

Exploring the Significance of Adolescent Sex Education Based on Social Media

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Abstract: This study aims to explore the presentation of adolescent sex education in socialized media and its impact on adolescents, especially the role of social platforms and network culture in teenage sex education. Through a review of relevant literature in recent years, the study analyzed the diverse presentation of social media in the communication of sex education and its positive and negative effects. The study finds that social media provide abundant sex education resources for adolescents, especially content related to sexual health, gender awareness, and emotion management, but it is also accompanied by problems such as false information, over-gendering or inaccurate gender role modelling;. However, social platforms can break through the limitations of the traditional education system and provide more personalized and immediate education content, in the absence of effective guidance and supervision, it is easy to lead adolescents to have a negative attitude towards sex education. Although social platforms can break through the limitations of the traditional education system to provide more personalized and immediate educational content, the lack of effective guidance and supervision can easily lead to misunderstandings and the deepening of gender stereotypes. This study suggests that adolescent sexuality education should collaborate with social media platforms to promote the dissemination of scientific, comprehensive and inclusive sexuality education content and to strengthen the guiding roles of parents, schools and the government to minimize possible negative impacts.

Keywords: Adolescents; Sex Education; Social Media; Information Dissemination; Sexual Health Education

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1.Introduction

Sex education for adolescents is an important part of promoting the healthy development of individuals physically and mentally and constructing a sense of gender equality in society. It is not only related to the cultivation of correct values and healthy behaviours among adolescents but also directly affects their future social adaptability and interpersonal relationships. However, the traditional mode of sex education is limited by time, space, teachers and other factors, and it is difficult to meet the increasingly diversified and individualized needs of adolescents^[1]. Especially in contemporary society, the absence or inadequacy of sex education has led to some adolescents facing difficulties in sexual health, sexual violence prevention, and gender identity. The persistence of these problems further highlights the urgency of improving the sex education model. With the rapid development of information technology, social media has become an important tool for adolescents to obtain information and socialize. This trend provides new opportunities for disseminating sex education, enabling young people

to break through the limitations of traditional classroom education and access diverse information resources anytime and anywhere. At the same time, the interactivity and sharing of social media provide more possibilities for the dissemination and participation of sex education content. However, the openness of social media also brings problems such as uneven information quality and privacy leakage. These new challenges make the application of social media in sex education require more careful and scientific exploration.

The purpose of this paper is to analyze the significance of social media in adolescent sex education and explore its role in knowledge dissemination, emotional education and value guidance. At the same time, this paper also pays attention to the risks and shortcomings and puts forward targeted suggestions, to provide theoretical reference and practical basis for the innovation and development of the youth sex education model. Therefore, it is of great practical significance to study the significance of social media in adolescent sex education.

2.Literature Review

2.1 Theoretical basis for the importance of sex education

The psychosocial development theory put forward by Erik H. Erikson (1968)^[2] points out that during adolescence, individuals are faced with the conflict between self-identity and role confusion, and scientific and reasonable sex education can help adolescents correctly recognise their own body and sexual characteristics, help them effectively cope with physiological and psychological changes, and successfully pass through this critical developmental stage, to establish a healthy self-image and gender role identity. They can then build up a healthy self-image and gender role identity. Several studies have shown that adolescents who receive comprehensive sex education are significantly better than those who lack related education in terms of gender identity and psychological stability, which indicates that sex education is not only an important support mechanism for adolescents' psychological development but also a key way for them to build a healthy self-image^[3-5]. Sex education can guide adolescents to correctly understand their own bodies and sexual characteristics, and help them better cope with physical and psychological changes in the process of growing up so that they can successfully pass through this critical developmental stage.

According to Lawrence Kohlberg's (1977)^[6] moral development theory, adolescence is an important period for the gradual formation of an individual's moral concepts, and sexuality education, as a key component, can guide adolescents to make choices consistent with moral norms and promote the development of sexuality when facing sexuality-related issues by teaching them correct sexuality concepts, such as respect for others and a sense of responsibility. Teaching young people correct sexual moral concepts such as respect for others and a sense of responsibility, can guide them to make choices that are in line with moral norms when facing sex-related issues, and promote the continuous improvement of their moral standards. Some scholars have pointed out that sex education not only improves adolescents' moral reasoning but also significantly reduces the incidence of high-risk sexual behaviours^[7-8]. Through sex education, adolescents are taught the correct concepts of sexual morality, such as respect for others, responsibility, etc., which can help them make decisions when facing sex-related issues. Them to make ethical decisions when facing sex-related issues and promote their moral level.

2.2 Research on the Role of Social Media in Education

George Siemens' (2004)^[9] theory of associational learning proposes and mentions that, in the context of the digital age, learning is no longer limited to the accumulation of knowledge within an individual, but rather to the construction of a wide range of connections between knowledge nodes through networks. A study states that 17% of adolescents access information about sexual health or information about the consequences of substance use through the Internet^[10]. Social media, as a huge knowledge convergence network platform, provides adolescents with a huge amount of rich sex education resources as well as diversified learning paths, so that they can obtain more comprehensive and in-depth sex knowledge and continuously expand their cognitive boundaries by establishing connections with different information sources and various groups of people. Social media, as a huge knowledge network platform, provides adolescents with abundant sex education resources and diversified learning paths, enabling them to acquire more comprehensive and in-depth sex knowledge and expand their cognitive boundaries by establishing connections with different information sources and people.

Don Tapscott (2008)^[11] pointed out that adolescents growing up with the Internet have unique learning patterns and infor-

mation intake habits, and they are more inclined to learn new knowledge through interaction, participation and independent exploration. Several studies have shown that adolescents in social media-based sex education programs have significantly higher levels of engagement and knowledge acquisition than in traditional classrooms^[12]. The instantaneous, interactive and open nature of social media is highly compatible with this learning preference of adolescents, which builds a high-quality platform for them to actively participate in sexuality education and learning, and strongly stimulates their learning interest and subjective initiative. The interactivity, immediacy and openness of social media cater to the learning needs of adolescents and provide a platform for them to actively participate in sex education and learning, and stimulate their interest and initiative in learning.

3. Problems in the current sex education for young people in China

3.1 Limitations of Education Content

At present, the content of sex education for adolescents in China mainly focuses on the teaching of physiological knowledge and lacks comprehensive attention to sexual psychology, sexual morality and sexual health. This one-sidedness in content cannot meet the needs of adolescents to form healthy cognition and cope with complex problems in the rapidly changing social environment. Studies have shown that the content of sex education for adolescents in China tends to focus on the teaching of physiological knowledge, while the education on sexual psychology, sexual morality and sexual health is not sufficiently in-depth and comprehensive^[13]. The content of sex education is slow to update, unable to meet the youth's desire for knowledge of the current hot sexual issues in society, such as the network sex culture, gender equality awareness and other aspects of education are relatively lagging^[14]. This phenomenon not only reflects the problem of slow updating of educational content but also reveals the lack of demand for the breadth and depth of sex education. With the rapid development of society and changes in the way information is disseminated, adolescents are exposed to increasingly complex and diverse sex-related information, but the content of sex education provided by schools and families fails to keep pace with the times, resulting in difficulties for adolescents in understanding and coping with these emerging issues.

Sex education content in China pays relatively little attention to areas such as gender equality, sexual violence prevention and emotional education for adolescents. According to UNESCO's (2018)^[15] recommendations on the content of global comprehensive education, sex education should cover gender concepts and social issues in multicultural contexts to promote the comprehensive development of adolescents. However, most of the teaching materials in schools in China are still biased towards a biological perspective, failing to achieve full integration of content in the fields of psychology and sociology. This limitation in educational content may lead to confusion and even misunderstanding when adolescents face the impact of multiculturalism and cybersex culture.

3.2 Single-mindedness of Education Methods

The traditional way of teaching sex education is based on classroom lectures, emphasizing the one-way transmission of knowledge and lacking teacher-student interactions and situational experiences, which often makes it difficult to stimulate young people's interest in learning, and limits their in-depth understanding of the content of sex education. Research shows that in some areas of China's sex education classroom, teachers mostly follow fixed courseware to teach, ignoring adolescents' participation in the classroom content and feedback^[16]. This teaching mode is not only difficult to adapt to the psychological needs of adolescents but also may make sex education lose its core appeal. Sex education in schools mainly adopts the traditional teaching method of classroom lectures, which lacks innovation and interactivity and makes it difficult to motivate adolescents to learn^[17]. Students reduce feedback on classroom performance and learning, resulting in a boring sex education classroom, and teachers' one-way instillation of knowledge, resulting in low student participation, which seriously affects the teaching effect of sex education.

The application of modern information technology in sex education is still in the preliminary exploration stage. International experience shows that the application of virtual reality (VR) technology, interactive learning platforms and multimedia tools can significantly enhance the effectiveness of sex education for young people. For example, the "Sex Education Forum" program in the United Kingdom conducts online interactive courses through an online platform, which enhances students' understanding of complex issues. However, there is a lack of diversity in the means of sex education in China, and modern

information technology means, such as multimedia and network platforms, are rarely used to enrich the teaching form of sex education^[18]. In the digital era, the way young people accept information has changed greatly, and they are more inclined to obtain knowledge through vivid interesting, intuitive and visual ways. However, the current approach to sex education fails to make full use of these modern technological means and cannot meet the learning needs and interest preferences of adolescents.

3.3 Uneven distribution of educational resources

There is a large gap between urban and rural areas in terms of resources for sex education for adolescents, with a serious shortage of teachers for sex education in rural areas, a scarcity of teaching materials and a lack of teaching aids, and outdated teaching facilities^[19]. According to statistics, in rural primary and secondary schools, there is an average of less than one professional sex education teacher per school, and most of the teachers have not received systematic training in sex education, which directly leads to the fact that rural adolescents are unable to obtain high-quality and standardized sex education.

There are also obvious differences in the resources for sex education among different schools, with key schools and schools in developed areas being able to provide relatively abundant resources, while some ordinary schools and schools in remote areas are faced with a lack of resources^[20]. In the United States, the Federal Grants for Sexual Education program ensures the supply of sex education resources to schools in poor areas, while China has not yet established a similar national mechanism for balancing sex education resources. This uneven distribution not only weakens the popularity of sex education but also affects the realization of educational equity to a certain extent. This uneven distribution of resources has also further exacerbated the uneven levels of sex education for young people, affecting the popularization and equity of sex education.

4. The role played by social media in adolescent sex education

4.1 Provide rich and diverse educational resources

The International Technical Guidance on Sexuality Education (Revised Edition) published by UNESCO (2018)^[15] mentions that with the powerful communication efficiency of social media, many professional sex education institutions and public welfare organizations have been able to rapidly disseminate high-quality educational resources to a large number of young people. Many professional sex education institutions and public welfare organizations have been able to rapidly disseminate high-quality educational resources to a large number of youth groups, breaking the double confinement of the dissemination of traditional educational resources in terms of geography and time in one fell swoop. Through the integration of globalized sex education information, social media platforms provide young people with multidisciplinary and multiform educational resources, including sexual physiology, sexual psychology, sexual health and sexual culture^[15]. These resources are presented in a variety of forms, such as text, pictures, audio and video, to meet the different learning needs of adolescents^[21]. On platforms such as Zhihu and Baidu Wikipedia, users can search for various professional articles and experience sharing on physiological changes during puberty, prevention of sexually transmitted diseases, and adjustment of sexual mental health; on video platforms such as Jitterbug and Station B, there are many vivid and interesting videos produced by sex education popularization bloggers, which teach adolescents about sex visually and imaginatively, and these rich and varied resources provide more comprehensive and in-depth learning materials on sex education for adolescents. These rich and diverse resources provide adolescents with more comprehensive and in-depth learning materials on sex education.

However, studies have also shown that the quality of sex education content on social media varies, and some of the information lacks scientific basis and may even mislead adolescents^[22]. Therefore, although social media has a unique advantage in the dissemination of sex education resources, how to screen quality content is still an urgent problem to be solved.

4.2 Promote interactive communication and learning

Microblogging and WeChat, as social platforms commonly used by adolescents, not only have significant advantages in information dissemination and social interaction but also can provide an open communication environment for adolescents, which helps to explore sensitive topics and disseminate sexual health knowledge^[23]. WeChat public platform is used for adolescent sex and gender education, supplementing the shortcomings of the traditional classroom through the form of a virtual classroom, and promoting society's re-recognition of the importance of sex education^[24-25]. WeChat combined with

traditional missionary methods has also achieved significant results in college HIV health education. Studies have shown that WeChat, as a commonly used software for college students online communication, is a useful exploration of AIDS education in colleges and universities when it is jointly applied with traditional missionary methods in the promotion of AIDS-related knowledge^[26].

In online sex education forums and communities, adolescents can find like-minded partners to learn and discuss sex education-related topics together, forming a favourable learning atmosphere and mutual support network^[27-28]. Spontaneous learning through groups attracts the participation of adolescents from all over the country, who share learning materials, exchange learning experiences, and organize online discussion activities within the groups, etc. Through this group learning approach, adolescents can be more actively engaged in learning about sex education and enhance the learning effect^[29]. At the same time, through continuous monitoring of feedback and behavioural data of adolescents, the recommended content is constantly optimized, and the recommendation strategy is adjusted according to the interaction of adolescents with the pushed content (such as liking, commenting, sharing, etc.) to improve the acceptance and effectiveness of the content^[30].

4.3 Realize personalized education services

Relying on big data analysis and artificial intelligence technology, social media can accurately understand each teenager's interest preferences, learning progress, and knowledge needs based on their browsing history, search records, likes and comments, and other behavioural data, to push personalized sexuality education content for them^{[17][31]}. Big data technology is used to characterize the collected data to identify the personalized characteristics and group behavioural characteristics of adolescents. By analyzing the frequency of interaction and content preference of adolescents in a specific period, it can be inferred that they may be interested in certain sex education content^[31-32]; adolescents who are interested in sexual psychology are pushed content about pubertal emotional problems, sexual psychology adjustment, etc. This personalized education service can improve the pertinence and effectiveness of sex education and better meet the personalized learning needs of adolescents.

Based on machine learning and artificial intelligence technology, an intelligent recommendation system is constructed. The system can intelligently push sex education content that matches the needs of adolescents based on their behavioural data and interest models, and develop exclusive sex education learning paths based on their learning situation and goals, helping them systematically master sex knowledge and skills^[33-34]. Utilizing generative artificial intelligence technology and combining various forms of content such as text, images, audio and video, we provide adolescents with rich and diverse sex education materials. This approach not only enhances the learning experience but also better attracts the attention of adolescents.

5. Discussion and recommendations

With the widespread use of social media, adolescents are increasingly relying on the Internet for sex education information in their daily lives. Although these platforms provide adolescents with a wealth of sex education resources, adolescents face many challenges due to the varying quality of information and lack of regulation. Against this background, this study puts forward the following suggestions, aiming to further optimize the role of social media in adolescent sex education.

5.1 Strengthen the professionalism and scientificity of platform content

Social media platforms, as one of the main channels of sex education information for adolescents, have content of varying quality, and some of the information lacks scientific basis and even has misleading content. UNESCO (2016)^[35] has proposed that sex education should be based on scientific facts, emphasizing the responsibility of social media in the dissemination of sex education resources, especially in the stage of adolescents' susceptibility to influence. For adolescents, wrong knowledge about sexual health may affect their physiological and psychological development and even produce negative behaviours^[36]. Platforms should cooperate with educational institutions and experts to ensure that the published content undergoes strict scientific review and auditing. Social media platforms should not only strengthen the management of sex education content but also utilize artificial intelligence, big data and other technologies to screen and recommend information to ensure that the information accessed by adolescents has a high degree of reliability^[37].

5.2 Improve the diversity and inclusiveness of sex education content

Comprehensive sexuality education should cover all aspects of psychology, emotion, and gender to help adolescents

establish healthy sexual cognition and values at all levels of physical and mental development^[35]. Most of the sex education content on social media platforms focuses on physical health, and psychological, emotional, and gender identity content is weak. Research shows that adolescent sex education is not only limited to physical health, but emotional education, gender equality and prevention of sexual violence are also important parts of teenage sex education^[38]. To meet the diverse needs of adolescents, the platform should increase the discussion of topics such as gender identity, sexual orientation, emotional health, etc., to promote adolescents' comprehensive understanding of and respect for gender differences, and to cultivate a healthy view of sexual morality and gender^[39].

5.3 Enhancing interactivity and participation

The effectiveness of sex education is closely related to the enthusiasm of adolescents' participation. Most of the existing social media platforms take a one-way communication approach, and adolescents are often in a state of passive acceptance of information, lacking effective interactivity and a sense of participation^[40]. Whereas participatory learning has been shown to help enhance the effectiveness of sex education for adolescents^[41]. The design of social media platforms should add more interactive forms, such as online discussions, situational simulations, and virtual classrooms, to enhance adolescents' sense of participation. Through simulated situations, adolescents can apply what they have learned in a more realistic environment, enhancing their critical thinking and problem-solving skills^[42]. The platform can set up Q&A interactions and online Q&A sessions to enable adolescents to think, ask questions and interact more actively in the learning process.

5.4 Promote cooperation between parents and educators

The role of parents and schools in adolescent sexuality education is crucial. Family education and school education are important components of adolescent sexuality education, and social media platforms can serve as a bridge connecting parents, educators and adolescents. Studies have shown that family involvement can effectively improve the effectiveness of sex education and help adolescents develop healthier sexual attitudes and behaviours^{[40][43]}. Social media platforms provide parents with resources on sex education and conduct online parent classes and educator training courses to enhance the sex education capacity of parents and educators. At the same time, schools should also maintain good communication with parents and provide regular feedback to parents on students' sex education learning through social platforms to ensure the effectiveness of home-school cooperation^[44-45]. This model of cooperation can ensure that adolescents receive more comprehensive and continuous sex education with the support of all parties in the family, school and society.

5.5 Safeguarding adolescents' privacy and safety

When sex education is conducted on social media, the privacy protection and online safety of adolescents should not be ignored. As adolescents lack sufficient judgment and awareness of self-protection, some online companies and bad actors illegally spy on, collect and abuse the privacy information of adolescents through technical means such as cookies and web bugs, making them susceptible to abuse. Through technical means such as "cookies" and "web bugs", adolescents illegally spy on, collect and misuse their private information, making them vulnerable to harassment, information leakage and other risks on the Internet^[46]. Meanwhile, adolescents frequently self-disclose personal information on social media, which increases the risk of privacy leakage. Studies have shown that social media use is closely related to privacy issues, and adolescents' privacy-protecting behaviours are influenced by security measures, addiction, and self-disclosure^[47]. Platforms should strengthen privacy protection measures to ensure that adolescents do not experience identity disclosure or online harassment when viewing sex education content. At the same time, easy reporting mechanisms should be provided to help adolescents report and get effective help when they encounter inappropriate content^[48]. The platform should protect teenagers' privacy through encryption technology and other means, which can effectively reduce potential security risks.

6. Conclusion

This study analyzes the current situation of the application of social media in adolescent sex education, discusses its advantages and problems in disseminating sex education information, and puts forward several suggestions for optimizing the effect of social media sex education. Studies show that the role of social media in adolescent sex education is two-sided. On the one hand, its efficient communication ability, rich resources and diversified interactive forms provide a platform for adolescents' sex education beyond the traditional classroom and family. On the other hand, due to the uneven quality of

content, imperfect information review mechanisms and weak privacy protection, adolescents also face many challenges when using social media to obtain sex education information.

To further enhance the effectiveness of social media in adolescent sexuality education, this paper proposes to strengthen the professionalism and scientificity of platform content, increase the diversity and inclusiveness of sexuality education content, design participatory and interactive education forms, promote in-depth cooperation between families and schools, and safeguard adolescents' privacy and network security, all of which are elaborated on both the theoretical and practical levels. These recommendations aim to provide a reference for educational researchers, practitioners and policymakers to more scientifically and systematically utilize the potential of social media in adolescent sexuality education.

Future research should pay more attention to the in-depth integration of technology and education, and explore the application of artificial intelligence and big data technology in sex education content recommendation, personalized learning path design and content auditing. At the same time, research on sex education needs to further integrate interdisciplinary theoretical frameworks such as psychology, sociology and communication to build a more comprehensive theoretical system. In addition, sex education research should also focus on the analysis of the differences in cultural contexts, explore ways to optimize social media sex education in different socio-cultural contexts, and provide a basis for the construction of a diversified sex education system.

Overall, the application of social media in youth sex education is not only a change in the form of education but also a reflection of social responsibility. By building a scientific and healthy sex education communication environment, social media can provide strong support for the healthy physical and mental development of young people. How to find a balance between technology and education, and to achieve unity between openness and standardization will be an important direction for future research and practice.

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