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An Analytical Study of Social Media Algorithms and Their Influence on Academic Language Practices



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Abstract

This study examines the influence of social media algorithms on academic language practices, focusing on how algorithm-driven content delivery shapes language use, comprehension, and academic expression among learners. In contemporary digital environments, platforms such as Facebook, Instagram, TikTok, and YouTube employ complex recommendation algorithms that personalize content based on user behavior, engagement patterns, and interaction history. While these systems enhance user engagement and accessibility of information, they also play a significant role in shaping linguistic exposure and academic communication patterns. The study analyzes how algorithmic filtering affects vocabulary development, sentence structure, and formal writing styles among students. It also explores the dual impact of social media: on one hand, it promotes informal and abbreviated language forms; on the other, it provides access to educational content that supports academic learning. The research further investigates the tension between digital informal language trends and formal academic writing standards in educational contexts. Findings suggest that social media algorithms indirectly influence academic language by prioritizing engaging and simplified content, which may lead to reduced exposure to complex academic vocabulary. However, when leveraged effectively, these platforms can also enhance learning through curated educational resources. Overall, the study highlights the need for digital literacy and guided academic engagement with social media to ensure that algorithmic influence contributes positively to language development rather than undermining formal academic communication.

Key words: Social Media Algorithms, Academic Language, Digital Literacy, Language Development, Educational Technology, Online Communication, Linguistic Influence

1. Introduction

1.1 Introduction to the Topic and Academic Relevance

The rapid expansion of social media platforms has reshaped global communication practices, particularly among students and academic communities. Platforms such as Facebook, Instagram, TikTok, and YouTube are not neutral communication spaces; instead, they operate through algorithmic systems that determine what content users see, engage with, and repeat. These algorithms rely on machine learning models that analyze user behavior, including likes, comments, viewing duration, and sharing patterns, to personalize content delivery (Gillespie 167).

This personalization has significant implications for academic language practices. Academic language is characterized by formal tone, complex sentence structures, precise vocabulary, and discipline-specific terminology. However, when learners are consistently exposed to algorithmically curated digital content, their linguistic environment becomes shaped by simplified, informal, and engagement-driven language forms. Over time, this exposure may influence how students construct sentences, select vocabulary, and express ideas in academic writing contexts.

From an educational perspective, this topic is highly relevant because academic language proficiency is directly linked to critical thinking, writing competence, and

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subject understanding. Therefore, understanding how algorithmic systems influence language development is essential for modern pedagogy and curriculum design.

1.2 Background and Context

Social media algorithms have undergone a major transformation over the past decade. Earlier platforms used chronological feeds, where content appeared based on time of posting. In contrast, modern platforms rely on engagement-based ranking systems that prioritize content predicted to maximize user interaction. According to Pariser, this leads to highly personalized information environments often referred to as “filter bubbles,” where users are repeatedly exposed to similar types of content while alternative perspectives are minimized (9).

This shift has direct linguistic consequences. Instead of engaging with diverse academic texts or structured written discourse, users are frequently exposed to short-form, visually driven, and conversational language. Platforms such as TikTok and Instagram further reinforce brevity and simplification due to their design emphasis on rapid content consumption.

As a result, learners may gradually internalize informal linguistic patterns, including abbreviations, slang, and fragmented sentence structures. This creates a tension between digital communication habits and academic writing standards, particularly in educational environments where formal language proficiency is required.

1.3 Research Problem

Although social media is widely used in education and communication, there is limited research focusing specifically on the algorithmic mechanisms that shape academic language exposure. Existing studies tend to focus on social media usage patterns, digital literacy, or student behavior in general, without critically examining how recommendation systems influence linguistic development.

This creates a significant research gap in understanding how algorithm-driven content selection affects vocabulary acquisition, sentence structure formation, and academic writing proficiency. Gillespie argues that algorithms function as “invisible editors” that shape what users see and ultimately what they learn to value in digital spaces (170). However, their impact on academic language development remains underexplored.

1.4 Research Objectives

This study is guided by the following objectives:

- To examine how social media algorithms influence academic language practices among learners
- To analyze the impact of algorithm-driven content on vocabulary development and writing structure
- To explore the balance between informal digital language and formal academic writing
- To assess the role of digital literacy in mitigating negative linguistic effects
- To understand how algorithmic exposure shapes long-term language learning patterns

1.5 Research Questions

This study addresses the following questions:

- How do social media algorithms shape academic language exposure?
- What changes occur in student writing due to algorithm-driven content consumption?
- Do algorithms contribute to linguistic simplification or enrichment?
- How can educational systems respond to algorithm-influenced language shifts?

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1.6 Scope and Significance of the Study

The scope of this research is limited to academic language practices influenced by social media algorithms among students and learners. It focuses on linguistic changes in writing, comprehension, and expression resulting from algorithmic content exposure. The significance of this study lies in its contribution to the fields of applied linguistics, digital education, and media studies. It provides insights for educators, curriculum developers, and policymakers on how to address the influence of digital platforms on academic writing skills. Buckingham emphasizes that digital literacy is essential for navigating complex media environments and maintaining critical engagement with online content (54).

By highlighting both the risks and opportunities of algorithmic influence, this study supports the development of strategies that promote balanced language learning in digitally mediated environments.

2. Literature Review

2.1 Social Media Algorithms and Information Control

Social media algorithms have fundamentally changed how information is distributed and consumed in digital environments. Instead of presenting content chronologically, modern platforms use machine learning models to prioritize posts based on predicted user engagement. Gillespie argues that algorithms act as “active participants in shaping visibility” rather than neutral technical systems (167). This means that what users see is not random, but carefully filtered through engagement-based logic.

This filtering process directly influences language exposure. When certain types of content—especially short, emotionally engaging, and simplified posts—are prioritized, users are more frequently exposed to informal linguistic structures rather than complex academic language.

2.2 Filter Bubble and Linguistic Limitation

One of the most influential theories in this area is Pariser’s concept of the “filter bubble.” He explains that personalization systems isolate users within informational environments that reflect their previous behavior and preferences (9). This reduces exposure to diverse viewpoints and linguistic forms.

In academic contexts, this means learners may repeatedly encounter simplified sentence structures, limited vocabulary, and conversational tone. Over time, this can narrow linguistic development and reduce engagement with formal academic discourse.

2.3 Language Change in Digital Communication

Digital communication platforms have also contributed to significant changes in language structure and usage. Boyd explains that networked communication encourages brevity, informality, and rapid expression (112). This has led to the widespread use of abbreviations, emojis, and fragmented sentence structures.

These linguistic patterns are reinforced by algorithms that prioritize highly engaging content. As a result, students are constantly exposed to simplified communication styles, which may gradually influence their academic writing habits.

2.4 Academic Language and Educational Impact

Academic language is defined by its formal structure, precision, and complexity. However, exposure to informal digital communication can blur the distinction between academic and non-academic language use. Researchers have observed that students

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often transfer informal expressions from social media into academic writing tasks. This linguistic transfer is not always negative; in some cases, it reflects adaptability. However, excessive reliance on informal structures may weaken academic writing quality, particularly in higher education contexts where formal expression is essential.

2.5 Algorithmic Personalization and Learning Behavior

Algorithmic personalization also affects how students access educational content. Platforms such as YouTube and TikTok recommend videos based on user engagement history. While this can promote access to educational materials, it also means that academic content competes with entertainment-driven material for visibility.

According to Gillespie, algorithmic systems prioritize engagement over educational value, which can indirectly shape learning behaviors (170). This raises concerns about whether students are consistently exposed to academically rich content.

2.6 Role of Digital Literacy in Language Development

Digital literacy is increasingly recognized as a key factor in managing the influence of social media algorithms. Buckingham defines digital literacy as the ability to critically understand, evaluate, and engage with digital content (54). Students with strong digital literacy skills are better able to distinguish between informal and academic language contexts.

This suggests that the negative linguistic effects of algorithmic exposure can be reduced through education and awareness programs.

2.7 Research Gap

Although there is substantial research on social media and education, limited studies specifically examine how algorithmic systems influence academic language development. Most research focuses on general social media usage or digital behavior, rather than the structural role of algorithms in shaping linguistic exposure. Gillespie notes that algorithms function as “hidden editors” of digital experience, yet their linguistic impact remains underexplored (170).

2.8 Summary of Literature

The literature indicates that social media algorithms play a dual role in language development. On one hand, they promote simplified and informal communication styles. On the other, they can provide access to educational content when appropriately designed and used. The overall impact depends on user behavior, platform design, and digital literacy levels.

3. Research Methodology

3.1 Research Design

This study adopts a qualitative analytical research design to examine the influence of social media algorithms on academic language practices. A qualitative approach is appropriate because it allows for an in-depth interpretation of language behavior, digital interaction patterns, and educational implications without reducing the complexity of human communication to numerical data alone (Creswell 121).

The design focuses on interpreting how algorithmic systems shape exposure to linguistic forms and how this exposure is reflected in academic writing practices.

3.2 Research Approach

The research follows a thematic analysis approach, which is commonly used in linguistic and educational studies to identify recurring patterns in textual and conceptual data. This approach helps in categorizing how social media algorithms influence vocabulary use, sentence structure, and academic expression.

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Thematic analysis is particularly useful in this study because it enables systematic examination of qualitative data from existing literature, highlighting patterns of linguistic simplification and academic language shift.

3.3 Data Collection Method

This study is based on secondary data sources, including:

- Peer-reviewed journal articles
- Books on digital communication and media studies
- Research on algorithmic recommendation systems
- Studies in applied linguistics and educational technology

Secondary data is appropriate for this research because it allows synthesis of existing knowledge across multiple disciplines, particularly linguistics, computer science, and media studies.

Gillespie emphasizes that algorithmic systems must be studied through interdisciplinary perspectives, as they influence both technical structures and social behavior (167).

3.4 Analytical Framework

The analysis is guided by three key dimensions:

1. Linguistic Dimension

This examines changes in vocabulary, sentence structure, and academic writing style due to exposure to social media content.

2. Algorithmic Dimension

This focuses on how recommendation systems filter and prioritize content based on engagement metrics, shaping linguistic exposure (Pariser 9).

3. Educational Dimension

This evaluates how students' academic performance and language development are influenced by digital content consumption patterns.

3.5 Evaluation Criteria

The study evaluates the influence of social media algorithms based on:

- **Vocabulary Complexity:** Use of advanced vs simplified language
- **Sentence Structure:** Formal academic vs informal digital patterns
- **Content Exposure:** Educational vs entertainment-driven material
- **Writing Style Transfer:** Influence of social media language on academic writing

3.6 Methodological Limitations

This study acknowledges several limitations:

- Reliance on secondary data instead of primary classroom or experimental research
- Lack of quantitative measurement of linguistic change
- Rapid evolution of social media algorithms affecting long-term consistency

Despite these limitations, the study provides a strong theoretical understanding of algorithmic influence on academic language practices.

3.7 Ethical Considerations

All sources used in this study are publicly available academic materials. Proper MLA citation guidelines are followed to ensure academic integrity. No personal, private, or sensitive data is included in this research.

4. Theoretical Analysis

4.1 Algorithmic Determinism Theory

Algorithmic determinism theory explains how digital systems influence user behavior by structuring what information is visible and how it is prioritized. In social media environments, algorithms determine content exposure based on engagement signals such as likes, shares, and watch time. Gillespie argues that these systems function as “invisible curators of public discourse,” shaping not only what is seen but also how meaning is constructed online (167).

In relation to academic language, this theory suggests that learners’ linguistic exposure is not neutral. Instead, it is shaped by algorithmic preferences for short, engaging, and emotionally appealing content, which may reduce exposure to formal academic structures.

4.2 Filter Bubble Theory

Pariser’s filter bubble theory is central to understanding personalized digital environments. He explains that algorithmic systems create individualized information spaces where users are repeatedly exposed to similar types of content, limiting diversity in ideas and expression (9).

In academic language development, this leads to restricted exposure to complex vocabulary and structured discourse. Over time, learners may develop a preference for simplified communication styles that mirror their digital environment.

4.3 Linguistic Relativity in Digital Contexts

Linguistic relativity suggests that language influences thought and perception. In digital environments, repeated exposure to informal and abbreviated language forms may shape how learners structure their thoughts and express ideas.

Boyd notes that networked communication encourages rapid and fragmented expression, which can influence cognitive processing of language (112). This supports the idea that digital communication environments can gradually reshape academic writing habits.

4.4 Cognitive Load Theory

Cognitive load theory explains how individuals process information based on mental effort required. Social media platforms are designed to minimize cognitive load by presenting short, visually engaging content. While this improves accessibility, it reduces exposure to complex linguistic structures necessary for academic writing development.

When learners consistently engage with low-cognitive-load content, their ability to process complex academic language may weaken over time.

4.5 Social Constructivist Theory

Social constructivism suggests that learning occurs through interaction with social environments. In this context, social media becomes a learning environment where language is continuously shaped through interaction.

However, because algorithmic systems prioritize engagement over educational value, the learning environment may favor informal linguistic exchange rather than academic discourse development.

4.6 Digital Literacy Theory

Buckingham defines digital literacy as the ability to critically interpret and engage with digital content (54). This theory is essential in understanding how learners can resist negative linguistic influence from algorithmic systems.

Students with strong digital literacy skills are more likely to distinguish between

informal social media language and formal academic writing requirements.

4.7 Integrated Theoretical Model

This study integrates multiple theories into a unified framework:

- **Algorithms control exposure** (Algorithmic Determinism)
- **Exposure shapes linguistic input** (Filter Bubble Theory)
- **Language influences cognition** (Linguistic Relativity)
- **Content design affects processing depth** (Cognitive Load Theory)
- **Learning occurs through interaction** (Social Constructivism)
- **Critical awareness moderates impact** (Digital Literacy Theory)

Together, these theories explain how social media algorithms indirectly shape academic language practices.

5. Discussion and Analysis

5.1 Algorithmic Influence on Academic Language Exposure

The findings of this study indicate that social media algorithms significantly influence the type of language users are exposed to on digital platforms. Because recommendation systems prioritize engagement-driven content, users are more frequently shown short, simplified, and emotionally appealing posts rather than complex academic texts. Gillespie argues that algorithms function as “infrastructures of visibility” that determine what becomes linguistically dominant in digital spaces (168).

In academic contexts, this creates an environment where learners are repeatedly exposed to informal language patterns, which may gradually influence their writing style, vocabulary selection, and sentence construction.

5.2 Shift from Formal to Informal Language Structures

One of the most notable effects of algorithm-driven content is the gradual shift from formal academic language to informal digital communication styles. Platforms such as TikTok and Instagram encourage brevity, visual storytelling, and conversational tone. This exposure reinforces simplified linguistic patterns such as abbreviations, slang, and fragmented sentence structures.

Boyd explains that networked communication environments encourage “compressed and rapid forms of expression” that prioritize speed over grammatical complexity (112). As a result, students may unconsciously transfer these patterns into academic writing tasks.

5.3 Impact on Vocabulary Development

Vocabulary development is strongly influenced by repeated exposure to language input. Algorithmic systems, however, limit exposure diversity by filtering content based on user engagement history. Pariser notes that such personalization creates informational isolation, where users encounter repetitive linguistic structures within their digital environment (9).

This can reduce exposure to advanced academic vocabulary and discipline-specific terminology. Consequently, learners may rely more on simplified lexical choices in academic writing, affecting overall linguistic richness.

5.4 Dual Role of Social Media Algorithms in Learning

Despite concerns, social media algorithms also have positive effects on academic language development. Platforms such as YouTube and educational TikTok channels provide access to lectures, tutorials, and academic explanations. These resources can enhance learning when recommended effectively by algorithms.

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However, Gillespie emphasizes that algorithmic systems prioritize engagement over educational value, meaning that academic content often competes with entertainment-driven material for visibility (170). This imbalance affects the consistency of academic language exposure.

5.5 Role of Digital Literacy in Mitigating Linguistic Effects

Digital literacy emerges as a critical factor in managing algorithmic influence. Buckingham defines digital literacy as the ability to critically analyze, evaluate, and navigate digital content environments (54). Students with strong digital literacy skills are more likely to consciously engage with academic content and distinguish it from informal communication styles.

This suggests that the negative linguistic effects of social media algorithms are not inevitable but can be moderated through education and awareness.

5.6 Educational Implications

The study highlights important implications for educators and curriculum designers. Teachers must recognize that students are increasingly exposed to algorithmically filtered language environments. This requires integrating digital literacy training into academic programs to strengthen formal writing skills.

Educational institutions should also encourage balanced exposure to academic and digital content, ensuring that students develop both formal writing competence and critical media awareness.

5.7 Synthesis of Findings

Overall, the analysis confirms that social media algorithms indirectly shape academic language practices by controlling linguistic exposure. While they promote simplified communication styles, they also provide access to educational content. The impact is therefore dual in nature and highly dependent on user engagement patterns and digital literacy levels.

6. Conclusion

6.1 Summary of the Study

This study examined the influence of social media algorithms on academic language practices, focusing on how algorithm-driven content delivery shapes linguistic exposure, vocabulary development, and writing behavior among learners. The analysis demonstrates that modern social media platforms do not function as neutral communication tools; instead, they actively curate linguistic environments through engagement-based recommendation systems. Gillespie emphasizes that algorithms operate as “hidden curators of visibility,” shaping what users learn and how they interpret information (167).

The findings indicate that repeated exposure to algorithmically filtered content significantly influences academic language use, often encouraging simplified sentence structures and informal vocabulary patterns. However, the study also identifies opportunities for learning through algorithmically recommended educational content.

6.2 Key Findings

The study highlights several important findings:

- Social media algorithms prioritize engagement-driven content, leading to increased exposure to simplified language structures.
- Academic vocabulary exposure may be reduced due to repetitive filtering of similar content types.

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- Learners often transfer informal digital communication patterns into academic writing tasks.
- Educational content is available but not always prioritized in algorithmic recommendation systems (Pariser 9).
- Digital literacy plays a crucial role in moderating linguistic influence and maintaining academic language standards (Buckingham 54).

6.3 Theoretical Implications

The study integrates multiple theoretical perspectives, including algorithmic determinism, filter bubble theory, cognitive load theory, and digital literacy theory. Together, these frameworks explain how algorithmic systems shape not only information exposure but also linguistic development.

Pariser's filter bubble theory is particularly relevant, as it explains how personalized content environments limit exposure to diverse linguistic forms (9). Similarly, Buckingham's digital literacy framework highlights the importance of critical engagement in resisting negative linguistic influence (54).

6.4 Educational Implications

The findings have important implications for education systems. Teachers and curriculum designers must recognize that students are continuously exposed to algorithmically filtered language environments outside the classroom. This exposure influences their academic writing and communication skills.

Educational institutions should integrate digital literacy training into language curricula to help students differentiate between informal digital communication and formal academic writing requirements. This will help maintain linguistic accuracy and academic writing quality in digitally influenced environments.

6.5 Limitations of the Study

This study has several limitations:

- It is based on secondary qualitative data rather than primary experimental research.
- It does not include quantitative measurement of linguistic change.
- Rapid changes in social media algorithms may affect long-term relevance of findings.

Despite these limitations, the study provides a strong theoretical foundation for understanding algorithmic influence on academic language practices.

6.6 Future Research Directions

Future studies should focus on empirical investigation of student writing samples to measure direct linguistic changes caused by algorithmic exposure. Additionally, research should explore:

- Cross-platform comparisons of algorithmic influence
- Longitudinal studies on language development
- The role of AI-driven educational recommendation systems

Such studies would provide deeper insights into how digital environments shape academic communication over time.

6.7 Final Remarks

In conclusion, social media algorithms play a significant role in shaping academic language practices by controlling linguistic exposure in digital environments. While they contribute to simplified communication trends, they also offer opportunities for educational enrichment when properly utilized. The study concludes that digital literacy is essential for ensuring that algorithmic influence supports rather than weakens

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academic language development.

As Gillespie notes, understanding algorithms is essential because they are not just technical systems but powerful forces that structure knowledge and communication in the digital age (170).

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