Enhancing Algorithmic Literacy: Experimental Study on Communication Students' Awareness of Algorithm-Driven News*

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Abstract

This article addresses the need for algorithmic literacy in the field of journalism and media education. Amid the escalating complexity of disinformation in the media landscape, the aim is to enhance users' awareness and understanding of algorithm-driven content. Through focused research on communication students, the study investigates attitudes, beliefs and knowledge relating to the influence of algorithmic systems on news consumption. Existing scholarship is surveyed to establish the evolving nature of algorithmic literacy, ranging from optimizing search engines to countering misconceptions among digital natives. The relevance of digital information dissemination theories such as incidental consumption, news-finds-me perception, echo chambers and filter bubbles is highlighted in understanding algorithm-driven news selection. Methodologically, two focus groups of communication students from universities in Spain and the United States

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engage in discussions on critical consumption attitudes, algorithmic beliefs and knowledge. The outcomes reveal the students' skepticism towards algorithmic news selection and their awareness of emotional triggers shaping news dissemination. Notably, they differentiate between valuable news and trends influenced by algorithms. Conclusions underscore the significance of the "WITH" (Why-Is-This-Here) perception as an indicator of critical consumption and the need for algorithmic literacy. The insights of communication students contribute to algorithmic systems, and their familiarity varies, yet they recognize the impact on news consumption. This study advocates for algorithmic literacy to empower citizens for responsible news consumption and journalism.

Keywords: algorithmic literacy; media education; news consumption; algorithmic systems

Resum. *Millorar l'alfabetització algorítmica: estudi experimental sobre la consciència de notícies recomanades per algoritmes en estudiants de comunicació*

Aquest treball aborda la necessitat d'una alfabetització algorítmica en l'àmbit del periodisme i l'educació mediàtica. Dins la creixent complexitat de l'escenari mediàtic i de la desinformació que produeix, l'objectiu és reforçar la consciència i comprensió del fenomen de la recomanació algorítmica de notícies. A través d'una recerca experimental centrada en estudiants universitaris de comunicació a Espanya i els Estats Units, l'estudi se centra en les actituds, creences i coneixements sobre el consum noticiós derivat dels sistemes algorítmics. La literatura actual és àmplia sobre aquest fenomen i l'afronta des d'una gran varietat de punts de vista, com l'optimització de l'ús de cercadors o els conceptes erronis que es tenen en els anomenats nadius digitals. La rellevància d'algunes teories que expliquen la difusió de la informació digital, com la percepció News-Finds-Me, el consum incidental o les cambres d'eco, són utilitzades en el marc teòric per comprendre millor el rol dels algoritmes en la difusió de contingut noticiós. Metodològicament, es van crear dos grups de discussió amb estudiants de diferents universitats per analitzar el seu grau de consum crític, creences sobre els algoritmes i coneixements derivats. De manera significativa, els alumnes diferencien entre contingut valuós i les tendències difoses per algoritmes. En les conclusions es remarca l'existència d'una actitud crítica (WITH perception) com a possible indicador de consum conscient, així com de la necessitat de reforçar la denominada alfabetització algorítmica. Els coneixements dels estudiants de comunicació varien, però reconeixen l'impacte en el consum de notícies. Aquest estudi advoca per l'alfabetització algorítmica per empoderar ciutadans i periodistes per a un consum i una producció de notícies responsables.

Paraules clau: alfabetització algorítmica; educació mediàtica; consum de notícies; sistemes algorítmics

Resumen. *Mejorar la alfabetización algorítmica: estudio experimental sobre la conciencia de noticias recomendadas por algoritmos en estudiantes de comunicación*

Este trabajo aborda la necesidad de una alfabetización algorítmica en el ámbito del periodismo y la educación mediática. Dentro de la creciente complejidad del escenario mediático y de la desinformación que produce, el objetivo es reforzar la conciencia y comprensión del fenómeno de la recomendación algorítmica de noticias. A través de una investigación experimental centrada en estudiantes universitarios de comunicación en España y Estados Unidos, el estudio se centra en las actitudes, creencias y conocimientos sobre el consumo noticioso derivado de los sistemas algorítmicos. La literatura actual es amplia sobre este fenómeno y lo afronta desde una gran variedad de puntos de vista, como la optimización del uso de buscadores o los conceptos erróneos que se tienen en los

llamados nativos digitales. La relevancia de algunas teorías que explican la difusión de la información digital, como la percepción News-Finds-Me, el consumo incidental o las cámaras de eco, son utilizadas en el marco teórico para comprender mejor el rol de los algoritmos en la difusión de contenido noticioso. Metodológicamente, se crearon dos grupos de discusión con estudiantes de diferentes universidades para analizar su grado de consumo crítico, creencias sobre los algoritmos y conocimientos derivados. De forma significativa, los alumnos diferencian entre contenido valioso y las tendencias difundidas por algoritmos. En las conclusiones se remarca la existencia de una actitud crítica (*WITH perception*) como posible indicador de consumo consciente, así como de la necesidad de reforzar la denominada alfabetización algorítmica. Los conocimientos de los estudiantes de comunicación varían, pero reconocen el impacto en el consumo de noticias. Este estudio aboga por la alfabetización algorítmica para empoderar a ciudadanos y periodistas para un consumo y una producción de noticias responsables.

Palabras clave: alfabetización algorítmica; educación mediática; consumo de noticias; sistemas algorítmicos

1. Introduction

The growing spread and increasing complexity of disinformation within the media landscape over recent years (Wardle and Derakhshan, 2017) has engendered new fields of research and shared interpretations of journalism and media literacy. As fact-checking, artificial intelligence and social networks have evolved, there has been "a shift in attitudes among the professions involved, accompanied by collective sense-making through shared frameworks that acknowledge, among other factors, the significance of data and algorithms" (Frau-Meigs, 2022). This notable importance of recognizing algorithm-driven content finds resonance in the most recent scholarly literature on the subject, with nuanced variations in approaches.

Although algorithmic literacy (AL) is a relatively new research field, a variety of perspectives can be observed. These include approaches such as optimizing search engines to cultivate critical and mindful students (Bakke, 2020); designing toolkits for algorithmic literacy to counteract the misconceptions of digital natives (Henderson, Shade and Mackinnon, 2020); exploring the role of algorithmic personalization in propagating emotion-triggering propaganda (Hobbs, 2020); conducting classroom case studies to gauge the algorithmic platform awareness of communication students (Koenig, 2020); investigating the role of libraries in enhancing algorithmic literacy (Ridley and Pawlick-Potts, 2021); researching multidisciplinary perspectives that underscore "algorithmic literacy as a grassroots governance tool" (Cotter, 2020); and exploring the prediction of attitudes toward algorithmic systems (Silva, Chen and Zhu, 2022). Many of these viewpoints are situated within contemporary theories on the dissemination of digital information, encompassing concepts such as echo chambers (Sunstein, 2001), filter bubbles (Pariser, 2011) and the news-finds-me effect (Gil de Zuniga, Weeks and Ardevol-Abreu, 2017).

In this context, our understanding of users' beliefs about algorithmic news selection is limited, but insights from the latest Digital News Report (Reuters Institute, 2023) offer some light on this issue. Broadly, a predominant "generalized skepticism" (Fletcher and Nielsen, 2018) towards algorithmic news selection persists, with just 19% agreeing that automatic story selection based on friends' consumption is a viable news delivery method, compared to 42% who disagree (Reuters Institute, 2023). As Rachel Richardson from Snapchat noted at the ONA23 Conference in Philadelphia (26 August 2023), the curating team had to "counteract the algorithm" since it prioritized engagement over news dissemination.

Given the undeniable role of algorithms in shaping our daily news engagement, a fresh research agenda is required (Oeldorf-Hirsch and Neubaum, 2021) to align platform responsibility with user expectations in terms of ethics and transparency. This motivates the present study, which focuses on enhancing awareness and understanding of what could be termed "algorithmic literacy." This study is rooted in the tradition of media literacy and is inspired by the media skills and indicators identified by Ferrés and Piscitelli (2012), namely Languages, Technology, Reception and Interaction, Production and Broadcast, Ideology and Values, and Aesthetics. These media literacy skills have been widely developed in specific digital contexts and with communication students as a reference target to measure and lead media literacy (Grandío-Pérez, 2016; Ferrés and Masanet, 2016; Figueras-Maz, Grandío-Pérez and Mateus, 2021). Some scholars advocate media literacy as one of the necessary measures to combat disinformation internationally (Sádaba and Salaverría, 2023).

We pay here particular attention to the specific implications of a data-driven culture of creation and the need to evaluate and measure the most relevant media skills and indicators to promote algorithmic literacy among the general public. A grasp of the fundamental mechanisms of these algorithms serves to counter disinformation, thereby contributing not only to heightened literacy of the audience but also to more accountable and responsible journalism, which ultimately bolsters democratic systems. This assumes even greater significance when we consider the potent influence of algorithms on the political information that users encounter across social platforms such as Facebook (González-Bailón et al., 2023).

This paper aims to enhance awareness of "algorithmic literacy" (AL), drawing on media skills and indicators within the media literacy tradition (Frau-Meigs, 2013). It underscores the importance of measuring media skills and indicators to promote algorithmic literacy among the general population. Recognizing the fundamental role of algorithms in countering disinformation and promoting responsible journalism, especially in the context of their influence on political information, is essential.

1.1. Goals and research questions

The primary objective of this article is based on the need to validate new conceptual models for gauging algorithmic literacy. In pursuit of this goal, our work is guided by the following five specific objectives:

— Objective 1: To contribute to formulating a framework for studying awareness of consumption of algorithms and, consequently, algorithmic literacy.
— Objective 2: To delineate awareness among communication students of algorithmic systems and their influence on the consumption of disinformation.
— Objective 3: To assess the target group's convictions and perceptions regarding contemporary theories concerning algorithms, such as echo chambers or the news-finds-me effect.
— Objective 4: To pinpoint areas of algorithmic processes of which university students possess a firm understanding.
— Objective 5: To validate a scale designed to quantify algorithmic literacy. This scale is based on three primary categories: a) attitudes, specifically focusing on critical consumption; b) beliefs and perceptions; and c) knowledge concerning algorithmic systems.

Similarly, to enhance reproducibility and ensure the ongoing progress of subsequent studies of a similar nature, these objectives can be transformed into practical research questions, as shown below:

— RQ1. Is there a need for a distinct theoretical approach required for algorithmic literacy, separate from the overarching theories of general media literacy?
— RQ2. Do communication students exhibit a specific awareness of algorithmic systems and their impact on disinformation ecosystems?
— RQ3. What beliefs and perceptions do communication students hold regarding traditional theories on disinformation, such as echo chambers, filter bubbles, or news-finds-me?
— RQ4. What specific knowledge do communication students possess concerning the algorithmic recommendation of news?
— RQ5. Is it possible to create a model that explains algorithmic literacy using attitudes, beliefs and knowledge as main categories?

2. The growing need for algorithmic literacy

In 2022, a historic precedent was set as platforms were held accountable for the suicide of teenager Molly Russell, who had been exposed to self-harm and suicide-related content on social media before her tragic death in 2017. The British courts eventually ruled that social networks such as Instagram or Pin-

terest had "contributed to her death." On a less dramatic scale, the reinforcement of preconceived ideas and beliefs occurs daily on social platforms through algorithmic operations that amplify potentially viral content, irrespective of its content or nature. However, it is important to note that not all platforms operate this way. For instance, Mastodon, the open-source platform that gained prominence after Twitter's crisis in 2022, operates based on community principles, and boasts an antiviral design. Nonetheless, in the contemporary media landscape, artificial intelligence and algorithms collaborate to shape discourses that directly sways public opinion, often through emotional triggers (Serrano-Puche, 2016), which can inadvertently propagate false information.

Understanding the fundamental mechanisms of these algorithms can combat disinformation by enhancing public literacy and fostering more committed, truthful and responsible media communication. While demanding "rigorous research" (Bruns, 2022) on the processes governing content presentation and order on social platforms, this study complements that approach with an audience-oriented perspective to explore the knowledge and awareness of key actors. While the scholarly literature on media literacy and journalism flourishes with high-quality contributions (García-Canclini, 2020; Ventura, 2021; Deuze and Beckett, 2022), specific references to the functioning of dominant content consumption platforms are relatively scarce. This trend is slowly changing through recent works that stress the need to deepen understanding of recommendation mechanisms (Bode and Vraga, 2015; Frau-Meigs, 2022; Tenenboim, 2022) which shape the dynamics of media production and dissemination, as well as the consumption habits of people.

The discourse surrounding the "era of algorithms" (Chayka, 2022) is gaining traction, both in the media and in nascent scholarly discussions, underscoring the potential of knowledge acquisition to mitigate risks and amplify benefits, steering clear of algorithmic dominance (Lewin, 2022: 18). Importantly, the aim isn't to vilify these mechanisms, which have proved effective in combating disinformation (Bode and Vraga, 2015), but rather to enhance the experience of news consumption on social platforms, diminishing general skepticism regarding algorithmically delivered news (Mont'Alverne et al., 2022; Reuters Institute, 2023). Meanwhile, artificial intelligence is assuming an ever-growing role in media tasks, automating processes such as headline creation, comment moderation, social media management and infographic design – areas closely aligned with editorial judgements (Ventura, 2021: 8).

In its recent guide on disinformation and digital literacy for educators, the European Union underscores the significance of understanding algorithms and their operations in developing students' new skills (European Commission, 2022). This encompasses "grasping algorithms" and comprehending "why certain content is shown", as well as awareness that search engines, social media and content platforms often employ algorithms for

generating responses. At the same time, students are encouraged to understand "how algorithms, clickbait and bots function" (European Commission, 2022: 20-22, 30).

Algorithmic literacy also has potential links to the issue of quality of information consumption, as exemplified by Axel Bruns' scale (2022: 36) outlining levels of information dysfunction (news avoidance) within individuals and groups. These are categorized as: a) maintaining a balanced information diet; b) cultivating information specialization; and c) avoiding dysfunctional disconnection. It has been established that the primary sources of disinformation reside within social media platforms rather than traditional media outlets (Salaverría et al., 2020). Consequently, enhancing algorithmic literacy emerges as a logical initial measure in the battle against disinformation (Chibás Ortiz and Novomisky, 2022).

Understanding these algorithms is essential to combat disinformation and promote responsible media communication. While there is broad scholarly literature on media literacy, there is a growing need to explore recommendation mechanisms on dominant content consumption platforms. The European Union underscores the significance of algorithmic literacy in its guide for educators, emphasizing the understanding of how algorithms operate and their use in generating responses. Algorithmic literacy is also linked to the quality of information consumed, making it an essential measure in countering disinformation.

3. Method

This study involves the creation of two focus groups consisting of communication students from two universities, encompassing both undergraduate and postgraduate programs. One group is from the University of Murcia in Spain, while the other is from Georgetown University in the United States. The primary objective is not centered around direct comparison; rather, it seeks to ascertain consistent beliefs and perceptions within different environments, while examining a similar target demographic.

The use of focus groups as a standalone research methodology has gained considerable prominence, almost rivaling their role within multi-method projects. As an independent research tool, focus groups offer versatile applications, serving both to study new subject areas or research inquiries and to scrutinize established domains or research queries through the lens of the perspectives of research participants. Although frequently employed for exploratory purposes, the distinctive strengths of focus groups become particularly evident when employed for explicit phenomenological research (Wilkinson, 1998). Here, the term 'phenomenological' is used broadly to encompass a wide spectrum of research endeavors primarily focused on elucidating the experiences, meanings, understandings and viewpoints of individuals. In the context of phenomenological focus group research, certain studies aim to cultivate comprehensive insights into individuals' "lifeworlds". These "life-

worlds" (Wilkinson, 1998) are the daily news consumption routines of communication students, those who have – apparently – the highest degree of algorithmic literacy. These are the "lifeworlds" we want to explore with this preliminary research.

3.1. Data collection

The Spanish focus group took place on 27 July 2023, with the participation of eight students, while the focus group in the United States was conducted a month later, on 25 August 2023, and included six students. The participants' ages ranged from 20 to 38. The gender distribution was considered, with five men and nine women taking part. Both sessions lasted exactly one hour, and the complete recordings of these discussions can be made available on request to the authors of this article.

The topics, questions and responses of the conversation were categorized into three primary themes: a) Attitudes (critical consumption); b) Beliefs and Perceptions; and c) Knowledge (algorithmic systems). These three categories are not in this specific order for any particular reason, the elements are not sequential or linear parts in the process of consumption but an endless loop of feedback between one another. Attitudes influence knowledge and perceptions, and vice versa.

To ensure the safeguarding of participants' identities, all comments from the participants have been anonymized. The sole data used in this study to identify comments includes the initial of the participant's name, their age, gender, country and their role as a student. The initials of the Spanish names are Si, Ro, El, Sa, Ga, Di, Cr and Iv; the initials for the USA names are: P, J, A, R, E and K.

A limited number of quotes have been selected to contribute to the clarity of the article and not be redundant. The following results have been summarized into 20 statements. A note of context is included before each statement or group of statements.

3.2. Results

Although numerous comments could be associated with various topics at the same time, as mentioned above responses have been classified into three distinct categories: those linked to attitudes concerning critical thinking and consumption, those connected to beliefs and perceptions, and those addressing concrete knowledge.

3.2.1. Attitudes (critical consumption)

The initial stage in developing a skill for critically consuming information involves harboring skepticism towards every piece of content that comes our way. Given that emotions significantly fuel the spread of disinformation (Serrano-Puche, 2016), a query such as "Why is this here?" serves to deacti-

vate all the unconscious ways of consuming news that we encounter within the digital environment each day. We find this first step of awareness in this participant's response:

> There's always that little moment: Why is this here? (P, female student, USA, 20 years old).

Notably, there is a clear emphasis on individual responsibility, particularly concerning the (lack of) critical thinking, although it is not common among the target group, at least in such explicit ways.

> Echo chambers are not just on social media but also in our minds. (A, male student, USA, 32 years old).

Some participants went deeper in the critical thinking approach and realized the reason for undesired content, how the algorithm misunderstands some browsing patterns, mainly because it does not detect the kind of emotions generated, just the amount of engagement.

> There was a topic that really upset me … and the next time I opened my feed on Instagram all the posts, all the reels, were about this topic…Instagram thought it was relevant to me and that I wanted to know more. That is kind of upsetting. (R, female student, USA, 24 years old)

> I definitely experienced a similar thing… A political video with a viewpoint I really don't agree with would come up on my TikTok. I watched it not because I agreed but because I was briefly fascinated… and it started offering me other similar videos or the people who watched that video. (P, female student, USA, 20 years old)

Participants can distinguish between valuable news and news that is just merely trendy because they know how the algorithms work. Here we can identify a claim for critical consumption in terms of use of different media, as well as a critical search of sources, topics and media. They also identify that "source of news" is not the same as "trends". Twitter, now known as X, garners genuine appreciation for its inclusive and collaborative nature. This very aspect underscores why some companies' initiatives (Twitter Blue for all), which jeopardize the integrity of accurate information and foster the dissemination of disinformation, are perceived as among the most imminent threats on the platform.

> One of the problems with Twitter is that what tends to come to you is tendentious, which is not the same as current events. If people don't talk about it, you won't find out if you don't look for it. (Cr, male student, Spain, 21 years old).

> I don't rely on Twitter as a source of news, but in the morning, I quickly look at the trends to see what has happened in Spain. Twitter is very useful but as a base; it helps me to have a quick headline but if I want to continue, I go to newspapers. (El, female student, Spain, 25 years old)

> On Twitter I really like the context added by users in some news that tends to be confusing. I appreciate it because there are many accounts that claim to be news but have no sources and now users can give the context… And that now you can have Twitter Blue simply by paying is a danger. (Sa, female student, Spain, 22 years old)

3.2.2. Beliefs and perceptions

Particularly following two major international events, BREXIT and Donald Trump's victory, social networks faced accusations of playing a passive role in combatting disinformation. This marked a tipping point, prompting platforms such as Facebook and Twitter (now X) to intensify their efforts in this regard. However, despite these endeavors, problematic practices persisted alongside legal challenges. Notably, Facebook was faced with a lawsuit for "deceptive practices" in 2021, initiated by Reporters Without Borders (*The Guardian*, 23 March 2021), while Twitter (now X) raised concerns about its intentions by suing a hate-speech nonprofit watchdog, the Center for Countering Digital Hate (*AP News*, 1 August 2023). The first perception suggests that platforms exhibit a complete disregard for disinformation, whereas the second perspective attributes the issue to the platforms' limited effectiveness on a broader scale.

> They [the platforms] don't care [about fighting disinformation]. (A, male student, USA, 32 years old).

> I do not agree they don't care. What else can they do? (R, female student, USA, 24 years old).

The phenomenon known as the "news-finds-me" perception, as explored by Segado-Boj, Díaz-Campo and Quevedo-Redondo (2019), as well as the similar concept of incidental news consumption as discussed by Boczkowski, Mitchelstein and Matassi (2018), finds significant resonance among communication students. However, this study offers an innovative perspective by highlighting the mutual nature of this process. It unveils a dynamic, endless loop in which algorithms proactively present news while users simultaneously impart valuable insights to the network.

> News is finding me based on my feed… definitely news finds me, but if I look for specific topics, I reach out for information. It is in two ways: news finds me, and I find information. (A, male student, USA, 32 years old)

It appears that the perception of news-finds-me is not necessarily linked to a lack of truthfulness; rather, it is closely associated with the gratification

derived from receiving tailored news content more promptly. Also, this form of serendipitous consumption ("let's see what's around here") is regarded as the conventional mode of engaging with social networks.

> News reaches me on social media… and that's why I like consuming news on social media… I feel like news always finds me on Instagram… Instagram is so much quicker in terms of getting news. (R, female student, USA, 24 years old)

> It happens on all platforms, I get in and say, "let's see what's around here". (Si, female student, Spain, 25 years old).

A certain sense of fascination ("I don't know, it's interesting") surrounds the correlation between incidental consumption and engagement. It appears that everyone is reluctant to forego the opportunity for a fortuitous and successful consumption experience.

> There is also a fact of accessibility, it is all there but the algorithm does know what you like and what you don't like, so it is going to offer you the videos you are going to engage with positively, which is just… I don't know, it's interesting. (P, female student, USA, 20 years old)

Contrary to the prevailing notion of echo chambers, certain exceptions are highlighted, as observed, for instance, on Facebook, where many individuals do not select their friends on social networks based solely on their political viewpoints. Because of this, algorithms are unable to eradicate the intrinsic diversity within social networks (Bruns, 2022).

> I definitely believe in echo chambers. The only exception for me is Facebook with my relatives with many different beliefs in terms of politics… when they are posting and sharing things… I still want to keep them in my social networks, but I don't like to see that information. (J, female student, USA, 36 years old).

3.2.3. Knowledge (of algorithmic systems)

In accordance with the assertion of the European Commission (2022: 20-22, 30), we also queried students about their familiarity with how algorithms function on social platforms. While they do possess some understanding, there is a disparity in knowledge, with certain aspects being more understood than the broader phenomenon itself.

Furthermore, it is intriguing when individuals describe algorithms as "neural networks" capable of "learning from each input." This perspective implies that if algorithms possess the capacity to *learn*, individuals with a certain level of critical consumption could potentially *teach* something to these algorithms. This shift marks a transition from passive to active use of social networks.

> It depends on the platform and [algorithms] have evolved a lot, they are no longer algorithms, they are more like automated neural networks that process and learn with each input. (Cr, male student, Spain, 21 years old)

We do find relevant statements that show some clear understanding of the algorithmic systems as a whole, such as their dynamic and volatile nature, or the relevance of being – as producer – consistent in the publication of content. For those who create or have been aiding creators in optimizing content on social networks, one of the challenges to confront revolves around the rapid and frequent alterations in the algorithm's rules.

> Hashtag optimization is important, relevant keywords, the length of your video… but you need to understand that algorithms change so drastically, too often, it is really hard to keep track of what is working. (R, female student, USA, 24 years old)

> Consistency is very important, posting regularly. (A, male student, USA, 32 years old)

The information war over breaking news was already won by social media a few years ago, and this seems even clearer after the rise of incidental consumption. The users know what the algorithm is mainly monitoring about their consumption, and they take it as a sort of small payment in terms of privacy, in exchange for more accurate content.

> The algorithm on TikTok is actively taking note of where you spend time on and what videos you go back to and which videos you like and save. It becomes a sort of echo chamber, especially for current events… my TikTok algorithm, based on the videos that it shows me, absolutely knows the topics I am really passionate about, and I am going to go back to. (P, female student, USA, 20 years old)

Certain recurring elements emerge among the factors that aid the algorithm in gaining a deeper understanding of the user. For instance, the very act of consuming an entire piece of content holds significance. However, it is equally intriguing to observe instances in which users perceive a "disconnection" with the system, as expressed in sentiments such as the platform "no longer understands me".

> On Instagram and other networks, it tells you that it shows it because you have liked something else. Other times it is because you have watched the entire video or saved it. (Iv, male student, Spain, 21 years old).

> Sometimes there are periods where I feel like TikTok no longer understands me. (Iv, male student, Spain, 21 years old)

To sum up this section, the results reveal that communication students exhibit awareness of critical consumption and display skepticism towards algorithmic news selection. They recognize the influence of emotional triggers and the need for understanding algorithmic systems. The participants differentiate between valuable news and trends, and acknowledge the role of algorithms in shaping their news consumption experience. Their familiarity with algorithmic mechanisms varies, with some understanding specific aspects but not the broader phenomenon.

4. Limitations of research

The specific qualitative nature of this research demands further work with quantitative studies to extrapolate some trends detected. On the other hand, and as noted in the theoretical framework, we do not know the media literacy levels of other target groups outside communication students. It is reasonable to think that in this group we find the highest standard of algorithmic literacy and critical consumption, but we need further comparative studies to know if critical consumption and attitudes represented by the concept of WITH ("Why is this here?") can also be found in the same proportion as in other groups.

The findings may not be able to be generalized, as they are confined to a specific demographic, potentially failing to represent the broader population's diverse news consumption behaviors. Moreover, focusing solely on these two countries overlooks the significant cultural and contextual variations that influence disinformation challenges and responses.

Second, the limited sample size and homogeneity of communication students may hinder the study's ability to capture the full spectrum of perspectives within each country. Additionally, relying on a single point in time may not account for the dynamic nature of disinformation and evolving news consumption trends.

5. Discussion and conclusions

In an ever-evolving environment marked by constant change, such as algorithm systems, one's approach is as significant as possessing specific knowledge. For this reason, this study emphasizes that the initial step towards cultivating, instructing and enhancing algorithmic literacy lies in the embrace of genuinely critical news consumption. For instance, in the realm of news consumption, it is imperative to recognize the pivotal role that emotions play. As Leticia Bode (2023) notes: "The biggest red flag for me is when something evokes an emotion in you. That doesn't necessarily mean that it's misinformation, but it signals that somebody's trying to manipulate your emotions, and that's something you should be aware of."

The existence of any form of algorithmic gap within society can result in citizens being less well-equipped to navigate disinformation landscapes, sub-

sequently weakening democratic systems as well. "There is always that little moment: Why is this here?" (P, female student, USA, 20 years old). This seemingly simple statement holds a deeper complexity, reflecting a certain level of awareness regarding incidental news consumption and the inherent imperfections of algorithmic recommendations. Within the realm of digital media literacy, we can label this as the WITH (Why-Is-This-Here) perception, indicating a level of critical consumption sufficient to question the rationale behind a platform presenting us with content we had not actively sought. Consequently, we can argue that the more prevalent the WITH perception, the more likely we are to encounter empowered users within the digital sphere. We posit that the WITH perception, serving as an indicator of critical consumption, particularly within the dynamic realm of algorithmic systems, highlights that doubt is as valuable as knowledge. It signifies that our internal alert systems are actively engaged.

One of the most significant obstacles and dilemmas identified lies in determining how to reconcile the comprehensive nature of media consumption with the distinct capabilities offered by social networks. A mass media message has the potential to rouse an entire digital culture, and conversely, the same phenomenon occurs in reverse. Holistic perspectives are necessary to understand "the social media platform itself only as one waypoint in their navigation of a much more complex media environment" (Bruns, 2022: 40).

A notable emphasis on individual responsibility, especially regarding the dearth of critical thinking, is present. Students differentiate between valuable news and fleeting trends due to their understanding of algorithmic systems. They discern that the "source of news" is not synonymous with "trends." Unlike the conventional echo chamber belief, certain exceptions emerge, such as on Facebook, where political diversity in friend selections hinders algorithms in erasing intrinsic network variety.

Students exhibit varying degrees of familiarity with algorithmic mechanisms on social platforms. While some grasp specific aspects, the overall phenomenon remains less understood. Intriguingly, students view algorithms as "neural networks" capable of learning from inputs, implying a potential shift from passive to active engagement.

This study presents more perspectives of the "news-finds-me" perception, unveiling a continuous loop in which algorithms proactively present news, and users contribute insights to the network. Students' affinity for incidental news consumption is driven by prompt, tailored content delivery.

In terms of algorithmic understanding, students recognize dynamic volatility and the importance of consistent content publication. This is especially relevant for content creators facing algorithmic rule changes. Communication students exhibit varied degrees of awareness of algorithmic systems, with notions about news consumption, echo chambers and algorithmic mechanisms shaping their perceptions. Algorithmic literacy encompasses attitudes, beliefs and knowledge, defining how users interact with and understand algorithm-driven content.

The call for algorithmic literacy does not stem from a dystopian contrast between human value and algorithmic potency. Rather, it seeks to foster the augmentation of algorithmic significance via the influence of media literacy policies. Communication and Journalism students emerge as prime candidates to initiate this new educational approach, aimed at enhancing citizen consumption and media production. In essence, they serve as a foundational point.

This study underscores the significance of algorithmic literacy within the realm of media education. The "WITH" (Why-Is-This-Here) perception emerges as an indicator of critical consumption, suggesting that skepticism and doubt are valuable attributes. Communication students' awareness of algorithmic systems influences their news consumption behavior, and their insights contribute to the algorithmic processes. Algorithmic literacy involves attitudes, beliefs and knowledge, shaping how users interact with algorithm-driven content. This study contributes to fostering more informed citizens and responsible journalism through enhanced algorithmic literacy.

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