaborative governance framework from the overall perspective of the algorithm society [10], and emphasized the important significance of algorithm and media literacy education [11]. It can thus be seen that existing governance research mostly proceeds from the single dimension of government-platform-individual, and there is still room for expansion in excavating the complex mechanism of the mutual construction of technology, capital and users, as well as the dialectical relationship of the integrated coexistence of "opportunities-risks". But existing results mostly lean toward one-sided affirmation of algorithm empowerment, or one-sided listing of various risks derived from algorithms; they

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rarely take the dialectical unity of danger and opportunity as the perspective, and lack a complete analytical framework connecting technical mechanism, real risks and collaborative governance. In view of this, based on the research perspective of the mutual construction of technology and society, this paper sorts out the multi-layer connotation and internal characteristics of algorithmic recommendation, distinguishes the real possibilities of algorithm empowering the shaping of young people's values, analyzes the value concerns derived from technical logic, and explores the optimization path of shaping young people's values adapted to the digital environment, striving to provide theoretical reference for carrying out ideological guidance of young people with algorithm technology.

2. The connotation and internal mechanism of algorithmic recommendation

Algorithmic recommendation is not simply a computer program running in the background, but a complex social-technical phenomenon formed by the interweaving of the multiple dimensions of technical logic, social power and user practice. From the perspective of technical logic, recommendation systems take data collection, user profiling and collaborative filtering as core mechanisms [12]; from the perspective of social power, algorithms encode the commercial demands of platforms and the value preferences of designers into distribution rules [10]; from the perspective of user practice, algorithms are the field of continuous interaction between users and digital systems [13]. Clarifying the multi-layer connotation and internal characteristics of algorithmic recommendation helps understand how algorithmic recommendation constructs the brand-new digital ecology in which the shaping of contemporary young people's values takes place, and lays an analytical foundation for the subsequent distinction of opportunities and risks.

2.1. The connotation of algorithmic recommendation

Existing research explains algorithmic recommendation from the three perspectives of technical tool, social power and user practice. Scholars either base themselves on the tool perspective, paying attention to the technical process of user modeling and content matching, or focus on the dynamic matching mechanism between the two ends of information supply and demand [1], sorting out the whole set of technical links of data collection, profile construction and content distribution [12]; or turn to the dimension of social power, seeing that code embeds the positions of designers and the structural biases of society, and that algorithms have ideological influence beyond the tool level [6, 10]. Different scholars have different emphases, but most only intercept one side of algorithmic recommendation, and rarely bring technical apparatus, power attributes and subject practice into a unified analytical framework. Synthesizing the above results, this paper defines algorithmic recommendation as a social-technical system with the triple superposition of "technology-power-practice": in the technical dimension, algorithms are intelligent information distribution tools with big data collection, user profile modeling, collaborative filtering and content label matching as the core, completing the automated allocation of information resources [1]; in the power dimension, algorithms encode the commercial demands of platforms and the value preferences of designers into distribution rules, and can implicitly intervene in the visibility and dissemination priority of online information [6, 10]; in the practice dimension, algorithms are the field of continuous interaction between young people and digital systems; young people's browsing behavior continuously trains the model, and the content output by algorithms in turn acts on individual cognition, with two-way interaction participating in the generation of the individual's world of meaning [8, 14].

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This three-dimensional operational definition fits the theme of shaping young people's values. The generation of young people's values both receives external information supply and completes subjective construction in individual practice. If algorithms are only understood as information distribution tools, the transformation of young people's information environment by capital and value bias will be ignored [6]; if only power critique is emphasized, it is easy to ignore that young people, as active subjects, can reversely influence algorithm output [8, 14]; only by taking into account the technical apparatus, hidden power and two-way user practice at the same time can we completely explain how algorithms bring both value cultivation opportunities and ideological risks, providing an analytical fulcrum for the overall analytical framework of opportunities-risks-governance of this paper.

2.2. The characteristics of algorithmic recommendation

The various technical characteristics of algorithms are the internal root that gives rise to the opportunities and risks of shaping young people's values [6, 13, 15, 16]. The characteristics of algorithmic recommendation are specifically manifested in the potential of value "drip irrigation" under precise matching, the risk of value "picky eating" under traffic orientation, and the possibility of value "domestication" under human-machine mutual construction.

2.2.1. The potential of value "drip irrigation" under precise matching

Personalization, intelligence and adaptability together constitute the technical background of algorithmic recommendation. The whole set of adaptive operation is implemented through the three specific technical mechanisms of user profiling, collaborative filtering and user behavior feedback. Platforms collect multi-dimensional behavioral data of young people such as age, browsing, likes, staying and jumping, and build dynamically updated user profiles; collaborative filtering algorithms compare group and individual interest tags to complete the preliminary matching of content resources; each interactive behavior of users is fed back into the system as external feedback data, continuously correcting profile parameters and iterating subsequent content push results, thus realizing system-level adaptive evolution. Traditional value education leans toward the "flood irrigation" mode, with unified content facing all groups, and it is difficult to take into account the real differences of different youth groups [5]. Relying on the technical mechanisms of profiling, collaborative filtering and real-time feedback, algorithms can achieve the drip irrigation effect of precision to the person and action at the right time, differentially output value content according to young people's age, occupation, interests and real situations, match suitable narrative content for different groups, dynamically adjust content supply following the changes of young people's states, break the real predicament of limited coverage and insufficient pertinence of traditional propaganda and education, and provide technical conditions for the refined implementation of value guidance.

2.2.2. The risk of value "picky eating" under traffic orientation

Algorithms have significant value-loadedness, and their operating logic is quite hidden from ordinary users [6, 13]. Under the shielding of the algorithmic black box, ordinary users hardly know the content screening standards and weight allocation logic, and the value bias hidden behind the technology is easily covered. Internet platforms belong to the business model of traffic monetization, and the platform's commercial interest chain is built on the two core goals of user duration and advertising conversion. Completion rate, comment volume and forwarding interaction

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rate are not pure statistical indicators, but intermediate variables of the platform's commercial profit chain: emotional conflict and sensory stimulation content more easily grab attention, raise user stay time, and thus increase advertising inventory value. Rational and speculative grand narratives often require users to invest high cognitive costs, and it is difficult to create high interaction data within a short cycle, so they are naturally at a competitive disadvantage under this interest structure. Capital traffic logic is responsible for setting indicator orientation, and the algorithmic black box is responsible for shielding the operation process of this interest logic; the two are coupled to give birth to the value picky-eating effect. Platforms transform traffic performance into internal weights of algorithms, emotional and entertainment content gains dissemination tilt, and the living space of deep rational content is continuously squeezed. Ordinary young people can only see the final information stream output by algorithms, can hardly identify the intervention of the business model behind the indicators, and after long-term soaking in an information environment biased toward entertainment and emotion, individual value cognition will be subtly interfered with [6, 7].

2.2.3. The possibility of value "domestication" under human-machine mutual construction

Algorithm push has initiative and can be separated from users' explicit search instructions, continuously outputting content predicted to interest them [12]. The operation of algorithms cannot be separated from the input of user behavior data; every click, stay and comment of users will promote profile iteration and reversely change subsequent push results, forming a close two-way relationship. On the one hand, young people can adjust the information stream through operations such as liking, blocking and swiping away according to their own information needs, that is, users domesticate algorithms; on the other hand, the continuous output of algorithm content continuously shapes the individual information environment, completing the cultivation of users by algorithms. Two-way interaction does not always maintain balance, and there are mainly two situations of imbalance: first, young people's information retrieval ability is insufficient, they are used to passively scrolling information feeds, and rarely actively retrieve diverse heterogeneous information; second, the platform's traffic logic dominates the push, deliberately amplifying emotional and entertainment content and compressing the supply of diverse public issues. When the two conditions are superimposed, the phenomenon of "the subject who domesticated the algorithm, in turn being deeply reshaped by the algorithm" will appear [14, 16].

3. The positive value of algorithmic recommendation in empowering the shaping of young people's values

Algorithmic recommendation driven by big data and artificial intelligence has become the main way of domestic socialized information distribution; short video, social information and converged media platforms widely use user profiling and collaborative filtering models to carry out personalized distribution [1, 13, 17]. Algorithms can break the traditional media communication paradigm of "people finding information" and unified indoctrination, build a precise communication system of "information finding people", complete layered modeling of youth groups relying on multi-dimensional user tags, and achieve segmented, scenario-based and long-term value immersion. The underlying code of algorithms can implant public value standards, providing a brand-new digital carrier for the cultivation of young people's values in the new era. Compared with traditional offline ideological and political classrooms and unified propaganda pages, which have shortcomings such as limited coverage, single form and insufficient pertinence, algorithmic recommendation can form a complete positive empowerment system from the five dimensions of cognitive supply, segmented

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guidance, community cohesion, media empowerment and dynamic feedback, broaden the boundary of mainstream value dissemination, and improve the depth and breadth of young people's value identification.

3.1. Breaking down media resource barriers and providing inclusive supply of diverse value cognition materials

Castells' network society theory proposed that the gap in resource distribution in the network era is largely reflected in the gap in information acquisition opportunities [2]. The dissemination of traditional mainstream values has long had the triple resource barriers of region, channel and time [4, 5]. Offline red study tours and ideological and political lectures are concentrated in urban campuses, and young people in counties and townships as well as migrant workers can hardly regularly access high-quality red education resources. Traditional print media and television rely on fixed pages and time slots to push content, the update rhythm is limited, young people need to actively search to access theoretical content, and subjectively they are prone to resistance to propaganda. Relying on cloud distribution and big data tag systems, algorithms can narrow the resource distribution gap under certain conditions and realize inclusive value supply for all groups and all scenarios. Research on the digital divide and the knowledge gap suggests that technical tools do not necessarily dissolve information inequality; hardware access conditions, media literacy and individual interest preferences will still cause new information differentiation, and the application process of algorithms also has the real risk of aggravating the knowledge gap [10, 15]. Algorithms can adapt to young people's fragmented media scenarios and realize the normalized penetration of value content. Young people's daily short leisure time such as between classes, commuting and before sleep is the main Internet use period; long theoretical articles and complete documentaries are difficult to fit short-time reading habits. Algorithms can automatically complete content tag classification, decompose mainstream value content into lightweight forms, and automatically match content duration according to use scenarios. Algorithms can build a multi-level mainstream content resource pool, improve young people's three-dimensional cognitive framework, take into account grand theoretical narratives and micro individual stories, and lower the threshold of access to mainstream content.

3.2. Layered and segmented precise distribution to enhance young people's emotional value empathy

The technical philosopher Simondon pointed out that the social utility of technical objects is built on the adaptation to the real situations of different subjects [18]. Youth groups have significant differentiated characteristics; middle school students, college students, flexibly employed young people and overseas young people are completely different in growth confusions, interest preferences and real demands [5, 17]. The traditional content system's propaganda mode facing everyone is divorced from the real life of young people, has a strong sense of preaching, and the dissemination effect is greatly reduced. Algorithms rely on the three-layer user profiles of fact tags, model tags and prediction tags to precisely distinguish youth groups, realize customized value push of thousands of people and thousands of faces, fit the real confusions of different young people, and shorten the psychological distance between mainstream narratives and young people. Algorithms can match suitable content by group: pushing red youth and rule-of-law safety education content to primary and secondary school students; pushing grassroots selection and science and technology innovation youth documentary related content to college students; pushing model worker deeds and

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support policies to young migrant and entrepreneurial workers; spreading Chinese cultural achievements to overseas young people, responding to the real ideological confusions of different groups. Algorithms can build a bridge of value dissemination with interest as the bond, capture young people's interest tags, and jointly push positive energy materials in the same field. At the qualitative level, it can be observed that narrative content fitting interest preferences is more likely to be completely browsed, forwarded and shared by young people; relying on endogenous interest to complete value acceptance, its empathy effect is better than one-way forced preaching. Algorithms can also rely on prediction tags to capture young people's periodic ideological fluctuations, push corresponding inspirational content during the graduation season and exam preparation periods; prioritize official interpretations during the fermentation stage of social hot events, carry out value guidance in advance, and continuously dissolve the estrangement between young people and mainstream narratives.

3.3. Aggregating positive interest-based communities and consolidating collective value consensus through circle communication

Communities in the network society no longer completely rely on geography and blood ties; interest and value identification have become important connecting bonds of online communities [2, 19]. Collaborative filtering algorithms can mine user interest and opinion similarity, automatically aggregate young people with positive value pursuits, and form benign interest-based communities such as online red reading communities, volunteer service alliances, science and innovation exchange circles and intangible cultural heritage study groups. The circle model breaks geographical restrictions, can build a normalized value exchange field for young people, realizes circle fission communication through peer opinion leaders, and continuously consolidates collective value identification. Positive online communities can build a stable value exchange space; young people in different places exchange party history learning and education and volunteer service experiences online, and carry out equal discussions around dedication, patriotism and hard work. The continuous collision of views within the community can weaken individual one-sided cognition and strengthen collectivist consensus; online communication can also be transformed into offline volunteer and study tour practice, promoting the landing of value cognition into real action. Algorithms can cultivate peer opinion leaders such as returning entrepreneurs, university lecture bloggers and young volunteers through traffic support. These creators use vlogs, talk shows and situational short dramas to interpret theory, which better fits young people's discourse habits. Positive energy materials with high likes and forwards within the community get secondary push, forming a positive content dissemination closed loop; the circle atmosphere continues to improve, young people abandon money-worship negative concepts in the group atmosphere, and consolidate the common value foundation of the whole society.

3.4. Empowering the intelligent transformation of mainstream media and broadening the value dissemination front of the whole network

Technology has instrumental attributes; the degree to which communication subjects master technology directly determines the actual effect of value guidance [20]. Algorithm technology can promote party media at all levels and converged media centers to complete digital upgrades; self-developed party media algorithms can break the traffic shackles of commercial platforms, and at the same time open up short video and social platform distribution channels, can build an all-media value dissemination matrix, and firmly grasp the leading power of youth online public opinion.

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Mainstream media can self-develop exclusive value-oriented algorithms;*People's Daily*, Xinhua News Agency and other head media have built exclusive recommendation systems, set higher weights for socialist core values and red documentary content, do not simply allocate traffic by completion and entertainment degree, specially open youth recommendation zones, independently control content distribution logic, do not attach to the traffic rules of commercial platforms, guarantee the exposure of main melody content from the technical bottom layer, and avoid commercial traffic diluting the mainstream dissemination intensity. Converged media centers and government affairs accounts at all levels settle on platforms such as Douyin and Bilibili; according to regulatory requirements, platforms can provide traffic support for current political and red content and expand the reach of young people. In the past, traditional media only relied on their own clients, with limited audience scale; with the help of algorithm-wide distribution, a single youth-themed short video can cover tens of millions of users, achieving a leap in dissemination magnitude. Mainstream media actively adapt to the rules of short video creation, simplify grand narratives, use story-based short films to fit the characteristics of algorithm communication, complement their own clients, short video, public accounts and live streaming channels, cover all online use scenarios of young people, and continuously consolidate the online mainstream public opinion front.

3.5. Data feedback closed-loop operation to realize dynamic iterative optimization of value guidance

Social governance in the digital age can rely on data feedback to complete dynamic adjustment, so as to respond to constantly changing real social risks [21]. The complete data collection, analysis and adjustment closed loop of algorithms can quantify young people's content preferences, ideological hotspots and resistant content, provide precise audience research for mainstream media and ideological and political work, and continuously iterate the content and form of value dissemination. Platform backends count in real time behavioral data such as completion, comments, blocking and jumping, clearly showing that young people prefer story-based narratives and reject empty theory, and highly focus on issues such as employment, cultural confidence and grassroots development. Creators can adjust the direction of creation based on data, reduce rigid preaching, and increase youth figure documentaries; for content with low interaction, the narrative style can be optimized in time, forming a complete cycle of research-creation-distribution-feedback-optimization.

At the same time, we must fully recognize that data feedback itself has inherent limits [21]. What the platform backend collects is only quantifiable external behavioral data such as user clicks and stays; behavioral data cannot be completely equated with young people's real ideological attitudes and internal values. Surface behaviors such as liking and watching videos cannot distinguish whether young people genuinely identify with the content or browse the content merely out of curiosity and recreation.

Therefore, the iterative optimization of value guidance cannot only rely on platform quantitative data; we must promote the mutual integration of algorithm behavioral data and the traditional qualitative feedback of ideological and political education [10, 22]. On the one hand, give play to the advantage of big data in quickly capturing communication phenomena and grasp the trend of changes in young people's content preferences; on the other hand, insist on introducing qualitative research methods in the field of ideological and political education such as questionnaire surveys, offline symposiums, youth interviews and classroom observation to deeply excavate the real ideological motivations behind behaviors. Compare and verify the two types of information, bring young people's real ideological demands into the adjustment basis, let dynamic iteration truly serve

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value guidance rather than traffic optimization, and continuously improve the leading effectiveness of mainstream value dissemination. Overall, algorithmic recommendation relies on the five paths of inclusive supply, segmented communication, community cohesion, media empowerment and data optimization, can effectively make up for the shortcomings of traditional value propaganda, and by insisting on mainstream values steering algorithms, the positive effect of technology can be fully released.

4. The negative concerns of algorithmic recommendation for shaping young people's values

Algorithmic recommendation carries out information distribution attached to the capital traffic logic; even if it has positive dissemination potential, the platform's profit orientation, the opacity of the algorithmic black box and the circle-cutting characteristics, superimposed on the real shortcomings of young people's immature mentality and weak media critical ability, will still give rise to multiple ideological risks [6, 7, 15]. Algorithms have long taken click rate and emotional stimulation as core push indicators, continuously creating problems such as information filtering barriers, group view isolation and the flood of emotional narratives, interfering with the value construction of young people from the four levels of cognition, identification, emotion and behavior, weakening the influence of mainstream ideology, and bringing multiple concerns for the growth of young people and the security of online ideology.

4.1. The cocoon effect compresses cognitive space and weakens young people's rational speculation ability

Algorithm mechanisms such as collaborative filtering will continuously feed users with homogeneous information fitting existing preferences, shielding diverse perspectives and in-depth public issues, and the special cognitive psychological characteristics of the youth stage will amplify the negative effects brought by this technical mechanism [3, 15, 16]. From developmental psychology, the world view and life view of youth are in the stage of construction and formation, cognitive schemas are not completely solidified, thinking is prone to confirmation bias, young people are more willing to accept information consistent with their existing positions, and instinctively reject heterogeneous views that conflict with fixed cognition. When algorithms continuously output information streams fitting personal preferences, young people's psychological confirmation bias and the technical logic of collaborative filtering form two-way reinforcement, and the internal motivation to actively retrieve diverse information is further suppressed. After long-term soaking in a homogeneous information environment, young people's cognitive boundaries will continuously shrink, and independent thinking and comprehensive judgment ability will decline accordingly.

The collaborative filtering mechanism will continuously amplify the existing position tendencies of young people; after browsing specific views, similar materials are continuously pushed, opposing and neutral perspectives are compressed, and young people are prone to form black-and-white simple thinking in viewing social and historical issues [13, 19]. The operation of algorithms is in a black box state; young people can hardly distinguish ordinary information, commercial marketing and ideological penetration content. Traffic allocation prioritizes amplifying emotionally arousing content; self-media intercept partial facts to create contradictions to gain attention; young people form event impressions only from fragments, the consciousness of seeking truth fades, and they are more easily misled by one-sided narratives.

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4.2. Circle estrangement dissolves value consensus and encourages young people's extremist thinking tendency

The penetration of wrong ideological trends into youth circles is gradually realized through the three technical links of internal tag clustering, similar user matching and hot content amplification of algorithms [6, 7, 16]. Platforms extract theme, emotion and position tags from online content, and at the same time generate interest and opinion tags for users; tag clustering will gather content and users holding similar concepts into the same circle; the similar user matching mechanism refers to the like and forward behaviors of circle users, and further pushes high-interaction content within the circle to groups of the same attribute; when the interaction data of internal content rises, the hot content amplification mechanism will continue to expand the radiation range of content, completing the circular diffusion of ideological trends within the circle. Under the whole technical process, non-mainstream views such as consumerism and historical nihilism do not need large-scale dissemination to the whole network; they only need to complete seed user activation in local circles, and can continuously influence young people within the circles through algorithmic chain distribution.

Under this distribution logic, mainstream value content will face a real disadvantage in traffic competition. A study conducting empirical analysis on the content distribution logic of short video platforms found that under the same production quality conditions, entertainment and conflict narrative content more easily triggers user interaction behavior and obtains higher initial exposure weight, while main melody documentary content often starts interaction feedback slowly, and is in a relatively weak position in the initial traffic allocation stage [17]. Many young people's daily information streams lack authoritative current politics and red documentary content, lack sufficient positive content to hedge bad ideological trends, and the unified social value consensus faces the risk of being split. Closed circles will reduce the tolerance consciousness of youth groups; young people with converging views gather in the same online space, content catering to extreme emotions within the circle harvests a large number of interactions, and rational neutral voices are drowned. Young people echo extreme views in order to integrate into the group, individual judgment submits to group emotion, and the value concept of inclusive symbiosis is continuously weakened. Young people's discrimination ability is limited; after long-term exposure to relevant content, their value standards will gradually shift.

4.3. Emotional narrative blurs the factual benchmark and distorts young people's scale for judging right and wrong

At present, mainstream Internet platforms have built a fact-checking mechanism combining machine review and manual recheck, but the content verification and disposal process often lags behind the dissemination speed of short video and social content [23]. One-sided, conflict-inciting content can spread quickly with the help of algorithms; before the platform completes identification and interception, large-scale dissemination has been completed, changing young people's reference standards for judging right and wrong. Post-truth theory points out that emotion and personal belief will override objective facts and become the main basis for the public to judge events [19]. The algorithm traffic evaluation system highly values the emotional arousal effect, which will further amplify the dissemination potential of emotional content and reconstruct the moral judgment logic of youth groups. Factual truth is no longer the first yardstick for some young people to judge events; emotional feelings and position likes and dislikes take precedence over objective evidence. Moral judgment shifts following emotional positions.

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One-sided false content relies on algorithms to achieve large-scale dissemination; as long as the interaction data reaches the standard, even if the content only intercepts partial facts, the platform will expand the push range. Once a rumor spreads, the algorithm will boost its diffusion and shake the factual foundation of young people's value judgment. After long-term soaking in information streams inciting emotions, young people get used to judging things by emotional likes and dislikes, and no longer prioritize factual logic for analysis. Facing public events, they prioritize expressing emotions and lack a rational analysis process. Extreme speech within circles continues to ferment, giving rise to online verbal conflicts, the risk of online violence rises, and the binding force of friendly and rational moral norms declines.

4.4. Media addiction consumes real practice and induces multiple behavioral deviations of young people

The infinite sliding product design of short video relies on algorithms to continuously capture young people's attention, bringing media addiction problems and encroaching on study and offline practice time [15, 24, 25]. The platform's traffic tilt toward sensational hype content induces mentally immature young people to imitate deviant behaviors. Relevant surveys show that the average daily short video use duration of some adolescent groups is high, and excessive media use will bring multiple real impacts from the two dimensions of individual and society [15].

The individual dimension is mainly manifested in time alienation and consumption concept alienation. At the time level, a large amount of online browsing consumes after-school energy, and the time for study, social practice and real social interaction is greatly squeezed; some young people have information omission anxiety, and real ideal pursuits tend to be empty. At the consumption level, algorithms continuously push beauty and trendy brand selling content, creating consumption anxiety. The generation of money worship and consumerism concepts is rooted in multiple complex factors such as social culture, family upbringing and the real consumption environment; algorithms are only the intermediary carrier that amplifies the dissemination range of such concepts, and the problem of value concepts cannot be simply attributed to algorithm technology itself. Some young people blindly consume to build online personas, and the money worship tendency is further strengthened.

The social dimension is manifested in real behavioral anomie and the weakening of real social connections. At the behavior level, the traffic-first evaluation standard confuses the boundary of beauty and ugliness, honor and disgrace; some adolescents regard likes and traffic as the evaluation standard of success, imitate all kinds of attention-grabbing behaviors, extend the extreme expression online to real life, and have problems such as ignoring role models and frivolous words and deeds. At the social dimension, online shallow communities replace real interactions with relatives and friends, and real social ability degenerates. Online communities rely on short-term interests to maintain, lack real responsibility constraints, individual egoistic tendencies keep becoming prominent, and public responsibility consciousness gradually fades.

5. The optimization path of shaping young people's values in the context of algorithmic recommendation

In response to the four types of risks brought by algorithms, namely cognitive imprisonment, consensus splitting, emotional disorder and behavioral deviation, governance work adheres to the fundamental principle of steering algorithms with mainstream value orientation, builds a four-in-one collaborative governance system of government rule-of-law supervision, platform ecological

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transformation, media front innovation and youth algorithm literacy cultivation, takes measures simultaneously from the institutional, technical, content and individual levels, dissolves the negative effects of algorithms, and promotes algorithms to be transformed into digital carriers for cultivating young people's correct values.

5.1. Improving the government's top-level rule-of-law supervision and perfecting the algorithm value review system

Multiple departments such as cyberspace administration, propaganda, education and market supervision coordinate, relying on laws and regulations to build a whole-chain algorithm supervision mechanism, constraining the platform's traffic-only logic at the institutional level, guaranteeing the reasonable dissemination weight of mainstream content, and building the institutional barrier for young people's online value protection. Strictly implement the Provisions on the Administration of Algorithmic Recommendation in Internet Information Services, supporting special rules for adolescent network algorithms, and implement hierarchical management of short video and public opinion algorithms [26]. Clarify the three statutory obligations of platforms, namely balanced value push, bad content interception and adolescent protection, implement the algorithm filing system, set disciplinary measures such as interviews, fines and business restrictions for violating platforms, and rely on law to reverse the deformed orientation of traffic first. The problem of the algorithmic black box cannot be governed by simple parameter verification; it is necessary to solve the institutionalized dilemma of independent third-party value review [10, 27]. The cyberspace administration leads the establishment of interdisciplinary review special teams, absorbing experts in Marxist theory, journalism and communication, law, computer science and adolescent education, and regularly conducting value orientation special assessments of head platforms. The assessment does not only verify the reported parameters on paper; combined with the actual information stream samples of platforms, it judges the real content ratio, the actual effect of bad content filtering and the implementation of adolescent protection; the assessment results are moderately publicized to urge problem platforms to rectify within a time limit. Build a dynamic monitoring platform of controlling technology with technology, automatically identify the dissemination links of content distorting history, inciting opposition and inducing consumption, and issue risk warnings in time. At the outbreak stage of social hot events, monitor the dissemination scale of extreme emotional content, urge platforms to increase the push of official interpretations, and hedge one-sided narratives. Some scholars explained the occurrence logic of artificial intelligence ideological risks from the perspective of the whole process of information dissemination, providing theoretical reference for risk monitoring [22]. The government sets up special funds for youth positive energy creation, gives subsidies and rewards to high-quality creators and converged media institutions, guides commercial platforms to implement main melody traffic tilt, and balances commercial monetization and public value responsibility [28].

5.2. Consolidating the main responsibility of platforms and cultivating a clear and prosperous online content soil

The algorithm designers and operators of short video and social platforms are the responsible subjects [6, 23]. Value guidance cannot simply forcibly push mainstream value content to users; the core lies in transforming the content ecological soil. Platforms should perfect institutional design from the three dimensions of internal governance, traffic allocation and content evaluation, so that

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high-quality mainstream value content has the ability to participate in traffic competition and obtain dissemination advantages.

At the level of internal governance, platforms can set up an independent content ethics committee, absorb external experts in ideological and political education and youth research to participate in deliberation, conduct ethical pre-review of recommendation algorithm iteration plans, embed public value goals into the product development process, and avoid simply taking user duration and commercial income as the only yardstick of algorithm iteration.

At the level of incentive and weight mechanisms, formally set up an exclusive traffic pool for positive energy content, and give basic traffic guarantee to red culture, ideological education and youth real-life themed works. Optimize the recommendation weight algorithm, adjust the proportion of pure traffic indicators such as completion and likes in the weight model, bring content value orientation and knowledge information gain into the weighted dimensions, add a cocoon-breaking push module, systematically identify users' long-term homogeneous browsing behavior, actively push diverse positions, public issues and in-depth documentary content, break filter bubbles, and for users long immersed in entertainment and opposition content, moderately increase the proportion of current political documentary content push.

Establish a content ecology health evaluation system, set indicators such as the proportion of diverse content, the detection rate of bad information and the effectiveness of adolescent content protection, and link the evaluation results with the platform's internal performance assessment [16]. Build a double-check mechanism of algorithm initial review plus manual recheck. Machine models intercept explicit violations such as vulgar and violent content, equip reviewers with ideological and political education backgrounds, focus on rechecking high-heat history and social issue short videos, identify soft bad content such as hidden historical nihilism, induced premature consumption and covert incitement of opposition, and dispose of violating content and accounts in time. Platforms set up special support programs to incubate youth positive energy creators, and at the same time adjust traffic rules, reduce the recommendation weight of content showing off wealth, creating circle opposition and rendering anxiety, and compress the living space of bad content.

5.3. Enhancing the algorithmic communication effectiveness of mainstream media and adopting layered and classified integration transformation strategies

Party media at all levels and converged media carrying out youth value communication in the algorithm environment still face real transformation difficulties. Head media have content production capacity and talent reserves, but algorithm research and development requires high computing power and technical team investment; a large number of prefecture-level converged media are constrained by funds and staffing, and it is difficult for them to independently complete the self-development of algorithm systems. Some media's content production still follows the traditional narrative paradigm, and narrative expression is disconnected from the communication logic of short video platforms; even if high-quality content is produced, it is difficult to fit the algorithm distribution rules and reach youth groups. Based on the differences of resource endowment, mainstream media should adopt layered and classified integration transformation strategies.

Head media can independently develop value-priority recommendation systems, set reasonable weights for red and youth documentary content, and build layered recommendation pools for different youth groups. Their own clients and mini programs build independent dissemination fronts, with built-in cocoon-breaking push functions, pushing diverse public issue content to young people who prefer entertainment content, making up for the information limitations brought by commercial

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algorithms. Innovate lightweight narrative expression. Use figure documentary, field vlogs, youth interviews and other forms, base on the individual stories of ordinary young people, tell patriotic struggle stories in popular discourse, improve the empathy of content, fit the rules of short video communication, and improve completion and forwarding effects.

Prefecture-level converged media do not have to blindly pursue complete self-development; they can choose the path of technical cooperation and settling on commercial platforms to develop by borrowing strength. On the one hand, cooperate with third-party technical institutions, use external technical forces to optimize the content tags, covers and copy of their own new media accounts, and fit the platform algorithm distribution logic; on the other hand, regularly settle on short video and social platforms, relying on the platform's mature distribution system to expand the coverage of local mainstream content. Open up all-platform distribution channels; high-quality content settles on short video commercial platforms, relying on platform traffic support to realize whole-domain dissemination; lay out diverse channels such as live streaming and public accounts, with fragmented short videos, in-depth interpretations and online study tour activities cooperating with each other, covering all online scenarios of young people. Discover university lecturers, returning entrepreneurial youth and intangible cultural heritage youth creators, give traffic support, carry out value guidance through interest-based circles, and bridge the cognitive estrangement of different groups.

5.4. Strengthening young people's algorithm literacy and awakening subject consciousness at the individual level

Primary and secondary schools and universities should give play to the main channel role of ideological and political courses, bring algorithm literacy into curriculum goals, teaching content and evaluation systems, improve young people's information discrimination ability, and hedge the cognitive and behavioral deviations brought by algorithms [11, 14, 29].

At the level of curriculum goals, take algorithm literacy as a component of the cultivation of young people's ideological morality and network literacy, focusing on cultivating young people's ability to understand the operating logic of algorithms, identify the cognitive risks brought by algorithms, and rationally view online information.

At the level of curriculum content, explain in ideological and political classrooms real issues such as the operating logic of algorithms, the information cocoon effect, post-truth communication risks and online consumption traps [11], teach young people to distinguish objective information, soft marketing and distorted narratives, master information discrimination methods such as cross-verification and diversified retrieval, establish the thinking of rationally viewing the algorithm environment, and reduce blind dependence on short video algorithms.

At the level of teaching methods, in addition to theoretical lectures, introduce classroom teaching forms such as case discussion, hot issue analysis and scenario simulation. Rely on offline practice to hedge the negative influence of virtual circles. Regularly carry out red study tours, community volunteer services, social surveys and theme debate competitions, guide young people to walk out of online virtual circles, expand real interpersonal communication, and cultivate collectivism and hard-working responsibility consciousness.

It should be made clear that the improvement of young people's algorithm literacy cannot only rely on individual consciousness; it also needs the collaborative support of institutional supervision, platform governance and social support [15]. At the institutional level, continuously improve network supervision regulations; platforms implement the obligations of content governance and adolescent protection; society creates a rational and healthy network culture; only with the

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coordination of multiple external conditions can a real soil be provided for the implementation of young people's algorithm literacy. On this basis, guide young people to give play to subjective initiative to complete the shaping of their own values. Young people establish the rational thinking corresponding to algorithm literacy, recognize the capital orientation and value traps behind traffic, actively verify official information when facing one-sided inflammatory content, and refuse to be hijacked by online emotions. Actively broaden the scope of information contact, consciously access diverse public issues, adjust platform recommendation settings, and reduce the reception of homogeneous entertainment content. Consciously block bad accounts, do not forward rumors and inflammatory content, and hold the bottom line of online civility. Reasonably plan the duration of Internet use, devote more energy to study, practice and real communication, abandon negative orientations such as money worship and lying flat, and establish their own value pursuits with hard work.

6. Conclusion

Algorithmic recommendation has been deeply embedded in the daily information acquisition and meaning construction process of young people, becoming an important technical variable affecting the shaping of young people's values. Based on the research perspective of the mutual construction of technology and society, this paper defines algorithmic recommendation as a social-technical system with the triple superposition of "technology-power-practice", and analyzes its positive empowerment and negative concerns for the shaping of young people's values accordingly. Research shows that relying on precise profiling, collaborative filtering and real-time feedback, algorithmic recommendation can break the media resource barriers of traditional value dissemination, realize segmented, scenario-based and dynamic value immersion, and show significant potential in aggregating positive interest-based communities, empowering the transformation of mainstream media, and promoting the iteration of value guidance. But at the same time, the capital traffic logic, the shielding of the algorithmic black box and the two-way human-machine cultivation are intertwined, which will also compress young people's cognitive space, dissolve value consensus, blur the factual benchmark, induce media dependence and behavioral deviations, and form multiple interferences with the construction of young people's value systems.

To resolve the value risks derived from algorithms, we cannot simply negate the technical tool itself; we should adhere to the fundamental principle of steering algorithms with mainstream value orientation and build a governance system with the collaboration of government, platforms, media and young people. At the government level, top-level rule-of-law supervision should be perfected and the algorithm value review system improved; at the platform level, the main responsibility should be consolidated and the traffic allocation and content ecology evaluation mechanisms optimized; at the media level, the algorithmic communication effectiveness should be enhanced and layered and classified integration transformation strategies adopted; at the youth level, algorithm literacy should be strengthened and individual subject consciousness awakened. Only by taking measures simultaneously at the multiple levels of institution, technology, content and individual can the negative effects of algorithms be effectively dissolved, algorithmic recommendation be transformed from a value risk variable into a digital carrier for the cultivation of young people's values, and a sustainable practice path be provided for the ideological guidance of young people in the new era.

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