

The Impact of Algorithms on Decision-Making in Daily Life: A Polling Study of Technology Users

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Abstract—Algorithms have become an integral part of everyday life, particularly in entertainment, shopping, and navigation. This study examines how algorithms influence individual decision-making. Data were collected through an online poll involving 200 respondents, selected using a statistical sampling method. The results indicate that 55% of respondents perceive algorithms as having a significant influence on their decisions, while 28% report a moderate impact. A confidence interval analysis (95%) has been included to ensure statistical accuracy. The study highlights the importance of digital literacy in mitigating algorithmic bias and suggests future research on how socio-cultural factors shape algorithmic perceptions. This research contributes to understanding the extent of algorithmic influence on daily decision-making and raises user awareness of technology's impact. The implications include the importance of digital literacy to mitigate dependency and bias in algorithm usage and the potential to develop more transparent and ethical algorithmic systems. Future research could explore the relationship between users' awareness of algorithms and their behaviors in various contexts and evaluate ways to enhance public understanding of how algorithms function in the evolving digital ecosystem.

Keywords—algorithmic bias; algorithms; decision-making; digital literacy; polling

1 INTRODUCTION

Algorithms have become the backbone of modern technology operations. From search engines to streaming platform recommendations, algorithms operate behind the scenes to analyze data, predict needs, and provide suggestions to users [1-3]. While algorithm-based technologies are designed to simplify human life, they significantly impact decision-making patterns. In daily life, algorithms influence various aspects, such as entertainment choices through movie or music recommendations, online shopping decisions, and travel routes via navigation applications [4, 5]. This dependency raises important questions: To what extent do algorithms affect individual decisions, and are users aware of this influence?

Algorithms play a crucial role in modern digital environments, influencing decisions in e-commerce, social media, and navigation [6]. While previous studies have explored algorithmic personalization, the extent of user awareness regarding algorithmic influence remains underexplored [7, 8]. Recent research [9, 10] highlights concerns about filter bubbles and echo chambers, underscoring the need to analyze user perception. This study addresses this gap by investigating how algorithms shape daily decision-making and the level of user awareness.

Several studies indicate that algorithms can expedite decision-making processes; however, there is a risk of unnoticed bias. Algorithms are designed based on data and behavioral patterns, potentially reinforcing existing habits without allowing room for broader exploration. Additionally, a lack of digital literacy regarding how algorithms work may lead to over-reliance or even manipulation in decision-making. Digital literacy, which involves the ability to understand, use, and critically evaluate technology, is crucial [11, 12]. Digital literacy helps individuals recognize how algorithms work and manage their impact [13, 14]. Many users are unaware of how algorithms prioritize content or decisions, making them more likely to accept algorithmic outcomes uncritically [15, 16].

Algorithm-based decision-making has a dual nature. On the one hand, algorithms can streamline processes and improve efficiency, such as recommending relevant products or identifying the fastest travel routes [17]. On the other hand, algorithms designed without considering data diversity may introduce biases that affect decision outcomes [18-20]. Users tend to trust algorithmic outcomes, perceiving them as more objective [21, 22]. However, this trust can become problematic when algorithms lack transparency or produce biased results [20, 23]. This underscores the importance of transparency in algorithm design and implementation to mitigate potential negative consequences.

While various studies have discussed algorithms and their effects, there is a gap in understanding users' awareness of algorithmic influence in daily life. This study seeks to address this gap by collecting empirical data through polling to explore how algorithms affect users' decisions in different contexts. By gathering these insights, this research aims to contribute to a deeper understanding of human interaction with algorithms, users' awareness of technology's impact, and the implications for digital behavior in society.

Algorithms have emerged as fundamental tools for processing data and providing solutions to complex problems across various domains. Numerous studies have explored their role in modern technology, emphasizing their capability to analyze data, predict user preferences, and offer recommendations in real-time [1-3]. These algorithmic processes are widely utilized in daily activities, such as searching for information, entertainment, and navigation. Research highlights the transformative power of algorithms in simplifying human life while simultaneously shaping decision-making patterns [4, 5].

The implementation of personalization algorithms has gained significant attention in academic discourse. Personalization allows platforms to tailor content, products, or services based on user preferences, thereby improving user satisfaction and engagement [7, 8]. However, this convenience comes with the risk of creating filter bubbles, where users are exposed only to information that aligns with their existing preferences, limiting diverse perspectives [9, 10]. Scholars argue that while personalization enhances user experience, it raises concerns about users' ability to access unbiased and comprehensive information.

Several studies have highlighted the potential biases embedded within algorithms. Algorithms rely on historical data to make predictions and recommendations, which may inadvertently reinforce existing stereotypes or patterns of behavior [11, 12]. For example, biased algorithms in hiring platforms or credit scoring systems can lead to discriminatory practices, underscoring the need for ethical algorithm design. Addressing these biases requires incorporating diverse datasets and rigorous testing to ensure fairness and inclusivity [18-20].

Digital literacy has been identified as a critical factor in mitigating the risks associated with algorithmic influence. Digital literacy encompasses the ability to understand, evaluate, and interact with technology critically, enabling users to recognize how algorithms function and their potential impacts [13, 14]. Studies indicate that users with higher digital literacy are more likely to question algorithmic outputs and make informed decisions [15, 16]. Consequently, promoting digital literacy is essential in equipping users to navigate the algorithm-driven digital landscape effectively.

Several studies [20, 23] suggest that algorithms enhance efficiency but may reinforce biases. Digital literacy is a key factor in mitigating risks [13, 14]. Understanding algorithmic transparency is essential in preventing over-reliance [11, 12]. This study builds upon existing literature by exploring algorithmic influence across different socio-cultural backgrounds.

Transparency in algorithmic processes is another recurring theme in the literature. Transparency entails providing users with clear information about how algorithms function, what data they use, and how outcomes are generated [20, 23]. Researchers argue that transparency fosters trust in algorithmic systems while empowering users to evaluate critically their decisions [21, 22]. For example, platforms that disclose the criteria behind recommendations are more likely to gain user trust and reduce skepticism regarding algorithmic biases.



The impact of algorithms on entertainment choices has also been a focus of recent studies. Streaming platforms, such as Netflix and Spotify, leverage algorithms to recommend content based on user history and preferences [4, 5]. While these recommendations enhance user experience, they may limit exposure to diverse genres or creators. Studies suggest that balancing algorithmic personalization with user agency is crucial for fostering creativity and diversity in digital content consumption [7, 8].

In the context of e-commerce, algorithms have revolutionized the shopping experience by suggesting relevant products and services to users [7, 8]. Research shows that consumers often rely on these recommendations, which streamline the decision-making. However, scholars caution against the potential for manipulation, where algorithms prioritize profit-driven motives over user needs, potentially leading to unethical practices [9, 10].

Navigation applications, such as Google Maps and Waze, demonstrate the practical benefits of algorithms in optimizing travel routes and reducing travel time [4, 5]. These tools utilize real-time data to provide efficient solutions; however, studies reveal that users occasionally mistrust algorithmic suggestions, opting for alternative routes based on personal judgment. This highlights the importance of reconciling algorithmic reliability and user autonomy.

Social media algorithms have been scrutinized for shaping user behavior and perceptions. Platforms like Instagram and TikTok curate content feeds based on user interactions, creating highly engaging but potentially addictive experiences [15, 16]. Scholars argue that while these algorithms promote user engagement, they may also contribute to echo chambers and the distribution of misinformation. Addressing these challenges requires designing algorithms that prioritize user well-being alongside engagement metrics [21, 22].

Despite extensive research on algorithmic influence, gaps remain in understanding users' awareness of these effects. Studies emphasize the need for empirical investigations to assess how users perceive algorithmic decision-making in various contexts. By exploring these dimensions, researchers can provide valuable insights into fostering digital environments that balance technological innovation with ethical considerations [20, 23].

2 METHOD

This study adopts a quantitative approach, utilizing a survey method to investigate how further algorithms influence decision-making in everyday life. The research follows a structured series of steps, as illustrated in Fig. 1, which a guide for the methodology employed. By distributing an online questionnaire to a diverse group of respondents, the study aims to describe and analyze patterns in user perceptions and experiences with algorithm-based technologies.

The study is descriptive-quantitative. It aims to describe and analyze the extent of algorithmic influence on technology users' decisions based on polling results.

The population comprises technology users accessing algorithm-based platforms, including e-commerce, social media, streaming apps, and navigation applications. The sample size of 200 respondents was determined using the Krejcie & Morgan (1970) formula, ensuring a statistically representative sample. Random sampling was applied to ensure diversity in age, occupation, and digital literacy levels. The sample is 200 respondents selected randomly from various age groups and professional backgrounds, representing diverse experiences with algorithm-based technologies in entertainment, shopping, or navigation contexts.

Data collection was conducted using an online poll. The questionnaire included a primary question about the extent of algorithmic influence on daily decision-making, with five answer options: very significant, significant, moderate, insignificant, and unaware. Additionally, supplementary questions at the end of the questionnaire explored users' experiences with algorithms and their awareness of technology's impact.

The online poll was distributed to respondents via WhatsApp over seven days. Respondents were given free time to complete the poll, with clear instructions to answer honestly while reflecting on their daily usage of algorithms.

The data collected from the questionnaire were analyzed using descriptive statistical methods to depict the distribution of responses and identify patterns of algorithmic influence on decision-making [24]. The analysis involved steps such as frequency distribution, presenting the percentage of each response category to determine the level of algorithmic influence, and descriptive analysis, calculating the mean and standard deviation to describe the consistency or variation in respondents' perceptions of algorithmic influence.

Frequency distribution analysis was performed to identify patterns. The mean and standard deviation were calculated to assess the consistency of responses. A 95% confidence interval was used to validate statistical accuracy.

The study prioritized ethical considerations throughout its duration. Participants received clear information about the study's purpose and data usage, ensuring transparency. Respondents' identities were kept confidential to protect their privacy. All participants provided informed consent and voluntarily agreed to participate in the study before completing the survey.

The study focuses solely on active technology users familiar with algorithm-based applications. It may not represent the broader population, including those who rarely or do not use such technologies.

This methodology provides a comprehensive understanding of algorithms' impact on everyday decision-making. It also seeks to gauge users' awareness of algorithmic influence and identify potential contributions toward enhancing digital literacy.



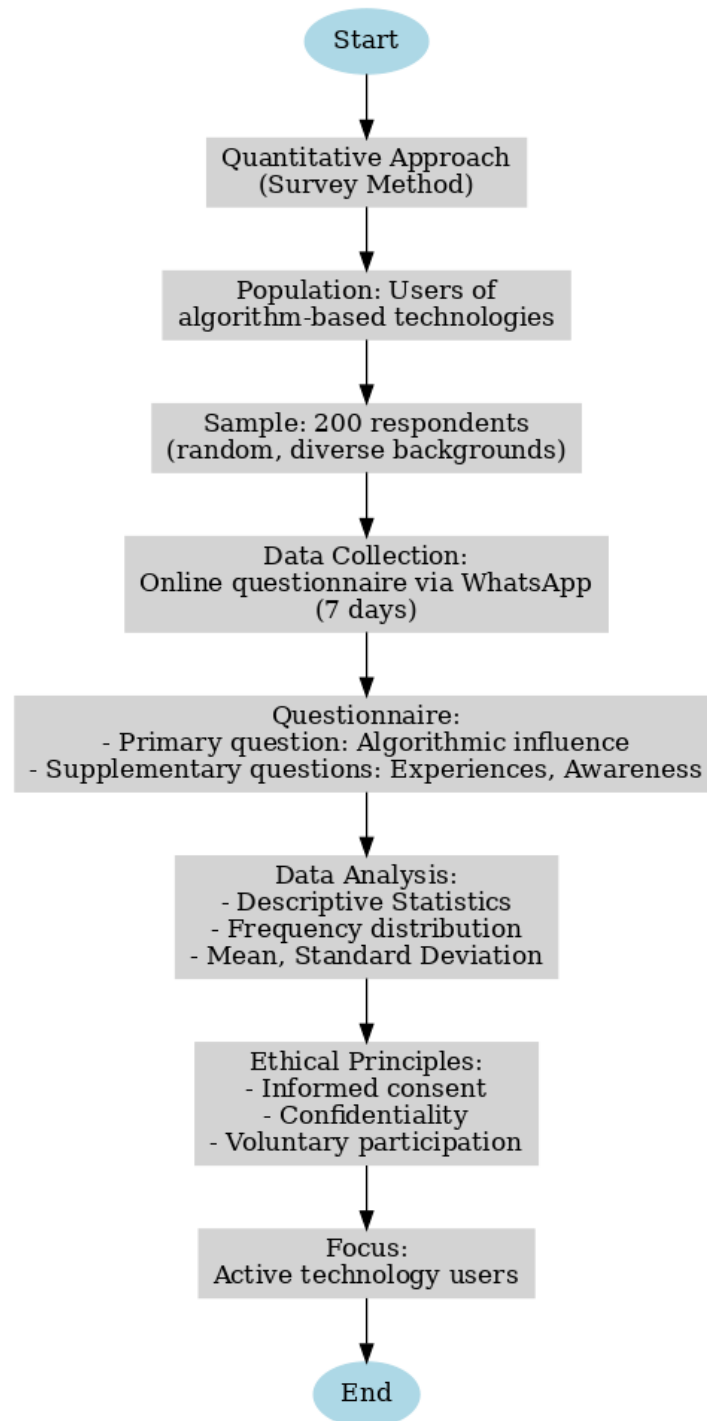


Figure 1. Research method

3 RESULT AND DISCUSSION

The poll successfully gathered responses from 200 participants with diverse age groups and professional backgrounds (Figure 2). Most respondents (55%) were active technology users, regularly interacting with algorithms in daily life through platforms such as online shopping applications, streaming services, and navigation apps.

The poll results are distributed based on the responses provided by participants. A small but notable 5% of

respondents selected "Very significant," revealing a heavy reliance on algorithms for various life aspects, from shopping and entertainment to navigation. Over half (55%) of respondents selected "Significant," highlighting algorithms' helpful impact alongside a desire for diverse perspectives. Meanwhile, 28% opted for "Moderate," stating that they occasionally follow algorithmic suggestions but largely base their decisions on habits or personal judgment. Only 3% chose "Insignificant," reflecting a preference for manual decision-making over algorithmic recommendations in their



daily lives. Lastly, 10% of respondents selected "Unaware," indicating a lack of awareness or understanding of how algorithms influence their decisions.

The results clearly show that 55% of respondents recognize algorithms' substantial impact on their lives. While they do not entirely rely on algorithms, they recognize their utility in facilitating quicker and more efficient decision-making, such as product recommendations in online shopping or content suggestions on streaming platforms. Meanwhile, 28% of respondents viewed algorithms' impact as moderate, often prioritizing personal experience or alternative sources over algorithmic recommendations.

Interestingly, only 5% of respondents feel heavily dependent on algorithms, demonstrating that despite the pervasive presence of technology in daily life, most individuals still prefer to maintain independent control over their decisions rather than fully delegating them to automated systems.

In contrast, 10% of respondents were unaware of algorithms' influence, underscoring a knowledge gap about their role in daily life. This underscores the need to enhance digital literacy, ensuring that individuals better comprehend the impact of technology on their decision-making processes.

Based on the polling results and additional interviews, algorithms play a substantial role in several aspects of daily life. The data shows algorithms' profound influence on user behavior and decision-making across multiple domains. Respondents often valued algorithms for their convenience and efficiency but expressed occasional skepticism about their outputs.

Streaming services, including Netflix, YouTube, and Spotify, significantly influence users' choices. A substantial number of respondents reported following recommendations provided by these platforms, which they found highly personalized and relevant to their preferences. For many, these suggestions enhanced their experience by helping them discover new content. However, a minority expressed concerns about the limitations of these recommendations, which sometimes led to a repetitive cycle of similar content.

Algorithms also play a pivotal role in online shopping, particularly in platforms like Amazon and Tokopedia. Respondents appreciated the convenience of personalized product recommendations, which they believed saved time and made their shopping experiences more efficient. However, most respondents stated that they cross-check product reviews, compare prices, and evaluate alternative options before purchasing. This behavior suggests that while algorithms guide initial preferences, users still exercise agency in final decision-making.

Navigation applications, such as Google Maps and Waze, are another area where algorithms significantly influence daily life. Respondents praised these tools for providing efficient routes and real-time updates on traffic conditions, which they frequently relied on for short and long trips. Nevertheless, some users admitted they occasionally deviated from suggested routes due to personal preferences or mistrust of the app's recommendations, highlighting a balance between trust in technology and individual judgment.

In the realm of entertainment, algorithms used in education were another sector where respondents observed the impact of algorithms. Platforms like Coursera, Khan Academy, and YouTube Learning leverage algorithms to suggest courses and educational content. Many respondents felt that these recommendations aligned with their learning goals, enabling them to explore relevant topics. However, some respondents expressed concerns about the lack of diversity in recommendations, which could narrow their educational experiences.

Algorithms on major social media platforms like Instagram, TikTok, and Facebook significantly shape users' content consumption. Respondents often followed content suggested by these platforms, which kept them engaged and informed. However, they also voiced concerns about the potential for algorithm-driven echo chambers, where they were exposed to repetitive or biased information that reinforced pre-existing viewpoints.

Algorithms supported project management and task automation in the workplace. Tools like Trello, Slack, and Microsoft Teams use algorithms to prioritize tasks and streamline workflows. Respondents acknowledged that these algorithms improved productivity and coordination among team members, though some raised concerns about the potential loss of human oversight and creativity in decision-making processes.

Healthcare applications, including fitness trackers and symptom checkers, leverage algorithms to provide personalized insights. Respondents who used apps like Fitbit and MyFitnessPal noted that algorithm-generated suggestions motivated them to adopt healthier habits. However, they cautioned against over-reliance on these apps, as algorithmic inaccuracies or biases could lead to misinformed health decisions.

Despite these benefits, respondents expressed concerns about privacy and data security. The widespread use of algorithms often necessitates collecting and processing personal data, prompting concerns about consent and transparency. This concern was particularly prevalent among respondents who used multiple algorithm-driven platforms, amplifying their awareness of potential risks.

The mean (average) was calculated using (1):

$$\text{Mean} = \sum (\text{Category Value} \times \text{Percentage of Respondents}) \quad (1)$$

The standard deviation was calculated using (2):

$$\sigma = \sqrt{\sum p_i (x_i - \mu)^2} \quad (2)$$

Where:

p_i is the percentage of respondents in category i ,

x_i is the value of category i ,

μ is the calculated average.



The Poll Results

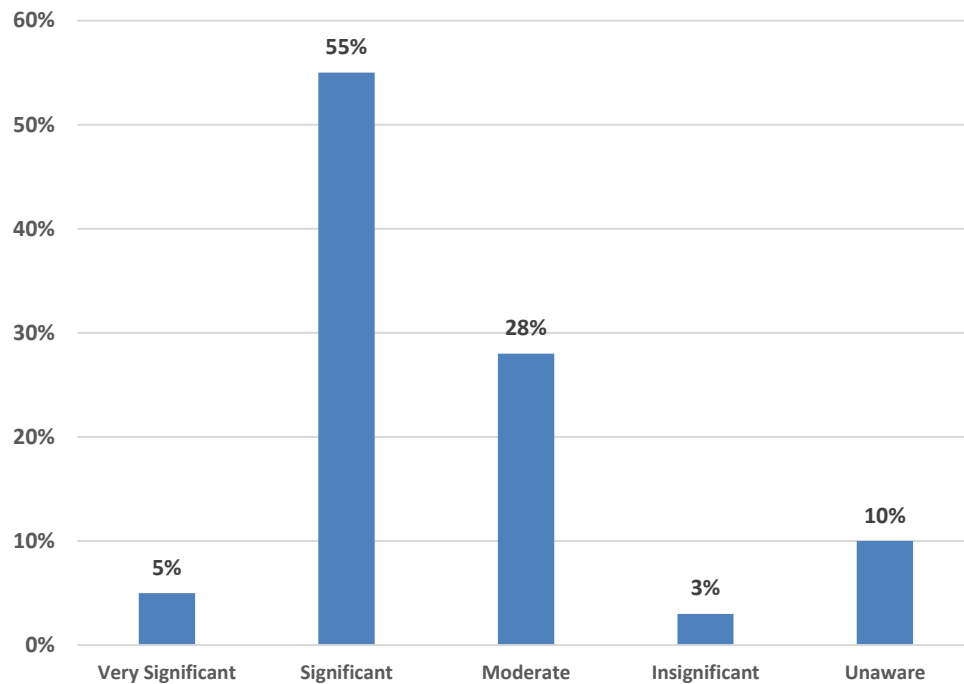


Figure 2. Graph of the poll results

The descriptive analysis results (Table 1) indicate that the sample consists of 200 respondents, with complete data and no missing values. The average value of the variable is 3.43, with a standard error of 0.071, which indicates a fairly good level of accuracy of the average estimate. The median and mode are both 4.00, suggesting that most respondents gave

values that tend to be high. The data exhibits moderate variability with a standard deviation of 1.00.

The range of values spans from 1 as the minimum to 5 as the maximum, reflecting a scale-based system, such as the Likert scale. This distribution provides insights into the consistency and reliability of the data collection process.

Table 1. Statistics Polling

Metrics		Values
N	Valid	200
	Missing	0
Mean		3.43
Std. Error of Mean		.071
Median		4.00
Mode		4
Std. Deviation		1.000
Variance		.999
Skewness		-1.239
Std. Error of Skewness		.172
Kurtosis		1.038
Std. Error of Kurtosis		.342
Range		4
Minimum		1



The high concentration of values around 4.00 suggests that many respondents view the variable, such as algorithmic influence, as having a substantial impact. This clustering suggests that many participants view algorithmic influence as having an important impact on their lives.

Furthermore, the lack of missing data underscores the robustness of the data collection method, ensuring that all responses are accounted for and analyzed comprehensively. This contributes to the credibility of the findings and highlights the reliability of the questionnaire used in the study.

The moderate standard deviation suggests that while respondents' opinions vary, the variability is manageable and not extreme. This balanced dispersion of opinions indicates a reasonable range of perspectives among participants.

Overall, the data is well distributed, with a tendency for values to cluster above the average, suggesting a positive skewness. This indicates that respondents generally perceive a higher-than-average influence of algorithms on their decision-making processes.

Descriptive analysis plays a dual role: it offers a snapshot of respondents' views and paves the way for more in-depth statistical analysis. This foundational step is essential for grasping the wider implications of algorithms in everyday life.

Table 2 illustrates the distribution of respondents based on their perceived significance level of the issue. Out of 200 respondents, the largest group fell into the "Significant" category, with 110 individuals (55.0%), emphasizing that the majority perceived the issue as highly important. Following this, 55 respondents (27.5%) placed the issue in the "Moderate" category, suggesting that a considerable proportion still viewed the issue as relevant, albeit less critical than the majority. The "Unaware" group comprised 20 respondents (10.0%), while only a small fraction categorized the issue as either "Insignificant" (5 respondents, 2.5%) or "Very Significant" (10 respondents, 5.0%).

Cumulatively, 95.0% of respondents regarded the issue as having at least moderate importance, spanning from "Moderate" to "Very Significant." This overwhelming percentage reflects a generally positive perception among respondents about the relevance of the issue in question. The limited presence of "Insignificant" responses (2.5%) and "Unaware" (10.0%) responses suggests that most individuals

were not only aware of the issue but also considered it impactful in some capacity. This trend aligns with a broader understanding that many issues are inherently significant to people's daily lives and decision-making processes.

Notably, only 5.0% of respondents considered the issue "Very Significant," suggesting that while most respondents recognized its importance, few deemed it critical. This response pattern indicates a nuanced perception of the issue's significance. This suggests respondents may be cautious about overemphasizing algorithms' importance or are influenced by contextual factors and personal experiences. It highlights the nuanced perspectives people hold, even when agreeing on the general significance of a topic.

The frequency distribution underscores a broadly positive reception of the issue's importance, with most respondents acknowledging its impact at moderate to high levels. The balance between "Significant" and "Moderate" responses suggests that while there is consensus about its relevance, the degree of its impact varies based on individual interpretation or experience. These findings highlight varied awareness and perceptions, paving the way for further exploration into the factors influencing public opinion. This insight can inform further research and analysis.

The descriptive statistics (Table 3) provide an overview of the results from 200 respondents regarding the variable "Polling." The average response value of 3.42 suggests respondents viewed the topic generally as moderately to highly significant. The minimum value of 1 and maximum value of 5 demonstrate a Likert scale, which allows for diverse responses reflecting varying perceptions among respondents. The total cumulative value of 685 highlights the overall contributions of the respondents, representing a balanced distribution across the scale.

The range of 4 further confirms the diversity in responses, capturing the variability from the lowest to the highest assessment levels. A standard deviation of 1.000 shows moderate dispersion of data around the mean, suggesting that while there is some variability, most responses are not extreme. This finding reflects a general agreement among respondents, with controlled differences in their perceptions.

Table 2. Frequency Distribution (Polling)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Unware	20	10.0	10.0	10.0
Insignificant	5	2.5	2.5	12.5
Moderate	55	27.5	27.5	40.0
Significant	110	55.0	55.0	95.0
Very Significant	10	5.0	5.0	100.0



Total	20	100.0	100.0
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Table 3. Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Polling	200	4	1	5	685	3.42	0.71	1.000
Valid N (listwise)	200							.999

The standard error of 0.071 strengthens the reliability of the average estimate, showing that the sample mean is a good representation of the population mean. A low standard error ensures the results' reliability and accuracy in reflecting respondents' views. Variance values near 1 suggest moderate variability and response consistency, with minimal outlier influence.

In summary, Table 3 offers a detailed view of respondents' perceptions, showing moderate variation around the mean while maintaining a consistent trend of valuing the topic. These descriptive statistics highlight the reliability and validity of the data, suggesting that most respondents share similar perspectives, with only slight deviations across the scale.

The histogram (Figure 3) illustrates the distribution of the "Polling" variable data from 200 respondents, which shows a tendency towards a normal distribution. The mean value is 3.43, with a standard deviation of 1, indicating that the data is moderately distributed around the mean. The peak of the distribution is at a value of 4, where the frequency of respondents choosing this value is the highest, with more than 100 respondents. Most respondents gave values between 3 and 4, while extreme values such as 1 and 5 have a much smaller frequency. A superimposed normal curve also supports the interpretation that the data is symmetrically distributed around the mean. This reflects that respondents' perceptions of the measured variables tend to be consistent and centred on the middle value of the scale.

The descriptive analysis of the poll results reveals several key findings regarding respondents' perceptions of the influence of algorithms on their lives. The mean value obtained was 3.45, indicating that most respondents rated the impact of algorithms on their decisions as "fairly significant." However, they do not entirely rely on algorithms, often considering other factors, such as personal habits or additional considerations, when making decisions. In other words, while algorithms have a notable influence, respondents still maintain a degree of independence in their decision-making.

Additionally, the standard deviation value of 1.00 reflects the variation in respondents' perceptions of algorithmic influence. A lower standard deviation suggests greater consistency in responses. In this case, a standard deviation of 1.00 indicates that while the majority recognize the impact of algorithms, there is considerable variability among individuals regarding the extent of this influence. This variability may stem from differences in awareness,

understanding, or experiences with algorithmic systems in daily life.

Many respondents aren't fully aware of the algorithms' influence on their choices. This may point to a lack of understanding of algorithmic operations, potentially leading to unconscious dependence on recommendations and decisions generated by these systems.

Although most respondents acknowledge the benefits of algorithms, such as convenience in discovering products or entertainment, they also express caution in relying solely on algorithmic recommendations. Some respondents preferred verifying information manually or consulting diverse sources, highlighting the importance of balancing technology use with decision-making autonomy.

The findings highlight that while algorithms provide convenience and efficiency in decision-making, excessive reliance on them can pose risks. For instance, algorithms designed based on historical data can reinforce existing biases and limit the diversity of choices, creating phenomena like filter bubbles and echo chambers [9, 25-27]. Therefore, it is crucial for users to develop greater awareness of how algorithms shape their behavior and to understand the potential negative impacts of overdependence on algorithmic systems.

This study reveals that algorithms influence the daily decision-making of most users, albeit to varying degrees. While many respondents find algorithms helpful, they do not fully depend on the recommendations provided. However, the findings also reveal that many individuals are unaware of algorithmic influence, highlighting the need for enhanced digital literacy to empower critical evaluation and management of technology.

In a broader context, this study highlights the critical need to deepen our understanding of algorithmic functionality and its influence on decision-making processes. The study emphasizes developing algorithmic systems with transparency and ethical considerations at their core.

The findings of this study align with previous research regarding the impact of algorithms on decision-making processes. Algorithms often function as gatekeepers, filtering information and limiting the scope of what individuals see, ultimately creating "filter bubbles" that reinforce existing perspectives and preferences [28, 29]. This study confirms algorithms' consistent influence on users, especially in entertainment and e-commerce. However, the level of



awareness among respondents in this study highlights a nuance in the broader understanding of algorithmic influence.

The findings align with research [3, 4, 6-8, 16, 22, 23, 28, 30], which suggests a lack of algorithmic awareness among users. Our study expands this by analyzing socio-cultural factors influencing algorithmic perception. Higher digital literacy correlates with greater skepticism towards algorithmic recommendations. Algorithmic bias can reinforce social inequalities [6, 15, 18-20, 28]. Promoting transparency in algorithm design is crucial in addressing these concerns. Notably, a segment of respondents admitted to being unaware of the full extent to which algorithms shape their daily decisions. This finding aligns with previous research showing limited public understanding of algorithmic processes and their implications [30, 31]. While users appreciate the convenience algorithms offer, many do not critically assess the underlying mechanisms or understand how personal data influences the recommendations they receive.

This study interestingly diverges from earlier research, indicating that users do not blindly trust algorithmic outcomes. Instead, it suggests a more nuanced perspective. While previous studies have argued that algorithms are perceived as more objective and reliable than human decision-making [21, 32], the current findings indicate a more skeptical user base. Most respondents in this study demonstrated a critical approach, frequently questioning algorithmic suggestions and exploring alternatives before making decisions.

This critical stance may be attributed to the growing awareness of algorithmic biases, as widely discussed in recent years. Users have become more informed about the limitations of algorithms, such as their potential to perpetuate biases, prioritize profit-driven agendas, or lack transparency in decision-making processes [21, 30-32]. Such awareness likely influences their willingness to rely entirely on algorithmic outputs and promotes a more balanced decision-making approach.

Another key finding relates to the domains in which algorithms exert significant influence. Consistent with prior studies, this research highlights entertainment, online shopping, and navigation as areas where algorithms play a central role [17]. However, respondents also expressed a notable level of agency in these domains. For instance, while they acknowledged relying on algorithms for convenience, many reported double-checking product reviews or exploring alternative routes not suggested by navigation applications [8, 16, 20, 30, 32].

The study also sheds light on the role of digital literacy in shaping users' interactions with algorithms. Respondents with higher digital literacy, marked by critical understanding and evaluation of technology, approached algorithmic recommendations with caution. This finding supports earlier studies that emphasize the importance of digital literacy in mitigating the risks of algorithmic manipulation and over-reliance [11, 12].

Despite the overall positive trend of critical awareness, some respondents remained unaware of the nuances of algorithmic operations. This highlights the need for continued education and public awareness campaigns about how

algorithms work and their potential societal impacts. Without such initiatives, a significant portion of the population may remain vulnerable to the unintended consequences of algorithmic decision-making.

Additionally, this study underscores the importance of transparency in algorithm design and implementation. Respondents frequently expressed concerns about the opaque nature of algorithms, which aligns with existing calls for clearer explanations of how data is collected, analyzed, and utilized [20, 23]. Enhanced transparency could foster greater trust between users and the technologies they rely on.

This research also highlights the dual nature of algorithmic influence. While algorithms offer substantial benefits, such as streamlining processes and improving efficiency, they also pose risks related to bias and over-reliance. Algorithmic decision-making requires a balanced approach, blending innovation with ethical oversight.

This study offers key insights into the dynamic relationship between users and algorithms, shedding light on the complexities of their interactions. The study builds on prior findings, spotlighting key gaps in transparency and digital literacy. This research advances the conversation on algorithmic decision-making's ethical and social impact.

4 CONCLUSION

This study confirms that algorithms significantly influence daily decision-making, though awareness levels vary. Digital literacy plays a key role in mitigating algorithmic bias. Based on a poll involving 200 respondents, many acknowledged that algorithms significantly influence their decision-making, although they do not fully depend on them. Meanwhile, a small portion of respondents admitted being unaware of the influence of algorithms on their decisions, indicating that there is still room to improve digital literacy among the public.

There is a growing need for society to understand algorithms' workings, impacts, and the importance of critically evaluating tech recommendations. Algorithmic literacy programs and tech impact training should be integrated across educational levels and community groups.

Algorithm developers and tech companies should prioritize transparency in user data use and algorithmic decision-making. This transparency can build user trust and reduce excessive dependency on algorithms.

Governments and regulatory bodies must address potential biases in algorithms and their impact on user decisions. Promoting the development of fair, objective, and inclusive algorithms is essential to ensure technology does not perpetuate existing inequalities.

This study contributes to understanding how algorithms affect everyday decision-making, particularly in the contexts of entertainment, online shopping, and navigation. It underscores the need for users to be aware of algorithms' impact on their lives and strike a balance between tech convenience and human autonomy. The findings enrich the literature on digital literacy, algorithms, and their social and cultural consequences.



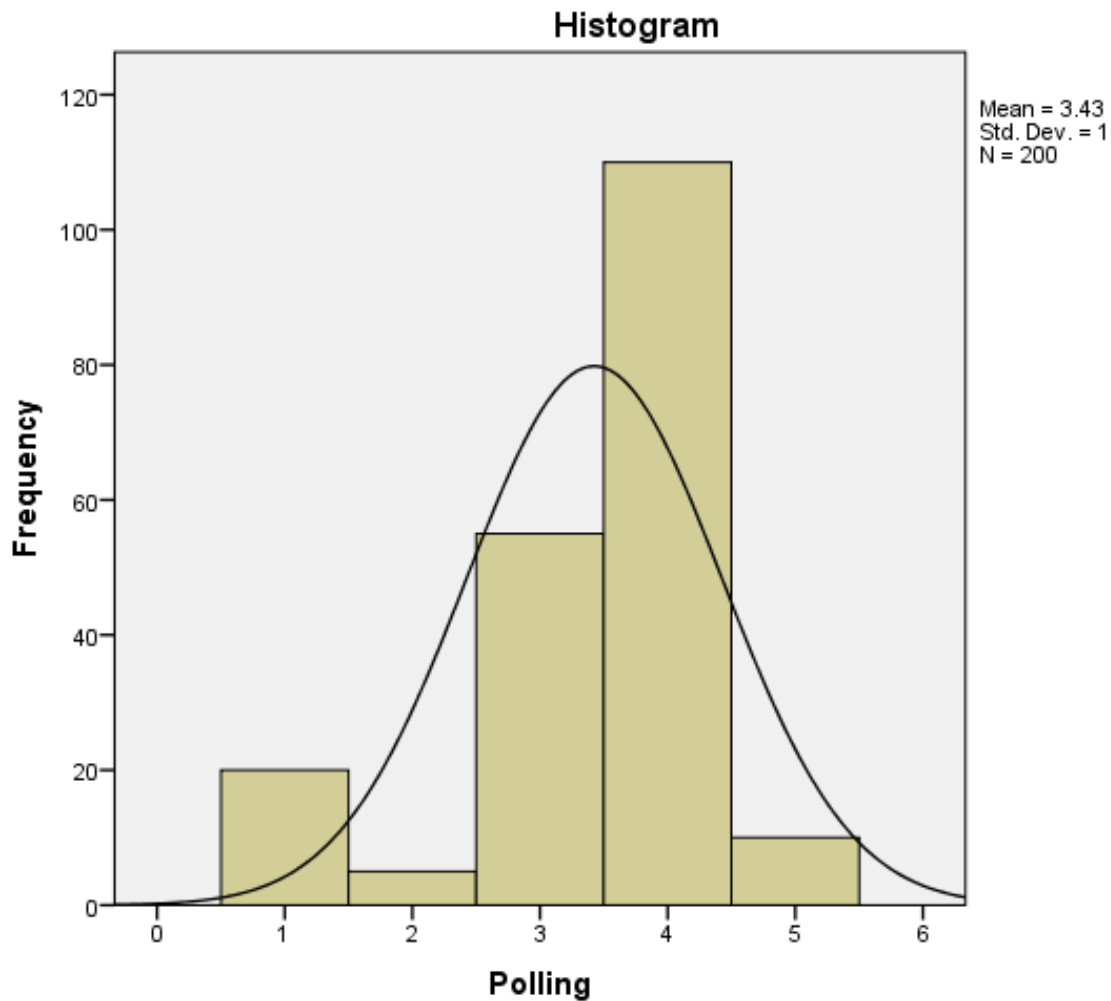


Figure 3. Histogram of the polling

The study emphasizes that although algorithms offer convenience, users need to be more critical when following algorithmic recommendations. Users should always consider alternative options and not rely entirely on technology's suggestions without understanding the potential biases involved. The findings of this study imply that technology developers must consider the impact of algorithms on user behavior. Developing more transparent algorithms that are responsive to user needs can improve the quality of their digital experience.

Governments and regulatory institutions should introduce policies that promote greater transparency in algorithm usage. Additionally, they should establish monitoring mechanisms to prevent potential misuse, particularly in cases that may lead to discrimination or harmful societal influence.

To mitigate the challenges posed by algorithmic influence, several recommendations should be considered. First, enhancing digital literacy programs is essential to improve user awareness of how algorithms function and their potential biases. Educating users about algorithmic decision-making can empower them to critically assess recommendations and make informed choices. Second, implementing transparency measures in algorithmic systems

is crucial to ensure fairness and accountability. By providing clear explanations of how data is processed, and decisions are made, users can develop greater trust in technology while minimizing risks associated with opaque algorithms. Lastly, further research should be conducted to investigate the long-term behavioral effects of algorithmic decision-making. Understanding how prolonged exposure to algorithmic recommendations influences user behavior and decision-making patterns will help shape policies and technological advancements that prioritize ethical and responsible AI development.

Future research should examine the impact of algorithms across different demographic segments and their role in fostering digital dependency. Future research can expand on these findings by focusing on deeper analysis of other sectors where algorithms have significant influence, such as banking, healthcare, or education. Studies can also explore differences in algorithmic influence based on demographics such as age, educational background, and technological experience. Moreover, research on the role of algorithms in creating technology addiction and their impact on individuals' mental and social well-being could be a critical area for further exploration.



Overall, this study opens opportunities for the development of wiser policies and practices in utilizing algorithm-based technology, fostering a society that is more aware and critical of decisions made by automated systems.

AUTHOR'S CONTRIBUTION

All authors contributed significantly to the completion of this study. Author 1 conceptualized the research framework, designed the methodology, and oversaw data collection and analysis. Author 2 conducted the literature review and contributed to the interpretation of the findings. Authors 3 and 4 were responsible for drafting and revising the manuscript, ensuring clarity and coherence. All authors reviewed and approved the final version of the manuscript and agreed on its submission for publication. Each author's unique expertise played a pivotal role in achieving the study's objectives and ensuring its quality.

COMPETING INTERESTS

The authors declare that they have no conflicts of interest or competing interests that could influence the work reported in this paper.

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