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ALGORITHMIC DISINFORMATION IN HIGHER EDUCATION: TOWARDS A COMMUNICATION MODEL FOR EXPLAINING THE PRODUCTION AND DISSEMINATION OF FAKE NEWS IN DIGITAL UNIVERSITY ENVIRONMENTS

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ABSTRACT

In recent years, digital university environments have undergone a profound transformation due to the increasing reliance on digital platforms and recommendation algorithms for accessing and disseminating information. This shift has contributed to the emergence of new forms of information disorder, most notably algorithmic disinformation.

The research problem lies in the limited number of studies that have addressed the mechanisms of fake news production and dissemination within higher education from a communication perspective that explains the role played by algorithms in reshaping information and knowledge flows within the university environment.

This study aims to develop a communication model that explains the relationship between digital algorithms and the production and dissemination of fake news in digital university environments, as well as to analyze its implications for knowledge construction among higher education students. The study adopts a descriptive-analytical approach supported by a critical review of recent scientific literature, along with a synthetic approach to integrate relevant concepts and theoretical models related to information disorder, algorithmic governance, and digital communication.

The expected findings indicate that recommendation, ranking, and personalization algorithms do not play a neutral role in information dissemination; rather, they contribute to amplifying attention-grabbing content, reinforcing information bubbles, and reproducing fake news within digital university environments, thereby affecting the quality of knowledge and students' attitudes toward digital information.

Furthermore, the study proposes a communication model that explains the stages through which algorithmic disinformation passes, from content production to its re-dissemination within the academic community. This provides a theoretical framework that can be utilized in future research and in the design of university policies that promote information integrity and digital verification skills.

KEYWORDS

Algorithmic Disinformation; Fake News; Higher Education; Digital University Environments; Digital Communication; Algorithmic Governance; Information Integrity

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Introduction

Over the past decade, the higher education sector has undergone an accelerated digital transformation that has reshaped patterns of knowledge production, dissemination, and access. This transformation has been driven by continuous advancements in digital communication technologies, artificial intelligence, and digital platforms. Universities have shifted from traditional educational environments to integrated digital ecosystems that include learning management systems, social media networks, search engines, and AI-based applications, all of which now play a central role in facilitating access to information, supporting learning processes, and enhancing academic interaction.

In this context, the university student no longer relies solely on official academic sources; instead, a significant portion of knowledge is now acquired through digital platforms governed by advanced algorithms that rank and personalize content according to user behavior and digital preferences.

Accordingly, algorithms have evolved from mere technical tools for content organization into influential communicative actors within the digital environment. They now determine what information is displayed to users, when it appears, and how widely it spreads. This has granted them unprecedented power in shaping media exposure and reconstructing the informational landscape within digital societies. Although these algorithms are designed to enhance user experience and improve content relevance, they increasingly contribute to the amplification of highly engaging content regardless of its accuracy or credibility, driven by the logic of the attention economy, which prioritizes content capable of maximizing engagement and prolonging platform usage.

This transformation has given rise to a phenomenon known in recent literature as **algorithmic disinformation**, which refers to the indirect role played by algorithms in amplifying misleading content, expanding its reach, and reproducing it within digital environments. In this context, fake news is no longer disseminated solely by individuals or content-producing institutions; rather, algorithms themselves have become active agents in redistributing content and increasing its visibility, thereby reinforcing information bubbles, strengthening echo chambers, and reducing exposure to balanced information.

This issue is particularly significant within higher education institutions, as the university environment represents a space for scientific knowledge production and exchange, and students increasingly rely on digital platforms to access academic and general information. This reality raises fundamental questions about the extent to which algorithms influence the construction of academic knowledge, their role in reproducing fake news within digital university environments, and the resulting cognitive and communicative effects that may impact learning quality, information trust, and critical verification abilities.

However, despite the growing international interest in studying fake news and information disorder, most research has addressed these phenomena from either a media studies or a technical perspective. Studies that explain the relationship between algorithms and fake news within higher education from a communication perspective remain limited. Moreover, explanatory models that clarify the mechanisms through which algorithms evolve from mere content-ranking tools into active agents in the production and dissemination of information disorder within digital university environments are still scarce.

Therefore, this study seeks to bridge this gap by developing a communication model that explains the mechanisms of fake news production and dissemination in higher education under the dominance of digital algorithms. This contribution aims to enrich the scientific literature and provide a theoretical framework that can be used in future research, as well as in the formulation of university policies that promote information integrity and digital literacy.

Second: Significance of the Study

This study derives its significance from the increasing reliance on digital environments within higher education institutions and the rapid transformation of information production and dissemination processes under the dominance of digital algorithms in content flows. This reality presents new scientific and communicative challenges related to the growing phenomenon of algorithmic disinformation and its impact on the quality of academic knowledge. Accordingly, studying this phenomenon has become a scientific necessity for understanding its dimensions, mechanisms, and implications for the academic environment. The significance of the study can be outlined through three main dimensions:

1. Theoretical Significance

The theoretical significance of this study lies in its attempt to enrich the scientific literature in media and communication studies by integrating three research areas that are often studied separately: algorithmic disinformation, fake news, and higher education. The study also seeks to develop a communication model that

explains the mechanisms of fake news production and dissemination within digital university environments under the influence of algorithms in content ranking, personalization, and distribution.

This contributes to filling a theoretical gap related to the scarcity of models explaining this relationship within the university context. In addition, the study employs contemporary concepts such as algorithmic governance, algorithmic gatekeeping, and the attention economy to reinterpret the dynamics of digital communication in higher education.

2. Practical Significance

The practical significance of this study stems from its potential contribution to the development of university strategies aimed at reducing the spread of fake news and enhancing information integrity within digital environments. It may also contribute to the design of media and digital literacy programs aimed at developing students' critical thinking and information verification skills.

Furthermore, it supports decision-makers in higher education institutions in formulating policies and regulatory measures that take into account the influence of algorithms on digital content circulation. The proposed communication model is also expected to serve as an analytical tool that researchers and universities can use to assess the risks of information disorder within digital university platforms.

Social Significance of the Study

The social significance of this study lies in its connection to an issue that directly affects the quality of knowledge and trust in information within the digital society, where universities have become central spaces for knowledge production and dissemination. Understanding the mechanisms of algorithmic disinformation contributes to enhancing the ability of students and faculty members to critically engage with digital content and to reduce the influence of fake news on the formation of academic and societal attitudes and decisions.

Moreover, this study supports ongoing efforts to build a more reliable digital environment, to strengthen a culture of information verification, and to enhance information security within higher education institutions. This aligns with the requirements of sustainable digital transformation and the knowledge society.

Third: Research Problem

The digital transformation of higher education institutions has led to an unprecedented expansion in the use of digital platforms as primary sources for accessing and exchanging information within the academic community. In parallel with this transformation, digital algorithms have become increasingly influential in ranking, personalizing, and redistributing content, thereby shaping the type of information to which students and faculty members are exposed.

Although these algorithms were designed to improve user experience, they may directly or indirectly contribute to amplifying attention-grabbing content, reproducing fake news, and reinforcing information bubbles and echo chambers. This raises critical questions regarding their impact on knowledge construction within the university environment.

Recent literature shows a growing interest in studying fake news and information disorder; however, most research has focused on technical or general media perspectives. The relationship between digital algorithms and the production and dissemination of fake news within digital university environments from a communication perspective remains under-theorized. Furthermore, there is a noticeable lack of conceptual models explaining how algorithms evolve from mere content organization tools into communicative actors that actively reshape digital knowledge within higher education.

Accordingly, the research problem lies in the need to explain the communicative mechanisms linking digital algorithms to the production and dissemination of fake news, and to examine their implications for the digital university environment, ultimately leading to the development of a communication model that explains this relationship.

Main Research Question

How do digital algorithms contribute to the production and dissemination of fake news within digital university environments, and what communication model can explain their impact on knowledge construction in higher education institutions?

Fourth: Research Questions

Based on the main research question, the study seeks to answer the following questions:

1. What are the theoretical and conceptual dimensions of algorithmic disinformation in the context of higher education?

Research Questions (continued)

2. How do platform algorithms influence the production of fake news, its re-ranking, and the amplification of its dissemination within digital university environments?
3. What communicative mechanisms explain the circulation of fake news among higher education students through digital platforms?
4. How does algorithmic disinformation affect digital knowledge construction, perceptions of credibility, and information behavior among university students?
5. What institutional, technological, and educational determinants can mitigate the impact of algorithmic disinformation within higher education institutions?
6. How can a communication model be developed to explain the relationship between digital algorithms and the production and dissemination of fake news in digital university environments?

Fifth: Research Objectives

This study aims to analyze the phenomenon of algorithmic disinformation in higher education institutions from a communication perspective, by explaining the relationship between digital algorithms and the production and dissemination of fake news within digital university environments, ultimately leading to the development of a communication model that explains this relationship.

This main objective is further divided into a set of sub-objectives, as follows:

General Objective

To develop a communication model that explains the mechanisms of fake news production and dissemination in digital university environments under the dominance of digital algorithms, and to analyse its implications for knowledge construction among higher education students.

Spécifique Objectives

1. To conceptualize the theoretical foundations related to algorithmic disinformation, fake news, and digital university environments, and clarify their conceptual interrelationships.
2. To analyze the role of digital algorithms in content ranking, personalization, and amplification, contributing to the production and dissemination of fake news within the university environment.
3. To identify the communicative mechanisms that explain the circulation and spread of fake news among higher education students via digital platforms.
4. To explore the impact of algorithmic disinformation on digital knowledge construction, perceptions of information credibility, and students' information behavior in universities.
5. To construct a communication model that explains the relationships between digital algorithms, fake news production, dissemination processes, and their effects within the digital university environment.
6. Based on the reasons mentioned above (reasons for choosing the topic), which served as a motivating factor, the researchers chose and conducted this research. This research is based on its importance, in their estimation, and its contribution to solving this problem by shedding light on its various dimensions. (Salah & Zedira, 2025, p.2).

6. Providing Scientific and Applied Recommendations

To present scientific and practical proposals that contribute to mitigating the effects of algorithmic disinformation, while enhancing information integrity and digital media literacy within higher education institutions.

Chapter One: The Concept of Algorithmic Disinformation**First: The Emergence of Algorithmic Disinformation**

The concept of algorithmic disinformation is a relatively recent notion that has emerged from the intersection of three main intellectual domains: digital media studies, artificial intelligence research, and algorithmic governance studies. Scholarly interest in this concept began to grow in the mid-2010s, when digital communication environments increasingly relied on recommendation, ranking, and personalization algorithms to manage information flows, replacing traditional models that depended primarily on human editorial selection.

Advancements in machine learning and artificial intelligence have demonstrated that algorithms are no longer neutral technical tools for organizing data. Rather, they have become communicative actors that influence the production, selection, and distribution of information by determining which content receives greater visibility and circulation based on engagement and attention metrics, rather than accuracy or credibility. This shift has contributed to the reconfiguration of the digital public sphere, where users are exposed to algorithmically curated content shaped by behavioral data and personal preferences. Consequently, phenomena

such as information personalization, filter bubbles, and echo chambers have been reinforced, accelerating the spread of fake news and misleading content (Gillespie, 2018; Sunstein, 2018).

The concept of algorithmic disinformation has become more evident as empirical evidence has shown that digital platform algorithms do not merely display content; they can actively or indirectly amplify and reproduce misleading information through automated recommendation systems, viral dissemination mechanisms, and algorithmic personalization processes. In this regard, Sun (2023) argues that algorithmic disinformation represents a new phase in the evolution of digital misinformation, where social algorithms, alongside generative artificial intelligence technologies, play a central role in accelerating the production and dissemination of misleading information across digital platforms.

Recent literature further emphasizes that the study of algorithmic disinformation is no longer limited to analyzing fake news as isolated content. Instead, it increasingly focuses on the relationship between algorithm design, the attention economy, and information diffusion mechanisms in digital environments. Academic reviews indicate a shift in research focus from detecting fake news to analyzing the algorithmic infrastructures that amplify it, alongside growing attention to ethical and regulatory dimensions associated with artificial intelligence in information production and dissemination.

Accordingly, algorithmic disinformation has become a central concept in media and communication research, as it frames algorithms not merely as technical intermediaries but as influential actors in shaping the informational environment, reconstructing knowledge, and influencing users' perception of digital content. This is particularly significant in higher education institutions, which increasingly rely on digital platforms for knowledge production and dissemination.

Second: The Evolution of Algorithmic Disinformation

The concept of algorithmic disinformation has undergone significant development over the past decade, shaped by rapid advances in artificial intelligence, the evolution of digital platforms, and their increasing reliance on algorithms to structure information flows. In the early stages of academic debate, attention was primarily directed toward fake news as misleading content produced by individuals or groups aiming to influence public opinion or achieve political and economic gains. This perspective, however, largely centered on human actors as the primary source of disinformation, with limited consideration of the technological infrastructures that amplify and disseminate such content (Wardle & Derakhshan, 2017).

With the expansion of recommendation and personalization algorithms, scholarly attention shifted from the production of misleading content to the mechanisms of its dissemination. Studies have shown that algorithms do not operate as neutral systems; rather, they reorder content based on engagement metrics such as views, shares, and comments. This gives sensational or controversial content greater visibility, regardless of its accuracy or reliability. This development has led to the emergence of new conceptual frameworks, including algorithmic governance, algorithmic mediation, and algorithmic amplification, which have expanded the explanatory scope of digital disinformation phenomena (Gillespie, 2018).

In a later phase, with the widespread adoption of generative artificial intelligence, developments extended beyond amplification to include automated content generation through large language models, deepfake technologies, and synthetic media production. This has resulted in increasingly complex forms of disinformation that are difficult to detect using traditional verification methods. Systematic reviews indicate that research in this field has shifted from fake news detection toward examining the interrelationship between artificial intelligence, algorithms, and the communicative and social impacts of disinformation, alongside growing attention to regulatory frameworks, media literacy, and algorithmic literacy as key mitigation tools.

In light of these developments, algorithmic disinformation has evolved into a comprehensive system in which algorithms, artificial intelligence, user behavior, and digital platforms interact to produce, amplify, and redistribute misleading information within the digital space. This transformation represents a paradigmatic shift in media and communication studies, moving from analyzing media messages themselves to examining the algorithmic infrastructures that shape their production, dissemination, and impact. This makes the concept particularly relevant for digital university environments, which increasingly depend on digital platforms for

III. Definitions of Algorithmic Disinformation

Academic definitions of algorithmic disinformation have varied due to its novelty and its intersection with other concepts such as fake news, misinformation, disinformation, and algorithmic governance. This diversity of definitions indicates that the concept is still in a process of theoretical formation within media and communication studies.

Some scholars view algorithmic disinformation as an extension of traditional information disorder, with a key distinction lying in the role played by algorithms in amplifying and disseminating misleading content. It

is defined as the process through which algorithmic systems on digital platforms enhance the spread of inaccurate information through recommendation and ranking mechanisms based on engagement rather than credibility (Gillespie, 2018).

Another perspective defines it as an interactive system involving misleading content, algorithms, and user behavior, where disinformation is not solely the result of human actors but emerges from a complex interaction between algorithmic design and patterns of digital usage. This interaction produces a biased and unbalanced information environment (Wardle & Derakhshan, 2017).

More recent literature offers a broader definition linking artificial intelligence with information disorder, viewing algorithmic disinformation as a process that relies on algorithms and machine learning models to amplify, reproduce, or even generate misleading content within digital platforms, either directly or indirectly (Casás García et al., 2026).

Based on these definitions, it can be observed that the concept has evolved from viewing algorithms as neutral intermediaries to recognizing them as communicative actors that participate in shaping the information environment and directing content flows within the digital space.

Operational Definition

In this study, algorithmic disinformation is defined as:

“A set of communicative processes through which digital platform algorithms, via recommendation, ranking, and personalization mechanisms, amplify, reproduce, or accelerate the spread of fake news within digital university environments, thereby influencing knowledge formation among higher education students.”

IV. Characteristics of Algorithmic Disinformation

Algorithmic disinformation is characterized by a set of features that distinguish it from traditional forms of media disinformation. The most prominent among them are the following:

1. Indirect Nature

Algorithmic disinformation does not necessarily result from an intentional effort to spread false information; rather, it may emerge as a natural outcome of algorithms prioritizing highly engaging content regardless of its accuracy.

2. Personalization

Algorithms personalize content based on user data, creating individualized informational environments that may reinforce confirmation bias and reduce exposure to diverse viewpoints (Sustain, 2018).

3. Algorithmic Amplification

Algorithmic systems amplify content that generates higher engagement, which can sometimes make fake news more widely disseminated than accurate information (Gillespie, 2018).

4. Dynamism and Continuous Change

Algorithmic disinformation is a dynamic phenomenon that continuously evolves in response to algorithm updates and user behavior, making it difficult to monitor and analyze.

5. Algorithmic Opacity

Algorithms are characterized by a high degree of opacity and lack of transparency, making it difficult for users and even researchers to understand decision-making processes within digital platforms.

6. Reproduction of Knowledge

Algorithmic disinformation contributes to reshaping knowledge within digital environments, where information is not merely transmitted but continuously reconstructed according to platform logic.

Chapter II: Fake News

I. Concept of Fake News

The concept of fake news is one of the most controversial notions in contemporary media studies due to its multiple definitions and its overlap with related concepts such as misinformation and disinformation. In its simplest form, fake news refers to false or misleading media content presented as legitimate news with the intention of influencing public perception, behavior, or opinion formation.

The term has evolved in academic literature to include not only explicitly false content but also information that is produced or redistributed outside its original context, thereby distorting the public understanding of reality. Recent studies indicate that fake news is no longer understood merely as informational error, but rather as a complex communicative phenomenon shaped by political, economic, and technological factors, particularly in the context of...

Knowledge production and dissemination.

The digital environment facilitates the rapid production and wide-scale dissemination of content in real time (Wardle & Derakhshan, 2017).

Some researchers argue that fake news represents a form of “**information disorder**,” in which three main components intersect: unintentional misinformation, deliberate disinformation, and fully fabricated content. This reflects the complexity of the contemporary digital media environment (Wardle & Derakhshan, 2017; Lazer et al., 2018).

II. Types of Fake News

Fake news can be classified in the scientific literature into several main types, the most prominent of which are:

1. Misinformation

This refers to inaccurate information that is shared without the intention to deceive, often resulting from misunderstanding or weak source verification.

2. Disinformation

This refers to content that is deliberately created and disseminated with the intention of deceiving audiences or influencing their perceptions and behaviors.

3. Fabricated Content

This refers to entirely false content created without any factual basis, often used in political or economic influence campaigns.

4. Misleading Context

This includes true information presented in a misleading context that leads to a distorted understanding of reality.

5. Imposter Content

This refers to content that impersonates legitimate media outlets or credible institutions in order to enhance false credibility.

III. Indicators of Fake News

Fake news can be identified through a set of communicative and content-related indicators, most notably:

- Absence of a source or reliance on weak or unreliable sources.
- The use of exaggerated or sensational headlines (clickbait).
- Inconsistency with other credible media sources.
- Frequent linguistic or factual errors.
- Use of emotional or provocative language instead of objective reporting.
- Unusually rapid dissemination across digital platforms.

Studies indicate that these indicators do not operate in isolation; rather, they interact with one another, making fake news detection complex, particularly in digital environments characterized by rapid user interaction (Tandoc et al., 2018).

IV. Characteristics of Fake News

Fake news is characterized by a set of features that facilitate its spread in digital environments, the most important of which include:

1. Ease of Digital Spread

Fake news spreads rapidly across social media platforms due to its engaging nature and reliance on sensationalism.

2. Emotional Impact

Fake news often targets emotions such as fear, anger, or curiosity, increasing user engagement and interaction.

3. Weak Information Verification

It typically lacks credible sources or relies on unverifiable references.

4. High Shareability

Due to platform design based on sharing and engagement, fake news spreads quickly through social networks.

5. Cognitive Bias Reinforcement

Fake news exploits confirmation bias, as individuals tend to believe information that aligns with their pre-existing beliefs.

I. Concept of the Digital University Environment

The digital university environment refers to the integrated communicative and technological system adopted by higher education institutions for the production, dissemination, and management of knowledge through digital media. This includes e-learning platforms, academic content management systems, social media networks, search engines, and intelligent educational applications.

The Ministry of Higher Education and Scientific Research strives to make digitization a permanent companion and a fundamental pillar of all activities of the university institution, linking it to various regulatory processes to eliminate various bureaucratic practices, establish principles of governance and facilitate various activities in accordance with the requirements of the digitization age (Boutarfa & Zedira, 2024, p.3).

Third: Definitions of Algorithmic Disinformation

Academic definitions of algorithmic disinformation have multiplied due to the novelty of the concept and its overlap with other notions such as fake news, misinformation, disinformation, and algorithmic governance. This plurality indicates that the concept is still in a phase of theoretical formation within media and communication studies.

Some researchers view algorithmic disinformation as an extension of the concept of information disorder, with a key distinction lying in the role played by algorithms in amplifying and disseminating misleading content. It is defined as the process through which algorithmic systems on digital platforms enhance the spread of inaccurate information via recommendation and ranking mechanisms based on engagement rather than credibility (Gillespie, 2018).

Another perspective defines it as an interactive system between misleading content, algorithms, and user behavior, where disinformation is not solely the result of human actors but emerges from a complex interaction between algorithmic design and digital usage patterns, leading to a biased and unbalanced informational environment (Wardle & Derakhshan, 2017).

More recent literature offers a more comprehensive definition linking artificial intelligence and information disorder, viewing algorithmic disinformation as a process that relies on algorithms and machine learning models to amplify, reproduce, or even generate misleading content within digital platforms, either directly or indirectly (Casás García et al., 2026).

Based on these definitions, it can be observed that the concept has evolved from viewing algorithms as neutral intermediaries to recognizing them as communicative actors that participate in shaping the informational environment and directing content flows within the digital space.

Operational Definition

Within the framework of this study, algorithmic disinformation is defined as:

“a set of communicative processes through which digital platform algorithms, via recommendation, ranking, and personalization mechanisms, amplify, reproduce, or accelerate the spread of fake news within digital university environments, thereby influencing knowledge formation among higher education students.”

Fourth: Characteristics of Algorithmic Disinformation

Algorithmic disinformation is characterized by a set of features that distinguish it from traditional forms of media disinformation, most notably:

1. Indirect Nature

2. Algorithmic disinformation does not necessarily result from a direct intention to spread false information; rather, it may emerge as a natural outcome of algorithmic systems that amplify highly engaging content regardless of its accuracy.

3. Personalization

4. Algorithms personalize content based on user data, creating individualized informational environments that may reinforce confirmation bias and reduce exposure to diverse viewpoints (Sunstein, 2018).

5. Algorithmic Amplification

6. Algorithmic systems amplify content that generates higher engagement, which can sometimes make fake news more widespread than accurate content (Gillespie, 2018).

7. Dynamism and Continuous Change

8. Algorithmic disinformation is a dynamic phenomenon that continuously evolves according to algorithm updates and user behavior, making it difficult to monitor and analyze.

9. Algorithmic Opacity

10. Algorithms are characterized by a high degree of opacity and lack of transparency, making it difficult for users and even researchers to understand decision-making processes within digital platforms.

11. Reproduction of Knowledge

12. Algorithmic disinformation contributes to reshaping knowledge within digital environments, where information is not only disseminated but also reconstructed according to platform logic.

Second Chapter: Fake News

First: Concept of Fake News

The concept of fake news is considered one of the most problematic notions in contemporary media studies due to the multiplicity of its definitions and its overlap with other concepts such as disinformation and misinformation. In its simplest form, it refers to false or misleading media content presented as legitimate news with the aim of influencing audience perception, shaping opinions, or directing behavior.

In academic literature, the term has evolved to include not only explicitly false content but also information that is produced or circulated outside its original context, thereby distorting public understanding of reality. Recent studies indicate that fake news should not be understood merely as informational error, but as a complex communicative phenomenon involving political, economic, and technological dimensions, especially in light of digital environments that facilitate instant content creation and widespread dissemination (Wardle & Derakhshan, 2017).

It is also argued that fake news represents a form of “information disorder,” in which three main elements intersect: misinformation (unintentional false information), disinformation (intentional deception), and fully fabricated content. This reflects the complexity of the contemporary digital media environment (Wardle & Derakhshan, 2017; Lazer et al., 2018).

Second: Types of Fake News

Fake news in the academic literature can be classified into several main types:

1. **Misinformation**
2. Inaccurate information shared without intent to deceive, often resulting from misunderstanding or poor source verification.
3. **Disinformation**
4. Content deliberately created and disseminated to deceive audiences or influence their opinions and behaviors.
5. **Fabricated Content**
6. Completely invented content with no factual basis, often used in political or economic influence campaigns.
7. **Misleading Context**
8. Accurate information presented in a misleading context, leading to distorted interpretation.
9. **Imposter Content**
10. Content that impersonates credible media sources or institutions to create false legitimacy.

Third: Indicators of Fake News

Fake news can be identified through several communicative and content-based indicators, including:

- Absence of a source or reliance on weak credibility sources.
- Sensationalist or exaggerated headlines (clickbait).
- Lack of consistency with other reliable media sources.
- Frequent linguistic or factual errors.
- Use of emotional or inflammatory language instead of objective tone.
- Rapid and unnatural spread across digital platforms.

Studies suggest that these indicators do not operate independently but are interrelated, making fake news detection particularly complex in fast-paced digital environments (Tandoc et al., 2018).

Fourth: Characteristics of Fake News

Fake news is characterized by several features that facilitate its spread in digital environments:

1. **Ease of Digital Dissemination**
2. Fake news spreads rapidly due to its sensational and attention-grabbing nature.
3. **Emotional Appeal**
4. It often triggers emotions such as fear, anger, or curiosity, increasing engagement rates.
5. **Weak Information Verification**
6. It typically lacks credible sources or relies on unverifiable references.
7. **High Shareability**
8. Platform design based on sharing and engagement facilitates rapid diffusion across networks.
9. **Cognitive Bias Reinforcement**

10. Fake news exploits confirmation bias, as individuals tend to believe information that aligns with their pre-existing beliefs.

First: Concept of the Digital University Environment

The digital university environment refers to the integrated communicative and technological system adopted by higher education institutions for the production, dissemination, and management of knowledge through digital media. This includes e-learning platforms, academic content management systems, social networks, search engines, and intelligent educational applications.

This environment represents a digital extension of the traditional university space, where learning is no longer confined to physical classrooms but extends into digital spaces characterized by continuous interaction and information exchange.

The digital transformation has contributed to reshaping the concept of the university itself, turning it into a hybrid institution that combines face-to-face and digital education. This has led to profound changes in knowledge access patterns, academic communication methods, and forms of interaction between students and faculty members. In this context, digital platforms have become a primary mediator in knowledge production and dissemination, making them directly or indirectly influenced by algorithmic systems (Selwyn, 2021).

First: Algorithmic Gatekeeping Theory

Algorithmic Gatekeeping Theory represents a contemporary extension of traditional Gatekeeping Theory, in which control over information flow is no longer confined to journalists or media institutions, but has shifted toward algorithms that govern digital platforms. This theory posits that algorithms function as “digital gatekeepers” by selecting, ranking, and determining the visibility of content for users.

Within the context of this study, this theory explains how algorithms contribute to the production and amplification of fake news within digital university environments, where reliance on engagement metrics rather than credibility criteria leads to increased visibility of sensational or misleading content. Consequently, algorithms become a central actor in shaping the informational environment within the digital university, rather than a neutral technical intermediary (Gillespie, 2018).

Second: Social Construction of Reality Theory

This theory explains the formation of knowledge and social reality as the outcome of continuous social interaction among individuals, institutions, and media systems. According to this perspective, reality is not a fixed given, but rather a construct produced through communication processes and the circulation of symbols and meanings.

Within the framework of this study, the theory is used to explain how fake news—when algorithmically amplified—can reshape students’ perceptions of reality within digital university environments. Repetition, circulation, and interaction with misleading content may lead to the consolidation of cognitive representations that do not reflect actual reality, but rather a digitally reconstructed version of it, thereby contributing to the formation of an “alternative epistemic reality” within the digital academic space (Berger & Luckmann, 1966).

Third: Media Dependency Theory

This theory posits that the degree of media influence on individuals depends on the level of their reliance on media systems for information, understanding reality, and decision-making. The higher this dependency, the greater the media’s ability to influence individuals’ perceptions and behaviors.

Within digital university environments, students increasingly depend on digital platforms as primary sources of academic and general information, making them more vulnerable to algorithmic influence and misleading content. Accordingly, this theory explains how high reliance on digital media increases susceptibility to algorithmically amplified fake news, particularly in the presence of limited digital verification skills among users (Ball-Rokeach & DeFleur, 1976).

Theoretical Integration

The integrative approach among these theories demonstrates that algorithmic disinformation in higher education cannot be explained through a single perspective. Rather, it results from the interaction of three interrelated levels:

- **Technical level:** represented by Algorithmic Gatekeeping Theory, which explains the role of algorithms in selecting and amplifying content.
- **Socio-cognitive level:** represented by Social Construction of Reality Theory, which explains how perception and knowledge are formed.
- **Behavioral-communicative level:** represented by Media Dependency Theory, which explains the degree of students’ susceptibility to digital content.

Thus, this theoretical framework provides a scientific foundation for building a communication model that explains the production and dissemination of fake news within digital university environments and identifies the mechanisms linking algorithmic structures, user behavior, and knowledge reproduction.

Previous Studies

First: Arab Studies

Arab literature in the field of digital media and information disorder indicates a growing interest in the phenomenon of fake news in digital environments, particularly within social media platforms and their impact on public opinion. Many studies have focused on analyzing the spread of fake news in the Arab digital space, the role of users in reproducing and disseminating it, as well as assessing levels of media literacy among university students in dealing with digital content.

These studies highlight that the Arab digital environment is characterized by high rates of media consumption via social platforms, coupled with relatively weak information verification skills, making users more vulnerable to believing and resharing misleading content. Some studies have also addressed the role of educational institutions in promoting digital media literacy; however, most remain descriptive or pedagogical in nature, without deeper engagement with the technical infrastructure governing information flow within digital platforms.

Despite these contributions, Arab studies tend to focus more on user behavior than on the role of algorithms in shaping that behavior, which represents a limitation in explaining the technical dimension of information disorder.

Second: International Studies

At the international level, research on fake news and algorithmic disinformation has developed significantly in recent years, particularly in media studies, data science, and artificial intelligence. Many studies have focused on understanding the mechanisms of misinformation spread across digital platforms and the role of recommendation and ranking algorithms in amplifying untrustworthy content.

Recent research suggests that algorithms have become key actors in shaping the informational environment by controlling what users see and how information is accessed, thereby redefining the concept of “media gatekeeping” in digital environments. Other studies have examined the relationship between generative artificial intelligence and the spread of misinformation, particularly with the emergence of deep fake technologies and large language models.

In addition, some studies have explored the relationship between selective exposure and filter bubbles and their role in reinforcing cognitive polarization. However, despite their advances, these studies are often grounded in Western contexts and do not necessarily generalize to university educational environments in developing countries.

Third: Commentary on Previous Studies

1. Points of Agreement

Arab and international studies generally agree that:

- Fake news represents a growing threat in digital environments.
- Digital platforms accelerate the spread of misleading content.
- Weak digital verification skills increase users’ vulnerability to misinformation.
- There is a need to strengthen media education and digital literacy within educational institutions.

2. Points of Divergence

Key differences include:

- International studies tend to focus on algorithmic and technical structures, whereas Arab studies focus more on user media behavior.
- International research relies on more complex analytical models (such as network analysis and algorithmic modeling), while Arab studies are often descriptive or survey-based.
- Differences in cultural and technological contexts influence interpretations of fake news dissemination across regions.

Research Gap

Despite the growing scholarly accumulation in the field of fake news and information disorder, a clear research gap remains, which can be summarized as follows:

- The absence of integrated communication models that explain the relationship between digital algorithms and the production and dissemination of fake news within university environments.
- Limited studies that conceptualize the digital university environment as a site of knowledge production rather than merely a space for information consumption.

- A lack of studies integrating the following theoretical perspectives within a single analytical framework:

- Algorithmic Gatekeeping
- Social Construction of Reality
- Media Dependency Theory

- A scarcity of Arab studies addressing algorithmic disinformation as an independent actor in shaping academic knowledge.

Accordingly, this study seeks to fill this gap by developing an explanatory communication model that clarifies the mechanisms of fake news production and dissemination in digital university environments under algorithmic dominance, representing the main scientific contribution of the study.

Methodology

First: Research Design

This study adopts a mixed methods approach, combining both quantitative and qualitative methodologies within an integrative framework aimed at achieving a deeper understanding of algorithmic disinformation in digital university environments. This approach is particularly suitable given the complexity of the phenomenon and the intertwining of its technical, communicative, and cognitive dimensions, which cannot be adequately captured through either quantitative or qualitative methods alone.

The quantitative component focuses on measuring the impact of algorithms on increased exposure to fake news and identifying their influence on students' knowledge formation and communicative behavior. The qualitative component, on the other hand, seeks to understand the deeper mechanisms explaining how fake news is produced and disseminated within digital university environments, as well as analyzing students' perceptions and behaviors toward digital content.

Second: Study Population

The study population consists of higher education students who use digital platforms (such as social media networks and e-learning platforms) as primary sources of academic and non-academic information.

Third: Sample

The study relies on a purposive/stratified sample of university students selected according to specific criteria, including:

- Level of daily use of digital platforms
- Academic discipline
- Year of study

This selection aims to ensure representation of different patterns of digital use within the university environment.

Fourth: Data Collection Tools

The study employs the following tools:

1. Questionnaire:

2. To measure the impact of algorithms on students' exposure to fake news and their level of trust in digital content.

3. Semi-Structured Interviews:

4. To explore students' perceptions of how fake news spreads within digital university platforms.

5. Content Analysis:

6. To examine patterns of fake news dissemination within digital environments.

Fifth: Validity and Reliability

The study instruments are subjected to several validity and reliability procedures, including:

- **Face validity**, through review by a panel of experts in media and communication studies.
- **Construct validity**, to ensure consistency between items and theoretical dimensions.
- **Cronbach's Alpha reliability coefficient**, to ensure internal consistency of questionnaire responses.

Sixth: Data Analysis Methods

Data are analyzed according to their nature:

- **Quantitative data:** using descriptive and inferential statistical analysis (e.g., means, standard deviation, and correlation analysis).

- **Qualitative data:** using content analysis and thematic analysis to extract interpretive patterns.

Rationale for Using the Mixed Methods Approach

The mixed methods approach was selected because it:

- Enables a multidimensional understanding of the phenomenon.

- Integrates measurement and interpretation.
- Is suitable for studying complex digital phenomena such as algorithmic disinformation.
- Enhances the robustness of the proposed explanatory model.

Results

This section presents the findings obtained through the study instruments without interpretation or discussion, in accordance with academic research standards.

First: Quantitative Results

The quantitative analysis revealed the following:

- A positive correlation between the use of algorithm-driven digital platforms and increased exposure to fake news.
- Higher exposure rates to misleading content on social media platforms compared to official academic sources.
- A moderate to high level of trust in certain types of unverified digital content among the study sample.
- A clear influence of recommendation algorithms in shaping the content to which students are exposed within the digital environment.

Second: Qualitative Results

The interviews and content analysis revealed the following:

- Limited awareness among some students regarding how algorithms function and their role in content ranking.
- Heavy reliance on digital platforms as primary sources of both academic and non-academic information.
- Difficulty in distinguishing fake news from authentic news within fast-paced digital environments.
- The widespread sharing of content without verifying its source or accuracy.
- A clear influence of social engagement (likes and shares) in enhancing the perceived credibility of content.

Third: Results of Digital Content Analysis

- A higher dissemination rate of emotionally driven news compared to scientific or academic content.
- The dominance of viral content in shaping information flows within digital platforms.
- Recurrent patterns of fake news related to educational and social issues within the digital university environment.

Fourth: General Findings of the Study

Overall, the study findings indicate that:

- Digital algorithms contribute indirectly to the amplification and spread of fake news.
- The digital university environment constitutes a fertile space for the circulation of unverified information.
- Low algorithmic awareness among students increases their susceptibility to misleading content.
- Digital interaction plays a significant role in granting “social legitimacy” to fake news.

Proposed Explanatory Model of the Study

First: Algorithmic Disinformation Model in the University Environment

This study proposes an explanatory model aimed at understanding the mechanisms of production and dissemination of fake news within digital university environments under the dominance of algorithmic information flows. The model is based on a sequential interactive framework linking the algorithmic structure of digital platforms with the communicative and cognitive behavior of university students.

Second: Structure of the Explanatory Model

The model consists of a set of interrelated variables operating in a cumulative sequence as follows:

1. **Digital Algorithms**
2. the starting point of the model, as they govern the organization and ranking of content on digital platforms.
↓ lead to
3. **Algorithmic Personalization**
4. Where content is tailored based on user behavior and digital interests.
↓ leading to
5. **Selective Exposure**

6. where students are increasingly exposed to content aligned with their preferences and digital orientations.

↓ which reinforces

7. **Filter Bubbles**

8. Where users become enclosed within homogeneous informational environments with limited diversity of viewpoints.

↓ contributing to

9. **Fake News Dissemination**

10. As sensational or emotional content is amplified regardless of its accuracy.

↓ leading to

11. **Knowledge Reproduction**

12. Where students' knowledge is shaped by digitally circulated content rather than reliable academic sources.

↓ reflected in

13. **University Student Behavior**

14. Including:

- Content engagement
- Content sharing/reposting
- Trust in digital sources
- Information verification practices

Third: Conceptual Flow Model

Digital Algorithms

↓

Algorithmic Personalization

↓

Selective Exposure

↓

Filter Bubbles

↓

Fake News Dissemination

↓

Knowledge Reproduction

↓

University Student Behavior

Fourth: Scientific Value of the Model

This model provides a scientific contribution through:

- Integrating technical structures (algorithms) with cognitive structures (knowledge construction).
- Explaining algorithmic disinformation as a cumulative rather than an isolated phenomenon.
- Situating the phenomenon within the specific context of digital university environments.
- Moving from descriptive analysis to a causal and testable explanatory model.

Fifth: Theoretical Framework Supporting the Model

The model is grounded in the integration of three theoretical approaches:

- **Algorithmic Gatekeeping Theory:** to explain control over information flow.
- **Social Construction of Reality Theory:** to explain knowledge formation.
- **Media Dependency Theory:** to explain the influence of the digital environment on student behavior.

Recommendations

Based on the findings and conclusions of the study, this research presents a set of recommendations addressed to various stakeholders within the digital university environment, aiming to reduce the effects of algorithmic disinformation and enhance the quality of information flows within the academic space.

First: Recommendations for Decision-Makers

- The need to develop clear regulatory and legislative frameworks that require digital platforms to increase transparency in algorithmic operations, particularly those related to recommendation, ranking, and personalization mechanisms.

Recommendations

First: Recommendations for Policymakers

- Support national and regional policies that strengthen information security within the digital space, with a focus on combating misinformation in general and algorithmic disinformation in particular.
- Encourage cooperation between governmental institutions, universities, and technology platforms to establish common standards for combating the spread of fake news.

Second: Recommendations for Universities

- Integrate Digital Citizenship and Algorithmic Literacy programs into university curricula.
- Strengthen students' critical thinking and fact-checking skills, particularly in light of their increasing reliance on digital platforms.
- Develop safer and more transparent internal educational platforms to reduce excessive dependence on external non-academic platforms.
- Organize training workshops on how to deal with fake news and verify digital content.

Third: Recommendations for Researchers

- Expand future studies to include deeper analysis of how algorithms operate and their impact on shaping information behavior in educational environments.
- Conduct comparative studies across universities in different countries to understand cultural and technological differences in exposure to algorithmic disinformation.
- Focus on experimental studies that measure the causal relationship between algorithmic exposure and levels of trust in digital information.
- Develop more integrated theoretical models combining media studies, artificial intelligence, and data science.

Fourth: Recommendations for Digital Platforms

- Enhance transparency in algorithm design, particularly those governing content ranking and recommendation systems.
- Improve fact-checking systems within digital platforms.
- Reduce excessive reliance on engagement metrics in determining content visibility and dissemination.
- Promote academic and scientific content within recommendation algorithms to enhance information reliability.
- Develop user alert systems for potentially misleading or questionable content.

General Concluding Recommendation

The study emphasizes that addressing algorithmic disinformation within digital university environments requires a comprehensive and integrated approach that goes beyond a single dimension, encompassing legislation, education, technology, and scientific research, in order to ensure a more reliable and balanced information environment within the academic digital space.

Conclusions

This study addressed algorithmic disinformation in higher education through an analytical communication approach aimed at understanding the mechanisms of production and dissemination of fake news within digital university environments, in light of the accelerating digital transformation and the growing dominance of algorithms over information flows.

The study was based on the fundamental assumption that digital algorithms are no longer neutral technical tools, but have become communicative actors that contribute to shaping and directing informational content, thereby influencing knowledge structures and communicative behavior within the university environment. Through the conceptual and theoretical framework, the study demonstrated how recommendation, ranking, and filtering algorithms, in addition to generative artificial intelligence, interact to reproduce an information environment conducive to the spread and amplification of fake news.

The study further highlighted that fake news in the university context should not be understood merely as inaccurate content, but as the product of a complex interaction between the algorithmic architecture of digital platforms and user behavior, leading to a reconfiguration of students' perception of epistemic reality. In this sense, the digital university environment appears as a fertile space for information circulation, yet at the same time a highly complex environment in terms of verifying content accuracy.

The findings, in light of the proposed explanatory model, revealed a causal chain that begins with digital algorithms and ends with students' communicative behavior, passing through algorithmic personalization, selective exposure, filter bubbles, fake news dissemination, and knowledge reproduction.

Accordingly, the study concluded that understanding algorithmic disinformation requires a multi-dimensional approach integrating technical, social, and cognitive perspectives. It also emphasizes the need to

strengthen algorithmic literacy within higher education institutions and to develop regulatory and academic mechanisms to mitigate the effects of this phenomenon.

Finally, the study affirms that future research in this field is moving toward a deeper understanding of the relationship between artificial intelligence, algorithms, and communicative processes within educational environments, contributing to the development of more transparent and credible digital ecosystems for knowledge production and dissemination.

REFERENCES

1. Ball-Rokeach, S. J., & DeFleur, M. L. (1976). A dependency model of mass-media effects. *Communication Research*, 3(1), 3–21.
2. Berger, P. L., & Luckmann, T. (1966). *The social construction of reality*. Anchor Books.
3. Boutarfa, R., & Zedira, K. (2024). Digitization and its impact on the quality of higher education in Algerian universities. *International Journal of Innovative Technologies in Social Science*, 4(44). [https://doi.org/10.31435/ijitss.4\(44\).2024.3018](https://doi.org/10.31435/ijitss.4(44).2024.3018)
4. Gillespie, T. (2018). *Custodians of the internet: Platforms, content moderation, and the hidden decisions that shape social media*. Yale University Press.
5. Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M. J., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S. A., Sunstein, C. R., Thorson, E. A., Watts, D. J., & Zittrain, J. L. (2018). The science of fake news. *Science*, 359(6380), 1094–1096.
6. Noble, S. U. (2018). *Algorithms of oppression: How search engines reinforce racism*. NYU Press.
7. Pariser, E. (2011). *The filter bubble: How the new personalized web is changing what we read and how we think*. Penguin Press.
8. Salah, O., & Zedira, K. (2025). The status of the inductive method in education and its impact on academic achievement: A comparative study between Arabic language and science education. *International Journal of Innovative Technologies in Social Science*, 2(46). [https://doi.org/10.31435/ijitss.2\(46\).2025.3344](https://doi.org/10.31435/ijitss.2(46).2025.3344)
9. Selwyn, N. (2021). *Education and technology: Key issues and debates*. Bloomsbury Academic.
10. Sunstein, C. R. (2018). *#Republic: Divided democracy in the age of social media*. Princeton University Press.
11. Tandoc, E. C., Jr., Lim, Z. W., & Ling, R. (2018). Defining “fake news.” *Digital Journalism*, 6(2), 137–153.
12. Wardle, C., & Derakhshan, H. (2017). *Information disorder: Toward an interdisciplinary framework*. Council of Europe.
13. Zuboff, S. (2019). *The age of surveillance capitalism*. PublicAffairs.