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Algorithms and Social Media Literacy for Digital Wellbeing by Young people

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Abstract

Algorithms are increasing shaping access and creation of content in social media with young users increasingly exposed to curated information designed to optimize their experience. However, many social media users lack awareness of how algorithmic operate thus highlighting the need for social media literacy programmes that strengthen algorithmic understanding and foster more informed engagement in digital spaces. The study sought to answer three questions: examine social media platforms used by students; assess students' awareness of how algorithms mediate and shape their feeds and establish social media literacy levels among information science students. Use and gratification theory informed the study and a google document was used to collect data from 78 Information Science undergraduate students from Kisii University. The results indicated that most students use TikTok, Facebook, YouTube and Instagram daily to access news and information, as well as for entertainment, education and communicating with friends. Young people spend substantial part of their day on social media interacting with others, build recognition and sustain social connections but uncontrolled and excessive use can negatively impact their mental health, academic performance and social growth. The analysis showed that while respondents were aware that social media content is curated by algorithms, most had only a limited understanding of the criteria behind this process. The study concludes that built- in platform controls, school-based education and greater algorithm transparency are essential for strengthening student's social media literacy as they navigate and engage with an increasingly complex digital space.

Keywords:
algorithms, algorithmic awareness, curated content, social media literacy, use and gratification theory, algorithmic awareness

Introduction

Rapid pace at which Artificial intelligence (AI) is advancing and the proliferation of social media platforms and their advanced algorithms facilitate unprecedentedly easy and fast sharing of data. The ability of users to produce, reproduce and distribute information to a broad audience is enhanced by social media. Zhang et al. (2014) attributed the popularity of social media to active interactions where users generally trace popular items in the global web.
Kenya has demonstrated extremely high social media usage particularly by the youths, with multiple platforms deeply integrated into their daily communication and information seeking. Social media heavily influences information seeking and sharing behaviour among young adults in Kenya, facilitating quick access to diverse content despite concerns about reliability (Mbeeria, 2024). A survey by Wamuyu (2022) established that Kenyan youths predominantly used social media platforms for 1-3 hours daily primarily through their mobile phones. The extensive social media use exposes the youths to misinformation, with many of the users considering social media as addictive and time consuming (Kimuge, 2021; Wamuyu et al. (2022). The evidence suggests an urgent need for targeted social media literacy programmes to enhance algorithmic understanding and critical engagement in digital spaces.

The developments of AI have led to significant advancements in content access and creation in social media. Algorithms are increasing shaping the use of social media with users increasingly exposed to algorithmically curated information (Poleac & Ghergut-Babii, 2024; Mohammad et. al., 2024; Swart, 2021). Algorithms tend to evaluate individual virtual personality based on where a person goes, what they are interested in and what they buy (Pariser, 2012**).** Curation algorithms on social platforms aim to match content to users' taste, but not all users are aware of the filtering process. This data forms the digital footprint, which an individual leaves behind all over the internet.

Social media platforms have integrated AI technology into their algorithms to optimize the users experience (Mohamed et al., 2024). AI significantly impacts management of social media content by enabling personalized recommendations and automation of digital experiences (Hussain, 2024). Aggarwal et al., (2024) emphasize that with AI algorithms, social media platforms can analyze user preferences and behaviour to deliver personalized content recommendations and enhancing engagement. Personalization algorithms track search history, click patterns and device characteristics to construct unique information ecosystems (Pariser, 2012).

Machine Learning, a subset of artificial intelligence, plays a vital role in analyzing user behavior and delivering personalized social media feeds by using mathematical algorithms to accurately predicting individual interests (Ramakrishnan, 2025). Personalization algorithms analyze individual online habits to curate content and filter content based on individual profiles, amplifying polarization by reinforcing existing preferences and limiting exposure to diverse viewpoints (Eg et al., 2023; Berman & Katona, 2020). Algorithms form a personalized information environment based on online actions creating a filter bubble or shrinkage funnel that shapes a person's perceived

virtual reality (Reid, 2024). Pariser (2012) noted that the process is largely invisible and users are unaware that they are receiving selectively tailored information that confirms existing beliefs**.** Joshi et al. (2025) add that social media platforms have privacy tools like advanced settings, encryption methods and systems build around user content.

Social media literacy is crucial for information dissemination in digital societies as it enables users to access and engage with information digitally. Social media users may not fully comprehend algorithmic mechanisms as they choose and search contents that meets their needs (Mathe, 2024). Users may not understand why and how filtering of information is done, which therefore means they have little power to influence or leverage it. Algorithmic literacy in Kenyan social media is characterized by limited understanding but adaptive user behaviours. Research reveals that social media users, particularly youths, have intuitive but often incomplete understanding of algorithmic functions (Mathe, 2024). As Kitchin (2019) notes, researching users' understanding of algorithms is challenging because algorithms are largely inaccessible, highly varied from platform to platform, and constantly changing. Mathe (2024) asserts that literacy somehow enables users to manipulate the algorithmic functions for content consumption.

Methodology

The survey was informed by uses and gratification theory by Elihu Katz and Jay Blumler (1974) to explore how algorithms analyze user behaviour to fulfil social media users' individual gratifications. Social media literacy assists users to understand how algorithms curate, recommend and prioritize content to enhance satisfaction and engagement by tailoring content to personal motivations. The survey set out to: a) Examine the social media platforms used by students b) Assess students' awareness of how algorithms mediate and shape their feeds and c) Establish social media literacy levels among information science students. A google document was used to collect data from 78 students pursuing Bachelor of Information Science at Kisii University. Consent was sought from the respondents regarding their voluntary participation in the survey. The study only involved first year to fourth year Information Science students and excluded other students at the School of Information Science and Technology.

Results and Discussion

Usage of social media was tested through the forms of social media used by students, frequency of use and the content searched in social media platforms. Figure 1 shows social media platforms most frequently used by students. The findings indicated that all respondents use social media with varying usage across social media platforms. TikTok 43(55.1%) and Facebook 39(50%) were cited as the most popular among the students. The rising popularity of Tiktok among youths can be attributed to its short- form video format, user-centric algorithms, easy navigation and ability to facilitate social interactions and effective marketing strategies, which have made young people the majority of its active users and content creators (Jain and Arakkal, 2022). This surge in popularity reflects a demographic shift driven by creative and entertaining content tailored to individual preferences (Xie & Gallo, 2024; Nowacki, 2024). The sustained appeal of Facebook among youths has been linked to peer pressure and its ability to fulfil personal presentation needs, with platform

use becoming increasingly integrated into daily routines (Chang et al., 2015; Omar & Subramanian, 2013). Respondents also indicated that they use YouTube 32(41%) and Instagram 20(25.6%). Heavy social media use among youths suggests a desire to stay connected with peers, current trends and entertainment. The findings however indicate that X (formerly Twitter) 15(19.2%) is losing traction among younger social media users. There is a generational shift in platform preferences as supported by llbury (2022) who found out that teenagers are increasingly moving away from traditional platforms favouring image first apps such as Snapchat and Instagram. Other social media platforms cited were WhatsApp, LinkedIn, Messenger and Telegram.

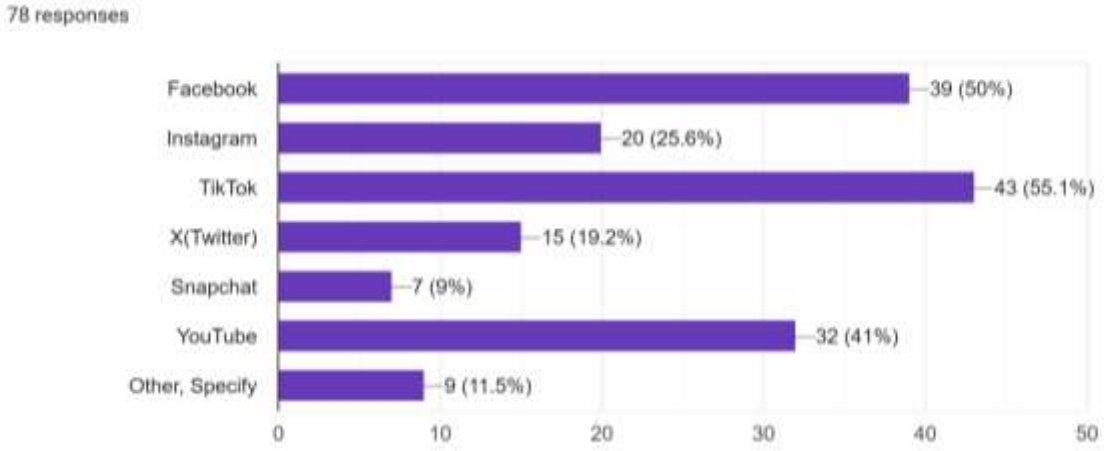

Figure 1 *Social media platforms used by the student*The study sought to establish how much time students spend on social media each day as presented in Figure 2.

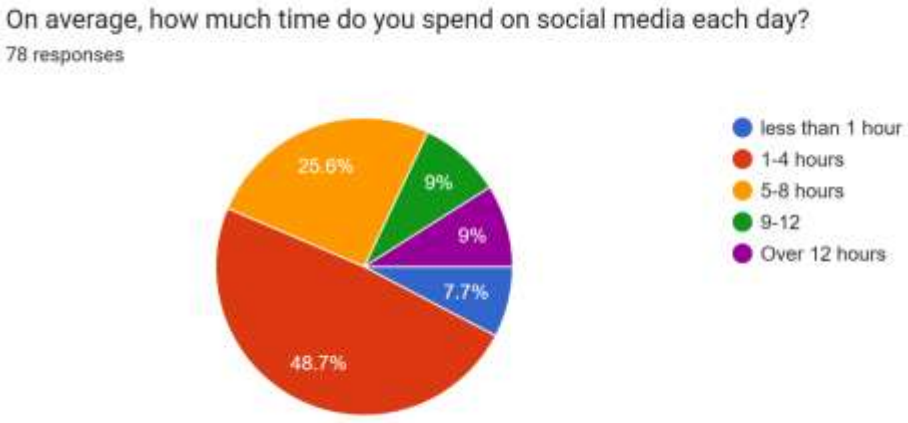

Figure 2 *Time Spent Daily on Social Media Platforms*

Most young people spend significant time daily on social media with 38(48.7%) spending 1-4 hours and 20(25.6%) spend 5-8 hours daily. The findings revealed that some 14(18%) of the respondents spend 9 or more hours daily on social media, with 7(9%) specifically using social media for over 12 hours per day. Youths use social media to establish communication, gain popularity and maintain interpersonal relationships but also experience negative impacts like addiction and fake news (Wamuyu, 2022). The excessive amount of time spent by youths online poses notable risks to mental health, academic performance and social development (Kimuge, 2021; Anjum, et al. 2024). Taddi, et al. (2024) found that unregulated social media use directly corelated with emotional distress, anxiety, frustration and depression. Oniala (2025) further noted that excessive and unsupervised online engagements resulted in increased aggressive behaviour, anxiety and exhaustion. This calls for strategic interventions in digital literacy and supervised online engagement from parents and platform providers to protect young people with engagements in digital spaces (Wamuyu 2022; Al-Samarraie et al. 2021). The study also assessed the content commonly browsed by respondents on social media as presented in Figure 3.

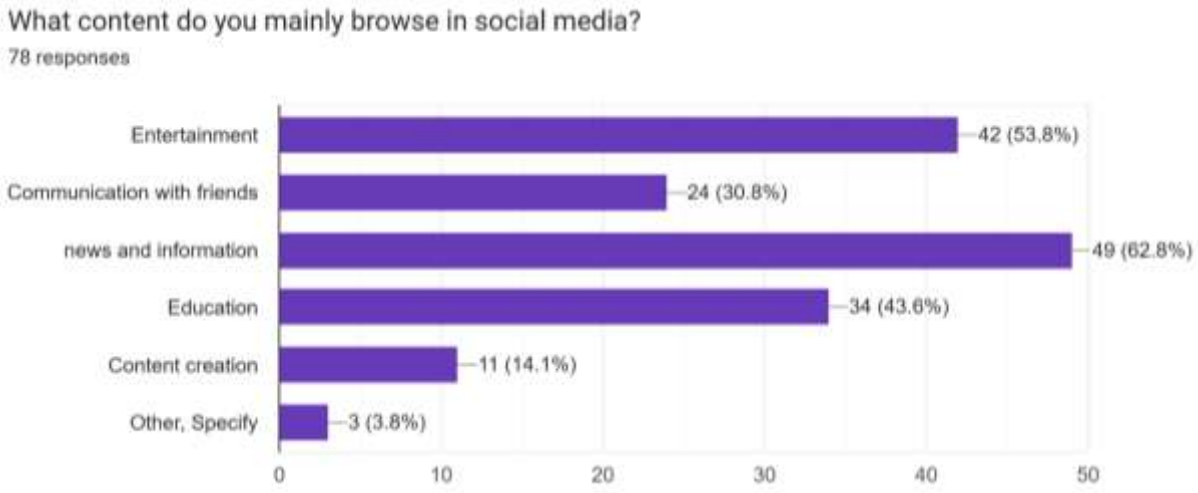

Figure 3 *Content searched in social media*

The responses in Figure 3 indicate that students mainly searched for news and information 49(62.8%), and entertainment 42(53.8%) content within their online networks. Respondents also searched for content on education 34(43.6%) and communication with friends 24(30.8%). A survey by Nazir et al. (2024) confirms the findings that youths predominantly use social media for social interaction, surveillance, knowledge and entertainment. This affirms the popularity of TikTok and Facebook among young people which has been linked to creative and entertainment content.

The study aimed to determine whether students were aware that algorithms curate the content they browse on the social media platforms, with the goal of fostering responsible and critical social media usage. Figure 4 shows how this content aligns with their interests.

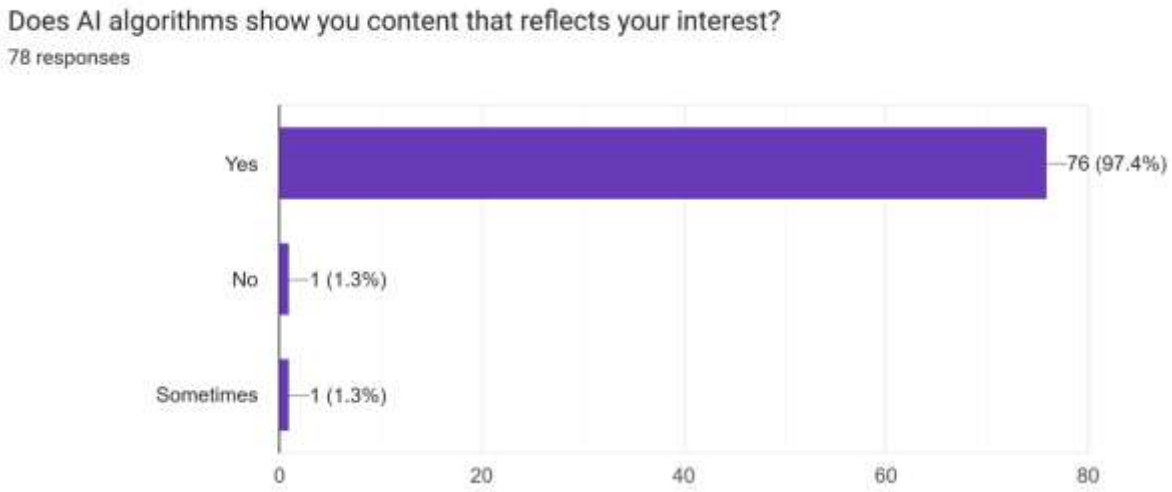

Figure 4 *Alignment of Content with the User's Interests*

As illustrated in Figure 4, most 76(97.4%) respondents acknowledged that the content they browse online matches their interests. Social media platforms extensively use sophisticated algorithms to align content with users' past behaviour and interest creating immersive experiences (Singh, 2025). Algorithms generate highly personalized and engaging digital experiences, thereby reinforcing user gratification. Additionally, the findings presented in Figure 5 showed that students acknowledge that social media platforms use algorithms to mediate content.

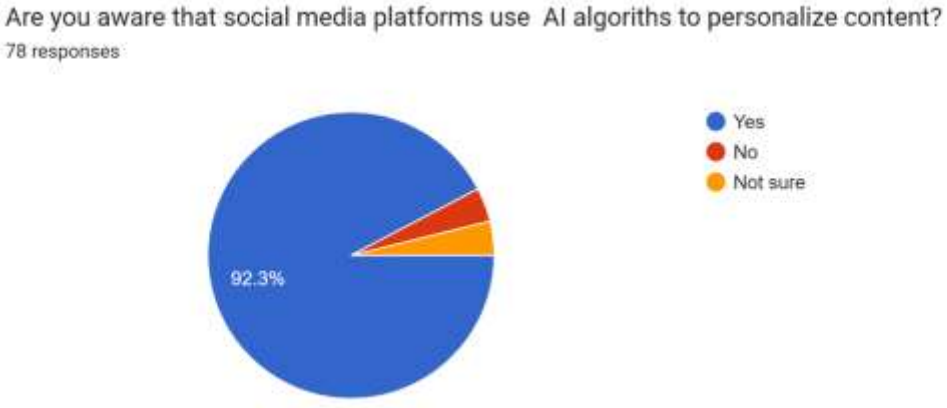

Figure 5 *Awareness of Algorithmic Curation of Content*

Most 72(92.3%) students recognized that social media platforms use algorithms to mediate content. Only 6(7.6%) of the respondents were either not aware that algorithm shape the content that they see online or are not sure on how algorithms curate content. This may be attributed to the fact that the students are studying information-related disciplines and may have covered AI

and information literacy courses during their studies. The study assessed students' understanding of how algorithms function on social media as presented in Figure 6.

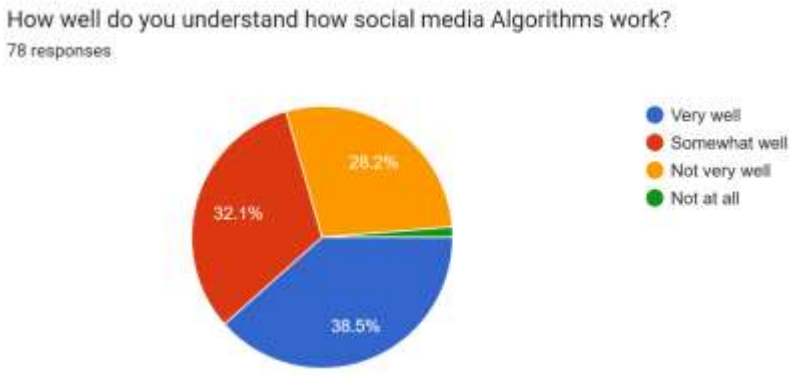

Figure 6 *Understanding of Algorithm Capabilities*

Responses in Figure 6 indicate that majority 47(60.3%) of the respondents are unaware of how algorithms personalize and filter displayed content. Swart (2021) found that although most online news users realize that content is filtered, they have limited understanding of the criteria used. Only a few 23(38.5%) respondents have knowledge on how algorithms work in social media, which indicates substantive variation in algorithmic awareness. This agrees with Oeldorf-Hirsch and Neubaum, (2025) who noted that social media users recognize that algorithm mediate content, and their understanding develop through increased exposure and platform transparency. However, the authors argue that although some social media users have developed a rich understanding of algorithms, this knowledge is unequally distributed and presents the risk for a growing divide, akin to those seen with other technologies.

Data protection awareness forms a crucial part of digital literacy given that most young people frequently use social media and often share sensitive personal data online. The responses related to awareness of data protection tools are presented in Figure 7.

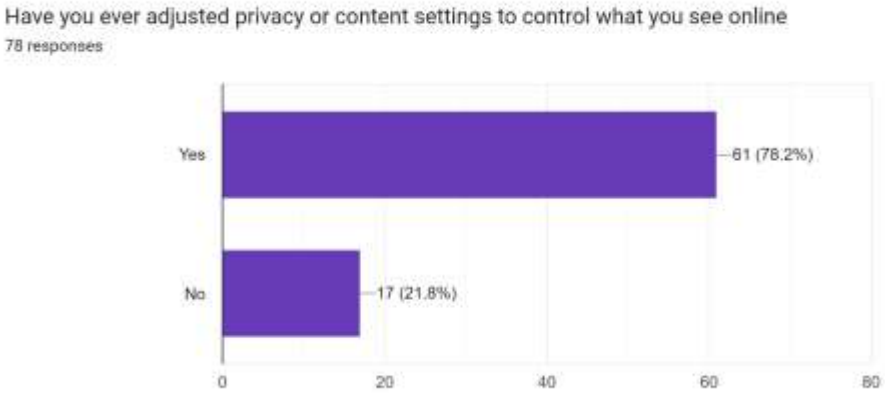

Figure 7 *Awareness of Data Protection Tools*

Regarding awareness of data protection tools, responses show mixed levels of awareness about privacy controls with majority 61(78.2%) indicating that they can adjust their privacy settings to control what they see online while 17(21.8%) were completely unaware. The findings suggest that majority of social media users are more concerned in protecting their personal privacy. Joshi et al. (2025) argues that people are more concerned with how much control they have over who sees what they share online especially when it comes to sharing photos. Charnsethikul, (2025) acknowledges that platforms provide various privacy setting which users can adjust to fit their privacy needs, but raises concern over many social media users who are unaware of how to adjust privacy settings. A portion of the respondents lack awareness of how to adjust privacy settings indicating some user may struggle to manage privacy effectively. This is in agreement with a survey on online privacy, security exposures and legal liabilities by Okede and Aduda (2025) who found that Kenyan social media users have limited comprehension of digital privacy risks. The authors suggest that enhancing the knowledge of online privacy and security through structured educational programmes could be beneficial to such users. Joshi et al. (2025) argue that social media companies have the responsibility to protect user data and the real -life effects of privacy violations.

Social media literacy is essential for navigating and actively participating in today's increasingly complex digital landscape, and safeguarding users is necessary as shown in Figure 8.

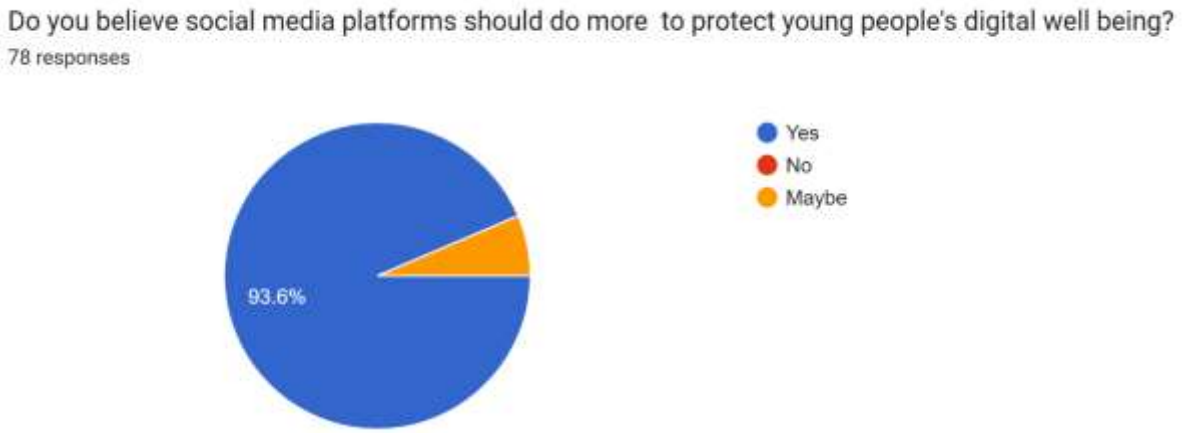

Figure 8 *Protection of Social Media Users*

Most 73(93.6%) respondents indicated that social media platforms should do more to protect young people in navigating digital spaces. As future information managers, information science students need training in social media literacy so that they can easily navigate online information sources. Digital literacy is fundamental as it empowers individuals to think critically and behave responsibly while mitigating the spread of misinformation (Handoko et al., 2023; Tambe, 2023). However, it is noted that 5(6.4%) of the respondents were ok with the measures already put in place by social media platforms to safeguard their users. Oeldorf-Hirsch and Neubaum, (2025) argues that with most of the online content that users engage with now controlled by algorithms, a lack of information literacy implies a lack of algorithmic literacy, with detrimental implications.

Social media platforms offer integrated tools that can significantly support young people in managing their social media use more effectively as presented in Figure 9.

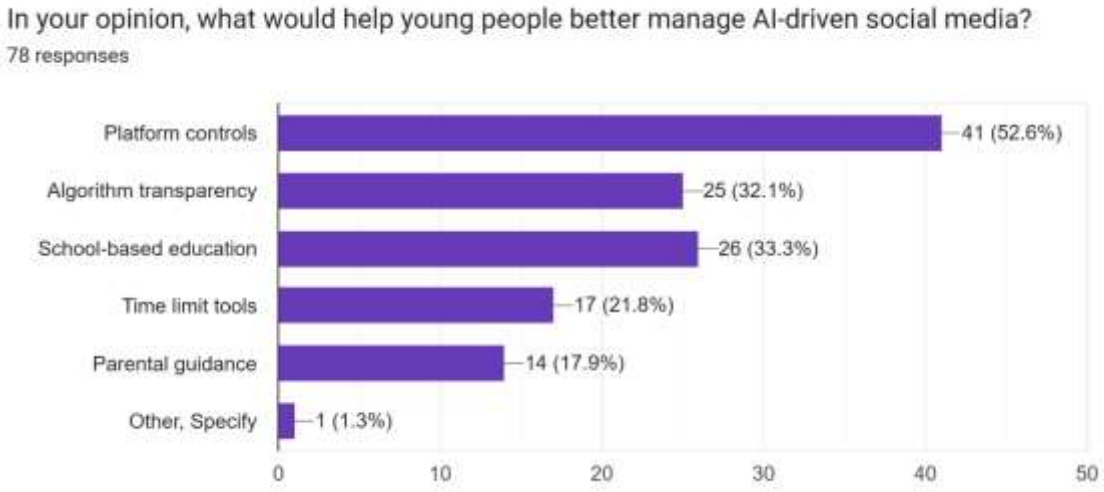

Figure 9 *Ways to help Young People Manage their Social Media Use*

Respondents indicated that built-in platforms control 41(52.6%) could play a beneficial role in helping young people manage their social media use. Glazzard and Stones (2019) noted that built-in platform controls can support safer social media use by enforcing boundaries and supporting responsible use. Although social media platforms' controls provide safe and secure environments, they can restrict user engagements and freedom to comment, raising concerns about the balance between safety and open expression (Jørgensen & Zuleta (2020); Gillespie, 2018). Proposed measures for strengthening digital literacy among students include school-based education 26(33.3%), along with greater algorithm transparency 25(32.1%). School - based education is crucial for enhancing digital literacy among students, including critical thinking, self-regulation and awareness of online risks (Hussein & Hussein, 2020).

In parallel, MacCarthy, (2020) suggested that increased transparency around how algorithms curate and prioritize content would enable youths to better understand why certain content is prioritized, potentially reducing risks associated with algorithmic curation, misinformation exposure and unhealthy comparison. Universities should focus on social media literacy seminars and workshops to strengthen competencies in responsible online behavior, privacy settings and professional branding. Additionally, mentorship programs and awareness campaigns can help students balance academic use and personal engagement on social media platforms hence promoting responsible digital citizens. Respondents also suggested time limit tools 17(21.8%) and parental guidance 14(17.9%) as young people engage in social media. Glazzard and Stones (2019) acknowledge that schools, parents and social media companies play a critical role in educating young people about how to use social media safely and responsibly.

Conclusion

The study concludes that the use of algorithms by social media platforms has enhanced user experience when searching and sharing information online. Young people spend a large part of each day on social media, primarily to access news and information, as well as for entertainment, education and staying in touch with friends enhancing their gratification. AI reshapes uses and gratification by personalizing content, automating interactions and predicting user needs, thereby intensifying satisfaction while subtly steering user behavior. Social media platforms facilitate youths to communicate, build popularity and maintain relationships but it also exposes them to risks such as addiction and misinformation. Excessive and unregulated use can harm youths' mental well-being, academic performance and social development, leading to emotional distress, heightened anxiety and fatigue.

Social media users are conscious that the content they engage with is curated to match their interests and online behaviour. However, most respondents are unaware of the criteria social media algorithms use to personalize and filter the content they see. Students need training in social media literacy to enhance online safety and effectively navigate and engage with an increasingly complex digital space. Built- in platform controls, school-based education and greater algorithm transparency are essential for strengthening student's social media literacy.

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Conflict of Interest Statement
The authors declare that there is no conflict of intertest.

Data Availability Statement
The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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