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Article

The United States-Mexico smart border. Representations of technology and constructions of irregular migrant as a threat-enemy

La frontera inteligente Estados Unidos-México. Representaciones de tecnología y construcción del migrante irregular como amenaza-enemigo

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Abstract

The purpose of this article is to identify and interpret mediated representations of the US-Mexico digital border, performing a qualitative content analysis on a systematized corpus of 171 communication products, published between 2011-2022. The results show that the symbolic construction of the irregular migrant as a threat-enemy, as well as the representations of technology as a powerful entity to hyper-surveillance and datification, justifies the establishment of securitization policies to fortify the digital border.

Keywords: US-Mexico smart border, mediated representations, threat-enmity, irregular migrants.

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Resumen

El objetivo es identificar e interpretar representaciones mediáticas sobre la frontera digital EUA-México, al realizar un análisis de contenido cualitativo sobre un corpus sistematizado de 171 productos comunicativos, publicados entre 2011-2022. Los resultados demuestran que la construcción simbólica del migrante irregular como amenaza-enemigo, así como las representaciones sobre la tecnología como ente poderoso de hipervigilancia y datificación, contribuyen a justificar la instauración de políticas securitizadoras para fortificar la frontera digital.

Palabras clave: frontera digital EUA-México, representaciones mediáticas, amenaza-enemización, migrantes irregulares.

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Introduction

The most negative effects of modernity that have seriously undermined the security, livelihoods and sustainability of new generations in the Global South have been a driving force behind migration in recent decades. The great challenge is thus to find a way to manage responsibility and accountability with equity in the face of the enormous inequality that keeps large population groups in precarious conditions and immobilized amid the prosperity of others who live in the cities of the Global North as a consequence of globalization (Ponzanesi & Leurs, 2022).

Another visible result of globalization is the technological development and digital transformation of various orders of human life. These changes have reconfigured, on the one hand, the agency capacities of and strategies developed by the diaspora and, on the other hand, the security and border management policies of nation states:

> […] Information and Communication Technologies (ICT) can be used creatively by [migrant and] refugee populations, and by other civil society actors to maximize opportunities […] to complete their trip to the countries destination and fulfill their aspirations to achieve decent living conditions. On the other hand, when used by supranational entities and government agencies, ICTS can erect new electronic borders and expand the control and surveillance capabilities of States. (Nedelcu & Soysüren, 2020, p. 2.)

Migration, a sociocultural phenomenon mediated by information and communication technologies, goes beyond the narrow limits of disciplinary perspectives. This has motivated a proliferation of interdisciplinary lines of research linked to migratory phenomena where studies of communication and culture converge in the following: media and internet research; migration, ethnic, diaspora and racial studies; the mobility and transnationalism literature; gender and postcolonial studies; and human-computer interaction, law and human rights research. In addition, new perspectives have emerged from anthropology, sociology, geography, and border and urban studies (Leurs & Smets, 2018; Nedelcu & Soysüren, 2020).

This article aims to identify and interpret, through a qualitative content analysis, the representations of 99 media outlets in their digital products, published in 171 communications between 2011 and 2022, concerning the construction of a digital border between the United States and Mexico.

Thus, four sections have been structured: the first outlines the theoretical-conceptual elements that guide the analytical task. Articulations are established between the production of media representations, the symbolic constructions of migrants in an irregular condition as enemy threats, and digital hypervigilance at the border, all the result of the establishment of a digital border. The second section describes the methodological strategy. In the third section, the content analysis is presented, and the most relevant findings thereof are discussed. In the fourth and last section, some final considerations are outlined.

Media representations and symbolic constructions of the irregular migrant[1] as a threat-enemy

Émile Durkheim stated that collective representations are "real phenomena endowed with specific properties and that are shared differently from each other depending on whether or not they have common properties" (Durkheim, 2006, p. 15). Serge Moscovici drew on this Durkheimian proposition and established that all representation is made up of socialized figures and expressions that symbolize acts and situations, which become common and produce behaviors (Moscovici, 1979). From this contribution emanated the Theory of Social Representation, which, since the 1970s, has been rethought, strengthened and applied by hundreds of researchers across different continents, contributing a vast scientific production through their significant contributions to this theory (Abric, 2016; Araya Umaña, 2002; Banchs, 1986; Jodelet, 1984; Materán, 2008).

Denis Jodelet conceptualized social representation as "a form of specific knowledge, whose contents manifest the operation of socially characterized generative and functional processes, which designate a form of social thought" (Jodelet, 1984, p. 474). Jean Claude Abric established that social representations are a set of information, beliefs, opinions and attitudes about a specific object or subject (Abric, 2016).

In the communications field, Manuel Martín Serrano (2017) proposed that the media perform a mediating function of collective adjustment through the construction and dissemination of information that audiences appropriate by incorporating these data into their worldviews. Representations of the world of individuals emerge from subjective and objective conflicts. The responses of social actors to the events they experience are the result of the representations they build on the symbolic plane; in this construction of meanings, the information they process cognitively plays a central role (Martin Serrano, 2017).

In each age and in each society, whatever bursts into reality is cognitively incorporated (Hermida & García, 2016). It is possible to comprehend some of the visions, interpretations and concerns about the social aspects in different moments and spaces. These representations provide elements for the analysis, understanding and explanation of the underlying articulations between what subjects know about their environment and the meanings and knowledge they build in response. Currently, amid the extant digital media, it is common for users to make private information public when reproducing content from social networks that is often repetitive via the same type of cognitive mediation (Martín Serrano, 2017).

Communicative products are the result of the mediating task of companies dedicated to the dissemination of information. Based on these, a thematic agenda is established, and the importance of its components is defined, as well as the order and way of transmitting it (McCombs, 1996). These processes form what has been called

[1] A person who is moving or has moved across an international border and has not been authorized to enter or remain in a State in accordance with the laws of that State and the international agreements to which that State is a party. Adapted from the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (adopted on 18 December 1990 and entered into force on 1 July 2003), art. 5 (International Migration Law, 2019).

the theory of framing, which, according to Robert Entman, emerges when choosing "some aspects of the perceived reality, making them more prominent in the communicative text, in such a way that they manage to promote a definition of the particular problem, a causal interpretation, a moral evaluation and/or a recommendation of the treatment for the described matter" (Entman, 1993, cited in Albert Guardiola et al., 2010, p. 53).

Narratives against immigration in the media have intensified since the early years of the 21st century; they could constitute an important factor in the increase in hostility among some groups of destination societies toward immigrants. Immigrants have frequently been represented as a threat in both traditional media and on sociodigital networks. Discourse against immigration increases negative emotional reactions toward immigrants (Conzo et al., 2021).

In this sense, Van Dijk states the following:

> In the press, information about immigrants and ethnic minorities is often limited to the following types of events: *1*) New (illegal) migrants arrive. *2*) Political response and policies regarding (new) immigration. *3*) Reception problems (housing, etcetera). *4*) Social problems (employment, social assistance, etcetera). *5*) Population response (presentment, etcetera). *6*) Cultural characterization: how are they different? *7*) Complications: negative characterization: in what way are they deviant? *8*) Centre of interest in threats: violence, crime, drugs, prostitution. *9*) Political response: policies to stop immigration, expulsion, etcetera. *10*) Integration conflicts. (Van Dijk, 2005, p. 39)

In a systematic mapping of scientific production regarding the impact of media discourse on irregular migration, the negative construction based "on the social perception of risks, threats and fear" around immigrants in this condition stands out (Albert Guardiola et al., 2010, p. 51). In relation to media constructions of transnational mobility processes and their effects on audiences, there has also been important research (Albert Guardiola et al., 2010; Blinder & Jeannet, 2018; Eberl et al., 2018; Farris & Mohamed, 2018; Harris & Gruenewald, 2020; Kim et al., 2011; Lawlor & Tolley, 2017; Mazzara et al., 2021; Parrott et al., 2019; Van Dijk, 2005), collectively interested in how the media of communication build frames of reference around the focal phenomenon. There have also been proposals to rethink the methods of migration journalism (Retis & Cogo, 2021).

The complementary elements of this subsection refer to threat theory (Stephan et al., 1998, 2000, 2005) and the epistemology of enmity, constructed via media communication (Del Valle, 2021). Threat theory is composed of four variables and has been applied in predictions of attitudes toward immigrant groups. According to this theory, four types of threats (realistic, symbolic, intergroup anxiety and negative stereotypes) cause prejudice. The so-called symbolic are threats to the vision of the world of the in-group and constitute the basis of the theories of new symbolic racism; they are coupled with threats of negative stereotypes of the external group; to the extent that these expectations are negative, conflict-laden or unpleasant, such interactions are likely to be anticipated (Stephan et al., 2000, 2005, 1998).

Perceiving immigrant groups as threatening, based on prejudice, is one of the reasons why some groups in host communities take hostile positions toward immigrants. In recent decades, many theorists and researchers have suggested that fear and threat perceptions play an important role in the symbolic constructions of external groups in general and toward immigrants in particular as enemies (Stephan et al., 2000, 2005, 1998).

For Del Valle (2021), the salient media outlets have found, in their constructions of stories and discourses about difference and otherness, a profitable possibility, the production of enemies as part of a permanent conflict between forces that dispute the meaning and the control of reality. These discursive constructions of the enemy operate as justifications for the implementation of both practices and policies that occur in processes of discrimination and social exclusion. This othercide tends to eliminate the body of the other by embodying difference. It restores new forms of marginalization by competition, by antipathy and by class. Skin color thus includes linguistic repertoires, ways of dressing, customs, religious beliefs, names, music and any other form of expression (Del Valle, 2021).

The securitization of borders and the strategies for containing migration flows, through the use of digital devices, are symbolically aligned on the immigrants-threats-enemies axis. Regarding this, Brown (2010) has proposed that neoliberal capitalism, far from creating a world without borders, has caused the proliferation of "walled states: globally today there are 44 physical cross-border walls erected"; moreover, "since 2018, there have been 63 walls [constructed] around the world" (Ruiz Benedicto et al., 2020).

United States-Mexico digital border. Technological imaginaries, hypervigilance and datafication

The concept of "smart borders" appeared for the first time in the Declaration on Smart Borders, signed on December 12, 2001 between the governments of the United States and Canada (United States-Canada Declaration of Smart Borders). This declaration established an action plan that aimed to create a secure border where the free flow of people and trade is facilitated (Desiderio, 2021).

On March 22, 2002, presidents George W. Bush and Vicente Fox Quesada announced an agreement to build the "smart border" of the future between the United States and Mexico. This initiative became the central axis of the National Security Strategy. This is how a statement from the White House (Koslowski, 2004) refers to it:

> The border of the future must integrate actions abroad to screen goods and people prior to their arrival in sovereign United States territory (…) The use of advanced technology to track the movement of cargo and the entry and exit of individuals is essential to the task of managing the movement of hundreds of millions of individuals, conveyances, and vehicles. (White House in Koslowski, 2004)

The use of drones for border surveillance began during the Operation Alliance combatting drug smuggling, when U.S. marines piloted these devices along the border with Mexico for three weeks in February 1990. After the attacks on September 11, 2001, U.S. lawmakers called for the use of unmanned aerial vehicles to intercept immigrants crossing the border irregularly. United States Customs and Border Protection (CBP) began using Predator B drones along its northern and southern borders in 2004 (Koslowski & Schulzke, 2018).

Mihaela Nedelcu and Ibrahim Soysüren (2020), exploring the constructions of a comprehensive state of the art, recovered a new conceptual repertoire related to the increasing use of technologies for border control: "Hayes and Borderline (2012) used the concept of 'smart borders' […] Pötzsch (2018) introduced 'iBorder/iBordering' […] Metcalfe and Dencik (2019) used 'big borders' […] Amelung and Machado (2019) suggested 'bioborder' […]" (Nedelcu & Soysüren, 2020).

On the other hand, Chouliaraki and Georgiou have named this a digital border, which "can be understood as changing assemblages of technologies and meanings organized around historically rooted power relations that regulate the internal/external limits of the mobility of migrants through the space and time" (Chouliaraki & Georgiou, 2022, p. 11). These conceptualizations underline the importance of technology within the border control, from a security perspective, proposed by States:

> Alongside the territorial border, the narratives of migration in online news, social networks and institutional web platforms engage in parallel practices of power. Embedded within their own mediation networks, such narratives are also part of the logics of identification and control of the border in the sense that they publicly legitimize certain migration discourses over others and, in doing so, contribute to the biopolitical power relations of human mobility—what we call the symbolic edge. (Chouliaraki & Georgiou, 2022, p. 9)

The activist collectives Mijente, Just Futures Law and No Border Wall Coalition have shown that

> the digital border wall erected by the U.S. government on its southern border is made up of drones, underground sensors and watchtowers with the ability to detect humans, vehicles and animals in all directions... With facial recognition, location tracking and mobile phone tracking. (Mijente et al., 2021)

Hence, "Border control has become a practice of data-based knowledge production that serves to facilitate the processes of social classification, risk assessment and prevention" (Leese et al., 2022). Digital data thus emerge as homogenized entities that challenge qualitative differentiation in favor of quantified metrics and divisions. The registry and archive of private data are not accessible or transparent for people on the move. To this end, notably, the monitoring and tracking of dispersed data are a potential risk because these could be used against people during asylum applications (Witteborn, 2022).

On the United States-Mexico border, migration therefore takes place within a technological rationality, which is expanded through technological devices that monitor and datafy to monitor mobility within and between territories through media narratives that legitimize control techniques and deterrence by nation states (Chouliaraki & Georgiou, 2022).

Irregular migrant and refugee populations have gradually become data subjects. Nationality, gender, educational level, religion and language are thus increasingly the objects of prejudice construction and racialization. This results in the classification of these people as threats and enemies within their host communities. This impacts the access to and possibilities of obtaining fundamental rights that allow their integration. These data symbolically configure the ways in which they build their relationships in their destination society and the viability of building a dignified life (Alencar, n. d.).

Methodology

This article reports data generated with qualitative methodology, whose central purpose is the production of descriptive data with written words (Tylor & Bogdan, 1987). This analytical strategy focused on the meanings contained in the media representations that have emerged from the communicative products examined.

The specific method used was qualitative content analysis, which entails the use of a set of interpretive procedures across various languages, formats and technological supports. The content analyst extracts meanings and constructs the data as representations of texts, images and expressions created to be read, interpreted and applied. Notably, a narrative approach allows readers to interpret and formulate their own conclusions. These are not generalizable, but they establish connections among events to produce meaning. Qualitative content analysis, in its technical dimension, relies on quantitative patterns (frequencies, word counts, percentages) to obtain greater explanatory power (Coulter & Smith, 2009; Drisko & Maschi, 2015; Krippendorff, 2018; Neuendorf, 2017; Piñuel Raigada, 2002).

A search was thus carried out via Chrome and Safari search engines based on seven tags, entered in both Spanish and English: virtual wall, smart border, drones, biometric data, sensors, robots and artificial intelligence. These related to the constructions of a hypervigilated border with digital technologies on the United States-Mexico border. A total of 171 communication products published between 2011 and 2022 were identified, registered by 99 media outlets in digital format and territorialized in various countries, as indicated in Table 1. Subsequently, the volume of textual information contained in these headlines and entries was systematized (subject of main analysis) based on what Van Dijk (2005) has suggested: the headlines and first paragraphs that are best understood and memorized.

Table 1. Number of products analyzed and media outlets by country of territorialization

Country	Media outlets	Products analyzed
United States	54	102
Mexico	30	43
Spain	6	7
Venezuela	2	2
Switzerland	2	4
United Kingdom	2	9
Peru	1	1
Cuba	1	2
Argentina	1	1
Total	99	171

Source: by author

Qualitative content analysis is based on the conjunction of elements of meaning in large categories, its distinctive feature. Categories refer to the aspects within text that express the meaning thereof in a few words. The evaluation of text is, therefore, restricted to the selected category system (Mayring, 2014). Adopting a narrative approach, a multiplicity of variables was taken into account, which allowed the definition of three large categories and 182 units of analysis, thereby revealing elements of the context and the nuclear meanings of the media representations, the constructions of the digital border between the United States and Mexico.

Analysis categories

a) Technological imaginaries, hypervigilance and datafication (TIHD): information related to innovation and technological development activities is grouped here, as a hypervigilance and datafication strategy. The articulating axis in this type of content is an approach to border securitization based on the use of technological-digital devices tested in military tasks and integrated into border management.

b) Immigration as a threat associated with terrorism and/or drug trafficking (ITTD): this category includes publications that link the practices of terrorism and/or drug trafficking with the processes developed by people in an irregular migratory condition. The narratives in this type of journalistic article promote the fear of others or foreigners. They reinforce the symbolic constructions of these as threats and enemies among host communities.

c) Counternarratives, resistance and activism against hypervigilance (CARH): these publications are related to units of meaning that promote critical positions and voices

regarding the use of technological devices to detain, datafy and track people in irregular migration status. They appeal to the defense of human rights in general and to the privacy and protection of personal data in particular.

The largest volume of journalistic production was concentrated in technological imaginaries, hypervigilance and datafication, as 44.50% of the records corresponded to this topic, compared to 32.97% for ITTD topics. Finally, the CARH category registered 22.52%, as illustrated in Table 2.

Table 2. Units of analysis by category: Media representations and constructions of a digital border between the United States and Mexico, 2011-2022

Category: Irregular migration associated with terrorism and/or drug trafficking ITTD	Category: Technological imaginaries, hypervigilance and datafication TIHD	Category: Counternarratives, resistance and activism against hypervigilance CARH
60 (32.97%)	81 (44.50%)	41 (22.52%)

Source: author, on the basis of the content analysis

In each of the phases, the process was documented through memos, notes and diagrams. For this article, the constructions of qualitative textual data were prioritized and the salient inferences, reported in the following results section, were interwoven.

Results and discussion

The results demonstrate that media representations have effects on the elaborations of meaning in the worlds in which audiences live, in the sense that changes in events such as those experienced with these processes of digital surveillance and datafication in border management have generated the need for knowledge and adaptation on the part of a host society and people in irregular migratory status.

The stories in digital media and discursive productions on social networks comprise one of the main sources of knowledge of common sense, of the attitudes and ideologies of both citizens of the Global North and of social groups in conditions of greater precariousness in the Global South, who forcibly or voluntarily migrate to cosmopolitan cities in search of work and a decent life (Jodelet, 1997; Martín Serrano, 2017, 2019; Martín Serrano & Velarde, 2015; Moscovici, 1988; Van Dijk, 2005).

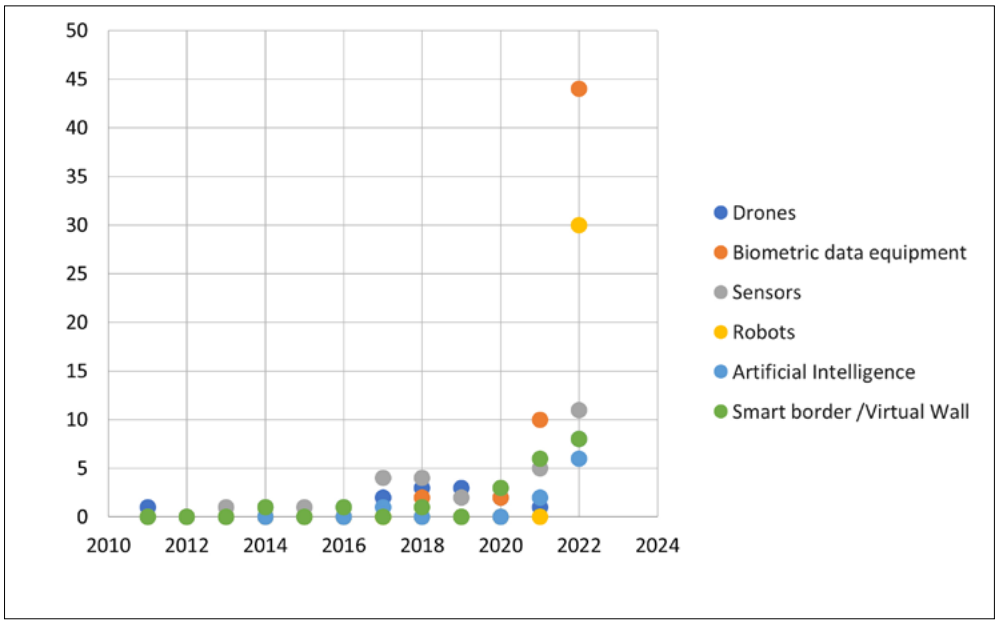
Technological imaginaries, hypervigilance and datafication

The symbolic productions, identified by each year, regarding technological devices reveal an imaginary timeline regarding the centrality of technological developments for military use, adapted to border security, and their evolution in the media agenda, as shown in Figure 1.

Drones and sensors were the first devices that the U.S. government used on its southern border to contain irregular migratory flows. Between 2011 and 2022, 22 articles related to the use of drones and 32 related to the use of sensors were published. Between 2018 and 2022, biometric data equipment, via 58 articles, and ground support robots, via 30 communicative products, were the devices that occupied the greatest part of the media agenda.

This shows that as of 2018, in the territorial dimension, there had been greater investment in devices for the extraction, storage and various nontransparent uses of personal data, a border management strategy. In the symbolic dimension, a growth in discursive production and in public interest regarding these issues is visible, especially among groups in American society, where most (54) of the 99 digital media analyzed are based and have the greatest influence. Between 2011 and 2022, there was a transition from a hypervigilated border to a datafication border. Personal data began to be collected to later track the movements of immigrants and perform tasks such as locating mobile phones.

Figure 1. Evolution of the presence of technological devices in symbolic constructions of the digital border between the United States and Mexico



Source: author, based on content analysis

The framing of the construction of the digital border, of central interest in this article, was based on a technophilic rationality, supported by a wealth of linguistic labels on grandiloquent characteristics and security action exacerbating the power of

technological tools: powerful arsenal, giant airships, powerful sensors, force multiplier, gigantic database, secure and streamline, and automate decisions. In the informational timeline, these elements comprise part of the initial narrative:

> To reinforce security on the border with Mexico, the deployment of hot air balloons, aircraft, watchtowers and surveillance sensors is planned in the next two years… indicated Michael McCaul, leader of the House of Representatives Committee on Internal Security. [...] in the second week of September, the project will be resumed so that more equipment that was used in Afghanistan and Iraq is now sent immediately to the border with Mexico to reinforce security. (Gómora, 2014)

This discursive base was oriented, from the beginning, toward reinforcing security at the border with new technologies that had been tested in war scenarios. This is a way to "militarize" border management. A specialized topic in science and technology, the journalistic accounts of general sections (for non-expert audiences) typically address it without delving into the characteristics or implications of its use. A sense of futurism prevails and is projected as a deterrence strategy, directed at diasporas:

> A virtual wall is strengthened on the border between the United States and Mexico and goes unnoticed. It is a barrier created in the United States from the use of technology to detect drugs, weapons, migrants and money and prevent their passage to that country from Mexico. [...] The subject is not talked about much, there is even already a competition in pilot programs for a virtual wall. This will work with sensors, radars, and video surveillance cameras. (Expansión, 2017)

> According to the United States Government Audit Office, between 2003 and 2007, approximately 7 500 sensors were purchased to be planted along the border with Mexico. These are used to establish movement detection perimeters and are of the same type as those used in Afghanistan [...] these devices have been used since the 1970s, but can now be the size of a grain of rice, recharged with solar energy and be operational for decades. [...] The work of the sensors was recently joined by the "ghosts of the desert", the name by which Predator drones, capable of locating people and vehicles from a height of 6 000 meters, are known to some on this border. (Aradas, 2021)

The textual presentation of these new forms of migration control appeals to cinematographic images of military invasion or wartime conflict. High-powered technological arsenals with qualities typical of nanotechnology thus increase the capabilities of the forces that patrol the border. It is a narrative aimed at U.S. communities that experience fear and feel threatened by those who come from outside. They live in fear of others. Additionally, it is a representation of the strength of the State. It is also communicated to the groups of irregular immigrants, indicating that their passage through the border will be increasingly complicated and that they are being watched

from thousands of meters away on their journeys. The symbolic border is based on migration narratives that largely mobilize reductionist formulas of *us* and *them*, consolidating stereotypical stances of *otherness* (Chouliaraki & Georgiou, 2022, p. 11).

As noted above, such technological innovations have evolved toward datafication and tracking. The use of artificial intelligence and biometric databases are therefore intended to provide a new symbolism of robustness to surveillance and security at the United States border with Mexico:

> Artificial intelligence (AI) is an important component of migration management... they invest in artificial intelligence algorithms to automate decisions about asylum and visa applications and refugee resettlement. Meanwhile, real-time data collected from migrants by various smart border solutions and virtual walls, such as satellites, drones, and sensors, are evaluated by AI algorithms at the border. [...] On the border between the United States and Mexico, for example, the Customs and Border Protection (CBP) is using artificial intelligence, military drones with facial recognition technologies, thermal imaging and fake cell phone towers to monitor migrants even before they reach the border. They can listen to conversations between migrants, try to identify them by their faces, check their social media accounts and locate people trying to cross borders. (Kokmaz, 2020)

This digital practice evokes technological imaginaries and shapes lived realities. These data constitute fundamental discursive units in daily practice; moreover, they evoke technological imaginaries that contribute to classification, ranking and exclusion. In more ways than one, such data shape the realities experienced by immigrants. For this reason, border datafication and *big data* analysis are key to migration management from a state security perspective (Witteborn, 2022).

This suggestion is illustrated by some key fragments from the analyzed journalistic accounts: "The U.S. government is implementing a new facial recognition system on the southern border that would record images of people in vehicles entering and leaving the country" [...] (Levin, 2018); "The government led by Biden has begun, in recent weeks, to use a cell phone application [...] this tool has facial recognition services and allows storing private information on immigrants who try to access the country" (Noticias Telemundo, 2021); and "The United States government wants to extend the collection of biometric data required to immigrants, which would include DNA samples and facial, iris and voice recognition […]" (Forbes Staff, 2020).

One of the most recent topics in the media agenda, which has caused wide controversy due to its ethical implications, is a technological innovation that will soon be applied in surveillance tasks in the border area between the United States and Mexico. Specifically, field practices were carried out and disseminated in the media, occurring on the border between California, United States, and Baja California, Mexico, at the beginning of 2022:

> Ghost Robotics is not without controversy. In a previous alliance with the defense company Sword International, it displayed one of its robotic pets armed

> with a rifle and a thermal camera. Therefore, it is not surprising that the government agency wanted to clarify in a statement that, on this occasion, the mission of the robots will be to scan and record the terrain. They will not be equipped with weapons but with cameras and sensors that will help them monitor the border. [...] With this strategic move, the United States ensures that it will strengthen security in cities bordering Mexico and help protect immigration agents. (Ortega, 2022)

> The government is developing stair-climbing and rock-climbing 'robot dogs' to support Customs and Border Protection (CBP) agents in policing the dangerous and inhospitable border with Mexico. (EFE, 2022)

> Officials praised the robots' potential as a 'force multiplier' that could increase the safety of Border Patrol agents by reducing their exposure to life-threatening hazards. (Shoichet, 2022)

> It is not known whether these robot dogs will ever come to guard the border through which the migrants cross […] Do not be surprised if in the future we see the robot 'Fido' on the ground, walking alongside the CBP staff. (AFP, 2022)

Taken together, technophilic communicative productions thus stand out via an optimistic vision of the application of technological devices in border security. In general, such narratives highlight the investment in and operation of these digital tools and their military use as a panacea for containing irregular migratory flows, reducing drug trafficking and combating terrorism on the southern border of the United States.

Immigration as a threat associated with terrorism and/or drug trafficking

In this category, the associations established in a textual way configure senses of a comparable threat between "terrorist subjects", "drug traffickers" and migrants in an irregular condition. As the following excerpt states, "Department officials stated that they would test the models in the coming months to determine which one works best to stop illegal migration and drug trafficking in the border area [...]" (Nixon, 2017b). The differences in the causes, purposes, patterns and characteristics of the practices of criminal mafias and those of migrants in their attempt to enter through the southern border of the United States are not distinguished or made explicit.

The attacks on September 11, 2001, in the United States, marked the beginning of a new era of border security and cutting-edge technology. The National Strategy for National Security took a turn toward policies that seek to push the borders of the United States beyond its territorial limits (Koslowski, 2004):

> […] The Southern Border Program, a strategy that officially sought to guarantee the safety of migrants. [...] His actions included avoiding the use of freight trains to travel north and operations against gangs and human

> traffickers. [...] A temporary stay program was also established for migrant workers, especially from Guatemala. (Najar, 2018)

> Hoyt, a border patrol agent, is using equipment from the Department of Defense brought from Afghanistan, where it was used to track the Taliban. It is part of a powerful arsenal that also includes towers, drones and aerostats: giant airships attached to the ground that can rise up to 1 500 meters. Helicopters with powerful infrared sensors and video cameras also patrol heights. (Nixon, 2017a)

Borders "concentrate, in their trajectories of historicity, data on how power regimes emerge and change over time (in the context of 'crisis' and 'postcrisis')" (Chouliaraki & Georgiou, 2022, p. 11). After the attack on the Twin Towers in New York in 2001, statements of exception scenarios emerged that empowered experts in the global market malaise to become experts in the state security malaise (Longo, 2017, and Amoore, 2013, in Nedelcu & Soysüren, 2020).

The above affirms why in the media representations of this digital border, the voices of representatives of digital technology companies stand out along with the opinions of representatives of the U.S. national security forces; they are the only information sources of the narratives disseminated. They make use of specialized technicalities that render descriptions of the potential of techno-digital arsenals inscrutable to shield the border from the threat of terrorists, drug traffickers and people with irregular mobility:

> Immigration and Customs Enforcement (ICE) will pay surveillance software company Trust Stamp $7.2 million annually to develop technology to track immigrants, new federal documents show. [...] The Trust Stamp's contract, which was renewed in April, is expected to provide ice with 10 000 smartphones that include the company's application with facial recognition and GPS tracking, according to the documents. (Haskins, 2022)

The linguistic labels identified in this category highlight criminalization and symbolic construction as a threat: "[…] High-tech surveillance equipment is an example of technology applied in battles in Iraq and Afghanistan, which could be useful to detect the crossing of drug traffickers, arms traffickers and illegal aliens" (Gómora, 2014); "According to agent Brett Becker of the CBP Innovation Team […], along the border, agents face smugglers of people, drugs, firearms or weapons of mass destruction" (Zavala, 2022). In addition,

> Unconventional technology includes agent-controlled robots to explore the many tunnels under the border for drugs and other smuggling. The robots were originally designed to inspect vehicles for bombs and other devices. (Ordoñez, 2022)

Finally, a smaller part of this volume of media discursive production is oriented toward the dissemination of transnational criminal groups' use of weapons and digital technologies in the confines of the southern border of the United States. This latent threat, reflected in journalistic narratives and on sociodigital networks, justifies the lar-

ge investments and strengthening of policies for the construction of the digital border, as confirmed by the content analysis: "Catapults, cannons, ramps, drones and sophisticated tunnels [...] Traffickers of drugs and other illegal products have found multiple ways to evade the current border wall" (Brooks, 2016). Furthermore,

> Smugglers use video cameras and small drones to detect vulnerabilities along the United States-Mexico border, and the Department of Homeland Security is fighting to stop them. [...] Reports of drones flying along the southwestern border have skyrocketed in recent months, [...] officials say they are concerned that criminal groups are using the plane for surveillance as they search for roads to traffic drugs and other illicit materials into the United States. (Harkins, 2018)

Counternarratives, resistance and activism against hypervigilance

As Chouliaraki and Georgiou (2022) have pointed out, one of the key operations of the digital border is its dialectic of resistance, configured by the spaces that assemblages open for migrants to challenge the effects of border power (Chouliaraki & Georgiou, 2022, p. 11). In this category, unlike the previous two, whose only sources of information were representatives of high-tech companies, the national security system and U.S. legislators, here, some voices from a critical perspective question and evaluate the effects of the use of technological devices to detain, datafy and track people in irregular migratory status. This view falls under a human rights defense approach. The following excerpts reveal these dialectical forms of resistance:

> Privacy advocates have raised concerns about drones since they were introduced at the borders in 2006, noting that there is a possibility that innocent people will be surveyed under no suspicion. Lothar Eckardt, executive director of the national agency for aviation security operations, said law-abiding citizens have nothing to worry about and that cameras cannot capture details such as license plates or faces. (AP, 2014)

> Guadalupe Correa Cabrera, a professor at the University of Texas Rio Grande Valley and a fellow at the Wilson Center in Washington, said that the accumulation of technology on the border had transformed quiet cities, where people moved freely across the border, into zones of mass surveillance. […] Every movement of residents is documented and cataloged, he said, which erodes the privacy of local residents. (Nixon, 2017a)

Stances against digital hypervigilance based on drones, electronic shackles and data collection systems argue that these could potentially be more threatening in border security contexts than in military conflicts due to their different degrees of scrutiny. These technological devices not only evidence a process of technological transfer from the military to the security forces at the borders; the transfer of social, cultural and political practices is also apparent; this could undermine human rights (Koslowski & Schulzke, 2018). ICE thus works with the following companies to collect information on migrants:

> RAVEn [Repository for Analytics in a Virtualized Environment] is controversial due to the breadth and depth of the information it will collect to track and, in some cases, possibly arrest or deport migrants. [...] Microsoft declined to comment. Amazon, Google and ICE did not respond to requests for comments. (Haskins, 2021)

> The agency has worked for years with BI Inc. and SmartLINK, which provide ankle monitors and smartphones with registration applications that have facial recognition, voice recognition and GPS tracking [...] These tracking devices have left people with bruises and injuries and have frequently failed, according to a recent report by the Miami Herald [...]. (Haskins, 2022)

Organizations and groups of pro-immigrant activists were initially and particularly concerned about the privacy of families whose houses rest on the border between Mexico and the United States; drones piloting neighborhood areas and the placement of cameras were denounced as attempts to deny civil liberties:

> Now you cannot be sure that no one is looking at you, said Jay Stanley of the American Civil Liberties Union. Americans will have to wonder if our enthusiasm for capturing illegal immigrants is worth sacrificing our freedoms. (Booth, 2011)

With the evolution from a digital border focused on hypervigilance to one occupied with datafication, the fears and responses of activist groups became directed toward opacity in the handling of personal data. The implementation of biometric data capture tools "has forced some U. S. citizens to undergo the biometric system of facial recognition. [...] no person should be subjected to such an invasive biometric scan [...] raises profound concerns about civil liberties [...]" (Cancino, 2022). Hence,

> Because BI is a private company, advocates note that there is little information about how the biometric and location data it collects through its Smartlink app are managed. The company's privacy policy also provides little additional information. BI encourages the exchange of information among its various law enforcement clients and allows its employees to access any historical migrant registration information. (Cortés, 2022)

To close this section, some critical narratives on the use of robot dogs, announced and widely disseminated in 2022, noted the following: "The government must retract this dangerous proposal, and the Biden administration must stop our country's slide toward an anti-immigrant dystopia, warned the ACLU advocacy group" (Redacción AN & FPR, 2022); "The details about the tests seemed to surprise some people, prompting a wave of reactions on social media comparing the images with dystopian scenes from science fiction shows like *Black Mirror*" (Shoichet, 2022).

Pro-immigrant activists thus stated that the implementation of a surveillance strategy using robot dogs lacks humanity: "[...] Still an American migration officer, a human

being, a person, has some sensitivity to migrants, but a robot, it would be very catastrophic if an accident were to happen, said José García, director of the Youth 2000 shelter in Tijuana [...]" (Zavala, 2022); "The patrol robot dog was not well received by civil rights activists [...] they fear that their control tasks will lead to surveillance of people living near the border area without their consent" (Smith, 2022).

Such border surveillance pushes migrants to take longer and more dangerous routes to avoid detection, which has resulted in more deaths in the desert:

> Multiple investigations show that there is a significant correlation between the location of technological surveillance devices on the border, with the routes taken by migrants and the places of human remains recovered in the southern Arizona Desert. (Norton in Mijente et al., 2021)

For these groups of activists, the digital border is part of the same logic, one of militarization, deportation, hypervigilance and datafication. To call this a "smart" solution is to ignore the perverse effects of its application (Mijente et al., 2021).

In the following section, some final considerations are noted, delineating axes for the understanding of sociocultural phenomena linked to digital borders and irregular migratory movements, particularly, the constructions of media representations of these processes in the context of globalization.

Conclusions

The United States-Mexico border has historically been represented as an attractive border: a place of extreme situations; a territory of commercial interdependence; a borderline area of prosperity for those who perceive it from the South and a scene of threats and risks for those who imagine it from the North. The migratory processes in this cross-border area, when analyzed in light of the inextricable context of globalization, show a multiplicity of contradictions and kinds of resistance, which have accentuated gaps in inequality and human rights violations (Estévez, 2017; Méndez Fierros & Reyes Piñuelas, 2021).

Technological development and the digitization of human life have gained significant scholarly relevance, together with the diversification of transnational migratory flows, the increase in drug trafficking and some xenophobic movements against groups of immigrants in an irregular condition.

The objective of this article has been to determine and interpret, through qualitative content analysis, how 99 media outlets publishing 171 products between 2011 and 2022 informed the construction of the digital border between the United States and Mexico. It has concluded that immigrants in an irregular condition were represented under a triadic discursive association: immigrants-threats-enemies. These symbolic elaborations have been resignified by key actors and various groups of citizens in destination communities. New forms of stigmatization emerged from these sources built on prejudices and stereotypes. The construction of enmity narratives and representations has gradually turned out to be efficient, silent and effective.

The publication of topics that express the association of migrants in an irregular condition with a set of transnational security problems such as drug trafficking, human trafficking, arms smuggling and terrorism is noteworthy. They are included in the same imaginary. However, in no cases were the differences in the causes, purposes, patterns and characteristics between the practices of criminal mafias and those of migrants made explicit.

The symbolic production of the irregular migrant as a threat and enemy, as well as the constructions of imaginaries on the power of technologies that hypermonitor and datafy, has justified the establishment of securitization policies focused on the million-dollar investments of technological devices to strengthen the digital border.

Technology is political; therefore, any response to the increase in the use of digital technologies at the border is a response of political power. Digital surveillance occurs in two dimensions: symbolically, via the production of representations and imaginaries, and in the practical-material dimension via the operation of digital devices in geographic territories.

The analyzed media representations allow us to conclude that the United States-Mexico border mutated between 2011 and 2022, from a territorially and digitally hypervigilated border to a datafication border. Technological innovations have evolved toward datafication and tracking. Currently, personal data are being collected to track the later movements of immigrants and perform tasks such as locating mobile phones. This use of artificial intelligence and biometric databases is intended to provide a new symbolism of robustness to surveillance and security at the U.S. border with Mexico.

Accordingly, the communicative productions based on a technophilic rationality stand out, centered around the promise that the application of technological devices in border securitization constitutes a panacea for the containment and elimination of irregular migratory flows.

The communicative products analyzed also reveal the null participation of people in irregular migratory status, as sources of information, within these journalistic stories. They have been regularly constructed on the basis of prejudices and stereotypes in statements, mostly from government sources in charge of national security and from executives of technology companies with clear economic-political interests in the digital border.

Any publications explaining the context of transnational migration processes are also null. Political ungovernability, structural violence, extreme poverty and the effects of climate change do not appear in the analyzed media representations. This reduces the possibilities for understanding a phenomenon of enormous complexity, such as the forced mobility or irregular migration of those seeking work and a decent life beyond geographical borders. A technological process of transfer from the military to security at borders is evident; this also involves the transfer of social, cultural and political practices, which could undermine human rights (Koslowski & Schulzke, 2018).

Finally, the media representations that have been analyzed show that with the evolution of a digital border focused on hypervigilance to one occupied in datafication, the fears and responses of activist groups have been directed toward opacity in the handling of personal data and the violation of human rights.

The precarious conditions that have led to the processes of economic globalization and the effects of climate change that are experienced cyclically in various geographic areas of the American continent will continue to drive migration to the United States. Likewise, investment and the strengthening of digital borders, together with technological spectacularization, will tend to strengthen in the immediate future. These phenomena invite us to continue working on an interdisciplinary research agenda that explains the intersections of these factors with communication processes and digital mediation, fostering new understandings of the problems that arise from border dynamics, such as immigration policies, economic disparities and cultural differences.

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References

Abric, J.-C. (2016). *Pratiques sociales et représentation*. Presses Universitaries de France.

Albert Guardiola, M. C., Espinar Ruiz, E. & Hernández Sánchez, M. I. (2010, May-August). Los inmigrantes como amenaza. Procesos migratorios en la televisión española. *Convergencia. Revista de Ciencias Sociales*, (53), 49-68. https://convergencia.uaemex.mx/article/view/1143

Alencar, A. (n. d.). *Digital technologies in migration*. Translocal Lives. https://www.translocallives.com/resources

AFP. (2022, February 5). Un perro robot como guardián en la frontera entre Estados Unidos y México. *El Economista*. https://www.eleconomista.com.mx/internacionales/Un-perro-robot-como-guardian-en-la-frontera-entre-Estados-Unidos-y-Mexico-20220204-0078.html

AP. (2014). *Estos son los drones que vigilan frontera México-Estados Unidos*. Animal político. https://www.animalpolitico.com/2014/11/estos-son-los-drones-que-vigilan-frontera-mexico-estados-unidos

Aradas, A. (2021, August 20). *Guardianes invisibles en la frontera entre México y EE.UU.* BBC News. https://www.bbc.com/mundo/noticias/2012/08/120801_tecnologia_guardianes_invisibles_frontera_aa

Araya Umaña, S. (2002). *Las representaciones sociales: ejes teóricos para su discusión*. Flacso. http://www.efamiliarycomunitaria.fcm.unc.edu.ar/libros/Araya%20Uma%F1a%20Representaciones%20sociales.pdf

Banchs, M. A. (1986). Concepto de "representaciones sociales": análisis comparativo. *Revista Costarricense de Psicología*, (8-9), 27-40. http://rcps-cr.org/wp-content/uploads/2016/05/1986.pdf

Blinder, S. & Jeannet, A.-M. (2018). The 'illegal' and the skilled: effects of media portrayals on perceptions of immigrants in Britain. *Journal of Ethnic and Migration Studies, 44*(9), 1444-1462. https://doi.org/10.1080/1369183X.2017.1412253

Booth, W. (2011, December 21). More predator drones fly U.S.-Mexico border. *The Washington Post*. https://www.washingtonpost.com/world/more-predator-drones-fly-us-mexico-border/2011/12/01/gIQANSZz8O_story.html

Brooks, D. (2016, July 22). *4 efectos concretos que tendrá la construcción del muro que Donald Trump autorizó en la frontera entre Estados Unidos y México*. BBC News. https://www.bbc.com/mundo/noticias-america-latina-36466006

Brown, W. (2010). *Walled states, waning sovereignty*. MIT Press.

Cancino, J. (2022, June 2). *Todo extranjero que entra a EEUU por un aeropuerto ya es identificado por reconocimiento facial*. Univision Noticias. https://www.univision.com/noticias/inmigracion/eeuu-completa-sistema-reconocimiento-facial-todos-sus-aeropuertos

Chouliaraki, L. & Georgiou, M. (2022). *The digital border. Migration, technology, power*. New York University Press.

Kokmaz, E. E. (2020, December 8). *Refugees are at risk from dystopian 'smart border' technology*. The Conversation. https://theconversation.com/refugees-are-at-risk-from-dystopian-smart-border-technology-145500

Conzo, P., Fuochi, G., Anfossi, L. Spaccatini, F. & Mosso, C. O. (2021). Negative media portrayals of immigrants increase ingroup favoritism and hostile physiological and emotional reactions. *Scientific Reports, 11*, Article 16407. https://doi.org/10.1038/s41598-021-95800-2

Cortés, Z. (2022, April 25). *Trump lo implementó, Biden lo impulsó: Qué es SmartLINK y cómo se vigila a inmigrantes*. T47 Nueva York. https://www.telemundo47.com/historias-destacadas/trump-lo-implemento-biden-lo-impulso-que-es-smartlink-y-como-se-vigila-a-inmigrantes/2274791/

Coulter, C. A. & Smith, M. L. (2009). The construction zone: literary elements in narrative research. *Educational Researcher, 38*(8), 577-590. https://doi.org/10.3102/0013189X09353787

Del Valle, C. (2021). *La construcción mediática del enemigo. Cultura indígena y guerra informativa en Chile*. Comunicación Social Ediciones y Publicaciones.

Desiderio, D. (2021). *Deterritorialization of controls and smart borders*. SSRN. http://dx.doi.org/10.2139/ssrn.3831865

Drisko, J. & Maschi, T. (2015). *Content Analysis*. Oxford University Press

Durkheim, É. (2006). *Sociología y filosofía*. Comares.

Eberl, J.-M., Meltzer, C. E., Heidenreich, T., Herrero, B., Theorin, N., Lind, F., Berganza, R., Boomgaarden, H. G., Schemer, C. & Strömbäck, J. (2018). The European media discourse on immigration and its effects: a literature review. *Annals of the International Communication Association, 42*(3), 207-223. https://doi.org/10.1080/23808985.2018.1497452

EFE. (2022, February 2). 'Perros robot', los nuevos 'agentes' migratorios de la frontera con México. *Los Angeles Times*. https://www.latimes.com/espanol/eeuu/articulo/2022-02-02/perros-robot-los-nuevos-agentes-migratorios-de-la-frontera-con-mexico

Estévez, A. (2017). Derechos humanos y nuevas tendencias en la migración forzada internacional. In A. Estévez (Ed.), *Derechos humanos y nuevas tendencias en la migración forzada internacional. Programa de posgrado de la Facultad de Ciencias Políticas y Sociales*. UNAM. https://www.academia.edu/25305441/Derechos_humanos_y_nuevas_tendencias_en_la_migraci%C3%B3n_forzada_internacional

Expansión. (2017, May 26). *Estados Unidos fortalece muro virtual con México*. CNN en español. https://cnnespanol.cnn.com/2017/05/26/estados-unidos-fortalece-muro-virtual-con-mexico/

Farris, E. M. & Mohamed, H. S. (2018). Picturing immigration: how the media criminalizes immigrants. *Politics, Groups, and Identities, 6*(4), 814-824. https://doi.org/10.1080/21565503.2018.1484375

Forbes Staff. (2020, September 1). EU busca tomar muestras de ADN y escanear el iris de migrantes. *Forbes México*. https://www.forbes.com.mx/mundo-estados-unidos-datos-biometricos-migrantes-adn-iris/

Gómora, D. (2014, August 29). Quieren reforzar frontera de EU con más equipo de guerra. *El Universal*. https://archivo.eluniversal.com.mx/primera-plana/2014/impreso/buscan-cuidar-frontera-con-equipo-de-guerras-46627.html

Harkins, G. (2018, June 24). Illicit drone flights surge along U.S.-Mexico border as smugglers hunt for soft spots. *The Washington Post*. https://www.washingtonpost.com/world/national-security/illicit-drone-flights-surge-along-us-mexico-border-as-smugglers-hunt-for-soft-spots/2018/06/24/ea353d2a-70aa-11e8-bd50-b80389a4e569_story.html

Harris, C. T. & Gruenewald, J. (2020). News media trends in the framing of immigration and crime, 1990-2013. *Social Problems, 67*(3), 452-470. https://doi.org/10.1093/socpro/spz024

Haskins, C. (2021, September 1). *Amazon, Google, Microsoft y otras empresas de tecnología concursan por un contrato con ICE para construir su herramienta de análisis que permite conocer el estatus de migrantes sin papeles*. Business Insider México. https://businessinsider.mx/ice-herramienta-vigilancia-migrantes-raven/

Haskins, C. (2022, May 2). *ICE gasta 7.2 millones de dólares en tecnología de reconocimiento facial y localización de migrantes*. Business Insider México. https://businessinsider.mx/ice-agencia-migracion-migrantes-estados-unidos_politica/

Hermida, O. V. & García, F. B. (2016). La producción social de la comunicación cuando el mundo se globaliza. *Janus.net e-journal of International Relations*, 7(2), 90-103. http://hdl.handle.net/11144/2785

International Migration Law. (2019). *Glossary on migration* (No. 34). International Organization for Migration. https://publications.iom.int/system/files/pdf/iml_34_glossary.pdf

Jodelet, D. (1984). La representación social: fenómenos, conceptos y teoría. In S. Moscovici (Ed.), *Psicología social II: pensamiento y vida social* (pp. 469-494). Paidós.

Jodelet, D. (1997). *Les représentations sociales*. Presses Universitaires de France.

Kim, S.-h., Carvalho, J. P., Davis, A. G. & Mullins, A. M. (2011). The view of the border: news framing of the definition, causes, and solutions to illegal immigration. *Mass Communication and Society, 14*(3), 292-314. https://doi.org/10.1080/15205431003743679

Koslowski, R. (2004, April 1-2). *International cooperation to create smart borders* [Conference]. North American integration: migration, trade and security, Ottawa, Canadá. https://www.researchgate.net/publication/228901896_International_Cooperation_to_Create_Smart_Borders

Koslowski, R. & Schulzke, M. (2018). Drones along borders: border security UAVs in the United States and the European Union. *International Studies Perspectives*, *19*(4), 305-324. https://doi.org/10.1093/isp/eky002

Krippendorf, K. (2018). *Content analysis: an introduction to its methodology*. Sage. https://us.sagepub.com/en-us/nam/content-analysis/book258450

Lawlor, A. & Tolley, E. (2017). Deciding who's legitimate: news media framing of immigrants and refugees. *International Journal of Communication*, *11*, 967-991. https://ijoc.org/index.php/ijoc/article/view/6273/1946

Leese, M., Noori, S. & Scheel, S. (2022). Data matters: the politics and practices of digital border and migration management. *Geopolitics*, *27*(1), 5-25. https://doi.org/10.1080/14650045.2021.1940538

Leurs, K. & Smets, K. (2018, March). Five questions for digital migration studies: learning from digital connectivity and forced migration in(to) Europe. *Social Media+ Society*, *4*(1). https://doi.org/10.1177/2056305118764425

Levin, S. (2018, June 5). US government to use facial recognition technology at Mexico border crossing. *The Guardian*. https://www.theguardian.com/technology/2018/jun/05/facial-recognition-us-mexico-border-crossing

Martín Serrano, M. (2017). *La producción social de comunicación*. Alianza.

Martín Serrano, M. (2019). La comunicación y la información en un mundo que se virtualiza. Desarrollos y funciones previsibles. *Comunicación y Sociedad*, *16*, 1-29. https://doi.org/10.32870/cys.v2019i0.7478

Martín Serrano, M. & Velarde, O. (2015). La mediación comunicativa de las identidades individuales y colectivas. *Revista Latina de Comunicación Social*, (70), 552-565. https://doi.org/10.4185/RLCS-2015-1059

Materán, A. (2008). Las representaciones sociales: un referente teórico para la investigación educativa. *Geoenseñanza*, *13*(2), 243-248. http://www.redalyc.org/articulo.oa?id=36021230010

Mayring, P. (2014). *Qualitative content analysis: theoretical foundation, basic procedures and software solution*. Klagenfurt. https://nbn-resolving.org/urn:nbn:de:0168-ssoar-395173

Mazzara, B. M., Avdi, A., Kadianaki, I., Koutri, I., Lancia, F., Mannarini, T., Mylona, A., Pop, A., Rochira, A., Redd, R. E., Sammut, G., Suerdem, A., Veltri, G. A., Verbena, S. & Salvatore, S. (2021). The representation of immigration. A retrospective newspaper analysis. *Journal of Immigrant & Refugee Studies*, *19*(4), 436-455. https://doi.org/10.1080/15562948.2020.1836299

McCombs, M. (1996). Influencia de las noticias sobre nuestras imágenes del mundo. In J. Bryant & D. Zillmann (Comps.), *Los efectos de los medios de comunicación: investigaciones y teorías* (pp. 13-34). Paidós.

Méndez Fierros, H. & Reyes Piñuelas, E. P. (2021). Miedo a los otros. Representaciones de la frontera México-Estados Unidos y COVID-19 en medios digitales. *Estudios Fronterizos, 22,* Article e064. https://doi.org/10.21670/ref.2101064

Mijente, Just futures law & No border wall coalition. (2021). *The deadly border wall. A report by Mijente, Just futures law & No border wall coalition*. https://notechforice.com/wp-content/uploads/2021/10/Deadly.Digital.Border.Wall_.pdf

Moscovici, S. (1979). *El psicoanálisis, su imagen y su público*. Editorial Huemul.

Moscovici, S. (1988). Notes towards a definition of social representations. *European Journal of Social Psychology, 18*(3), 211-250. https://doi.org/10.1002/ejsp.2420180303

Najar, A. (2018, May 24). *El efectivo "muro" de policías y militares que usa México para detener migrantes centroamericanos*. BBC News. https://www.bbc.com/mundo/noticias-america-latina-44194144

Nedelcu M. & Soysüren, I. (2020). Precarious migrants, migration regimes and digital technologies: the empowerment-control nexus. *Journal of Ethnic and Migration Studies, 48*(8), 1821-1837. https://doi.org/10.1080/1369183X.2020.1796263

Neuendorf, K. A. (2017). *The content analysis guidebook*. Sage.

Nixon, R. (2017a, June 20). On the Mexican border, a case for technology over concrete. *The New York Times*. https://www.nytimes.com/2017/06/20/us/politics/on-the-mexican-border-a-case-for-technology-over-concrete.html

Nixon, R. (2017b, October 26). Border wall prototypes are unveiled, but Trump's vision still faces obstacles. *The New York Times*. https://www.nytimes.com/2017/10/26/us/politics/border-wall-prototypes-unveiled.html

Noticias Telemundo. (2021, June 5). *El gobierno de Biden usa una app de reconocimiento facial para tramitar a los solicitantes de asilo en la frontera*. https://www.telemundo.com/noticias/noticias-telemundo/inmigracion/el-gobierno-de-biden-usa-una-app-de-reconocimiento-facial-para-tramitar-los-solicitantes-tmna3887493

Ordoñez, M. C. (2022, January 4). *Audit shows Border Patrol hampered by outdated technology, flawed evaluation of new equipment*. Cronkite News. https://cronkitenews.azpbs.org/2022/01/04/cbp-border-patrol-audit-flaws-upgrading-us-mexico-border-technology/

Ortega, P. (2022, March 3). *Del muro de Trump a los 'perros robots': la tecnología se impone en la frontera de EEUU con México*. El Español. https://www.elespanol.com/invertia/disruptores-innovadores/america-tech/20220303/trump-perros-robots-tecnologia-frontera-eeuu-mexico/653934610_0.html

Parrott, S., Hoewe, J., Fan, M. & Huffman, K. (2019). Portrayals of immigrants and refugees in U.S. news media: visual framing and its effect on emotions and attitudes. *Journal of Broadcasting & Electronic Media, 63*(4), 677-697. https://doi.org/10.1080/08838151.2019.1681860

Piñuel Raigada, J. L. (2002). Epistemología, metodología y técnicas del análisis del contenido. *Estudios de sociolingüística, 3*(1), 1-42. https://www.ucm.es/data/cont/docs/268-2013-07-29-Pinuel_Raigada_AnalisisContenido_2002_EstudiosSociolinguisticaUVigo.pdf

Ponzanesi, S. & Leurs, K. (2022, June). Digital migration practices and the everyday. *Communication, Culture and Critique, 15*(2), 103-121. https://doi.org/10.1093/ccc/tcac016

Redacción AN & FPR. (2022, February 9). *EU utilizará 'perros robot' para patrullar la frontera con México*. Aristegui Noticias. https://aristeguinoticias.com/0902/mexico/eu-utilizara-perros-robot-para-patrullar-la-frontera-con-mexico/

Retis, J. & Cogo, D. (2021). Periodismo de migraciones: producción y consumo de narrativas sobre movilidad humana en tiempos de incertidumbre y plataformas digitales. *Estudios sobre el mensaje periodístico, 27*(1), 1-12. https://doi.org/10.5209/esmp.73743

Ruiz Benedicto, A., Akkerman, M. & Brunet, P. (2020). *Mundo amurallado hacia el apartheid global* (Informe 46). Centre Delàs d'Estudis per la Pau/Transnational Institute (TNI)/Stop Wapenhandel/Stop the Wall Campaign.

Shoichet, C. (2022, February 19). *Perros robot podrían patrullar la frontera entre Estados Unidos y México*. CNN en español. https://cnnespanol.cnn.com/2022/02/19/perros-robot-podrian-patrullar-la-frontera-entre-estados-unidos-y-mexico-trax/

Smith, I. (2022, February 9). *us tests robot dogs to patrol its border with Mexico—and civil rights groups aren't happy*. Euronews. https://www.euronews.com/next/2022/02/09/us-tests-robot-dogs-to-patrol-its-border-with-mexico-and-civil-rights-groups-aren-t-happy

Stephan, W. G., Díaz-Loving, R. & Duran, A. (2000). Integrated threat theory and intercultural attitudes: Mexico and the United States. *Journal of Cross-Cultural Psychology, 31*(2), 240-249. https://doi.org/10.1177/0022022100031002006

Stephan, W. G., Renfro, C. L., Esses V. M., Stephan, C. W. & Martin, T. (2005, January). The effects of feeling threatened on attitudes toward immigrants. *International Journal of Intercultural Relations, 29*(1), 1-19, https://doi.org/10.1016/j.ijintrel.2005.04.011

Stephan, W. G., Ybarra, O., Martnez, C. M., Schwarzwald, J. & Tur-Kaspa, M. (1998). Prejudice toward immigrants to Spain and Israel: an integrated threat theory analysis. *Journal of Cross-Cultural Psychology, 29*(4), 559-576. https://doi.org/10.1177/0022022198294004

Tylor, S. J. & Bogdan, R. (1987). *Introducción a los métodos cualitativos de investigación*. Paidós Básica.

Van Dijk, T. A. (2005). Nuevo racismo y noticias. Un enfoque discursivo. In M. Nash, R. Tello & N. Benach (Eds.), *Inmigración, género y espacios urbanos. Los retos de la diversidad* (pp. 33-55). Ediciones Bellaterra.

Witteborn, S. (2022). Digitalization, digitization and datafication: the "three D" transformation of forced migration management. *Communication, Culture and Critique, 15*(2), 157-175, https://doi.org/10.1093/ccc/tcac007

Zavala, M. (2022, February 14). *CPB: "perros robot" ayudarían a proteger la frontera entre EEUU y México*. T20 San Diego. https://www.telemundo20.com/noticias/mexico/cpb-perros-robot-ayudaran-a-proteger-la-frontera-entre-eeuu-mexico/2179596/

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