



How Fake News Consume Relate with Mindset

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Abstract. (1) Background: This paper is based on the hypothesis that not only formal education, but also intelligence/mindset should be taken into account when assessing the vulnerability of citizens to fake news. This is how we seek to determine the relationship between media consumption associated with fake news and the mindset in the citizens of Peru. (2) Methods: The sample consisted of 937 citizens aged 19 to 59 from the 25 departments of Peru. SPSS version 26 was used for data processing and analysis. Pearson's correlation coefficient was used to test the hypotheses; (3) Results: It was found that there is a relationship between media consumption associated with fake news and the mindset in citizens. Conclusions (4): Most respondents use social media and television. However, when it comes to placing your trust in social media, you do so infrequently or never. The list of social media usage is headed by WhatsApp, Facebook, Instagram and YouTube. The results on Mindset Assessment and Motivation, Personality and Development, indicate that most perceive their own intelligence as something malleable and susceptible to modification.

Keywords: hoaxes · fake news · mindset assessment

1 Introduction

The social sciences have tried to explain the phenomenon of the viralization of hoaxes or fake news. Electoral issues from the extreme polarization caused by fake news has characterized the presidential elections in the last 10 years. The influence on the voting intention of voters has been proof of this. Likewise, the problem of fake news has increased with the COVID-19 pandemic, where much information has been disseminated with the intention of misinforming, threatening public health and the integrity of the population.

It is important to note that it was detected that more than half of Latin Americans are not able to identify a false news from a true one, or in fact do not have certainty. Even more serious is to know that 79% of Peruvians present greater difficulty than other Latin American countries, followed by Colombia, Chile, Argentina, Mexico and Brazil (Diazgranados, 2020).

Given this, the scientific community has been developing multiple investigations to detect fake news. However, there is a long way to go, given that a multidisciplinary solution is required, among many things, (Blázquez-Ochando, 2018). In addition, it is affirmed, from various investigations, the existence of multiple factors that explain the viralization. In this study, the existence of a close relationship between media consumption associated with fake news and the set of thoughts and beliefs that shape our mind (mindset) is considered as an initial proposal.

Therefore, the following research question was posed: What is the relationship between media consumption associated with fake news and the mindset in citizens aged 19 to 59 years in Peru? As a research hypothesis, it has been proposed that there is a relationship between media consumption associated with fake news and the mindset in citizens aged 19 to 59 years of Peru.

To answer the research question, it is necessary to set research objectives. The general objective was to determine the relationship between media consumption associated with fake news and the mindset among citizens aged 20 to 59 in Peru. As specific objectives that lead us to the fulfillment of the research goal, we formulate: measure the degree of relationship between media consumption and mindset assessment profile, measure the degree of relationship between media consumption and measure of mindset, measure the degree of relationship between association of fake news and mindset assessment profile and measure of mindset and measure of mindset. Next, an important state of the art associated with the research variables is presented.

In research such as those of Tóth et al. (2022), Näsi et al. (2021), Rapada et al. (2021), Levy (2021), Barrios-Rubio (2021), Hwang et al. (2021), Pérez-Escoda et al. (2021), Talabi et al. (2022), Xiong et al. (2021), Tejedor et al. (2021) and Baptista & Gradim (2020), various explanations have been found about the consumption of media and hoaxes, from phenomena such as political preference, educational level and the use of social networks on mobile devices.

As a way to gain a more complete understanding of fake news and identify countermeasures, Xiong et al. (2021) suggest (1) developing a computational model that considers the characteristics of news consumption environments by leveraging insights from the social sciences, (2) understanding the diversity of news consumers through mental models, and (3) increase consumer awareness of the characteristics and impacts of fake news through support for transparent access to information and education.

As for the Mindset, studies in social sciences have suggested the role played by intelligence and educational level in the greater or lesser propensity to be manipulated by messages in the media. However, this research has focused on the style of thinking or mindset, in order to include different segments of the population that do not have high levels of education. On the other hand, it tries to test the hypothesis that it is not the formal studies, but rather the way of thinking, who could be in relation to the consumption of hoaxes.

The findings of Balhip et al. (2022), Bailey et al. (2022), Brandisaukiene et al. (2021), Haukås & Mercer (2022), Meierdirk & Fleischer (2022), Sun et al. (2021), Martini et al. (2022) and Huang & Xie (2021), prove that:

- Cultivating the gratitude mindset is associated with several factors, in particular, culture and religion.

- Teachers put the Mindset into practice and this transformed their way of teaching and learning. It left behind negative rhetoric and the perception of fear, panic and chaos, and as such, changed the narrative about COVID-19.
- There are positive correlations between teacher support, growth mindset and people's performance.
- Beliefs are interrelated with malleability.
- Teacher training students who score "satisfactory" are more likely to have a resilience mindset than those who earned a "good" grade.
- Cross-cultural differences in intelligence mindset beliefs correspond with how students defined intelligence.
- People with a higher propensity to have a conspiratorial view of the world tend to overestimate the immigrant population living in their own country. This association is maintained when the heterogeneity of countries and other cognitive, affective and sociodemographic factors are taken into account.
- Mindset acts as a fundamental psychological factor strongly associated with multiple outcomes, such as educational level, cognitive abilities, attitudes, and well-being of the subject.

2 Materials and Methods

The Research is Quantitative, with a Non-Experimental Design and Correlational Scope. To Collect Information, a Questionnaire Validated by Burgoyne & Macnamara (2021) Was Used as an Instrument. And Pérez-Escoda et al. (2021). Likewise, the Instrument Obtained Through the Application of a Pilot Test a Cronbach's Alpha Coefficient of (A): .98, Which Indicates that the Instrument is Reliable for Its Application in Peruvian Citizens.

The Population Consisted of 15742782 Citizens Aged 19 to 59 from the 25 Departments of Peru. 51% of the Participants Were Women and 49% Men, According to Table 1.

To calculate the probabilistic and representative sample size of the population, the formula for populations with a finite universe was used. Considering a margin of error of 3.2%, confidence level of 95% and heterogeneity of 50%, a sample of 937 citizens was obtained. Of which 456 were men and 482 women, stratified according to the 25 departments of Peru (Table 1).

The instrument that measures the variable of media consumption associated with fake news, is disaggregated into two dimensions: media consumption and association of fake news. Likewise, the mindset variable is measured with two dimensions: mindset assessment profile and measure of mindset. The participants in the research answered 4 demographic items, 33 items for media consumption associated with fake news and 16 items for Mindset.

The instrument was designed through a questionnaire in GoogleForms and collected the consent of each citizen before freely conducting the survey from May 26 to September 25, 2022. For the processing and analysis of the data, the statistical package SPSS version 26 was used.

The Measurement Scale Used Was the Likert Scale. The Values of 1. Never, 2. Little 3. Occasionally, 4. Frequently 5. Always. The Kolmogorow Smirnov Test Proved the

Table 1. Sample of citizens aged 19 to 59 by departments of Peru

DEPARTMENTS		Sex			
		Men		Women	
		f	%	f	%
1	DEPARTAMENT AMAZONAS	6	0.59	5	0.58
2	DEPARTAMENT ÁNCASH	16	1.73	17	1.80
3	DEPARTAMENT APURÍMAC	6	0.64	6	0.65
4	DEPARTAMENT AREQUIPA	22	2.37	24	2.54
5	DEPARTAMENT AYACUCHO	9	0.97	9	0.99
6	DEPARTAMENT CAJAMARCA	19	2.05	21	2.21
7	PROV. CONSTITUCIONAL DEL CALLAO	16	1.69	17	1.81
8	DEPARTAMENT CUSCO	19	1.98	19	2.04
9	DEPARTAMENT HUANCVELICA	5	0.49	5	0.53
10	DEPARTAMENT HUÁNUCO	10	1.12	11	1.17
11	DEPARTAMENT ICA	13	1.41	14	1.47
12	DEPARTAMENT JUNÍN	18	1.96	20	2.12
13	DEPARTAMENT LA LIBERTAD	26	2.82	29	3.05
14	DEPARTAMENT LAMBAYEQUE	17	1.86	19	2.08
15	DEPARTAMENT LIMA	156	16.61	167	17.75
16	DEPARTAMENT LORETO	12	1.28	12	1.31
17	DEPARTAMENT MADRE DE DIOS	2	0.26	2	0.24
18	DEPARTAMENT MOQUEGUA	7	0.71	7	0.70
19	DEPARTAMENT PASCO	4	0.44	4	0.43
20	DEPARTAMENT PIURA	27	2.91	29	3.07
21	DEPARTAMENT PUNO	18	1.94	19	2.03
22	DEPARTAMENT SAN MARTÍN	13	1.35	12	1.30
23	DEPARTAMENT TACNA	3	0.32	3	0.33
24	DEPARTAMENT TUMBES	4	0.38	4	0.38

(continued)

Table 1. (continued)

DEPARTMENTS		Sex			
		Men		Women	
		f	%	f	%
25	DEPARTAMENT UCAYALI	7	0.78	7	0.78
PERÚ		456	48.63	481	51.37

Source: Based on data from the National Institute of Statistics and Informatics of Peru

Existence of Data Normality in Both Variables. Pearson’s Correlation Coefficient Was Used to Test the Research Hypotheses.

3 Results

After Applying the Research Instrument to the 937 Citizens of the 25 Departments of Peru, the Pearson Correlation Test Was Applied to Measure the Correlation or Association, Which is a Statistical Measure Widely Used in Various Areas of Science, Lately in Social Research, Where the Covariation Between Both Variables is Evaluated (Hernández Lalinde, 2018). The Answer to the Questions Asked Allowed to Obtain the Following Results.

Figure 1 shows a Statistical Value of Pearson’s R of 0.493, in Addition to a Very Significant Correlation Between the Variable’s Media Consumption Associated with Fake News and Mindset in 937 Citizens of All Departments of Peru. Therefore, It Can Be Affirmed with 99% Confidence that There is a Moderate Degree of Positive Correlation Between Both Variables, Given that the Value of the Sig. (Bilateral) is Lower Than Required <.001.

Table 2 shows a Pearson r statistical value of 0.512, in addition to a very significant correlation between the dimensions of media consumption and mindset assessment profile in 937 citizens of all departments of Peru. Therefore, it can be affirmed with

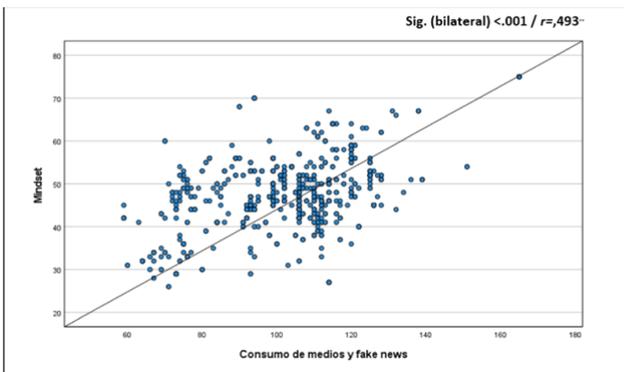


Fig. 1. Correlation between media consumption associated with fake news and mindset

Table 2. Correlation between media consumption and mindset assessment profile

		Media consumption	Mindset Assessment Profile
Media consumption	Pearson correlation	1	,512**
	Sig. (bilateral)		<.001
	N	937	937
Mindset Assessment Profile	Pearson correlation	,512**	1
	Sig. (bilateral)	<.001	
	N	937	937

** . La correlación es significativa en el nivel 0,01 (bilateral)

99% confidence that there is a moderate degree of positive correlation between both dimensions, given that the value of the sig. (bilateral) is lower than required <.001.

4 Discussion

In this research paper, the following research question was posed: What is the relationship between media consumption associated with fake news and mindset in citizens aged 19 to 59 in Peru? The hypothesis is confirmed: there is a correlation between media consumption associated with fake news and mentality in citizens aged 19 to 59 in Peru. The issue of media consumption faces a crisis of trust and/or credibility in the media. Although most respondents use social networks, when they place their trust, they do so at a lower rate.

Researchers have decided to avoid the temptation to use intelligence as a theoretical construct by linking it to hoax consumption. In other words, we find it discriminatory to consider that smarter or highly educated people are less likely to consume and spread hoaxes. That is why we have focused on the Mindset Assessment, understood as a rapid diagnostic tool based on validated measures so that people aged 12 and over can assess their mentality. It has been used in many studies to show how mindsets can change.

Dweck (1986) through the battery of questions on Motivation, Personality and Development, aims to describe how motivational processes influence the acquisition, transfer and use of knowledge and skills by the person. Recent research within the sociocognitive framework illustrates adaptive and maladaptive motivational patterns, and presents an investigation-based model of motivational processes that shows how the particular performance or learning goals that children pursue in cognitive tasks shape their reactions to success and failure and influence the quality of their cognitive performance.

The results found confirm that mindset acts as a fundamental psychological factor strongly associated with multiple outcomes, such as educational level, cognitive skills, attitudes and well-being of the subject (Huang & Xie, 2021).

All correlations between media consumption associated with fake news and mindset were positive. This can shed light on how the success of fake news can be associated with its characteristics (more surreal, exaggerated, shocking, emotional, persuasive

images) that seem to be strategically thought out and exploited by fake news creators, for people who perceive their own intelligence as something malleable and amenable to modification.

References

- Haukås A & Mercer S.: Exploring pre-service language teachers' mindsets using a sorting activity, *Innovation in Language Learning and Teaching*, 16:3, 221-233 (2022). DOI: <https://doi.org/10.1080/17501229.2021.1923721>
- Barrios-Rubio, A.: The Colombian Media Industry on the Digital Social Consumption Agenda in Times of COVID-19. *Information*, 13, 11 (2021). DOI: <https://doi.org/10.3390/info13010011>
- Blázquez-Ochando, M.: El problema de las noticias falsas: detección y contramedidas. En: XV Seminario Hispano-Mexicano de Investigación en Biblioteconomía y Documentación, Ciudad de México (2018).
- Brandisauskiene, A.; Buksnyte-Marmiene, L.; Cesnaviciene, J.; Daugirdiene, A.; Kemeryte-Ivanauskiene, E.; & Nedzinskaite-Maciuniene, R.: Connection between Teacher Support and Student's Achievement: Could Growth Mindset Be the Moderator? *Sustainability* 2021, 13, 13632 (2021). <https://doi.org/10.3390/su132413632>
- Burgoyne, A. P., & Macnamara, B. N.: Reconsidering the Use of the Mindset Assessment Profile in Educational Contexts. *Journal of Intelligence*, 9(3), 39 (2021). <https://doi.org/10.3390/jintelligence9030039>
- Meierdirk C. & Fleischer S.: Exploring the mindset and resilience of student teachers, *Teacher Development*, 26:2, 263-278. (2022). DOI: <https://doi.org/10.1080/13664530.2022.2048687>
- Diazgranados, H.: 70% de los latinoamericanos desconoce cómo detectar una fake news. *Kaspersky Daily* (2020). Recuperado de: <https://latam.kaspersky.com/blog/70-de-los-latinoamericanos-desconoce-como-detectar-una-fakenews/17015/> last accessed 2023/03/27
- Dweck, C. S. Motivational processes affecting learning. *American Psychologist*, 41(10), 1040-1048. <https://doi.org/10.1037/0003-066X.41.10.1040> (1986)
- Tóth F., Mihelj S., Šte˘tka I V. & Kondor H.: A Media Repertoires Approach to Selective Exposure: News Consumption and Political Polarization in Eastern Europe (2022). *The International Journal of Press/Politics* 1-25. DOI: <https://doi.org/10.1177/19401612211072552>
- Bailey F.; Kavani A.; Johnson J.; Eppard J. & Johnson H.: Changing the narrative on COVID-19: Shifting mindsets and teaching practices in higher education. *Policy Futures in Education* 2022, Vol. 20(4) 492-508 (2022). DOI: <https://doi.org/10.1177/14782103211055189>
- Felix Olajide Talabi; Ikechukwu Peter Ugbor; Moyinoluwa Joseph Talabi; Joel C. Ugwuoke; David Oloyede; Ayodeji Boluwatife Aiyesimoju; & Amaka B. Ikechukwu-Ilomuanya (2022). Effect of a social media-based counselling intervention in countering fake news on COVID-19 vaccine in Nigeria. *Health Promotion International*, 2022, 37. DOI: <https://doi.org/10.1093/heapro/daab140>
- Hernández Lalinde, J. D., Espinosa Castro, F., Rodríguez, J. E., Chacón Rangel, J. G., Toloza Sierra, C. A., Arenas Torrado, M. K., Carrillo Sierra, S. M., & Bermúdez Pirela, V. J. (2018). Sobre el uso adecuado del coeficiente de correlación de Pearson:
- Hwang, J.; Eves, A.; Stienmetz, J.L. The Impact of Social Media Use on Consumers' Restaurant Consumption Experiences: A Qualitative Study. *Sustainability* 2021, 13, 6581 (2021). <https://doi.org/10.3390/su13126581>
- Baptista J. & Gradim A.: Understanding Fake News Consumption: A Review. *Soc. Sci.* 2020, 9, 185 (2020). DOI: <https://doi.org/10.3390/socsci9100185>
- Karnsunaphat Balthip, Bunrome Suwanphahu, & Wilfred McSherry (2022). Achieving Fulfilment in Life: Cultivating the Mindset of Gratitude Among Thai Adolescents. *SAGE Open* 2022: 1-12. DOI: <https://doi.org/10.1177/21582440211070791>

- Kim B, Xiong A, Lee D, Han K. A systematic review on fake news research through the lens of news creation and consumption: Research efforts, challenges, and future directions. *PLoS ONE* 16(12): e0260080. (2021). DOI: <https://doi.org/10.1371/journal.pone.0260080>
- Levy, Ro'ee: Social Media, News Consumption, and Polarization: Evidence from a Field Experiment. *American Economic Review* 2021, 111(3): 831-870 (2021). DOI: <https://doi.org/10.1257/aer.20191777>
- Matti Näsi¹, Maiju Tanskanen, Janne Kivivuori¹, Paula Haara, & Esa Reunanen. Crime News Consumption and Fear of Violence: The Role of Traditional Media, Social Media, and Alternative Information Sources. *Crime & Delinquency* 2021, Vol. 67(4) 574-600 (2021). DOI: <https://doi.org/10.1177/0011128720922539>
- Pérez-Escoda, A., Barón-Dulce, G. y Rubio-Romero, J. Mapeo del consumo de medios en los jóvenes: redes sociales, 'fakes news' y confianza en tiempos de pandemia. *index.comunicación*, 11(2), 187-208 (2021). DOI: <https://doi.org/10.33732/ixc/11/02Mapeod>
- Qing Huang & Yu Xie Social-demographic correlates of mindset in China. *Chinese Journal of Sociology*, 2021, Vol. 7(4) 497-513 (2021). DOI: <https://doi.org/10.1177/2057150X211041908>
- Rapada, M.Z.; Yu, D.E.; Yu, K.D. Do Social Media Posts Influence Consumption Behavior towards Plastic Pollution? *Sustainability* 2021, 13, 12334 (2021).. <https://doi.org/10.3390/su132212334>
- Tejedor S.; Portalés-Oliva M.; Carniel-Bugs R.; & Cervi L. Journalism Students and Information Consumption in the Era of Fake News. *Media and Communication*, 2021, Volume 9, Issue 1, Pages 338-350 (2021). DOI: <https://doi.org/10.17645/mac.v9i1.3516>
- Martini S.; Guidi M.; Olmastroni F.; Basile L.; Borri R.; & Isernia P.: Paranoid styles and innumeracy: implications of a conspiracy mindset on Europeans' misperceptions about immigrants. *Italian Political Science Review/Rivista Italiana di Scienza Politica* (2022), 52, 66-82 (2022). DOI: <https://doi.org/10.1017/ipo.2021.26>
- Xin Sun; Shaylene Nancekivell; Susan A. Gelman; & Priti Shah (2021). Growth mindset and academic outcomes: a comparison of US and Chinese students. *npj Sci. Learn.* 6, 21 (2021). DOI: <https://doi.org/10.1038/s41539-021-00100-z>

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