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Filter Bubble Phenomenon on Instagram and Its Impact on Teenagers Lifestyle and Social Interaction

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ABSTRACT

This research aims to analyze the phenomenon filter bubble on Instagram and its impact on lifestyle changes and social interactions of teenagers aged 16-20 years in Palembang. **Instagram**, as a visual-based social media platform, uses Artificial Intelligence (AI) algorithms to customize and filter content according to user preferences, which can influence user thought patterns, attitudes and behavior. In this research, a **qualitative approach** was used with literature study methods and content analysis. Data was collected through in-depth interviews with teenagers in Palembang who actively use Instagram. The **research results** show that filter bubble influencing teenagers in adopting lifestyle trends, especially in terms of appearance and beauty, such as the use of makeup which often appears in Instagram feeds. In addition, this phenomenon also contributes to the formation of homogeneous social groups, where teenagers are more likely to interact with individuals who have similar interests, while different views tend to be ignored. **Based on** Information Integration Theory, this research explains that information received via social media, which is filtered by the Instagram algorithm, shapes teenagers attitudes and behavior. The conclusion of this research is that the phenomenon filter bubble has a significant impact on the development of teenagers lifestyles and social interactions, which has the potential to narrow their horizons to various perspectives. Therefore, better digital literacy is needed to help teenagers be more critical in consuming information on social media.

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1. INTRODUCTION

The global rise of digital technologies and social media has also significantly shaped developments in Palembang, one of Indonesia's major urban centers. Teenagers, as members of the digital native generation, are deeply immersed in social media environments, with Instagram emerging as their dominant platform of choice. Research indicates that approximately 93.3% of Indonesian adolescents actively engage with Instagram, posi-

tioning it as the most widely used platform within this demographic [1]. Advances in digital and information technology have shifted the internet into a central communication medium that profoundly influences how individuals interact, acquire information, and construct personal identity and lifestyle. Unrestricted access to educational resources, entertainment, and diverse information has become an essential need, particularly for students and young people. This condition reflects the world is flat concept introduced by [2], illustrating a highly interconnected, borderless digital landscape that allows individuals to obtain information from any location.

Furthermore, this digital evolution aligns with the Sustainable Development Goals (SDGs), especially Goal 4 on Quality Education and Goal 9 on Industry, Innovation, and Infrastructure, emphasizing inclusive digital literacy and the ethical utilization of technology. As a visually oriented social media platform, Instagram enables teenagers to express themselves and engage socially through photo and video content. Social media, as one of the major outcomes of technological innovation, increasingly shapes everyday life. Instagram, in particular, provides various features that encourage content creation, interaction, and the formation of social connections. According to reports by [3], Instagram ranks third globally in terms of active users and has reached 53 million users in Indonesia. As illustrated in Figure 1, the platform remains one of the most dominant in the country, with its rapid user growth significantly driven by teenagers and young adults.

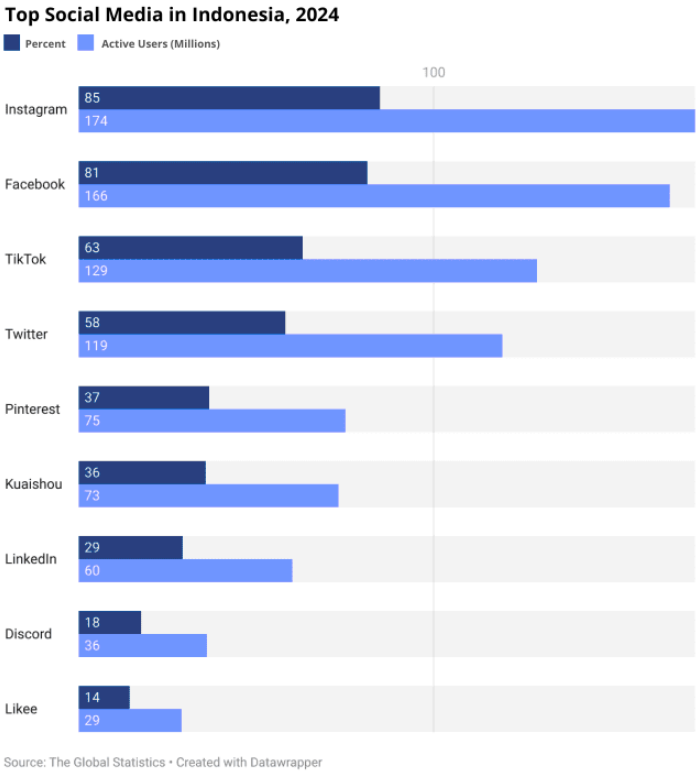

Figure 1. Top Social Media Platforms in Indonesia With Instagram Leading Active Users

Figure 1 illustrates that the rise of Instagram's popularity has reshaped users' patterns of information consumption [4]. The platform's algorithm, which operates through the filter bubble mechanism, determines which content appears most frequently on a user's feed. Previous studies explain that teenagers often utilize Instagram to display a positive version of themselves, either representing their actual self or the ideal self they aspire to show. At the same time, they maintain relationships within their social circles. When compared to Facebook, which is oriented toward interpersonal communication, Instagram functions more as a space for self-promotion and personal branding rather than for building deeper social interaction. This characteristic positions Instagram as a digital arena where teenagers actively shape and negotiate their online identities and daily lifestyle expressions. In addition, the algorithmic flow of visually appealing and repetitive content further reinforces the behaviors and identity cues that teenagers choose to adopt in their daily online activities.

As digital platforms continue to advance, AI increasingly influences how information is curated and delivered to users. Instagram's personalization system, especially within its Home feed and Explore page, processes user behavior to identify the type of content that aligns most closely with individual interests [5]. One resulting effect of this personalization process is the presence of the filter bubble phenomenon, which describes a situation in which users are surrounded by content that reflects their existing preferences and interaction habits [6]. The algorithm organizes information by relying on several types of user data such as location, browsing history, and followed accounts. Through this filtering pattern, users gradually lose access to alternative information and differing viewpoints that do not match their dominant preferences [7]. For many teenagers, this leads to a digital environment filled with homogeneous informational "bubbles", shaping a narrow and highly curated perception of the world.

The presence of the filter bubble on social media has increasingly become a topic of concern because of its potential impact on adolescent growth, particularly in the areas of lifestyle development and patterns of social interaction. Several internet activists warn that a high level of algorithmic personalization can create conditions of intellectual isolation and even lead to social fragmentation [6]. Adolescents, who are in a critical period of forming their identities, are highly susceptible to the repetitive content presented to them. When they are consistently exposed to uniform and algorithmically arranged material, their understanding of what is considered "normal" in daily life can gradually shift. An example of this can be seen in how Instagram's AI system frequently highlights specific body ideals or lifestyle portrayals. Over time, this continuous exposure is capable of reshaping teenagers' interpretations of a healthy body and an ideal lifestyle [8]. Previous studies have also shown that Instagram plays a major role in constructing body image among adolescents. High levels of engagement on the platform are associated with increased risks of body dissatisfaction, unhealthy eating behaviors (disordered eating), and symptoms of depression in younger users [8].

In addition to influencing lifestyle perceptions, algorithmic systems on social media platforms contribute to the amplification of extreme content and ideological tendencies. A study conducted by [9] reported that TikTok's algorithm, which operates similarly to other AI-driven platforms, tends to escalate users' exposure to misinformation and harmful ideological content. This mechanism can make misogynistic messages and hateful narratives more easily accepted and normalized among teenagers [9]. Furthermore, the effects of algorithmic content consumption are not limited to online spaces. The absorption of toxic ideologies through social media has begun to manifest within teenagers' offline environments, including school settings [9]. Overall, these findings indicate that the filter bubble affects much more than the types of information adolescents prefer. Its influence extends to lifestyle adjustments such as fashion preferences, leisure activities, purchasing choices, and broader social behaviors observed in their daily lives [10].

From a theoretical standpoint, the influence of the filter bubble on adolescents can be examined using Information Integration Theory. Proposed by [11], this theory states that individuals construct judgments or decisions by combining information obtained from multiple sources [12]. In other words, a person's final assessment emerges through the cognitive integration of the various pieces of information they receive. Within the context of social media, the theory implies that when teenagers repeatedly encounter similar or unidirectional content on their Instagram feed, that homogeneous information will gradually shape their personal viewpoints and attitudes. The filter bubble causes this integration process to become unbalanced, as the information presented is relatively uniform and tends to reinforce adolescents' initial preferences or biases. As a consequence, teenagers may increasingly assume that the lifestyle trends or dominant opinions appearing on their timeline are the most accurate, while alternative perspectives are overlooked or undervalued [13]. This condition can strengthen particular behaviors, values, and lifestyle choices excessively, while limiting adolescents' opportunities to access diverse information or to interact with individuals outside their digital "bubble".

In addition to shaping the circulation of information, AI is also beginning to reshape interpersonal communication patterns in digital spaces, one example being the increasing use of chatbots [14]. AI-driven chatbots are now integrated across multiple platforms, including social media and messaging applications, where they interact with users in a conversational manner similar to human communication partners. The rise of these chatbot systems has prompted a shift in traditional interpersonal communication theories. The Computers Are Social Actors (CASA) paradigm suggests that humans often apply social interaction norms when engaging with computers or AI agents. This implies that teenagers may treat chatbots as "social actors", forming expectations and responses that resemble interactions with real individuals. Even so, research indicates that human-machine communication still differs from human-to-human communication. One noticeable difference is that users typically perceive a lower level of social presence when interacting with chatbots and may inter-

pret identical messages differently depending on whether they are delivered by AI or by a human. Nonetheless, under certain conditions, exchanges with chatbots can evoke positive emotional reactions that are comparable to human interactions. A well-designed AI system can generate feelings of comfort or emotional warmth for the user [15]. These technological advancements show that the distinction between human communication and machine-mediated interaction is becoming increasingly blurred. For many teenagers today, digital communication partners are not limited to peers or family members, but also include AI-based entities. This shift highlights the need to update existing interpersonal communication theories so that they can incorporate the evolving dynamics of interactions in which human–machine communication becomes part of everyday social experience.

Palembang City, as one of Indonesia's major urban areas, is experiencing rapid progress in the digital sector. According to data from the Indonesian Internet Service Providers Association (APJII), internet usage in South Sumatra, including Palembang, continues to rise in line with increased smartphone adoption among teenagers and students. Instagram is among the platforms most frequently accessed by teenagers in Palembang to explore lifestyle-related information, including makeup trends, as shown in Figure 2.

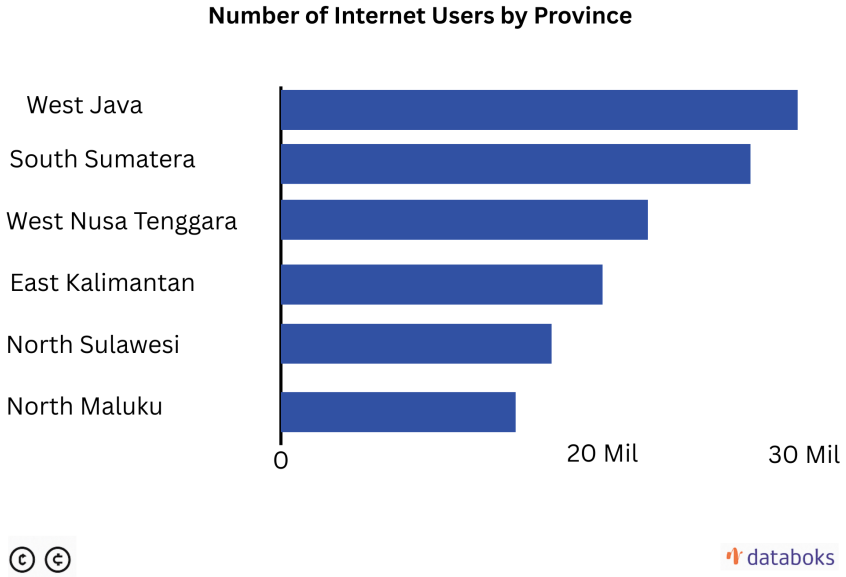

Figure 2. Number of Internet Users by Province in Indonesia Showing South Sumatra Among the Top Regions

Despite the widespread discussion of algorithmic influence on online behavior, the specific impact of filter bubbles on lifestyle development and social interaction among teenagers, particularly female students in Palembang, remains underexplored [16]. As shown in Figure 2, South Sumatra is among the provinces with the highest number of internet users in Indonesia, which strengthens the urgency of understanding how algorithmic content exposure shapes adolescents in this region. Strengthening digital literacy is essential to enable teenagers to critically evaluate the information they encounter on social media within algorithm-driven environments. This research is also expected to offer valuable insights for academics, media stakeholders, and policymakers in developing digital education strategies that can address the negative effects of filter bubbles on the thinking patterns and behavior of teenagers in Palembang [17]. For this reason, the study becomes highly relevant in examining how Instagram's filter bubble influences lifestyle changes and social interaction patterns among female students in the city, as well as identifying approaches that can enhance digital awareness to navigate increasingly complex algorithmic ecosystems in the era of AI.

Based on the discussion above, it is evident that Instagram's filter bubble algorithm, along with rapid advancements in AI across social media platforms, has the potential to strongly shape the behavior of the younger generation. Teenagers in Palembang, who actively participate in digital culture, are experiencing this global trend within their own local context [18]. Therefore, this study concentrates on investigating the effects of the Instagram filter bubble phenomenon on lifestyle transitions and social interaction dynamics among adolescents aged 16–20 in Palembang. Conducting this research is important to gain a deeper understanding of

how AI-driven social media influences the social realities of teenagers at the local level. Such understanding is crucial for formulating strategic actions that can optimize the benefits offered by technology while minimizing its potential negative impacts [19].

1.1. Problem Formulation

Based on the background above, the problem formulation in this research is as follows:

- In what ways does the Instagram filter bubble phenomenon contribute to shifts in lifestyle patterns among teenagers aged 16–20 in Palembang?
- In what ways does the Instagram filter bubble phenomenon shape the social interaction behaviors of teenagers aged 16–20 in Palembang?

1.2. Research purposes

In accordance with the problem formulation, this research aims to:

- To examine how the Instagram filter bubble phenomenon affects lifestyle changes among teenagers aged 16–20 in Palembang.
- To examine how the Instagram filter bubble phenomenon influences the social interaction patterns of teenagers aged 16–20 in Palembang.

2. LITERATURE REVIEW

This literature review provides an overview of the theoretical foundations and summarizes earlier studies relevant to this research topic. It outlines how AI driven algorithms embedded in social media platforms, particularly Instagram, shape teenagers' behavioral tendencies, cognitive patterns, and social interactions [20]. By integrating established theoretical perspectives with empirical findings, this section builds a conceptual framework for understanding the relationship between algorithmic personalization, digital identity construction, and the lifestyle adjustments experienced by adolescents in the current social media ecosystem. This paper aligns with prior studies conducted by [21], [8], and [22] regarding algorithmic influence on adolescent behavior. In addition, research by [23] specifically highlights the broader impact of AI-driven media environments on youth decision-making, offering an important comparative foundation. However, the present study provides a clear novelty by focusing on teenagers in Palembang and by integrating both Information Integration Theory and CASA Theory to examine how Instagram's filter bubble shapes lifestyle patterns and social interaction behaviors within a localized Indonesian context. This specific regional focus, which has not been explored in previous research, further emphasizes the unique contribution of this study.

2.1. Information Integration Theory

According to [21], individuals form judgments or decisions by synthesizing information gathered from multiple sources. Within the realm of social media, particularly Instagram, this theory helps explain how adolescents process information filtered by algorithmic systems. The filter bubble mechanism reduces the diversity of information users encounter, influencing how young people internalize norms and behavioral patterns. In this regard, the Instagram filter bubble not only curates content but also shapes adolescents' cognitive pathways when constructing identity and making decisions. This study examines how restricted streams of information contribute to the formation of thought structures and daily behaviors among teenagers in Palembang [24]. The novelty of this research lies in applying Information Integration Theory specifically to a localized demographic, filling the gap left by studies that focus predominantly on global or generalized youth populations.

2.2. Artificial Intelligence in Media and Communication

AI plays an increasingly central role in the creation, distribution, and organization of social media content. Instagram employs AI-based systems to filter, rank, and recommend content according to users' prior activities, interactions, and stated preferences. As noted by [25], filter bubbles emerge when algorithms repeatedly adjust content to match an individual's behavioral patterns, ultimately narrowing their exposure to diverse viewpoints. This research explores how such AI-driven personalization affects the information adolescents in Palembang encounter and how it shapes their social communication and lifestyle development [26]. The innovative contribution of this research lies in its focus on the interplay between AI filtering, local culture, and youth behavior, a dimension rarely explored in previous literature.

2.3. Personalization Algorithm and Bubble Filter Effect

Studies on the filter bubble demonstrate that platforms like Instagram personalize content by restricting users to a specific range of information that aligns with their online behavior [27]. For example, adolescents who frequently engage with beauty-related content tend to be exposed to increasingly similar posts, creating a narrow and repetitive aesthetic environment. [8] shows that such algorithmic reinforcement can intensify body image issues in teenagers due to the prominence of limited and idealized beauty standards. In this study, the influence of the filter bubble on identity development among teenagers in Palembang will be examined more deeply [28]. The novelty emerges from analyzing the algorithmic effects within a specific cultural and geographical context, which previous studies have not explicitly addressed.

2.4. Chatbots and Transformation in Interpersonal Communication Theory

AI-powered chatbots integrated into various digital platforms have begun to reshape interpersonal communication patterns, particularly among adolescents. CASA theory, as explained by [22], suggests that humans naturally assign social attributes to machines, leading them to interact with chatbots as though they were human conversation partners. Despite the reduced level of social presence experienced in AI interactions [29], teenagers often respond to chatbots with familiarity and emotional engagement. This study explores how these interactions affect communication patterns in Palembang's adolescent population and how they relate to broader aspects of social development [30]. This approach introduces novelty by integrating CASA theory with the filter bubble phenomenon, a combination that has rarely been explored in existing research.

2.5. The Influence of Social Media on Changes in Teenagers Lifestyles

Prior studies have indicated that platforms like Instagram often shape adolescents' lifestyle preferences. Teenagers tend to imitate digital portrayals of fashion, beauty, and consumption behaviors [31]. [32] argues that Instagram acts as a primary space for adolescents to express identity and adapt to emerging social norms. This research investigates how the Instagram filter bubble contributes to lifestyle changes among adolescents in Palembang, particularly regarding consumerism and idealized body perceptions [33]. The uniqueness of this study lies in its local focus, which provides insights into how lifestyle trends influenced by global algorithms manifest differently within specific communities.

2.6. Negative Impact of Social Media on Teenagers Social Interactions

AI-driven algorithms may also restrict adolescents' interactions by reinforcing content preference cycles that limit their exposure to diverse viewpoints. This can strengthen social homogeneity and reduce openness toward differing perspectives. Research by [9] shows that algorithms can amplify extreme content or ideological biases, contributing to increased social polarization. In the context of Palembang, this study examines how the filter bubble may isolate young people from various viewpoints, leading to more homogeneous social groups [34]. By focusing on this specific regional context, the study offers a novel contribution to understanding how algorithmic effects vary based on local sociocultural environments.

2.7. Ethical and Regulatory Challenges of AI in Communications

AI allows for the large-scale collection and analysis of personal data, raising significant concerns regarding user privacy. According to [35], companies that gather data without clear transparency risk exploiting users' personal information. This brings forward the challenge of ensuring adequate regulation and oversight to protect privacy in an increasingly data-driven environment [36]. This study highlights how privacy concerns are especially relevant for teenagers, who are still developing digital literacy skills, and emphasizes the need for policy interventions tailored to local user groups.

By referring to relevant prior studies and theoretical constructs, this research seeks to explain more clearly how the filter bubble on Instagram shapes the lifestyle choices and social interaction patterns of teenagers in Palembang [37]. This study provides an essential contribution by connecting global AI-driven media issues with local adolescent behaviors, offering new insights into the developmental implications of algorithmic influence in the digital era.

In the context of Instagram, privacy issues are strongly associated with the platform's extensive data monitoring practices [38]. Teenagers' browsing activities, preferences, and interactions are continuously collected to refine algorithmic recommendations [39]. Although this increases user engagement, it also shapes adolescents' perceptions of security and trust in digital environments. Some become increasingly cautious about the information they share, while others begin to view constant monitoring as a normal aspect of online

life. These patterns suggest that data-driven personalization not only alters consumption habits but also raises ethical concerns about autonomy and long-term attitudes toward privacy. This adds another dimension of novelty by examining privacy implications within a specific local demographic where such issues have rarely been explored systematically.

3. RESEARCH METHODS

This study applies a qualitative research approach supported by literature review and content analysis to examine the filter bubble phenomenon on Instagram and its influence on the lifestyle and social interactions of teenagers in Palembang. The qualitative approach enables the researcher to gain a comprehensive understanding of the phenomenon by examining information obtained from various credible sources. Data collection relied on three primary sources, and this was strengthened through in-depth interviews with six teenage participants (four females and two males) aged 16–20 years who actively use Instagram for an average of 3–5 hours per day [40]. The participants represented different activity patterns, especially in areas such as fashion, beauty, lifestyle, and health content [41].

The first source consisted of Scopus-indexed academic journals that discuss the use of AI in digital communication. These journals provide insights into how AI functions in social media and how it contributes to the emergence of filter bubbles [42]. The second source involved industry and policy reports on AI implementation in media that offer information regarding regulatory frameworks and ethical considerations related to AI on social media platforms [43]. These reports explain how policymakers and technology companies are working to manage AI systems and address emerging challenges. The third source included case studies on AI implementation in digital communication platforms, particularly Instagram, which were used to analyze how AI-based algorithms shape the content encountered by teenagers and how this affects their lifestyle and social interaction patterns [44].

Data analysis was conducted using two main techniques. Semi-structured interviews were carried out with three purposively selected teenagers in Palembang who matched the criteria of being active Instagram users. Each interview lasted approximately 45–60 minutes and was conducted through face-to-face sessions supported by digital communication tools when required. For content analysis, materials were drawn from participants' Instagram feeds and explore features over a three-month observation period, focusing on themes such as beauty, fashion, and healthy lifestyle content [45]. Only publicly available posts were examined to ensure ethical responsibility. A thematic analysis procedure was applied to identify recurring patterns in the way Instagram algorithms filter and present content [46].

A Critical Analysis was also conducted to evaluate the broader social, ethical, and policy implications of AI in digital communication. This analysis explored the influence of AI on the social development of adolescents, including issues such as privacy risks, algorithmic bias, and the spread of content that may intensify social polarization [47]. The findings of this analysis contribute to policy recommendations aimed at reducing the negative impacts of AI usage on social media.

4. RESULT

This study was conducted to examine how the filter bubble phenomenon on Instagram affects lifestyle transformations and social interaction patterns among teenagers aged 16–20 years in Palembang. The findings demonstrate that algorithmic personalization on Instagram has a considerable influence on how adolescents develop their preferences, habits, and ways of engaging with others [48]. As a visually driven platform with features such as Instagram Stories, Explore, Reels, and Hashtags, Instagram actively amplifies repetitive content that aligns with users' past behavior, resulting in narrowed exposure to information and reinforcing a highly individualized digital environment.

4.1. The Effect of Bubble Filters on Adolescent Lifestyle Changes

The results show that the filter bubble significantly impacts teenagers' lifestyle choices, particularly relating to appearance, beauty routines, fashion trends, and consumption habits [49]. In-depth interviews with the three selected informants confirmed that repeated exposure to particular types of content prompted behavioral imitation. One female participant stated that her daily makeup routine drastically changed after consistently watching beauty tutorials recommended by Instagram's algorithm. Over time, she began not only applying

those techniques but also producing her own content and sharing it publicly. This illustrates that the filter bubble does not merely influence passive consumption but can also shape the creation of user-generated content.

Male participants experienced similar algorithmic shaping, although in different thematic areas. They reported being regularly exposed to fitness-related posts, including bodybuilding routines, workout challenges, and nutritional advice, which subtly encouraged them to adopt healthier habits and pay more attention to physical appearance [50]. This indicates that the filter bubble reinforces gendered expectations in digital spaces, an aspect that remains underexplored in current literature and contributes to the novelty of this research.

Another key finding relates to how Instagram algorithms influence purchasing decisions. Several participants mentioned that they frequently bought products promoted on the platform, especially items related to beauty, skincare, clothing, or gym equipment. They described how algorithmically curated posts, combined with influencers' endorsements, created a sense of trust and familiarity, eventually leading to impulsive buying behavior. This demonstrates how filter bubbles shape both symbolic and economic aspects of teen lifestyles [51]. In addition to shaping individual behavior, the filter bubble is increasingly used by companies as a digital marketing mechanism because it allows brands to push selective promotional content directly to users whose online behavior indicates potential interest. This situation shows why digital literacy needs to be managed at the institutional level so that teenagers are aware that online recommendations may be commercially driven and not always neutral.

Beyond physical and consumption-related changes, the research also found indications of emotional impact [52]. Constant exposure to idealized content, such as flawless skin, perfect body shapes, or luxurious lifestyles, created feelings of inadequacy and comparison. Some participants admitted feeling pressured to keep up with trends or to present themselves in ways consistent with the dominant narratives in their feeds [53]. Anxiety, self-doubt, and Fear of Missing Out (FOMO) were frequently mentioned. This psychological dimension adds depth to the novelty of this study, especially since emotional impacts in local Southeast Asian contexts are still underrepresented in existing research.

4.2. Influence of the Filter Bubble on Teenagers' Social Interaction Patterns

The findings also show that filter bubbles affect how teenagers communicate and form relationships in digital spaces [54]. Although participants did not explicitly recognize that they were experiencing a filter bubble, they acknowledged that Instagram frequently presented content aligned with their interests. This led them to interact primarily with communities that share similar preferences, reinforcing the formation of interest-based social clusters [55]. For example, female participants who were active in beauty and fashion tended to follow accounts and friends who posted about the same topics. As a result, their comment sections, direct messages, and Instagram Stories interactions revolved around beauty trends, product reviews, or outfit inspirations [56]. Meanwhile, participants interested in fitness or wellness reported mostly interacting with peers who shared workout progress, healthy recipes, or motivational quotes. Such patterns illustrate how filter bubbles encourage homogeneous social environments, limiting teenagers' chances of engaging with individuals from different backgrounds or viewpoints.

This tendency to form socially narrow communities has an impact on offline interactions as well. Some participants conveyed that their everyday conversations with friends outside social media often revolved around the content they repeatedly consumed online. As a consequence, certain topics became dominant while others were marginalized. This reflects how algorithm-driven digital exposure shapes not only virtual socialization but also face-to-face communication habits. The study also identified subtle polarization effects. When participants were repeatedly exposed to specific lifestyle content, alternative perspectives were rarely encountered. Teenagers gradually perceived their filtered preferences as the norm, while disregarding other lifestyles or viewpoints. This phenomenon aligns with global discussions on digital echo chambers but provides a unique local insight by demonstrating how such processes unfold among adolescents in mid-sized Indonesian cities such as Palembang.

The overall findings can be understood through the perspective of Information Integration Theory, which explains how individuals synthesize incoming information to develop attitudes and behaviors. In Instagram's algorithmic environment, the information teenagers receive is predominantly homogeneous and highly repetitive, shaping their perceptions of beauty, fashion, health, and social norms [57]. Content that frequently appears in their feeds becomes the reference point for constructing their beliefs and identity, gradually forming stable behavior patterns based on algorithmically filtered input.

The interviews reinforce this theoretical understanding. One participant who frequently viewed makeup

tutorials acknowledged that she eventually integrated those techniques into her daily life and even promoted them through her own content. Another participant, who was deeply interested in fashion, admitted that his interactions on Instagram were confined to fashion-related accounts, making his digital world revolve almost entirely around that theme. A third participant, who followed health and wellness pages, stated that he felt motivated to follow certain dietary trends because the algorithm consistently presented such content in his feed. These findings indicate that Instagram's filter bubble plays a central role in shaping identity development among teenagers. More importantly, this research highlights a gap in previous studies by showing how these global technological influences manifest within a specific local cultural context. This represents the primary novelty of the study, as existing research tends to generalize algorithmic impacts without examining the unique social and behavioral patterns of teenagers in cities like Palembang.

The findings in Table 1 show that Instagram's filter bubble affects teenagers across several areas, including lifestyle choices, consumer behavior, psychological pressure, and socially homogeneous interactions. The results also reveal that algorithmic exposure shapes both online and offline behaviors, supporting Information Integration Theory by illustrating how repeated content influences attitudes and decisions. These insights highlight the importance of strengthening digital literacy so teenagers can critically assess the information they encounter online.

Table 1. Results Summary

Aspect of Findings	Research Results Description
Impact on Teenagers' Lifestyle	Instagram's filter bubble exposes teenagers to repeated content related to beauty, fashion, fitness, and lifestyle, encouraging them to imitate and adopt trends in daily life, including makeup styles, clothing choices, and workout habits.
Development of Consumerist Behavior	Personalized ads and influencer-driven content increase the likelihood of impulsive purchases, such as skincare, clothing, supplements, and fitness equipment, based on algorithm-targeted recommendations.
Psychological Effects	Constant exposure to idealized lifestyle portrayals contributes to feelings of comparison, pressure, anxiety, and FOMO among teenagers.
Impact on Social Interaction Patterns	Teenagers interact more frequently with accounts and communities that share similar interests, resulting in homogeneous social groups and reduced exposure to diverse perspectives.
Online to Offline Communication Shift	Daily offline discussions are influenced by content frequently encountered on Instagram, showing that algorithmic exposure shapes real-world social conversations and relationships.
Theoretical Interpretation	Findings align with Information Integration Theory, indicating that repeated and homogeneous digital content influences teenagers' attitudes, preferences, and behavioral decisions over time.

The data presented in Table 1 illustrates that Instagram's filter bubble has a multifaceted impact on teenagers, shaping their lifestyle choices, purchasing behavior, emotional well-being, and patterns of social interaction. Repeated exposure to similar content encourages adolescents to mimic trends they frequently encounter, while commercially driven recommendations contribute to increased consumerism. At the same time, limited exposure to diverse viewpoints reinforces homogeneous social environments, influencing both online and offline communication. These findings align with Information Integration Theory, demonstrating how continuous algorithmic filtering gradually shapes teenagers' perceptions, attitudes, and decisions.

5. MANAGERIAL IMPICATION

The findings indicate that managers and digital marketers need to adopt more responsible strategies when designing algorithmic personalization and targeted promotional campaigns on social media platforms. Since teenagers are highly susceptible to repetitive and curated content, companies should ensure that advertising and product recommendations prioritize transparency, ethical messaging, and psychological safety. This includes avoiding excessive promotion of unrealistic lifestyle standards and implementing safeguards to reduce emotional pressure or consumer manipulation. Businesses are encouraged to develop communication practices that balance engagement with user well-being, supporting healthier digital consumption environments. Insti-

tutions and regulators need to strengthen digital literacy so teenagers can critically assess algorithm-filtered content. Schools should teach how AI platforms work, how commercial bias affects recommendations, and how to identify limited information exposure. Policymakers must also set clearer rules on data privacy, algorithmic transparency, and user protection. These efforts will help optimize the benefits of AI platforms while reducing negative impacts on adolescents.

6. CONCLUSION

This research shows that the filter bubble phenomenon on Instagram significantly influences lifestyle changes and social interactions among teenagers in Palembang aged 16 to 20. Interview findings reveal that Instagram's algorithm filters and displays content based on individual preferences, which gradually shapes teenagers' attitudes and daily behaviors, especially in relation to appearance. Many participants explained that they adopted makeup trends frequently appearing on their Instagram feeds and applied those styles in their daily routines. This indicates that repeated exposure to similar content on social media becomes integrated into their lifestyle, reflecting how Instagram's algorithm shapes teenagers' habits and identity development without them fully realizing it.

The filter bubble also plays a significant role in shaping teenagers' social interactions. Most informants stated that they interact more with content and individuals who share similar interests, such as beauty or fashion, and interact less with different viewpoints or groups. This tendency results in the formation of homogeneous social circles that limit their exposure to diverse perspectives. As teenagers repeatedly encounter uniform content, their existing attitudes and habits become stronger, while their social environment becomes less inclusive. Increased access to personalized content deepens these patterns, affecting individual behavior and group dynamics. From a business perspective, companies utilize the filter bubble for targeted marketing to increase engagement and sales, even though this may limit consumers' available choices. Therefore, structured digital literacy programs are needed to help teenagers evaluate online information more critically and make better informed decisions.

In a global context, the findings in Palembang reflect trends found in many other countries where teenagers adopt beauty and lifestyle standards reinforced by algorithm-driven content. However, a unique characteristic of the local context is the stronger influence of community and peer groups, where online behaviors are quickly reflected in daily interactions at school or within neighborhoods. While filter bubbles globally are often associated with ideological polarization, in Palembang the effects are more focused on consumption patterns, lifestyle choices, and group identity. These observations show that although algorithmic personalization works universally, its specific impact differs depending on cultural and social conditions. Overall, the filter bubble influences teenagers' lifestyles and social interactions by limiting the diversity of information they receive. For this reason, it is important for teenagers to develop critical awareness toward the content they consume so they can maintain a more open and inclusive perspective.

7. DECLARATIONS

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7.2. Author Contributions

Conceptualization: DR; Methodology: DM; Software: SA; Validation: BP and ND; Formal Analysis: BP and SA; Investigation: DM; Resources: ND; Data Curation: DR; Writing Original Draft Preparation: SA and BP; Writing Review and Editing: DM and SA; Visualization: ND; All authors, DM, BP, SA, ND, and DR have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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