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Identity in the Age of Artificial Intelligence: A Study of Digital Self-Representations in the Arab Virtual Space

الهوية في عصر الذكاء الاصطناعي: دراسة لتمثيلات الذات الرقمية في الفضاء الافتراضي العربي

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ABSTRACT:

This study examines how digital identity is shaped in Algeria under the growing influence of artificial intelligence and social media platforms. Focusing on university students and academic researchers, the research explores how self-representations are constructed through interactions with algorithms on platforms like Facebook and Twitter. Using content analysis and qualitative interviews, the study reveals that AI not only mirrors identity but also plays an active role in reshaping it socially and culturally. Findings show that algorithms reinforce dominant cultural and political traits, often leading to filter bubbles and limiting exposure to diverse perspectives. Students tend to express emotional and hybrid identities, while researchers engage more cautiously, prioritizing academic credibility. These dynamics reflect broader trends in the Arab digital space, where AI contributes to both identity construction and ideological polarization. This research highlights the need for greater digital awareness and ethical frameworks to protect personal expression, cultural diversity, and privacy in AI-mediated environments.

Keywords: Digital identity, artificial intelligence, representations, social media, algorithms.

ملخص البحث

تناول هذه الدراسة كيفية تشكّل الهوية الرقمية في الجزائر تحت تأثير الذكاء الاصطناعي المتزايد ومنصات التواصل الاجتماعي. تركزت على فئتي الطلبة الجامعيين والباحثين الأكاديميين. وتكشف كيف يتم بناء تمثيلات الذات من خلال التفاعل مع الخوارزميات على منصات مثل فيسبوك وتويتر. باستخدام تحليل المحتوى والمقابلات النوعية، تكشف الدراسة أن الذكاء الاصطناعي لا يكتفي بعكس الهوية، بل يساهم فعلياً في إعادة تشكيلها اجتماعياً وثقافياً. تُظهر النتائج أن الخوارزميات تعزز السمات الثقافية والسياسية السائدة، مما يؤدي غالباً إلى تكوين "فقاعات تصفية" تحدّ من التفاعل مع وجهات نظر متنوعة. يُظهر الطلبة ميلاً إلى التعبير عن هويات هجينة وعاطفية، بينما يتعامل الباحثون بحذر. مفضلين المصداقية الأكاديمية. تعكس هذه الديناميكيات توجهات أوسع في الفضاء الرقمي العربي، حيث يساهم الذكاء الاصطناعي في بناء الهوية وأحياناً في تعزيز الاستقطاب الأيديولوجي. تسلط هذه الدراسة الضوء على الحاجة إلى تعزيز الوعي الرقمي ووضع أطر أخلاقية لحماية التعبير الشخصي، والتنوع الثقافي، والخصوصية في بيئات يهيمن عليها الذكاء الاصطناعي.

الكلمات المفتاحية: الهوية الرقمية، الذكاء الاصطناعي، التمثيلات، وسائل التواصل الاجتماعي، الخوارزميات

1. Introduction

In the digital age, human identity has become more complex and less cohesive than ever before, particularly in light of the technological revolution driven by artificial intelligence. Thanks to the advancement of these technologies, individuals in the Arab world—including Algerians—are now able to construct digital representations of themselves. However, these representations do not always align with the authentic identities they possess in the real world. Through advanced digital algorithms, artificial intelligence can either enhance or distort these representations, depending on how individuals engage with digital technologies (Sahrawi & Jafala, 2023, p. 200).

Digital media play a significant role in shaping personal and cultural identity within the Arab virtual space. Social media platforms such as Facebook and Twitter, in particular, have become digital mirrors that reflect the social and cultural dimensions of individuals' identities. In Algeria, this dynamic entails specific challenges due to the complex interplay of cultural and political factors that define the social context. How is Algerian identity affected in the digital space as a result of these technologies? Does artificial intelligence influence how individuals represent themselves in these environments?

This study seeks to address the central question: How does artificial intelligence influence self-representations of identity in the Arab digital space, particularly in Algeria? In this context, we will examine how AI tools—such as algorithms and search engines—contribute to the shaping of individuals' digital identities, specifically within Algeria's culturally diverse environment. This issue becomes especially significant when considering the social and cultural impacts of such representations, as they may generate new implications for community belonging and social relations.

The importance of this study lies in the need to understand the growing relationship between artificial intelligence and digital identity in Algeria. The country is witnessing an increasing use of digital media and modern technologies, which inevitably affects the formation of personal identities among both individuals and groups. Through this study, we aim to shed light on how these technologies influence the social and cultural dimensions of individuals in Algeria, particularly within the current political and economic context.

This article aims to explore how identity is constructed in the digital space in Algeria under the influence of artificial intelligence. It also analyzes how these digital representations impact the self-perception of individuals and groups, with a focus on students and researchers. Through this work, we seek to understand the relationship between artificial intelligence and the cultural and social dimensions involved in shaping digital identity in Algeria, and how these representations may contribute to the construction—or deconstruction—of identity.

The study adopts a content analysis methodology to examine social media platforms such as Facebook and Twitter, by analyzing users' interactions on these platforms. The research is based on case studies involving Algerian users' engagement with identity-related content, and how AI-powered algorithms affect this interaction. In addition, interviews will be conducted with a sample of Algerian university students and researchers to understand how artificial intelligence influences the formation of their digital identities.

2. Cultural and Social Dimensions of Identity in the Arab Virtual Space

Understanding how identity is shaped within the Arab virtual space requires examining both cultural symbols and social interactions that define users' self-representation.

2.1 Digital Identity and Cultural Representations

In the digital age, digital identity has become a fundamental element in the construction of the self and in individuals' interactions with their social and cultural surroundings. In the virtual space, individuals engage with diverse cultural components that influence their representations of identity. In the Arab world in particular, cultural heritage and traditions remain the primary factors shaping the features of this identity.

Traditional Arab culture significantly influences how individuals present themselves in digital spaces. Despite a notable openness to Western cultures, Arab culture—encompassing family values, religious beliefs, and societal traditions—continues to play a defining role in shaping digital identity. In many Arab societies, individuals are expected to adhere to cultural and religious norms, a fact that is directly reflected in their interactions with digital media. For instance, the use of personal photographs and the manner in which family or religious information is shared on platforms such as Facebook and Twitter reveal the extent to which users remain aligned with these cultural values.

However, with the increasing integration of artificial intelligence (AI) in the digital realm, challenges to Arab cultural identity are mounting. Through algorithmic systems that shape digital content, AI can either reinforce or distort prevailing cultural values. For example, algorithms that rely on user engagement patterns may promote certain cultural trends while ignoring or misrepresenting others. This process can result in the distortion of cultural heritage or the reduction of the diversity of Arab cultural identities through the filtering and guiding influence of these algorithms (Noble, 2018). In this context, cultural values may be misunderstood, as algorithms may perpetuate erroneous stereotypes about Arab culture, or emphasize particular cultural aspects in a way that harms the comprehensive and nuanced representation of this identity (Couldry & Hepp, 2017).

2.2 Social Representations of Digital Identity

Social values in the Arab world also have a substantial impact on digital identity. These values, including family, tribal affiliation, religion, and social justice, constitute a vital framework for understanding digital interactions in Arab societies. In particular, digital identity in Arab contexts often reflects familial traditions and concepts. For instance, social media platforms are frequently used to highlight familial ties and to exchange content that reflects shared family values, thereby reinforcing a sense of social belonging and familial cohesion.

AI, through its user-optimized algorithms, can either enhance or restrict the representation of these social values. It utilizes users' previous digital interactions to guide them toward content that reflects particular social values, thus influencing perceptions of social identity. In Algeria, for example, AI algorithms tend to reinforce community values tied to family and local society, while potentially marginalizing dissenting ideas or perspectives, thereby promoting a singular community image in digital spaces (Lupton, 2015).

Furthermore, individuals in the Arab world face challenges in digital engagement, where algorithms can disproportionately affect the representation of religious and societal values. These effects may either reinforce or distort social perceptions in digital environments, particularly given

the overrepresentation of popular political and religious topics in algorithm-driven content. Such content curation may lead to social echo chambers, exacerbating social disparities and amplifying certain groups at the expense of others.

With regard to religion, digital interactions can be charged with cultural and religious tensions, especially in contexts such as the Arab world, where religious values constitute a core source of identity. AI enables users to access content that may either reinforce or undermine religious views across digital platforms, contributing to the emergence of a religious identity reflective of prevailing social orientations (Belgaid, 2022, p. 975).

The influence of AI on social media platforms extends beyond individual digital identity to broader cultural and social effects that shape perceptions of identity within Arab societies. The interaction between Arab cultural heritage and digital algorithms presents a dual challenge: it may either support or hinder the representation of identity in virtual spaces. Social and religious values play a crucial role in determining these representations and may be increasingly shaped by AI-driven trends. This area warrants further research to better understand the implications of these forces in shaping identity in the virtual realm.

3. Political Implications of Digital Identity in the Arab Space

Digital identity in the Arab world does not only reflect personal expression but also intersects with political structures, power dynamics, and civic engagement.

3.1 Digital Identity and Politics in the Arab World

Digital identity in the Arab world has become a core component in shaping public opinion and influencing political dynamics. With the widespread use of social media platforms such as Facebook and Twitter, individuals have gained greater capacity to express their political views and engage in political discourse. These platforms have evolved from mere communication tools into influential arenas that shape political consciousness and public identity.

In this context, digital identity in the Arab world contributes to the formation of political affiliations and ideological orientations. For example, in countries that have undergone significant political transformations, such as Egypt and Tunisia during the Arab Spring, social media was a central factor in articulating the identity of the revolution and disseminating political slogans. These platforms played a pivotal role in mobilizing protest movements and shaping a collective popular consciousness against existing political regimes (Tufekci, 2017).

Conversely, AI has also become an integral part of this political equation. The algorithms governing social media platforms can significantly influence political orientations. For instance, these systems may determine the types of content shown to users based on prior interactions, thereby reinforcing the political views users already support or lean toward. Such mechanisms can serve as tools for manipulating public opinion, directing users toward content that aligns with specific political agendas or distracting them from critical issues (Krikut, 2022, p. 410). Thus, the political impact of AI goes beyond technical functions, extending to influence collective consciousness within the Arab digital sphere.

3.2 Artificial Intelligence and Its Impact on Democracy and Human Rights

While artificial intelligence (AI) is often regarded as a powerful tool for enhancing digital life,

it simultaneously raises numerous concerns regarding its implications for democracy and human rights. In the digital sphere, AI can be employed to monitor and profile individual behavior, potentially leading to the suppression of free political expression. In several Arab countries, individuals suffer violations of their personal rights and privacy as a result of the use of AI in state surveillance.

For instance, some Arab governments deploy AI to track citizens' online activities on social media platforms, seeking to identify and suppress any dissenting political stances or protests perceived as threats to the existing political order. In this context, technologies such as sentiment analysis are exploited to detect users' political orientations, thereby enabling the targeting of individuals who express disloyal or oppositional views. This excessive use of technology can significantly undermine freedom of expression and press freedom in certain Arab states (Daqaa & Hanish, 2024, p. 23).

Moreover, the use of AI for surveillance constitutes a fundamental threat to human rights, as it exposes individuals to risks stemming from the lack of transparency in data collection and analysis practices. Algorithms employed in the harvesting of personal digital data may contribute to restricting political speech by filtering out or marginalizing oppositional voices through advanced content moderation techniques. Such applications risk weakening democratic structures, particularly in Arab political contexts that are increasingly shifting toward digital authoritarianism (Krikut, 2022, p. 410).

One of the most problematic aspects in this domain is the issue of privacy. As the use of AI continues to expand, concerns grow over how personal data is collected and utilized. Sophisticated algorithms are capable of gathering highly detailed information about individuals, often exceeding what is necessary or ethically acceptable. In the absence of stringent regulatory frameworks, individuals may be subject to privacy violations—whether through the commercial exploitation of their data or its deployment in state surveillance operations aimed at manipulating freedom of thought and expression.

The impact of digital identity on political dynamics in the Arab digital space extends beyond interpersonal interactions. It intersects with public opinion trends and either amplifies or constrains political expression in online environments. AI plays a dual role in this context: on the one hand, it enables individuals to articulate their views, while on the other, it serves as a tool for monitoring and manipulating public opinion in service of political agendas. Issues related to privacy and human rights thus remain critical as these technologies are increasingly utilized for surveillance and control. These challenges call for further research and critical inquiry to understand their broader implications for individual freedoms and democratic processes in the Arab digital sphere.

4. Case Study Analysis

This section offers an in-depth examination of specific social media ecosystems, highlighting how distinct platforms shape communicative practices, socio-cultural dynamics, and identity construction processes in the Arab world.

4.1. Case Study on Twitter and Facebook Users in the Arab World

Social media platforms such as Twitter and Facebook are among the primary tools used by individuals in the Arab world to express and share their digital identities. Within these digital spaces, individuals are able to establish networks of social, cultural, and political relationships, which play a significant role in shaping their personal identities. These platforms have facilitated the expression of

opinions, engagement in discussions on political and social issues, and participation in media and community campaigns that reinforce collective identity.

A key dimension of this study is the role of artificial intelligence in shaping the content users encounter on these platforms. Through algorithms that analyze users' behavior and past interactions, content is selectively presented to them, which profoundly influences their self-perception. For instance, Facebook and Twitter algorithms may prioritize content aligned with users' interests, thereby reinforcing particular images of cultural and political identity. However, this can also lead to the formation of so-called filter bubbles, where users are exposed only to information that confirms their preexisting views, thereby limiting exposure to diverse perspectives and reinforcing cultural and political divides (Pariser, 2011).

Additionally, algorithms influence the organization of political content, potentially shaping specific orientations toward political issues in the Arab world. For example, during the Arab Spring, platforms like Twitter and Facebook were instrumental in mobilizing public protests in countries such as Tunisia and Egypt. Through the use of these platforms, individuals were able to construct their political identities as part of broader social movements—an evolution that coincided with the increasing role of artificial intelligence in curating content reflecting such transformations (Tufekci, 2017).

4.2. The Impact of Algorithms on Identity Interactions

Algorithms are not merely technical tools; they are critical components that shape how individuals participate in cultural and political discourse, thus contributing to the formation of their digital identities. These algorithms influence search results presented to users and suggest topics of potential interest. By leveraging browsing histories and prior interactions, algorithms in search engines and social media platforms customize content delivery with high precision.

Such mechanisms contribute to shaping individuals' cultural and political affiliations. For example, algorithms may reinforce personal political identities by promoting content that aligns with users' political preferences. In the Arab context, this may reflect identity interactions shaped by political and religious affiliations. Users engaging with certain types of content on platforms like Facebook or Twitter may subsequently be exposed to more of the same, reinforcing specific orientations and influencing their perceptions of social and political issues within their environments (Krikut, 2022, p. 411).

Moreover, algorithms contribute to creating a limited space for cultural and political discourse, reducing opportunities for individuals to encounter diverse perspectives. This phenomenon, known as the filter bubble, can foster extreme viewpoints or partisan political alignment, thereby restricting comprehensive discussion of issues (Sunstein, 2017). These effects are particularly evident in the Arab world, where artificial intelligence can sometimes reinforce identities confined to narrow cultural and social frameworks, potentially leading individuals to become isolated within closed echo chambers of like-minded perspectives.

Case studies of Twitter and Facebook users in the Arab world shed light on the influence of artificial intelligence in shaping individuals' digital identities within these spaces. By analyzing how content is personalized through algorithms, the studies highlight the role of these technologies in shaping cultural and political affiliations. At the same time, this analysis reveals the challenges posed by filter bubbles on identity interactions and how such dynamics might affect cultural and political openness in the digital sphere.

4.3. Representations of Digital Identity in the Algerian Virtual Space

Algeria is undergoing a rapid digital transformation, marked by an increasing reliance on social media as a means for expressing, negotiating, and reshaping digital identity. These transformations have led to the emergence of complex forms of identity where traditional markers intersect with platform-specific algorithms. In the Arab virtual space, these shifts resonate deeply with postcolonial histories, linguistic hybridity, and emerging digital literacies.

4.3.1. Cultural and Social Representations of Identity on Social Media

As of 2024, approximately 24.85 million Algerians (54.1% of the population) use social media platforms (Datareportal, 2024). The most popular platforms include Facebook, YouTube, TikTok, and Instagram. These platforms have become performative arenas for cultural identity, where language choices, aesthetic visuals, and symbolic gestures are algorithmically amplified.

The convergence of user numbers on TikTok and YouTube reflects a transition from text-based to video-centric modes of self-representation. This shift suggests a redefinition of identity as not only linguistic but also visual, musical, and aesthetic. These multimodal forms create fertile ground for hybrid and often conflicting identity signals in Arab youth culture.

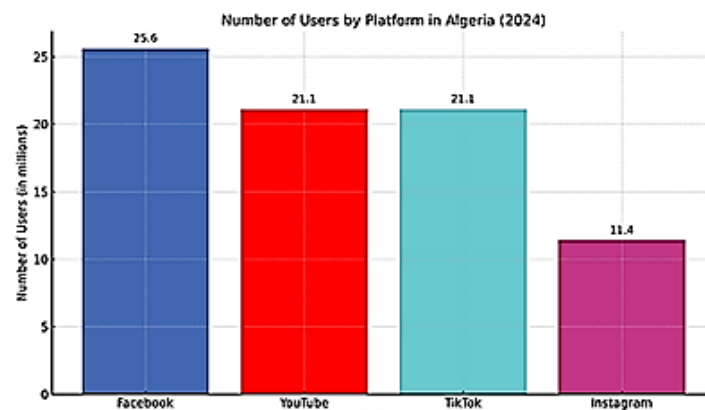


Fig.1. Number of Users by Platform (2024).

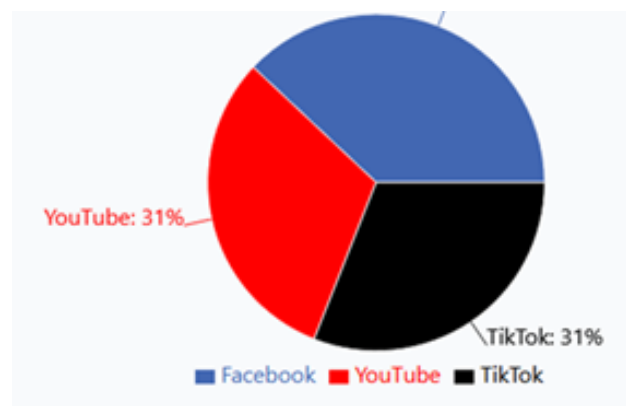


Fig.2. User Distribution by Platform (%).

The balanced distribution highlights a fragmented yet converging ecosystem of platforms. It

reflects a coexistence of identity spaces: Facebook serving as a locus for personal and communal memory, while TikTok and YouTube allow more fluid, globalized identity projections.

4.3.2. Political Representations and the Role of Algorithms

Social media platforms in Algeria have also become political arenas. Users demonstrate rising awareness of national and regional political issues, often filtered through algorithmically curated feeds.

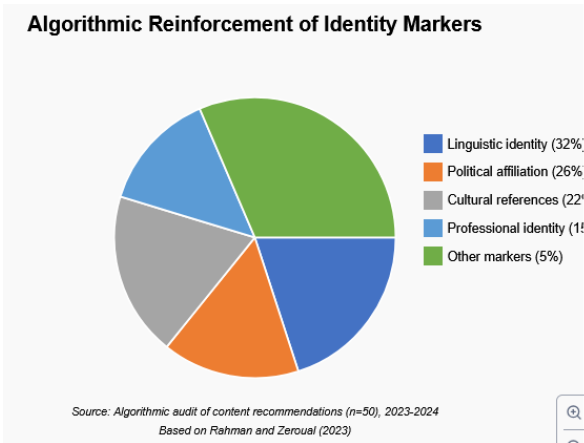


Fig.3. Reinforced Identity Markers by Algorithms.

Algorithms tend to amplify dominant identity traits—especially linguistic and political affiliations—by reinforcing echo chambers. This reinforcement risks essentializing identity, reducing its performative fluidity and potentially intensifying ideological polarization in Arab digital spheres.

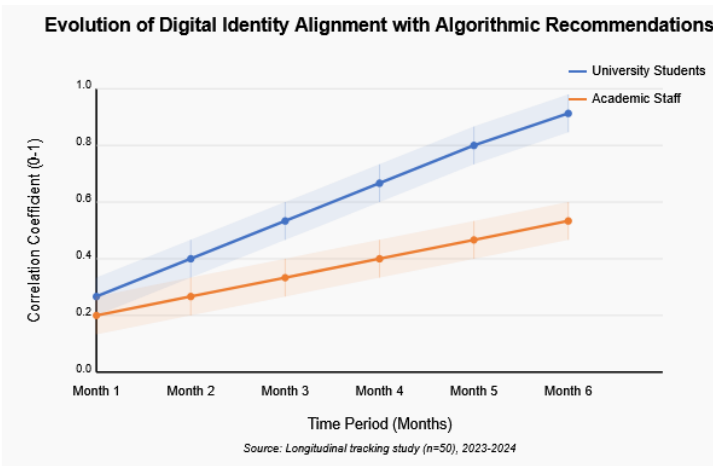


Fig.4. Correlation Between Identity Expression and Algorithmic Recommendation Over Time.

Students exhibit greater alignment between expressed identity and algorithmic suggestions, indicating higher susceptibility to identity shaping through repetitive exposure. In contrast, researchers maintain a more stable trajectory, showing selective and critical consumption.

4.4. Representations of Digital Identity Among University Students and Academic Researchers in Algeria

Digital identity formation varies across socioprofessional groups. University students engage in expressive, affective, and symbolic identity constructions, while academic researchers adopt a more rational, cautious, and strategic approach.

4.4.1. University Students: Identity Between Expression and Belonging

Students use digital platforms as tools for negotiating generational identity, cultural affiliations, and political sentiments. They engage in code-switching across Arabic, French, and dialect, construct curated digital personas, and respond in real time to sociopolitical shifts.

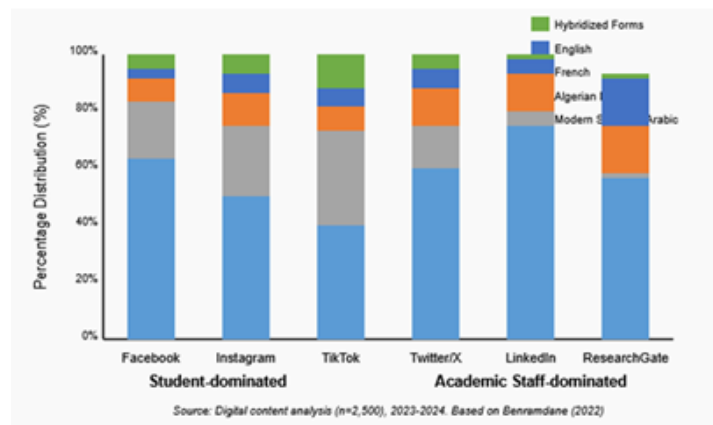


Fig.5. Linguistic Distribution in Digital Content Production.

The emergence of hybrid linguistic practices indicates a deep negotiation of postcolonial identity. It also reflects how AI-driven content moderation shapes acceptable forms of speech, promoting globalized language patterns and marginalizing local variations.

4.4.2. Academic Staff and Researchers: The Cognitive Digital Identity

Researchers use digital tools for intellectual visibility and scholarly interaction. However, they express reservations about AI tools, particularly in their potential for surveillance and academic manipulation.

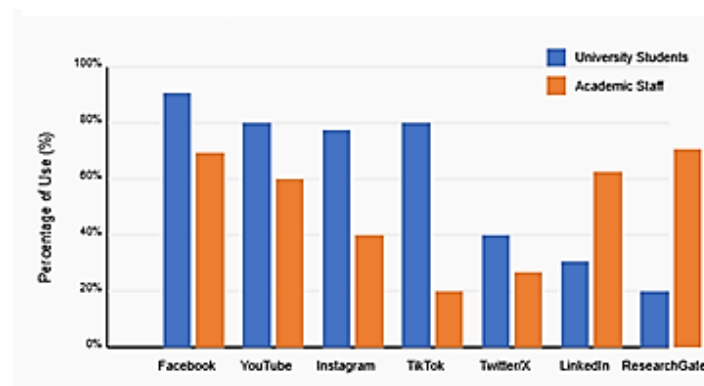


Fig.6. Platform Usage by Academic Population Groups.

Researchers' preference for professional platforms highlights an identity strategy rooted in epistemological capital. Their digital identity is shaped not only by self-presentation but by

credibility, peer recognition, and disciplinary norms.

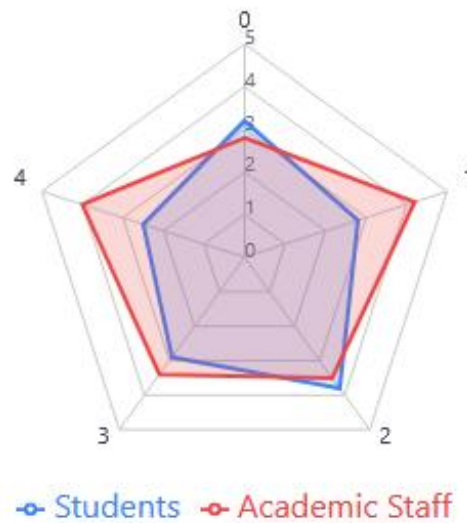


Fig.7. AI Integration in Personal and Professional Identity.

Radar disparities show a generational divide in AI adoption. Students show higher integration in everyday life but lower ethical awareness, while researchers show high concern but cautious implementation. This asymmetry reveals the unequal access to AI literacy in the Arab academic sphere.

Table 1. Comparison of digital engagement by professional group (students vs. researchers)

Group	Facebook Usage (%)	AI Use in Research (%)	Identity Awareness (%)
University Students	90%	35%	75%
Academic Researchers	60%	72%	88%

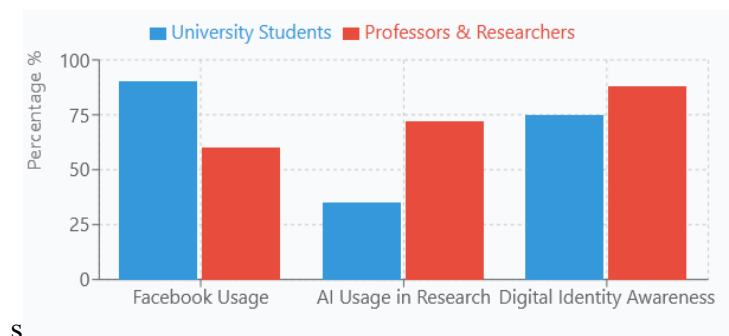


Fig.8. Digital Engagement by Group.

The data indicate two identity economies operating in parallel. Students' digital identities are emotive and public-facing, shaped by high exposure to algorithmic environments. Researchers' identities are constructed through strategic visibility, mediated by professional reputation and algorithmic skepticism.

The Algerian case reflects broader dynamics in the Arab virtual space, where digital identities are continuously produced and negotiated under the influence of AI systems. The interaction between human agency and algorithmic reinforcement creates hybrid, often unstable identities. In the age of artificial intelligence, identity is no longer static or purely self-authored but is increasingly co-constructed with machine intelligence. Understanding this phenomenon is critical for grasping the future of cultural expression, political participation, and epistemological sovereignty in Arab digital societies.

5. Conclusion

This study highlights the growing complexity of identity construction within Algeria's digital landscape in the age of artificial intelligence. Far from being a mere self-reflection, digital identity emerges as a dynamic process shaped by interactions with algorithmic technologies that influence social, cultural, and political representations. Focusing on university students and researchers, the analysis reveals varying patterns of digital engagement across different groups, uncovering distinct identity economies that oscillate between affective expression and strategic visibility management.

Artificial intelligence plays a dual role: it reinforces certain identity traits while marginalizing others through algorithmic optimization and content filtering. This dynamic presents significant challenges to cultural diversity, freedom of expression, and informational sovereignty. In essence, digital-era identity is no longer solely an individual matter but rather a co-constructed space between human actors and intelligent systems, necessitating critical, multidisciplinary, and ethical approaches.

To address the challenges posed by AI's growing influence on identity representations in Algeria's digital sphere, this study prioritizes the following recommendations: First, enhancing digital literacy in universities, particularly through education on algorithmic mechanisms and their impact on self-perception. Second, promoting interdisciplinary research that bridges sociology, information science, artificial intelligence, and cultural studies to deepen understanding of these technologies' socio-political implications. Third, developing national AI governance policies to safeguard privacy, cultural diversity, and free expression. Additionally, implementing algorithmic auditing tools is crucial to assess their impact on public opinion formation. Finally, protecting the digital space from political misuse requires stricter platform transparency regulations to prevent digital identity manipulation and uphold fundamental rights.

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