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Echo Chamber Effect of Fake Political News in Spreading Misinformation: A Study of Facebook Users in Pakistan with Moderating Role of Media Literacy

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Abstract

The study investigates the relationship between political fake news and echo chambers on Facebook users with the moderating role of media literacy. It examines the prevalence and impact of political fake news on the reinforcement of existing beliefs and the spread of misinformation online. It analyzes engagement patterns of users with fake political content to examine how they reinforce echo chambers and contribute to the dissemination of fake news. It also investigates different levels of media literacy as a moderator in the acceptance or rejection of fake news. The study utilizes a survey method across capital cities of all provinces of Pakistan to examine the engagement behavior of Facebook users with fake political content. Findings suggest that fake news is significantly prevalent within echo chambers that reinforce existing beliefs and contribute to the spread of misinformation. The results indicate that a low level of media literacy is more vulnerable to engaging with fake news content as compared to a high level of media literacy.

Keywords: Echo Chamber, Media Literacy, Political Fake News, Facebook Users, Pakistan

1. Introduction

In Pakistan, research has shown that digital literacy has a substantial impact on the propagation of disinformation on social media platforms such as Facebook (Ali, 2022). This

is especially alarming given the proliferation of fake news in political and social conversations, which has a significant influence on Pakistani social media users (Rehman, 2020). The problem is exacerbated by teens' incapacity to recognize fake news, as they frequently rely on social media as their primary source of information (Abbasi, 2020). However, there is room for development through educational interventions, with personalized feedback showing promise in improving people's ability to detect bogus news (Ali, 2021).

It is also established in the literature that media literacy plays an important role in the context of fake news spread. Cabrera (2019) found that the intention to disseminate unverified or fraudulent information is influenced by the level of digital literacy and the message's substance. Some literature on echo chambers also echoes the relevance of their effect on spreading fake content. Rhodes (2021) explored the influence of social media platforms as primary conduits for exposure to fake news. The prevalence of algorithm-driven filter bubbles and echo chambers within these platforms has raised concerns regarding increased exposure to misinformation. Scholars have proposed disrupting the homogeneous flow of information produced by these filter bubbles and echo chambers to potentially mitigate the impact and circulation of fake news.

Similarly, Kitchens (2020) investigated the concepts of echo chambers and filter bubbles, reflecting widespread apprehension about social media's potential to restrict users' exposure to information online. There's a concern that social media algorithms, coupled with users' tendencies to engage with like-minded individuals, might limit exposure to diverse viewpoints and encourage the adoption of more extreme ideological stances. However, the empirical evidence regarding how social media influences information consumption remains inconclusive. The findings highlighted varied impacts on news consumption based on the platform used. Increased use of Facebook was associated with greater diversity in information sources but a tendency toward more partisan sites.

Literature on mainstream media in Pakistan also indicates the trend of spreading fake content. There are countless media channels in Pakistan and there is rivalry for viewers, these outlets have pushed sensationalism. Umair (2016) examines the culture of breaking news without taking the news' accuracy into account. It is not as necessary for reporters in Pakistan

to verify rumors or news before disseminating it. The proliferation of fake news in Pakistan has been facilitated by the absence of training for journalists at the country's colleges, media organizations, and media monitoring groups (Umair, 2016). In 1999, It was discovered that many online media, including blogs, forums, and social media platforms, contain echo chambers. Due to human characteristics including media intake, transmission, and social dynamics, echo chambers are becoming more common. In 2016, evidence linking the two phenomena of echo chambers and the spread of misinformation was evaluated by

Sunstein, (2016) describes that identical user groups with a high frequency of self - self-confirmation seem to be good "greenhouses" for the spread of rumors and misleading information because Facebook users tend to promote their chosen narratives, join prejudiced groups, and reject material that contradicts their ideas, the Internet may be especially conducive to the spread of misinformation. Bruns (2017) talks a lot about the concept of an echo chamber, which is a place where people are primarily exposed to opinions that are similar to their own. Some experts dispute the existence of these kinds of settings, while others worry that they could cause political and ideological parted away. Facebook users may be able to manage the volume of information available despite the drawbacks of echo chambers if they limit information inputs and adjust to their digital environment.

According to Valenzuela, Halpern, Katz, and Miranda (2019), social media's impact on political activity is closely tied to its impact on disseminating misleading information. That is to say, using social media for news has a big impact on political activity, which also has a big impact on the propagation of misinformation. A lot of thought has been given to the production and distribution of false information online via Facebook, Snapchat, and other Internet social media platforms, commonly referred to as "fake news," in 2018. According to the Brexit referendum from 2016, Fake news is a global hazard to public life, particularly in countries with weak institutions and norms for journalists. According to Humprecht (2019), the increasing use and consumption of information and communication technologies, especially social and digital media, was mostly to blame for the global tsunami of false information and fake news.

It is also established in the previous studies that the effects of fake news can be mitigated with higher level skills of media literacy. Media literacy helped people distinguish between fact and fiction, warned them about the consequences of believing false information,

and taught them how to recognize erroneous information. To resemble the real-world Facebook misinformation warning applications, Clayton et al (2020) developed a disinformation warning message that provided instructions on how to identify false content. Media literacy necessitates the knowledge and abilities that lead to competent and autonomous decision-making to maximize advantages and limit hazards associated with the informational environment.

The widespread creation of echo chambers on social media platforms, especially Facebook has posed a considerable obstacle to the spread of accurate political information. Users are mostly exposed to content that supports their preexisting opinions in these "echo chambers," which reinforces their presumptions and limits their exposure to opposing viewpoints. This dynamic has made it easier for political fake news to spread quickly, which has led to disinformation and divisive conversations among Facebook users. Nonetheless, media literacy plays a crucial role in addressing and lessening the influence of echo chambers on the dissemination of political misinformation among Facebook users (Al Naqbi, Momani, & Davies, 2022). Echo chambers continue to be a serious problem because they tend to attract like-minded people and content, which promotes a biased and constrained information environment. They also reinforce the echo chamber, which suppresses healthy discourse and critical thinking. Current media literacy interventions and programs may not be adequately addressing the unique challenges posed by echo chambers among Facebook users because these users may lack the skills necessary to recognize and assess the information in these closed environments, which contributes to the unchecked spread of political fake news.

The main objective of the study was to investigate how echo chambers affect people's actions when it comes to interacting with and participating in false political news. It seeks to determine whether people in these "echo chambers" are more likely to actively engage with fake political news since it confirms what they already believe. Another objective was to examine how users' behaviors—like how often and for how long they use Facebook—affect their exposure to political misinformation in echo chambers. The goal is to determine whether specific digital media consumption patterns, especially on Facebook, are linked to a rise in the exposure of fake political news. The purpose of the study is to determine how fake political news is affected by echo chambers and how usage patterns on social media sites like

Facebook, such as frequency and duration, may indicate the likelihood of encountering false information in these echo chambers.

Keeping in view the need for media literacy in identifying fake news and mitigating the echo chamber effect of users, the study explains the engagement behavior of Facebook users in Pakistan with the moderating role of media literacy. There is a gap in the literature about exposure to political fake news and its underlying impact on echo chambers in Pakistan with media literacy as a moderating variable. Examining the prevalence of political fake news among Facebook users is essential to comprehend the function of echo chambers (Guess, Nagler & Tucker, 2019). To stop the diffusion of false information within these limited networks, it highlights the necessity of developing techniques to break through these echo chambers, promote exposure to a variety of opinions, foster critical thinking, and improve media literacy. To lessen the influence of political false news, initiatives should foster an atmosphere that supports candid discussion, fact-checking, and the critical assessment of information—even within ideologically closed organizations (Dennis, Galletta, & Webster, 2021).

2. Literature Review

The importance of echo chambers in spreading misleading information on social media platforms was brought to light by Rhodes's (2022) study. The research indicates that are a major way that people come across false information. The increased exposure to fake information on these types of websites is partly due to the presence of echo chambers and filter bubbles. Disrupting the flow of consistent information created by these echo chambers and filter bubbles is one one-way experts recommend reducing the impact of disinformation. According to the research, people who were exposed to content that supported their political beliefs were more likely to believe false news than people who were exposed to a wide variety of news pieces that supported opposing views. Zhang, Moon, and Veeraraghavan (2022) stated that politicians, regulatory bodies, and media professionals have criticized social media platforms for facilitating the unrestricted online spread of false information. A more significant worry is that individuals may become captured in virtual "echo chambers" where they are mostly exposed to misinformation as incorrect information spreads throughout. The public is frequently exposed to false information through online means. Echo chambers are uncommon, but research indicates that social media companies might reduce

their impact by focusing their content moderation efforts on families more likely to receive false news than those that are already strongly exposed to it. Research on the role of media literacy in accessing political fake news was carried out by Jones-Jang, Mortensen, and Liu (2021). The consensus is that literacy programs will "fully protect" audiences against the detrimental effects of false information. This study experimentally explores the hypotheses by identifying which of these literacies—media, information, news, and digital—are the most related and whether people with higher literacy levels are better at spotting fake news. The results indicate that information literacy significantly increased the likelihood of spotting false news items, but not other forms of literacy. When interpreting the results, research offers conceptual and methodological explanations for the findings. Researchers specifically look at the self-reported.

The research by Jeon, Kim, Xiong, Lee, and Han focuses on the propagation of false information and political polarization on social networking sites, which are two of the echo chambers' expanding negative effects. The study draws attention to the shortcomings of past initiatives aimed at comprehending the properties, methods of creation, and harmful impacts of echo chambers. The study shows how the season as a whole technique might help users better comprehend the echo chamber effect and why it's important to consider a variety of viewpoints while absorbing information. To mitigate the echo chamber effect, the research highlights the externalization of psychological viewpoints. It also offers design implications for system development, taking into account factors like playing duration, demography, and the relationship between fake news recognition (2021). Rehman, Hussain, & Durrsheshwar analyzed the prevalence of false information. In discussion, this research shows the content related to Pakistani politics and society on social media. The content analysis in this research revealed a significant presence of misinformation on Twitter and Facebook covering topics such as politics, foreign relations, the military, the economy, and religion. While articles about politics and politicians were more frequently posted, those focused on international relations garnered more likes and shares compared to content on other themes. Notably, fake news, despite being debunked, continued to attract attention, highlighting the influence of authoritarianism and religious adherence on social media users in Pakistan (2020).

Researchers Valenzuela, Halpern, Katz, and Miranda conducted a study in 2019 that demonstrates how people who use social media platforms like Facebook and Twitter spread

misleading information. According to the study, social media's impact on spreading misleading information is closely related to its informative uses and their impact on political activity. That is to say, using social media for news has a big impact on political activity, which also has a big impact on the propagation of misinformation. The study's conclusion highlights how social media-driven shifts in how people engage with news and politics have given rise to a new conundrum: it also demonstrates how to keep the public engaged in politics while preventing the spread of misleading information. The Gab social network, which promotes free expression, was developed in response to a study conducted by Lima, Reis, Melo, Murai, Araujo, Vikatos, and Benevenuto (2018) on the regulation of material on several social media platforms, including Facebook and Twitter. After that, Gab was removed from the Google Play Store for violating the company's hate speech policy, and Apple rejected Gab for identical reasons. Researchers discuss Gab in this study to find out more about its Facebook users' online content-sharing habits. The App was used to promote or spread fake political news through social media users.

Frey (1986) concluded in his research work that Users may read false reports and eventually write an argument or remark because they are exposed to information selectively, which makes them favor anything—even fake news—that confirms what they already believe. An echo chamber can grow and become stabilized by taking the (false) premise at face value, discussing it without question, dismissing opposing viewpoints, and arguing further off vulnerable (but always in the same direction). According to the research study of Torres, Gerhart, and Negahban, fake news has become increasingly well-known recently on a global scale. People known as Facebook users may choose to share material without considering whether it is accurate. Perceptions of the network of news sharers (perceived cognitive uniformity, social connector variety, and trust), perceptions of news authors (fake news awareness and perceived media credibility), and ingrained sharing intentions all impact information verification behaviors among Facebook users of social networking sites (2018).

Echo chambers have the potential to prevent social media users from encountering alternative viewpoints, which can lead to numerous detrimental consequences. The research investigates the characteristics and mechanisms of echo chambers in social media to support their detection and lessen their negative consequences. It specifically illustrated the typical characteristics of echo chambers, emphasizing the propagation of false information, an

increase of conspiracy theories, the development of social trends, political divisiveness, and the emotional attachment of users. The results indicated that there was a growing need to identify echo chambers and lessen the adverse effects (Jiang, Karami, Cheng, Black, & Liu, 2021). Concerns about the spread and effect of false information in political campaigns have been raised by fake news. The possibility of news spreading widely in 2019, looks at the traits at the personal level related to distributing erroneous stories during the presidential campaign. The results demonstrate a significant age effect that holds even after adjusting for ideology and partisanship (Guess, Nagler, & Tucker).

The echo chamber effect, widespread in online social media platforms, contributes to the dissemination and reinforcement of political fake news. This phenomenon occurs when individuals are exposed primarily to information that aligns with their existing beliefs, creating a limited environment that reinforces biases and limits exposure to diverse perspectives. The gap in addressing echo chambers and the role of media literacy in combating political fake news is evident in creating a filter bubble where users are isolated from diverse political viewpoints. Media literacy can bridge this gap by empowering individuals to seek out and critically evaluate information from a variety of sources. The echo chamber effect on critical thinking skills, as users become less inclined to question information that aligns with their pre-existing beliefs. Media literacy can fill critical thinking skills, enabling individuals to assess the credibility of sources, fact-check information, and make informed judgments about political news encounters. The gap in echo chambers and enhancing media literacy in the context of political fake news requires a multifaceted approach. This includes educational initiatives to promote critical thinking, awareness campaigns on the influence of echo chambers, and collaboration between policymakers to create an online environment that encourages diverse perspectives and responsible information consumption. Ultimately, the integration of media literacy skills into digital citizenship is essential for building a more informed and flexible society against the challenges posed by echo chambers and political fake news.

The existing literature on echo chambers within the realm of political fake news on Facebook reveals a conspicuous gap that demands scholarly attention. While numerous studies have explored the prevalence of echo chambers and the dissemination of misinformation on social media platforms, there is a dearth of comprehensive research

specifically delving into the dynamics of echo chambers within the context of political fake news on Facebook. This gap is particularly significant as Facebook remains a prominent source of news for a substantial portion of the global population. Moreover, the role of media literacy in fostering awareness and mitigating the impact of political fake news within these echo chambers remains underexplored. The purpose of the study was to give an understanding of how media literacy interventions can effectively equip users with the critical skills to discern and navigate through misleading information in their political echo chambers is crucial for the development of informed and resilient online communities. Addressing this research gap is imperative for advancing our understanding of the complex interplay between social media, political misinformation, and the potential efficacy of media literacy initiatives in promoting a more discerning and informed public discourse.

3. Hypothesis

The research hypothesis were

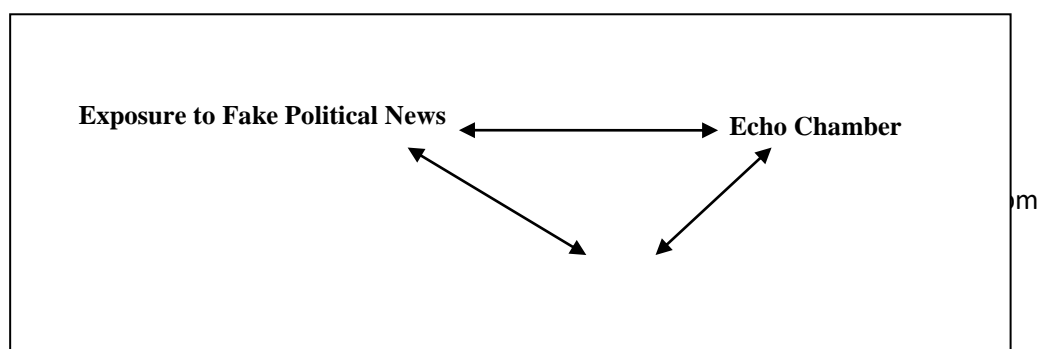
H₁: The moderating role of media literacy on fake political news is stronger for users who are not part of echo chambers on Facebook.

H₂: Facebook users who are part of echo chambers on Facebook are more likely to engage with fake political news compared to those who are not part of echo chambers.

H₃: Facebook users who spend more time on like-minded content and visit the platform more frequently are more likely to be exposed to political fake news.

4. Conceptual and Theoretical Framework

Based on the key variables of the study we have developed the conceptual framework of the study, which shows that the exposure of political fake news multiplies the echo chamber effect of Facebook users but the effect is moderated by the levels of media literacy in engagement with and spread of fake political news.



Media Literacy

Figure 1: Conceptual Framework

The researchers applied the Filter Bubble and Digital Echo Chamber Approach. Moller & Helberge (2018) describe the concept of a Filter bubble which means that data is screened before being viewed by an Internet user. Internet specialist Eli Pariser claims that filter bubbles, which are thought to be caused by the personalization of online content, cause intellectual isolation in users of the Internet and reduce the variety of information available to them (Eli Pariser, *The Filter Bubble*: 2011). The approach shows the significance, understanding and addressing the dynamics of political fake news, echo chamber within the context of media literacy. The filter bubble, wherein individuals are exposed primarily to information that aligns with their existing beliefs, can contribute to the spread of political fake news, reinforcing biases. Media literacy plays a crucial role in countering the filter bubble's impact by empowering individuals to critically assess information, fact-check claims, and seek diverse sources, thereby reducing susceptibility to political fake news. The digital echo chamber further solidifies individuals' existing beliefs, fostering confirmation bias and limiting exposure to diverse perspectives. This can lead to the formation of political echo chambers, hindering critical thinking. Media literacy becomes a key tool in recognizing and breaking out of echo chambers, encouraging individuals to seek diverse viewpoints, engage in respectful dialogue, and critically evaluate their beliefs. By promoting media literacy, individuals can mitigate the negative effects of filter bubbles and digital echo chambers associated with political fake news. Developing media literacy skills enables individuals to be more aware of potential biases in media consumption, empowering them to seek diverse perspectives.

At the same time, researchers also strengthened their research work and applied another theory named Media Literacy; A cognitive approach that was proposed in 2004 by Potter. The approach thoroughly describes how to process the constant flow of information that surrounds our media-saturated world and looks at how we frequently misinterpret the messages that users are exposed to by building on a foundation of theories about human

thought, the author enlightens readers on all the tasks of information processing. The theory of Media Literacy looks at choices concerning message filtering, standard schema to match meaning, and higher-level abilities to construct meaning. The position that determines a person's level of media literacy is the main focus of the idea. Gaining expertise and solid knowledge structures on five subjects—media effects, media content, media industries, real-world parameters, and the self—enriches the point of origin.

The cognitive approach to media literacy focuses on helping individuals understand how media messages, particularly political fake news, can impact their attitudes, beliefs, and behaviors. The key is developing critical thinking skills to assess the credibility, accuracy, and biases present in information. This empowers individuals to resist manipulation and misinformation. Media literacy aids in recognizing and breaking free from echo chambers by encouraging diverse perspectives, critical source evaluation, and challenging personal biases. The cognitive approach acts as a moderating factor against the negative effects of political fake news and echo chambers.

Research indicates that individuals with higher media literacy are less susceptible to misinformation and better equipped to evaluate and resist biased or false political information. Developing media literacy enhances navigation of the media landscape; detection and countering of fake news, and facilitates informed political discussions. Overall, the cognitive approaches to media literacy and echo chambers provide a theoretical foundation for addressing challenges posed by political fake news, in contributing to giving information, assorted, and democratic public communication.

5. Methodology

The researcher surveyed the users of Facebook from all provincial capitals of Pakistan. The researchers draw sample based on the quota sampling. The sample size was based on actual population percentages of male and female Facebook users according to the gender ratio as Lahore and Karachi population size was 196 males and 189 females (as per Gender Population Division of Pakistan 2023) both province capital cities have the same gender ratio. Whereas, Quetta and Peshawar were considered they both have different gender population sizes; Quetta's population consisted of 200 males and 185 females and Peshawar's sample population was 215 males and 170 females. All four provinces' capital cities have the

same population size of 385 respondents. The strategy is based on the idea that each province's capital (Punjab, Sindh, Quetta, and Peshawar) represents a high standard of education and is one of Pakistan's most populous capital cities, providing access to political news in Lahore, Karachi, Peshawar, and Quetta. Quota sampling and multistage cluster sampling were used by researchers. Based on quota sampling, the number of respondents is the same in each province's capital city, and these respondents form clusters of people who utilize digital media to receive political news to assess the research study's premise. Their demographic, media literacy levels, political affiliation, and levels of echo chamber effect were also measured using adapted scales.

Table 1: Sample and Participants Demography

Capital Cities	Population division	Sample size of Male	Sample size of Female	Total
Lahore	51% Male 49% Female	196	189	385
Karachi	51% Male 49% Female	196	189	385
Quetta	53% Male 47% Female	200	185	385
Peshawar	56% Male 44% Female	215	170	385
Total	Equal Ratio of Gender	807	733	1540

The researchers used the Likert scale in the survey questionnaire consisting of 7 points (1. Strongly Disagree; 2. Disagree; 3. Somewhat Disagree; 4. Neutral; 5. Somewhat Agree; 6. Agree and 7. Strongly Agree). The survey questionnaire is in Appendix B.

6. Operationalization of the variables

The operationalization scale of echo chamber was acquired from Cinelli, De Francisci Morales, Galeazzi, Quattrociocchi, & Starnini (2021) which means that digital platforms or virtual communities like Facebook where individuals encounter information, opinions, and perspectives. Koc & Barut (2016) said that media literacy is the capability or ability to critically analyze, assess, and comprehend media messages, encompassing news articles, videos, and other information on Facebook.

The concept of the unit of analysis in research work refers to the specific entity or level of observation that is the focus of investigation. In this study, the unit of analysis is Facebook users in the capital cities of Lahore, Karachi, Quetta, and Peshawar in Pakistan. The sample size is divided based on gender ratios, and three towns are selected from each city through union councils. The gender ratios for each city are provided, and respondents are chosen accordingly. For Lahore, the gender ratio is 51% male and 49% female, resulting in 196 male and 189 female respondents. Similar procedures are followed for Karachi, Quetta, and KPK, with specific gender ratios and corresponding respondent numbers detailed for each location. The researchers used principal component analysis (PCA) and smart partial least square (Smart PLS) to analyze the influence of echo chambers on the respondents of the digital users who access political news.

7. Results and Analysis

The researcher applied exploratory factor analysis and principal component analysis to check the reliability and validity of the variables. The range of EFA is from -1 to 1 where the value of the echo chamber was 0.80, for instance, it would suggest or show a relatively strong relationship. The role of media literacy is very strong in the echo chamber which means media literacy helps Facebook users in analyzing political news, building opinions related to particular news that users access, and reinforcing users' existing beliefs through Facebook medium. The variables values of PCA are between 70% and 80%, which means that media literacy lies in the strong variance, whereas the good variance variables were echo chamber, Principle Component Analysis value is higher than 70%.

The correlation values of the echo chamber were between 0 to 1 which indicates that it has a positive relationship with media literacy and echo chamber (variables). Media literacy is influenced by the echo chamber variables like the users of Facebook get manipulated by the exposure of digital media and it also impacts their beliefs and opinions

The reliability value of the echo chamber was 0.782 which indicates a good level of reliability, suggesting that the observed variables reliably measure the latent construct. However, researchers should also consider the specific context of their study and the standards within their field. Similarly, the value of media literacy was 0.95 (not exceeding 1), which implies perfect reliability, meaning that all observed variables in a latent construct

perfectly measure the underlying construct with no measurement error. The validity values of the variables show that echo chamber and media literacy have valid variables which were measurable and the influence of political fake news on echo chamber and the role of media literacy in analyzing the factors influencing echo chamber of the Facebook users (shown in Table 2).

Table 2: Reliability and Validity of the Variables

Construct	Reliability	Items	Validity
Echo Chamber	0.782	4	1.866
Media Literacy	0.954	11	0.651

It's important that reliability is a crucial aspect of the measurement model, it should be considered alongside other validity measures, to ensure the overall quality of the measurement model in PLS-SEM. Validity in PLS-SEM is often assessed through measures such as Average Variance Extracted (AVE). The AVE should ideally be greater than 0.5 to indicate good convergent validity, meaning that more than 50% of the variance in the observed variables is due to the underlying latent construct. The AVE of echo chamber and media literacy is more than 0.50. Construct correlations provide information about discriminate validity, ensuring that different constructs are distinct from each other.

The values of the variables echo chamber and media literacy were below 0.31 and above 0.25 and the value of R^2 shows the regression model was suitable. The variables show the dependent and independent relationship among the variables. The independent variable was the content used on Facebook and the influence of that content on the variables (echo chamber and media literacy) is the dependent variable. Researchers interpret R^2 (regression model) to understand the extent to which the latent constructs capture the variability in the observed variables and often consider R^2 alongside other model fit indices to comprehensively evaluate the structural model's performance and its ability to clarify complex relationships in the variables of media literacy and echo chamber (Table 3).

Table 3: Regression model of Echo chamber and Media Literacy

Latent Factors	Cumulative R square	Adjusted R Square
Echo Chamber	0.25	0.28
Media Literacy	0.31	0.33
All Variables	0.33	0.36

8. Discussion

The study reveals the conclusions according to the findings. It indicates a strong presence of confirmation bias among Facebook users in Pakistan, leading to the formation of echo chambers. Users tend to consume and share information that aligns with their pre-existing beliefs, creating isolated communities of like-minded individuals. The study demonstrates that fake political news easily saturated echo chambers, exploiting users' confirmation bias. The algorithmic design of social media platforms, including Facebook, contributes to the reinforcement of these biases by presenting users with content that aligns with their existing views. The respondents' responses show that more exposure to the social media platform influences their echo chambers.

Media literacy emerges as a crucial factor in mitigating the impact of echo chambers and fake political news. The study suggests that users with higher levels of media literacy are better equipped to critically evaluate the information they encounter. Media literacy serves as a moderating force, helping individuals discern between credible and unreliable sources. Despite its moderating role, the study highlights challenges in promoting media literacy effectively. Many users may lack the necessary skills or resources to critically evaluate information. Moreover, efforts to enhance media literacy need to be tailored to the specific socio-cultural context of Pakistan.

The study suggests that interventions aimed at mitigating the echo chamber effect and reducing the spread of fake political news should focus on both improving media literacy and addressing the algorithmic mechanisms that contribute to echo chambers on social media platforms. It is important to address the complex issue of the Echo Chamber's effect on fake political news in Pakistan. Efforts should include initiatives to enhance media literacy,

reshape algorithmic designs on social media platforms, and promote a culture of critical thinking and information verification among users.

Hypothesis evaluation

The research study explores the relationship between media literacy, echo chambers, and accessing fake political news.

H₁: The moderating role of media literacy on fake political news is stronger for users who are not part of echo chambers on Facebook.

The hypothesis that media literacy has a stronger impact on users outside echo chambers is not rejected but partially influences Facebook users' opinions, suggesting that media literacy is relevant regardless of users' exposure to echo chambers. The study observes that respondents across cities and genders are affected by political fake news, influencing opinions and existing beliefs. The research work accepts the hypothesis that users within echo chambers are more engaged with political fake news, emphasizing the impact of selective exposure. The findings underscore the significance of media literacy in combating fake news for users within and outside echo chambers.

H₂: Facebook users who are part of echo chambers on Facebook are more likely to engage with fake political news compared to those who are not part of echo chambers.

According to the respondent's responses, the echo chamber helps to build opinions related to politics whether it's fake or authentic news even though the responses analyze that Facebook users can access the information. Sometimes, the Facebook post or news reinforces the existing beliefs of the users which means that the political news on digital media influences the beliefs of the users towards their political affiliation. Few Facebook users didn't bother about the political news that was posted on digital media until or unless they checked its authenticity.

H₃: Facebook users who spend more time on like-minded content and visit the platform more frequently are more likely to be exposed to political fake news.

It shows the correlation between the online behaviors of Facebook users and their susceptibility towards political fake news. Specifically, individuals who dedicate more time

to consuming like-minded content and exhibit higher frequency in visiting the platform are found to be at an increased risk of encountering and engaging with misleading political information. The prevalence of echo chambers, where users are exposed predominantly to content that aligns with their pre-existing beliefs and preferences, creates an environment conducive to the amplification of political fake news. This phenomenon is exacerbated by the algorithms employed by social media platforms, including Facebook, which prioritize content based on user preferences and engagement history. As users immerse themselves in content that reinforces their perspectives, they inadvertently become more susceptible to misinformation, underscoring the intricate relationship between user behavior, platform algorithms, and the proliferation of political fake news on Facebook. Understanding these dynamics is crucial for developing targeted interventions and promoting media literacy to mitigate the impact of misinformation within online echo chambers.

Table 3: Descriptive Statistics of Echo Chamber by Political Fake News

		Building opinion	Analyse opinion	Social Media Role	Reinforce Beliefs
Building Opinion	Pearson Correlation	1	.381**	.334**	.682**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	1540	1540	1540	1540
Analyse opinion	Pearson Correlation	.381**	1	.816**	.349**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	1540	1540	1540	1540
Social Media Role	Pearson Correlation	.334**	.816**	1	.337**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	1540	1540	1540	1540
Reinforce beliefs	Pearson Correlation	.682**	.349**	.337**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	1540	1540	1540	1540
**. Correlation is significant at the 0.01 level (2-tailed).					
Correlations of Echo Chamber Variables					

Media literacy also helps individuals who use Facebook to access political news as media literacy facilitates Facebook users to evaluate the authenticity of political news. A survey questionnaire was divided according to the capital cities of each province (Lahore, Karachi, Quetta, and Peshawar) it was observed that Quetta and Peshawar respondents have less media literacy skills; they usually believe the content shared on Facebook and it influences their opinion formation and reinforces their existing beliefs.

Table 4: Hypothesis Results

Hypothesis	Result	P Value	β Value
H₁ : The moderating role of media literacy on fake political news is stronger for users who are not part of echo chambers on Facebook.	Supported (p value <0.001 and β value above 0.45)	0.042	0.48
H₂ : Facebook users who are part of echo chambers on Facebook are more likely to engage with fake political news compared to those who are not part of echo chambers.	Supported (p value <0.001 and β value above 0.45)	0.000	0.49
H₃ : Facebook users who spend more time on like-minded content and visit the platform more frequently are more likely to be exposed to political fake news.	Supported (p value <0.001 and β value above 0.45)	<0.001	0.55

*Betas are calculated by subtracting the mean from the variable and dividing by its standard deviation. This results in standardized variables having a mean of zero and a standard deviation of 1.

The hypothesis posits that the moderating influence of media literacy on fake political news is more pronounced for users who are not part of echo chambers on Facebook. Echo chambers, characterized by the reinforcement of like-minded content, are proposed to increase the likelihood of engagement with fake political news. This hypothesis aligns with existing research that underscores the role of echo chambers in fostering a closed information environment, where users are more susceptible to confirmation bias and less likely to critically evaluate the information presented. The hypothesis is supported by studies that demonstrate the negative impact of echo chambers on information diversity and the propensity for individuals to be exposed to a narrow range of perspectives. Users within echo chambers may exhibit a heightened vulnerability to misinformation due to the absence of diverse viewpoints and the reinforcement of existing beliefs. On the other hand, users who

actively seek diverse content and are not confined to echo chambers are posited to have a more open and discerning approach to information.

Moreover, the hypothesis aligns with the observed pattern that users spending more time on like-minded content and frequently visiting Facebook are more likely to be exposed to political fake news. This pattern is consistent with the dynamics of algorithmic content recommendation and the reinforcement of user preferences, creating an environment where misinformation can proliferate.

In summary, the hypothesis gains support from the existing literature on echo chambers, information diversity, and the relationship between user behavior and exposure to political fake news on Facebook. The moderating role of media literacy is expected to be more impactful for users who actively seek diverse information and are not confined to echo chambers, thereby highlighting the nuanced dynamics of online information consumption and the potential for media literacy interventions to mitigate the impact of misinformation. The study shows that the social media users who spend more time reading political fake news are more influenced by that news and the respondents who have media literacy skills, used their searching skills and came to know about authentic or fake news related to politics.

While acknowledging the positive correlation between selective exposure to political news in echo chambers and exposure to political fake news, the study suggests the need for empirical research to validate these hypotheses. Overall, the research contributes to understanding the complex dynamics of media literacy, echo chambers, and political fake news on social media platforms like Facebook.

9. Conclusion

The study explored the dynamics of the role of media literacy in influencing echo chamber effects on the access and engagement with political fake news among Facebook users. The findings contribute valuable insights to our understanding of how users within and outside echo chambers navigate the information landscape on social media. Contrary to the initially hypothesized stronger impact of media literacy on users outside echo chambers, the research indicates that media literacy is universally significant. Regardless of users' exposure to echo chambers, media literacy plays a vital role in equipping individuals with critical thinking skills to discern and evaluate political news.

Furthermore, the study sheds light on the prevalence and influence of echo chambers, where individuals are immersed in information that aligns with their pre-existing beliefs. Users within these echo chambers demonstrate a higher likelihood of engaging with political fake news, reinforcing the importance of media literacy as a tool for discernment and fact-checking.

The acceptance of the hypothesis linking selective exposure to political news within echo chambers to exposure to political fake news highlights the relationship between users' information-seeking behavior and their susceptibility to misinformation. The study underscores the need for customized interventions, emphasizing media literacy education to empower users in critically evaluating information, regardless of their participation in echo chambers.

As social media platforms continually evolve and implement measures to restrain misinformation, understanding the interplay between media literacy, echo chambers, and political fake news becomes dominant. The insights gained from this research provide a foundation for future empirical studies and interventions aimed at promoting responsible information consumption and fostering a more informed and discerning social media landscape. Ultimately, enhancing media literacy stands as a crucial strategy in navigating the complex monarchy of political information on platforms like Facebook, ensuring that users can make informed decisions and contribute to a more informed and flexible democratic discussion (measurement scale is in Appendix B).

Reference

- Abbasi, N. A. H. (2020). *Digital media literacy: Social media use for news consumption among teenagers in Pakistan*. 18(35), 1–7.
<https://www.proquest.com/docview/2435557995?parentSessionId=4%2Fwhg38lKExOCsqb5hJs9U4889jIaHArZSFBecwsHqc%3D>
- Al Naqbi, N., Al Momani, N., & Davies, A. (2022). The influence of social media on perceived levels of national security and crisis: a case study of youth in the United

Ali, A., & Qazi, I. A. (2022). Digital literacy and vulnerability to misinformation: Evidence from Facebook users in Pakistan. *Journal of Quantitative Description: Digital Media*, 2. <https://doi.org/10.51685/jqd.2022.025>

Ali, A., & Qazi, I. A. (2023). Countering misinformation on social media through educational interventions: Evidence from a randomized experiment in Pakistan. *Journal of Development Economics*, 163(103108), 103108. <https://doi.org/10.1016/j.jdeveco.2023.103108>

Bruns, A. (2017). Echo chamber? What echo chamber? Reviewing the evidence. In 6th Biennial Future of Journalism Conference (FOJ17). <https://eprints.qut.edu.au/113937>

Cinelli, M., De Francisci Morales, G., Galeazzi, A., Quattrociocchi, W., & Starnini, M. (2021). The echo chamber effect on social media. *Proceedings of the National Academy of Sciences*, 118(9), e2023301118. <https://www.pnas.org/doi/abs/10.1073/pnas.2023301118>

Clayton, K., Blair, S., Busam, J. A., Forstner, S., Glance, J., Green, G., ... & Nyhan, B. (2020). Real solutions for fake news? Measuring the effectiveness of general warnings and fact-check tags in reducing belief in false stories on social media. *Political Behavior*, 42(4), 1073-1095. <https://link.springer.com/article/10.1007/s11109-019-09533-0>

Dennis, A. R., Galletta, D. F., & Webster, J. (2021). Fake news on the internet. *Journal of Management Information Systems*, 38(4), 893-897. <https://www.tandfonline.com/doi/abs/10.1080/07421222.2021.1990609>

- Frey, D. (1986). Recent research on selective exposure to information. *Advances in experimental social psychology*, 19, 41-80. <https://www.sciencedirect.com/science/article/pii/S0065260108602129>
- Gerrits, A. W. (2018). Disinformation in International Relations: How Important Is It?. *Security and Human Rights*, 29(1-4), 3-23. https://brill.com/view/journals/shrs/29/1-4/article-p3_3.xml
- González-Cabrera, C., Ugalde, C., Figueroa, C., & Pesántez, J. (2019). The impact of media literacy on the intention to share fake information in social networks. *EDULEARN Proceedings*. https://library.iated.org/view/GONZALEZCABRERA_2019IMP
- Guess, A., Nagler, J., & Tucker, J. (2019). Less than you think: Prevalence and predictors of fake news dissemination on Facebook. *Science advances*, 5(1), eaau4586. <https://www.science.org/doi/abs/10.1126/sciadv.aau4586>
- Hair, J. F. (2011). Multivariate data analysis: An overview. *International encyclopedia of statistical science*, 904-907. https://link.springer.com/chapter/10.1007/978-3-642-04898-2_395
- Hilary, I. O., & Dumebi, O. O. (2021). Social Media as a Tool for Misinformation and Disinformation Management. *Linguistics and Culture Review*, 5(S1), 496-505. <http://www.lingcure.org/index.php/journal/article/view/1435>
- Humprecht, E. (2019). Where ‘fake news’ flourishes: a comparison across four Western democracies. *Information, Communication & Society*, 22(13), 1973-1988. <https://www.tandfonline.com/doi/abs/10.1080/1369118X.2018.1474241>

Jeon, Y., Kim, B., Xiong, A., Lee, D., & Han, K. (2021). ChamberBreaker: Mitigating the

Echo Chamber Effect and Supporting Information Hygiene through a Gamified Inoculation System. *Proceedings of the ACM on Human-Computer Interaction*, 5(CSCW2), 1-26. <https://dl.acm.org/doi/abs/10.1145/3479859>

Jiang, B., Karami, M., Cheng, L., Black, T., & Liu, H. (2021). Mechanisms and attributes of echo chambers in social media. *arXiv preprint arXiv:2106.05401*.

Jones-Jang, S. M., Mortensen, T., & Liu, J. (2021). Does media literacy help identification of fake news? Information literacy helps, but other literacies don't. *American Behavioral Scientist*, 65(2), 371-388. <https://journals.sagepub.com/doi/abs/10.1177/0002764219869406>

Kitchens, B., Johnson, S. L., & Gray, P. (2020). Understanding echo chambers and filter bubbles: The impact of social media on diversification and partisan shifts in news consumption. *MIS Quarterly: Management Information Systems*, 44(4), 1619–1649. <https://doi.org/10.25300/misq/2020/16371>

Lima, L., Reis, J. C., Melo, P., Murai, F., Araujo, L., Vikatos, P., & Benevenuto, F. (2018, August). Inside the right-leaning echo chambers: Characterizing gab, an unmoderated social system. In 2018 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) (pp. 515-522). IEEE. <https://ieeexplore.ieee.org/abstract/document/8508809/>

Nagy, K. (2016). Regulatory issues concerning the promotion of media literacy. *AoIR Selected Papers of Internet Research*. <https://journals.uic.edu/ojs/index.php/spir/article/view/8815>

Fake news reaching young people on social networks: Distrust challenging media literacy. *Publications*, 9(2), 24. <https://www.mdpi.com/2304-6775/9/2/24>

Potter, W. J. (2004). *Theory of media literacy: A cognitive approach*. Sage Publications.

Quattrociocchi, W., Scala, A., & Sunstein, C. R. (2016). Echo chambers on Facebook. Available at SSRN 2795110. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2795110

Rehman, H. U., & Hussain, S. (2020). Dureshehwar.(2020). Social Media, Democracy and Fake News in Pakistan: An, 84-93. [https://doi.org/10.31703/gpr.2020\(v-i\).10](https://doi.org/10.31703/gpr.2020(v-i).10)

Rhodes, S. C. (2022). Filter bubbles, echo chambers, and fake news: how social media conditions individuals to be less critical of political misinformation. *Political Communication*, 39(1), 1-22. <https://doi.org/10.1080/10584609.2021.1910887>

Sunstein, C. R. (1999). The law of group polarization. University of Chicago Law School, John M. Olin Law & Economics Working Paper, (91). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=199668

Taylor, P. M. (2013). *Munitions of the mind: A history of propaganda from the ancient world to the present era*. Manchester University Press. <https://www.manchesterhive.com/display/9781847790927/9781847790927.xml>

Torres, R., Gerhart, N., & Negahban, A. (2018). Epistemology in the era of fake news: An exploration of information verification behaviors among social networking site users. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, 49(3), 78-97. <https://dl.acm.org/doi/abs/10.1145/3242734.3242740>

Umair, S. (2016). Mobile reporting and journalism for media trends, news transmission and

its authenticity. *Journal of Mass Communication & Journalism*, 6(9), 2-6.

<https://www.researchgate.net/profile/Sadia-Jamil-4/publication/337239625>

[_Journalism_in_the_era_of_mobile_technology_The_changing_pattern_of_news_pro](#)

[duction_and_the_thriving_culture_of_fake_news_in_Pakistan_and_Ghana/links/606b](#)

[1cdfa6fdccad3f752696/Journalism-in-the-era-of-mobile-technology-The-changing-](#)

[pattern-of-news-production-and-the-thriving-culture-of-fake-news-in-Pakistan-and-](#)

[Ghana.pdf](#)

Valenzuela, S., Halpern, D., Katz, J. E., & Miranda, J. P. (2019). The paradox of participation

versus misinformation: Social media, political engagement, and the spread of

misinformation. *Digital Journalism*, 7(6), 802-823. [https://www.tandfonline.com/doi/](https://www.tandfonline.com/doi/abs/10.1080/21670811.2019.1623701)

[abs/10.1080/21670811.2019.1623701](https://www.tandfonline.com/doi/abs/10.1080/21670811.2019.1623701)

Zhang, J., Moon, K., & Veeraraghavan, S. K. (2022). Does Fake News Create Echo

Chambers?. Available at SSRN 4144897. [https://papers.ssrn.com/sol3/papers.](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4144897)

[cfm?abstract_id=4144897](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4144897)

APPENDIX A: ECHO CHAMBER EFFECT OF FAKE POLITICAL NEWS IN SPREADING MISINFORMATION: A STUDY OF FACEBOOK USERS IN PAKISTAN WITH MODERATING ROLE OF MEDIA LITERACY

The current research endeavors to investigate Echo Chamber Effect of Fake Political News in Spreading Misinformation: A Study of Facebook Users in Pakistan with Moderating Role of Media Literacy.

Consent Form

Please read through the following statements and acknowledge your consent. I voluntarily agree to participate and share my information in PhD level research investigating “Echo Chamber Effect of Fake Political News in Spreading Misinformation: A Study of Facebook Users in Pakistan with Moderating Role of Media Literacy.” Yes: _____ No: _____ I understand that I can withdraw from my participation in the work at any time without giving any reason. Yes: _____ No: _____ The researcher has assured me that the data will be kept confidential and anonymous. Yes: _____ No: _____

Demographic Information Sheet

Gender: Male: _____ Female: _____

Age: _____

Province /City: _____

Measurement Scale

Variables	Conceptualization	Operalization	Scale
Echo Chamber	Encounters information or opinions that reflect and reinforce opinion	Social media environment or online community where individuals are exposed to information, opinions, and perspectives	Cinelli, De Francisci Morales, Galeazzi, Quattrociocchi, & Starnini (2021)
Media Literacy	Ability to get, evaluate, examine and generate media in different forms	Ability to critically analyze, evaluates, and understands media messages, including news articles, videos, and other information through Facebook.	Koc & Barut (2016)

Appendix B

Survey Questionnaire

<p>I accessed those news which were related to my concerns political party <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I check the facts and information of political news before building any opinion <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I analyze the data gathered from social media e.g Facebook to build opinion <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I think the role of social media is to encounter information related to political activities <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>Political content used on Facebook helps to reinforce the existing beliefs of political news <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I can use searching tools to get information needed in the media. <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>It is easy for me to make use of various media environments to reach information. <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I realize explicit and implicit media messages. <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I notice media content containing mobbing and violence. <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I understand the economic and social dimensions of media political, contents <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree.</i></p>
<p>I perceive different opinions and thoughts in the media <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I can distinguish different functions of media <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I am able to determine whether or not media contents have commercial messages for the target audience <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>
<p>I can combine media messages with my own opinions. <i>1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree</i></p>

It is easy for me to make decision about the accuracy of media messages.

1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree

I am able to analyze the positive and negative effects of media content on individuals.

1. Disagree 2. Strongly Disagree. 3. Some What Disagree. 4. Neutral 5. Somewhat Agree 6. Agree 7. Strongly Agree