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Fake News as the axis of contemporary Higher Education

Fake News jako zagrożenie współczesnej edukacji wyższej

Abstract

New digital trends are generating new habits in society. The democratization of mobile devices, such as smartphones, has caused a new paradigm in areas such as access to information and the skills necessary to be an active part of society. The end of this revolution is still impossible to define, however, there are already numerous customs that have been displaced towards virtual contexts. The latest generations are verifying how Information and Communication Technologies (ICTs) are the axis of daily processes, one of them being access to information. During the last decades, the change regarding the consumption of information, as well as entertainment, has become evident, with a clear conversion towards fast and digital reading content. A situation which repercussions are manifested transversally in society, from those generations that have grown up with physical newspapers to the most recent ones and who find non-daily news obsolete. Its impact in the educational field is reflected when considering the personal development of students and their preparation for the 21st century. It is a context in which digital skills are no longer complementary but necessary, from the personal sphere to the professional through the social. Training requirements are reflected in institutions such as higher education, both university, and professional training.

Keywords: fake news, ICT, higher education, digital competence, Spain.

Streszczenie

Nowe trendy cyfrowe kształtują nowe nawyki w społeczeństwie. Demokratyzacja urządzeń mobilnych, takich jak smartfony, spowodowała nowy paradygmat w obszarach takich jak dostęp do informacji i posiadanie umiejętności niezbędnych do stanowienia aktywnej części społeczeństwa. Koniec

tej rewolucji nadal nie jest możliwy do określenia, jednak istnieje już wiele nawyków, które zostały przesunięte w stronę kontekstów wirtualnych. Najnowsze pokolenia weryfikują, w jakim zakresie technologie informacyjno-komunikacyjne (TIK) stanowią oś codziennych procesów, a jednym z nich jest dostęp do informacji. W ostatnich dekadach zmiana dotycząca korzystania z informacji, a także rozrywki, stała się oczywista, z wyraźną konwersją w kierunku szybkiego i cyfrowego czytania treści. Sytuacja, której reperkusje przejawiają się przekrojowo w społeczeństwie, poczynając od pokoleń, które dorastały z drukowanymi gazetami, po pokolenia dzisiejsze, dla których wiadomości niepodawane codziennie jawią się jako przestarzałe. Oddziaływanie to na sferę edukacyjną znajduje odzwierciedlenie, biorąc pod uwagę rozwój osobisty uczniów oraz ich przygotowanie do XXI wieku. Stanowi kontekst, w którym umiejętności cyfrowe nie są już komplementarne, ale konieczne, zarówno w sferze osobistej, jak i zawodowej oraz społecznej. Wymogi w zakresie kształcenia w tym kierunku są uwzględniane również przez instytucje szkolnictwa wyższego, zarówno uniwersyteckiego, jak i zawodowego.

Słowa kluczowe: fake news, TIK, szkolnictwo wyższe, kompetencje cyfrowe, Hiszpania.

Fake News in a digital world

Access to information has been a natural process since the beginning of human beings. The ability to receive and process data that arrive from abroad is a natural feature. Gathering information is an innate habit that helps personal development and survival. Since the origin of the human species, the need to understand what surrounds any action has become clear. The identification, recognition, collection, treatment, and application are stages through which any information must pass. The survival instinct is largely based on all of this, since the ability to adapt involves knowing how to adapt and respond to the information that surrounds you¹.

Human evolution has entailed informational evolution. Beyond media, it is clear to state that the type of information obtained from the context has changed significantly over the millennia. If in previous times the most basic instinct of survival prevailed, referring to the collection of food or protection against animals, today intellectual development is also driven by more theoretical or social aspects. This exemplifies how over the years new knowledge and information have been incorporated into the daily routine, a key issue in the development of society. In this sense, the 21st century should be highlighted, a time which first two decades have revealed the saturation of information of any kind². Social networks represent the instantaneous and unlimited availability and consumption of information³.

¹ X. Zhang, M. Shinozuka, Y. Tanaka, Y. Kanamori, T. Masui, *How ICT can contribute to realize a sustainable society in the future: a CGE approach*, "Environment Development and Sustainability" 2022, 24(4), pp. 5614–5640. DOI: 10.1007/s10668-021-01674-9.

² R. Carneiro, J. Toscano, T. Díaz, *Los desafíos de las TIC para el cambio educativo*, OEI – Fundación Santillana, Madrid 2009.

³ E. Ekener, *Social assessment of future scenarios: developing and testing a new methodology covering consumption-related impacts with a focus on future ICT societies*, "Sustainable Production and Consumption" 2019, 17. DOI: 10.1016/j.spc.2018.10.003.

Information and Communication Technologies (ICTs) have been the greatest disruptor in history in terms of how to access information. Its development in the 21st century is altering personal, social, and economic constructions. The appearance of devices such as computers, tablets, smartphones, smartwatches, and even other smart objects is generating a completely new paradigm regarding the development of the human being⁴. This disparity can be verified between generations, a comparison that exposes the internalization of different strategies for identical habits and, therefore, a significant gap between populations. A gap that increases when incorporating the issue of access to ICTs and economic capacity, since the digital divide is evident between towns, cities, countries, and even continents⁵. Even more aggravated by the existence of gender disparity, since their access is more limited by women in certain contexts⁶.

Every year that passes, new habits associated with digital methodologies appear⁷. There is a clear commitment to reorienting numerous interactions and processes toward virtual contexts⁸. Currently, it is difficult to think about what actions are not completed or replaced by keystrokes on devices such as computers or smartphones. The fields in which ICTs have been incorporated exponentially are almost unlimited since their communication capacity has created possibilities that are very well associated with the frenetic rhythms of everyday life. Personal development is clearly influenced by ICTs since habitual actions such as talking to other people, buying or carrying out bureaucratic acts are internalized processes in pocket applications. This leads to social development, a tradition that, although the importance of physical contact will endure, is increasingly commanded by messages or phone calls that allow contact with anyone at any time and from almost anywhere on the planet. The workplace is not excluded from technological progress either, since during the last decade the appearance of new industries around the digital has been significant and the internalization of technological processes is usually one of the ways of improvement in any economic corporation⁹.

⁴ W. Nwanko, C. Njoku, *Sustainable development in developing societies the place of ICT-driven computer education*, "International Journal of Emerging Technologies in Learning" 2020, 15(12), pp. 290–297. DOI: 10.3991/ijet.v15i12.14007.

⁵ K. Amadasun, M. Short, R. Shankar, T. Crosbie, *Transitioning to society 5.0 in Africa: tolos to support ICT infraestructura sharing*, "DATA" 2021, 6(7). DOI: 10.3390/data6070069.

⁶ N. Chavez, *Women and their relationship with ICT: a reading in the framework of the information society*, "Revista Inclusiones" 2019, 6, pp. 66–73.

⁷ J. Ejemeyovwi, E. Osabuohien, E. Bowale, *ICT adoption, innovation and financial development in a digital world: empirical analysis from Africa*, "Transational Corporations Review" 2021, 13(1), pp. 16–31. DOI: 10.1080/19186444.2020.1851124.

⁸ A. Kovari, *Synergy of digital society and digital education*, "Civil Szemle" 2020, 17(1), pp. 69–72.

⁹ L. Daff, *Employers' perspectives of accounting graduates and their world of work: software use and ICT competencias*, "Accounting Education" 2021, 30(5), pp. 495–524. DOI: 10.1080/09639284.2021.1935282.

The impact of ICTs is reflected in the contrast between generations. From those that were born and grew up with analog media to the current ones that have had digital devices since birth. The adult population, accustomed to analog and face-to-face practices, has experienced a radical change in their daily lives due to the incorporation of ICTs. The way of communicating is different from previous times since applications such as Whatsapp and even social networks are so instant that they have streamlined conversations with acquaintances, economic meetings, and even appointments with doctors. Entertainment has also changed, and there is now unlimited and accessible content for a population that grew up with the radio or that television that brought the whole family together because it could only be seen once¹⁰. Purchases have also changed, adapting this sector to the new possibilities offered by ICTs. There are more and more purchases through the Internet, with more than half of the Spanish population buying something through this medium during the last 3 months¹¹. A habit that replaces traditionally established routines, promoting globalization and also having repercussions on the situation of local commerce.

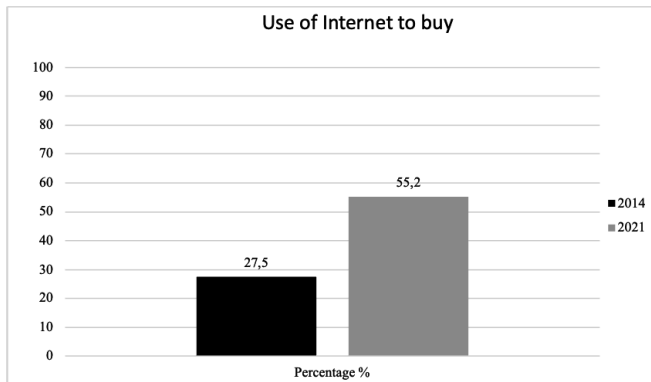


Figure 1. Spanish population who has bought by Internet

The other side of the coin is the new generations, which are born with digital habits. A new paradigm within the evolution of the human being by incorporating resources that never existed before and the creation of disparate habits with respect to traditional practices. This situation acquires great relevance since today's girls and boys are going to grow up with new personal, digital, social, and economic structures. It highlights how digital competence and skill are already a key need

¹⁰ E. Ziembra, *The contribution of ICT adoption to the sustainable information society*, "Journal of Computer Information Systems" 2019, 59(2), pp. 116–126. DOI: 10.1080/08874417.2017.1312635.

¹¹ Instituto Nacional de Estadística (2022). Encuesta sobre equipamiento y uso de tecnologías de información y comunicación en los hogares. Recuperado de https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176741&menu=ultiDatos&idp=125473557669.

in personal development, in order to be an active person in any society. Their way of communicating and relating, reaching physical addictions to devices¹², is still a hybrid between face-to-face and digital. However, as the pandemic caused by SARS-Cov2 showed, the capabilities of ICTs are powerful enough to temporarily replace such basic social habits as relating to others. Although physical contact will never be the same as digital contact, this reflection should be incorporated in the face of the rise of ICTs whose access by new generations is increasingly direct. An example of this is social networks, which availability and daily presence is becoming more than a habit, especially in areas such as social interaction.

One of the most striking areas in these new changes in habits is information. How to access knowledge, data and information has changed significantly during the last decade thanks to the appearance of audiovisual or text-based digital repositories¹³. Its appearance meant the translation and settling of content towards virtual environments whose capacity did not depend on the physical space available. This has been increased by the development of the Internet, which has incorporated platforms such as YouTube or Wikipedia that reflect the human need to collect and access information. In turn, their consumption mechanisms have also accelerated through much more specific and immediate searches than the physical processes supported by Encyclopedias or reference materials. Regarding the content, there has also been a delimitation by themes, at least one organization, which impact is quick encounters with the data requested at any time or place.

This ecosystem has also allowed latitude in terms of the production and consumption of knowledge. In the same way, that democratization has facilitated the creation, reproduction, and consumption; It has also encouraged the indoctrination and replication of ideologies through segmented knowledge. The Fake News phenomenon synthesizes this new human capacity to orient content according to purposes¹⁴. The rise of this terminology has occurred during the last five years, being very relevant in specific cases such as during the term of Donald Trump as president of the United States of America. In Spain, its rise has also occurred during the period of confinement due to SARS-Cov2¹⁵, on this occasion generating a scientific debate in relation to the vaccination process. Both situations reflect

¹² M. Hernandez, L. Pastor, L. Sosa, *Nomophobia in university students*, "International Journal of Early Childhood Special Education" 2020, 12(1), pp. 488–495. DOI: 10.9756/INT-JECSE/V12I1.201029.

¹³ H. Zauddin, C. Shin, *Relationship between new media literacy and motivation in solving Fake News problem*. *International Transaction*, "Journal of Engineering Management & Applied Sciences & Technologies" 2020, 11(8). DOI: 10.14456/ITJEMAST.2020.150.

¹⁴ I. Coste, D. Bufnea, *Advances in clickbait and Fake News detection using new language-independent strategies*, "Journal of Communications Software and Systems" 2021, 17(3), pp. 270–280. DOI: 10.24138/jcomss-2021-0038.

¹⁵ L. Lorente, *The right to education and ICT during COVID-19: an international perspective*, *Sustainability*" 2020, 12(21). DOI: 10.3390/su12219091.

how information can be created and disclosed for purposes that include the profit or deliberate deception¹⁶. In this sense, Fake News is conceived according to its use: providing erroneous information, misinformation or intentionally revealing malicious information¹⁷. These are three modalities that are usually associated with causing public harm, whether they are a person, organization or country.

The hybridization of ICTs on a day-to-day basis has its positive aspect. In recent years, its incorporation has had an impact on improvements associated with communication, especially during the pandemic, and has streamlined processes in areas such as economics. The existence of new means and technological resources must be a way of improving society, since the conception of technology is understood as those resources that facilitate the existence and fulfillment of the human being¹⁸. Access to information is one of the great advantages derived from ICTs since these have significantly enhanced their accessibility with respect to the population of the planet. The democratization of the Internet, whose expansion during the last five years was unprecedented, has allowed the emergence of new instantaneous information channels, a key process within globalization, since resources such as web pages or instant messaging allow access to knowledge like never before throughout history.

On the other hand, the limitations and problems derived from ICTs cannot be forgotten. Its incorporation supposes discrepancies between generations, areas, and customs whose value cannot be understood if it is not the sum of both. There is a clear risk of replacement and neglect of traditional practices that have been the key to human development for millennia. Devices such as smartphones can cause harmful alterations to culture, especially when the intergenerational gap is clear¹⁹. Digital dependency, a trend towards which government institutions are also moving, can have very negative consequences if the same standard is applied to a population with different digital capabilities. An example of this, in the Spanish context, was the difficulties in accessing vaccination for the elderly, since all the reservation mechanisms had to be done electronically. As for the new generations, diseases such as nomophobia²⁰ or cyberbullying²¹ are some signs of risks that have emerged from improper practices with ICTs.

¹⁶ M. Szczepanski, M. Pawlicki, R. Kozik, M. Choras, *New explainability method for BERT-based model in fake news detection*, “Scientific Reports” 2021, 11(1). DOI: 10.1038/s41598-021-03100-6.

¹⁷ A. Vajpeyi, *Faking news, hiding data: new assaults on freedom of speech in India*, “Philosophy & Social Criticism” 2022, 48(4), pp. 590–602. DOI: 10.1177/01914537221095288.

¹⁸ M. Moseikina, S. Toktamysov, S. Danshina, *Modern technologies and gamification in historical education*, “Simulation & Gaming” 2022, 53(2), pp. 135–156. DOI: 10.1177/10468781221075965.

¹⁹ I. Ramos, A. Martinez, A. Campillo, *ICT and the sustainability of world heritage sites. Analysis of senior citizens’ use of tourism apps*, “Sustainability” 2019, 11(1). DOI: 10.3390/su11113203.

²⁰ L. Alves, D. Antonio, R. Laux, *Nomophobia: a bibliometric analysis*, “Revista Tecnología e Sociedades” 2021, 17(46), pp. 246–263. DOI: 10.3895/rts.v17n46.12661.

²¹ V. Gonzalves, Z. Vaz, *(Cyber)Bullying: systematic literatura review*, “Revista Educaonline” 2021, 15(1), pp. 192–214.

Higher Education and digital formation

The integration of ICTs in society could not be left out of the educational field. The two decades of this century have shown a total orientation towards the incorporation of digital as a fundamental part of personal development, both its value in learning and its relevance in the labor market. As mentioned in the previous section, practically every year a new trend related to digital habits emerges. Technological progress, which is reaching a development like never before in history, is accelerating the importance of devices such as computers or smartphones in everyday life. This type of resource has become the axis of many processes, a fact that leads to a significant break from traditional habits.

The presence of the digital in the educational context is a trend that is growing during the last decade, according to technological advances and its democratization. In Spain, the commitment to incorporate ICTs in educational centers and their respective classrooms has been taking place since the 2010s. From these years the Government of Spain itself developed a series of initiatives focused, in particular, on the provision of material such as digital whiteboards, computers and tablets. Similarly, this distribution occurred within a new curricular conceptualization, since it was passed to a teaching format based on competency development. In this sense, digital competence (DC) should be highlighted, since its curricular delimitation marked a before and after in Spanish teaching. It was a key moment since it meant the formal and regulated consideration of digital development as a fundamental part of human development. An initiative that the passage of time has highlighted since the progressive conceptualizations are making the previous ones obsolete due to the advancement of technology on a day-to-day basis²².

The latest version of the common framework for teaching digital competence (TDC) exposes how DC has evolved over the years²³. Its competence organization is delimited by subareas or micro-competences, a reflection of the complexity of making a specific and invariable definition. The 5 main areas are information and information literacy, communication and collaboration, digital content creation, security, and problem-solving²⁴. This cataloging, in turn, is bounded by a total of 21 competencies and 6 levels that make up said Framework. It is evident that the 6 large areas are intertwined with each other and their relevance in daily life is increasingly important. Social networks reflect the block of communication and

²² F. Laje, *Digital teaching competence. Bibliometric study of scientific production on the digital competence of teachers*, "Informes Científicos y Técnicos" 2020, 12(3), pp. 66–84. DOI: 10.22305/ict-unpa.v12.n3.741.

²³ A. Castro, K. Artavia, *Teaching digital competences: an initial approach*, "Revista Electrónica Calidad en la Educación Superior" 2020, 11(1), pp. 47–80. DOI: 10.22458/caes.v11i1.2932

²⁴ INTEF (2017). *Marco Común de Competencia Digital Docente* – Septiembre 2017.

collaboration, tools whose main purpose is to share different types of data with other people. The creation of digital content is also understood in economic fields since the presence of digital marketing and the importance of being on the Internet for any type of business is increasing. Security is probably the weak point and a significant lack in the use of the Internet. This is exemplified in the appearance of risks such as electronic fraud or cyber-bullying, two modalities whose purpose is to generate economic or personal damage.

The area of information and information literacy is the most closely linked to Fake News. It includes actions such as browsing, searching, and filtering information, data, and digital content; evaluation of information, data, and digital content; and storage and retrieval of information, data, and digital content. Its consideration in the educational context, in this specific case within the capacities of teachers, symbolizes a new need for the 21st century. Although Fake News has existed throughout history, with the rise of the Internet its disclosure can reach damaging levels in short periods of time, as can the resulting damage. Therefore, dealing with Fake News is defined as a key personal tool in development, just as its relevance in the educational context can no longer be questioned. This leads to the need to work on these aspects in the classroom and to be considered within the teaching-learning processes in educational settings. It is a cross-cutting, intergenerational problem that must be worked on from an early age to higher educational stages linked to work practices.

To avoid disinformation and Fake News, it is necessary to work with both parts of the educational process: teachers and students. In the first case, they are professionals whose training is usually digitally distant from the reality of society. Currently, there is a significant cultural contrast, especially on the part of generations that have been carrying out their work for decades, regarding an adequate integration of ICTs in the classroom²⁵. It is a situation in which the teaching staff usually reflects training deficiencies regarding how to apply ICTs in the processes effectively. Doubts and shortcomings are understood in the face of the great changes suffered in society during the last two decades but that, however, cannot be justified and forgotten. For this reason, permanent teacher training, especially in digital fields, is a service that must be offered and correctly presented to teachers²⁶. In contrast, there are teachers in training, who are more suited to ICTs and, in general, better conceive of incorporating them into teaching processes as they have used and studied them. In the same way, the training stage of new teachers acquires a total

²⁵ A. Ruiz, M. Domínguez, E. Navio, A. Rivilla, *University teachers' training: the Digital Competence*, "PIXEL BIT-Revista de Medios y Educación" 2020, 58, pp. 181–215. DOI: 10.12795/pixelbit.74676.

²⁶ G. Falloon, *From digital literacy to digital competence: the teacher digital competency (TDC) framework*, "ETR&D-Educational Technology Research and Development" 2020, 68(5), pp. 2449–2472. DOI: 10.1007/s11423-020-09767-4.

relevance to the present and future in the face of digital problems whose maximum exponent is still unknown.

The other part of the educational context is the student body, more associated with teachers in training regarding age and digital habits. Their routines are different from those of previous times since they usually incorporate processes carried out through smartphones or computers. They are a new link in human development, so although we will not know what their relationship with technology will be like in 20 years, we must bet on their formation from the present. Every day there are more devices and their presence in homes is more quantitative, a trend that is expected to increase in the future. The increase in ICTs poses a new risk to new generations that are already suffering some consequences, as is the case with cyber-bullying and which involves the digital translation of harmful traditional practices. At a time when access to information is instantaneous, it is key to train boys and girls to avoid misinformation, which can lead to poor decision-making or wrong views.

Higher education, by its nature, acquires a key relevance in the fight against Fake News. Its job orientation is the previous step for students to actively train in society, therefore developing their critical thinking²⁷. The University has to incorporate digital training into its study plans, both because of its relevance in work practice and because of its importance in the digital development of its students²⁸. All this is in a period of institutional change since they are in a process of adaptation to digital environments. A new reason why they have to deal with the development of digital competence, both for their students and for teachers who are increasingly linked to virtual issues.

Discussion and conclusions

The presence of the digital and its application through ICTs in daily life is an issue that will be increasing²⁹. The beginning of the century has revealed the human capacity to evolve technologically and almost instantly incorporate these advances into daily habits. It is a reality based on data, as is the case in the Spanish context through the National Institute of Statistics, which encourages us to think of an

²⁷ C. Sanchez, M. Lozano, *Digital competences in higher education*, "ETIC NET.Revista Científica Electrónica de Educación y Comunicación en la Sociedad del Conocimiento" 2021, 21(1), pp. 28–50. DOI: 10.30827/eticanet.v21i1.16944.

²⁸ A. Perez, F. Lena, R. Garcia, *Digital gender gap and digital competence among university students*, "Aula Abierta" 2021, 50(1), pp. 505–513. DOI: 10.17811/rifie.50.1.2021.505-514.

²⁹ R. Soler, P. Lafarga, M. Mauri, A. Moreno, *Netiquette: Ethic, Education, and Behavior on Internet – A systematic literatura review*, "International Journal of Environmental Research and Public Health" 2021, 18(3). DOI: 10.3390/ijerph18031212.

ever-increasing impact in almost all areas. In recent years, numerous economic industries have taken this new paradigm into account, which is why everything indicates that digital is going to acquire a greater presence³⁰.

The educational system cannot be oblivious to ICTs whose impact on the lives of students is direct and immediate³¹. Institutions, especially higher education, must play a relevant role in terms of digital competence development. Students are immersed in a hybrid era between the physical tradition of content and habits and unprecedented new digital methodologies³². From birth, they get used to using new devices, as is the case with access to smartphones at increasingly younger ages. Regarding the teaching staff, their relevance in the teaching-learning process continues to be key. Despite the incorporation of ICTs, their importance in the classroom remains the axis of a process that cannot be completely replaced. There are discrepancies between those teachers in training and those who practice since ICTs training in previous years is usually insufficient given the current possibilities³³. And the risk of this is the application of ICTs without a transversal background, being relevant in the teaching-learning process and not a substitute resource for physical material.

Fake News is one of the greatest risks derived from the misuse of ICTs³⁴. Current times, clearly influenced by technology, are showing that access to information is becoming such a democratized habit that it can be altered for personal purposes³⁵. Therefore, his work, reflected in the legislation in force in countries like Spain, emerges as a present need. The development of critical thinking is associated with the development of digital competence itself, two key aspects in the training of students whose presence in society varies as the years go by³⁶.

³⁰ F. Cahen, F. Borini, *International Digital Competence*, “Journal of International Management” 2020, 26(1). DOI: 10.1016/j.intman.2019.100691.

³¹ I. Kalabina, T. Progackaya, *Defining digital competence for older preschool children*, “Psychology in Russia-State of the Art” 2021, 14(4), pp. 38–54. DOI: 10.11621/pir.2021.0411.

³² D. Marin, S. Lopez, M. Castro, J. Rodriguez, *Digital competence in schools: a bibliometric study*, “IEEE Revista Iberoamericana de Tecnologías del Aprendizaje – IEEE RITA” 2020, 15(4), pp. 381–388. DOI: 10.1109/RITA.2020.3033207.

³³ R. Soler, M. Mauri, P. Lafarga, A. Moreno, *How to teach pre-service teachers to make a didactic program? The collaborative learning associated with mobile devices*, “Sustainability” 2020, 12(9). DOI: 10.3390/su12093755.

³⁴ C. Haynes, L. Ward, L. Patton, *Truth-telling, black women and the pedagogy of fake news in higher education*, “Pedagogy Culture and Society” 2021. DOI: 10.1080/14681366.2021.1955405.

³⁵ J. Yoo, D. Kim, W. Kim, *Fake news son you, not me: the third-person effects of fake news in South Korea*, “Communication Research Reports” 2022, 39(3), pp. 115–125. DOI: 10.1080/08824096.2022.2054790

³⁶ M. Antunes, C. Lopes, T. Sanches, *How is fake news combated through information literacy? Challenges and training strategies in higher education*, “BID-Textos universitaris de biblioteconomia i documentacio” 2021, 46. DOI: 10.1344/BiD2020.46.14

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