Egyptian Female and Facebook Eco-chamber: A Study on Identity Bubble Reinforcement

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Abstract:

The rise of social media has endorsed the users' tendency to consume content that confirms their beliefs and values and ignores the ones that contradict them. By doing so, social media platforms contribute to framing and reinforcing a unified narrative of different events, which may negatively influence audiences.

This phenomenon is called echo chambers, a closed space in which users' opinions or beliefs about an issue are supported due to repeated interactions with peers. The private Facebook groups act as online spaces for forming virtual communities where members share ideas and open discussions about different topics.

This study seeks to understand the echo chamber phenomena among Egyptian females on Facebook, depending on the Identity Bubble Reinforcement Model (IBRM), to examine the relationship between the echo chamber and demographic variables (age and education), social media use and trust.

Keywords:

Echo-chambers, Online Communities, Identity Bubble Reinforcement, Social Media, Women.

المرأه المصرية وغرف الصدي علي الفيسبوك: دراسة علي نموذج تدعيم الهوية

الملخص:

تلعب وسائل التواصل الإجتماعي في الوقت الراهن دوراً كبيراً في تحفيز المستخدمين نحو الإستهلاك المتزايد للمضامين الإليكترونية والتي يتم إنتقائها بحيث تتوافق مع ما يتبنونه من أفكار تدعم معتقداتهم وقيمهم ، في حين تتجاهل ما يعارضها، أي يميل الشخص في مناقشاته على منصات التواصل الاجتماعي إلى سماع الأراء والأفكار التي تبدوا وكأنها رجع صدى يردد أفكاره ومعتقداته ، مما قد يؤدي بدوره إلى إنتاج خطاب ذو إطار موحد لمختلف الأحداث التى تؤثر بشكل سلبي علي الجمهور، وهذه الظاهرة يطلق عليها **غرف الصدي " echo chamber "**، وتشير إلى تفاعل شبكه المستخدمين لمواقع التواصل الاجتماعي فقط مع الأراء التى تدعم معتقداتهم، وتتجاهل ما دون ذلك.

استندت هذه الدراسة علي الركائز الرئيسية لنموذج "تدعيم الهوية - Identity Bubble Reinforcement / IBR Model" لشرح أبعاد ظاهرة غرف الصدي علي الفيسبوك، ويركز هذا النموذج علي مراحل تكوين هوية اجتماعية للمستخدمين علي مواقع التواصل الأجتماعي والتى تتكون من ثلاثه ابعاد وهي:

اولا: التعريف الاجتماعي اي الكيفية التى يعبر بها المستخدم عن نفسه علي الفيسبوك.

ثانيا: الميل المستخدمات لمتابعة من يتشابهون معهم في الرأي والقيم والمعتقدات (حب مِثل): أي ميل المستخدمين إلي الإعجاب بالأشخاص المشابهين لهم في القيم والمعتقدات والأراء.

ثالثا: التحيز المعلوماتي: ويشير إلى التعرض الانتقائي للمستخدمين على شبكات التواصل الاجتماعي لمن هم مشابهين لهم في المعلومات.

و سعت هذه الدراسة إلى للتعرف على تأثير المضامين التي يتعرض لها المستخدمات المصريات علي الفسيبوك"Facebook " على تكوين هوية اجتماعية لهم طبقاً لإفتراضات نموذج تدعيم الهوية ، وذلك من خلال اختبار الفروض التالية:

(١) توجد علاقة بين الأبعاد الديموغرافيه للمرأة المصرية وبين نموذج تدعيم الهويه.

(٢) كلما زاد استخدام المرأة المصرية للمضامين المنشورة على الفيسبوك ، زاد انغماس المراه المصريه في غرف الصدي.

(٣) كلما زادت ثقة المرأه المصرية في المضامين المنشورة على الفيسبوك ، زاد انغماس المراه المصرية في غرف الصدي.

كما قامت الدراسة استناداً إلي فرضيات "نموذج تدعيم الهوية بالتعرف علي العلاقه بين المتغيرات الديموغرافيه كـ" السن، والمستوي التعليمي" ، إضافة إلي رصد العلاقة بين معدل استخدام النساء المصريات لمضامين وسائل التواصل الإجتماعي " و تحديداً الفسيبوك"Facebook " و مدى الثقة بتلك المضامين وبين الأبعاد الخاصه بنموذج تدعيم الهوية.

طبقت الدراسة استقصاء على عينة عشوائية من ٢٠٠ مفرده من النساء المصريات المستخدمين لشبكة الفيسبوك تتراوح أعمارهم ما بين ١٨ إلى ٤٥ عام، في مختلف المراحل التعليمية ، وأوضحت أهم النتائج : أن ٨٣% من العينه تتابع يومياً الفيسبوك، كما اشارت إلى أن تقريبا نصف العينه (٤٨%) تقضي ما بين ساعه إلي أقل من ٣ ساعات علي الفيسبوك، كذلك وجدت النتائج أن (٤٧%) من العينه تثق بمحتوى الفيسبوك وتعتبره مصدر موثوق للمعلومات.

كما اوضحت النتائج أن النساء من **الفئه العمرية** المتوسطه (٢٥ عام إلي اقل من ٤٥ عام) هم الأكثر تحيزاً في مصادر المعلومات التى يعتمدون عليها، بينما تميل **الفئات التعليمية** الأعلي من حملة الماجستير والدكتوراه إلي التحيز في مصادر المعلومات مقارنه بالمستوي التعليمي الأقل وتحديداً خريجي الجامعات حيث يميلوا أكثر إلي حب من يماثلهم في القيم والأراء.

كذلك أبرزت النتائج أن أكثر أبعاد الهوية بروزاً في غرف الصدي بين مستخدمات الفيسبوك المصريات طبقاً لنموذج تدعيم الهويه هو **"حب المثل"**: أي أن النساء المصريات تميل بشكل أكبر إلي التفاعل مع من يشبهونهم، ثم **"التحيز في مصادر المعلومات"**: أي أن عينة الدراسة تقتصر في مصادر المعلومات التي يتعرضون لها على منصة فيسبوك علي من يدعموهم في الرأي ، كما جاء **" التعريف الإجتماعي"** في المرتبة الأخيرة ومن بين أبعاد نموذج تدعيم الهوية .

Introduction:

The eco chamber is a phenomenon that sums up how scientists and academics fear that social media may control public access to information. Users' online behaviour, in addition to their information consumption patterns, combined with social media algorithms, will tend to interact only with like-minded people, which will limit their exposure to more open and diverse sources of information.

Alatawi, Cheng, Tahir, Karami, Jiang, Black, and Liu (2021) argue that the main trait of social networking is that it allows users to find others who look like them. In this environment, users are only exposed to the opinions supporting their previous beliefs, keeping them isolated from others with contradicting or different viewpoints. When users face limitations on topics, issues and different points of view, this is how the echo chambers are formed. (P., 2020)

The eco chamber is not a new phenomenon, as it has roots in behavioural biases (Cossard et al., 2020) and can be explained in terms of selective exposure (Cinelli et al., 2021), which explain people's tendency to to select the information that is consistent with their attitudes and values and neglect inconsistent ones (Fischer et al., 2005).

With the rise of social media, there has been much concern about the role of these platforms in creating polarisation through users' careful selection of information and points of view consistent with their own.

This study examines the echo chamber among Egyptian female users on Facebook according to the Identity Bubble Reinforcement Model (IBRM). This model analyses the different dimensions of the echo chamber: social identification, homophily and information bias. Additionally, it seeks to understand how the demographic variables (age and Education level) are related to the IBRM dimensions and the relationship between social media usage and trust and IBRM dimensions, which examine the echo chamber phenomena.

Literature Review:

Online Echo chambers on social media:

Parsons (2022) analysed the content of three news media Facebook pages, Fox News, MSNBC, and ABC News, focusing on cases of abortion and immigration. The study concluded that echo chambers exist on social media caused by political homophily, where the same ideas and thoughts are repeated, leaving no room for differing opinions.

Another study analysed the existence of echo chambers on social media from a social computing perspective, and the main results show that the main reason for the formation of echo chambers is the content recommending system, which takes advantage of users' biases to personalise content, which traps them in echo chambers.(Alatawi, et al., 2021)

Jiang et al. (2021) indicated that the primary mechanism of Echo chambers on social media is Recommender algorithms. Social media depend on Users' past behavior to tailor future preferences and biases related to selective exposure.

Social media users focus on seeking news and interpreting them according to their beliefs, cognitive dissonance is a psychological phenomenon referring to the internal contradiction between two opinions. Through social media, stress is eliminated, people strive towards consistency, and finally, homophily; where social media supports and allows users to bond according to gender, race, ethnicity…etc.

Quattrociocchi et al. (2016) analysed two distinctive narratives on Facebook regarding conspiracy theories and science and compared them between American and Italian users. Results show that Facebook users are highly polarised due to closed communities that promote their favourite narrative.

(Bouvier, 2020) used the Critical Discourse Analysis to look at the Twitter feed of # MeToo# to explore the "eco chambers" in agreement with the previous results. His study shows that it gave voice to the silenced and brought, to an extent, a broader social change. At the same time, the results found that the narrative was diverse, discursively chaotic, and somewhat motivated by influencers who may have a selection of other motives to associate with the moral capital in the feed.

(Wan-Hsiu Sunny Tsaia et al., 2020) sought to understand the different interactive mechanisms on Twitter and their effect on communication within and between groups with varying views regarding boycotts. Results revealed that echo chambers exist in the retweet and mention networks; "Retweets" act as re-broadcasting the content they agree with, and "mentions" are to call out for like-minded peers.

Cota et al. (2019) aimed to study the effect of echo chambers on information spreading, using a quantitative analysis of a sample of over 12 million tweets covering the focal incidents related to the impeachment process of former Brazilian President Dilma Rousseff. The study proved that users are more likely to share information they agree with and that pro-impeachment users were far more able to broadcast their messages than any other users.

The limitation of information produced via social media as a direct impact of echo chambers and filter bubbles represents a scholarly concern. Kitchens et

al. (2020) analysed over four years of web browsing history for nearly 200,000 U.S. adults. The study revealed that Facebook users are more associated with increased information source diversity, which is invalid for Twitter users.

Van Eck et al. (2021) examined the eco-chamber effect in blogs, focusing on climate change. He explored whether blog audiences only consume climate change blogs that align with their climate change risk perceptions. Results revealed that Echo chamber effects potentially occur as audience members consume content that matches their pre-existing climate change risk perceptions.

Chan et al. (2023) analysed the factors that draw users more into echo chamber impact, using a survey of a sample of 1969 respondents in 2020 in Hong Kong. The study found that high education, high social media use, low media trust, and being male were found to predict reference to different views, while age was not significant.

Demographics & Echo Chamber:

Demographic variables determine with whom social media users interact, especially regarding age and gender. One's point of view is affected by one's demographic group, impacting how one interacts online. (Monti et al., 2023)

Age, gender, social media use, and trust impact the phenomena of echo chambers (Chan et al., 2023), which were surveyed to determine the factors for falling into echo chambers. The study found that high levels of education, frequent use of social media, low media trust, and being male are the determinant variables to escape from the echo chamber on Facebook.

Lin and Wang (2020) showed no variation between males and females regarding their social presence online and their connection with others. Still, females are more into creating interpersonal connections and acting in socially oriented environments than men.

In agreement with the previous results, (Sindermann et al., 2020) found that older males are more prone to escape from the echo chamber effect of social media. Furthermore (Auxier & Vitak, 2019) sought to explore echo chambers on social media and news platforms. The results show that younger and less educated respondents engage more in building their echo chamber on social media platforms.

Identity Bubble Reinforcement:

The Identity Bubble Reinforcement Model (IBR) analyses how the online environment impacts individual users' behaviour. This model investigates the tendency of individuals to be involved in like-minded social bubbles (Kaakinen et al., 2018). Furthermore, it examines factors and mechanisms

related to online content exposure and users' social identity (Keipi et al., 2016), which are social identification, homophily, and information bias (Oksanen et al., 2020)

Several studies depended on IBRM to measure users' identity and involvement in social media and how it impacts their behaviour in different fields. (Savolainen et al., 2020) aims to analyse youth gambling behaviour online according to their online belonging and social media identity bubble through conducting an online survey in four countries: South Korea, Finland, Spain and the United States. Results indicated that vital belonging and interaction on social media are highly associated with gambling problems because youth seek more similar-minded, homophobic and rely on in-group information, negatively affecting their behaviour.

Following the previous results, this study examines the connection between online political activity and online identity bubbles. Results show that high social media usage has impacted online political participation and limited it to echo chambers, leading to more political polarisation. In agreement with (Bakshy et al., 2015), (Koivula et al., 2019) conducted a study on 10 million American Facebook users to understand how they interact with shared news. Results show that Facebook users depend on what their friends share, making these friends' networks the most crucial variable limiting exposure to different types of online content.

Similarly, (Himelboim et al., 2013) conducted a content analysis on users' exposure to various ideological political issues on Twitter. Results indicated that online users are more likely to be exposed to the same content because they follow the people sharing the same point of view.

Research Problem:

This study seeks to understand the echo chamber phenomena on Facebook among Egyptian female users according to the IBR (identity bubble reinforcement) model. Furthermore, it explains the relationship between demographic variables (age and education level), social media trust, usage and IBR Model dimensions.

Research Question & Hypothesis:

RQ (1): What are the dimensions of the echo chamber phenomena (according to IBRM) on Facebook among Egyptian Females?

Hypothesis 1 (H1): Egyptian female demographics are associated with IBRM

Hypothesis 1 (H1a): Younger Egyptian female age is negatively associated with IBRM.

Hypothesis 1 (H1b): Higher Education Level is negatively associated with IBRM.

Hypothesis 2 (H2): According to the IBR Model, the more Egyptian Women use Facebook, the more they will be part of the echo chamber.

Hypothesis 3 (H3): According to the IBR Model, the more Egyptian females trust Facebook, the more they will be part of the Eco chamber.

Methodology:

Data Collection:

This study depends on a Web-based survey to reach the most significant number of respondents and the use of multiple questions format (Reynolds et al., 2006), using Google form to create the survey, and depending on social media platforms (Facebook, LinkedIn) and What's app to distribute the survey.

Sample:

This study focuses on analysing the echo chamber on Facebook because the Facebook environment is suitable for the emergence of polarised communities or the echo chamber (Del Vicario et al., 2016)**.** In addition, several previous studies showed that demographic variables are vital in the occurrence of the echo chamber.

This study seeks to analyse the behaviour of Egyptian Females on Facebook groups in terms of IBRM (Identity Bubble Reinforcement Model) to understand how they identify themselves online, to what extent they are drawn to other users who look like them, and how that affects their exposure to information.

This study was conducted on a random sample of (200) Egyptian female Facebook users, aged between 18 and 45, with different educational levels and members of various Facebook groups.

Measurement and Variables:

This study seeks to understand the Echo chamber phenomena on Facebook and the relationship between Echo chambers and Egyptian female demographics (regarding age and education level), Facebook usage and trust.

 Facebook usage is measured through two questions identifying the frequency of using Facebook weekly and the total number of hours the respondent spends daily on Facebook. The scale is divided into three levels: low, medium, and high.

This study relies on the IBRM Identity Bubble Reinforcement Model to examine the echo chamber phenomena on Facebook. The IBR is a model that focuses on constructing the users' online social identity and the phenomena' social aspects according to 16 items (Kaakinen et al., 2018) created to measure the three dimensions of identity. All items had a scale starting from 1 (Does not define me at all) to 5 (Expresses me completely)

These three dimensions are (a) social identification, the way users express themselves;

(b) homophily, how users like others who are like them regarding values, beliefs and opinions; and (c) information bias, where users limit their exposure to like-minded information.(Keipi, et al., 2016)

(A) Social identification: This dimension is based upon the social identity theory; according to Tajfel and Turner, individuals distinguish themselves from others based on group memberships. (Harwood, 2020), online social identity is related to how individuals construct their identity on online social platforms. Online social identity is connected to individuals belonging to online groups or communities. (Subrahmanyam & Smahel, 2012)

Social Identification was measured according to the following statements:

I can be myself on social media,

I belong to a community that is considered an essential part of my identity,

I belong to a community or communities that I am proud of,

I belong to different communities that do not have much to do with each other.

The social identification was measured through a five-point Likert scale. It is well-known that the five-point Likert scale means totally agree- agree- neutral- disagree- totally disagree.

This scale is out of 17 degrees, ranging from (4:20), and it is divided into three levels:

1. Low level (4-10 degrees)
2. Medium level (11-13 degrees)
3. High level (14-20 degrees).

(B) Homophily is the inclination of similar individuals to become friends and form social relationships based on shared factors such as social or economic status or similar beliefs or values. (Zafarani, et al., 2014)

Homophily was measured according to the following six statements:

I focus on the things that are most important to me,

I prefer interacting with people who are like me,

I like interacting with people who think like me,

I choose to interact with people who agree with my views,

I favour interacting with people who share similar interests with me,

I primarily interact with people I have a lot in common with.

The Homphily scale is constructed from one question that includes six statements, each rated (5:Totally Agree, 4:Agree, 3: Neutral, 2: Disagree, 1:Totally Disagree). This scale is out of 25 degrees, ranging from (6:30), and it is divided into three levels:

1. Low level (6-15 degrees)
2. Medium level (16-20 degrees)
3. High level (21-30 degrees).

(C) Information Bias: is the selective exposure to information and the perception of the reliability of this information on social media (Kaakinen et al., 2018)

This dimension was analysed through the following three statements:

I withhold from saying things the other members of my community disapprove of,

many issues are presented differently from the way I see them,

I stay up-to-date, I trust the information that is shared with me,

I feel that social media can provide content suitable for me; I feel that people think like me.

The Information Bias scale is constructed from one question that includes three statements, each rated (5: Totally Agree, 4: Agree, 3: Neutral, 2: Disagree, 1:Totally Disagree). This scale is out of 25 degrees, ranging from (6:30), and it is divided into three levels:
1. Low level (6-15 degrees)
2. Medium level (16-20 degrees)
3. High level (21-30 degrees).

Statistical Analysis:
After collecting the field study data was coded and analysed via SPSS "Statistical Package for Social Science", using descriptive statistics to study the variables. This study depends on One Way Anova to compare variance across the means of different groups, besides using Pearson correlations to test the significance of the relationship between the variables.

Results:
This study focuses on understanding the echo chamber phenomenon on Facebook among Egyptian female users; it examines echo chambers according to the IBRM (Identity Bubble Reinforcement Model), which analyses it according to social identification, homophily, and information bias. It depends on an online survey of a sample of Egyptian females (N=200), as the study seeks to identify how the socio-demographic variables (age and education level) are associated with the IBR.

Table (1). *Socio-demographic characteristics of Egyptian female Facebook users study sample.*

Socio-demographic Characteristics		Frequency	Percentage
Age	18 years to 25 years old	75	37.5
	More than 25 to 35 years old	56	28.0
	More than 35 to 45 years old	32	16.0
	More than 45 years old	37	18.5
Educational Level	Secondary School	22	11.0
	University Graduate	107	53.5
	Masters/Ph.D.	71	35.5
Marital Status	Single	107	53.5
	Married	77	38.5
	Widow	8	4.0
	Divorced	8	4.0
Socio-Economic Status	Low Status	16	8.0
	Medium Status	106	53.0
	High Status	78	39.0

Table (1) shows the socio-demographic variables as the study focuses on examining different age groups between 18 and 45, education levels from secondary school to Masters, and PhD degree, as the previous studies indicated that age and education level are among the main variables influencing the echo-chamber effect. In addition to the previous variables, this study aimed to understand how marital status and socio-economic level influence the echo chamber among Egyptian female users.

Results show that almost (83.5%) of the Egyptian female (Study sample) use Facebook daily. Still, at the same time, nearly half of the Egyptian Female Facebook users (48.5%) use Facebook from one hour to less than three hours per day.

These results show that according to the Facebook usage scale created in the following table (Table 2), Egyptian Female users can be categorised as medium users (54%). These results can explain why almost half of the sample (47%) moderately trust Facebook as a reliable source of information. In the second place, (26.5%) of Egyptian female users do not trust Facebook, (18.5%) of the sample do not entirely trust Facebook, while (8%) of the sample trust Facebook as a reliable source of information.

Table (2) *Facebook Usage Scale among Egyptian Female Users.*

Facebook Usage Scale	Frequency	Percentage
Low Level	28	14%
Medium Level	108	54%
High Level	64	32%
Total	200	100

RQ (1): What are the dimensions of the echo chamber phenomena (according to IBRM) on Facebook among Egyptian Females?

The Identity Bubble Reinforcement Model evaluates the echo chamber phenomena using three dimensions: social identification, homophily and information bias.

As shown in Table (3), the most significant item is that Egyptian female users acknowledge that they can be themselves on Facebook (M=3.805). In the second place, Egyptian female users focus only on the most important things to them (M=3.780). Following this, Egyptian female users prefer to interact with other users like them (M=3.705), and then they choose to interact with users who share their interests (M=3.650).

Results indicated that Egyptian female users admit that many issues on Facebook are presented differently from their point of view (M=3.560). However, at the same time, they primarily interact with people who are similar to them (M-3.495); likewise, they interact with other users who agree with their views (M=3.485)

However, according to Table (3), the minor items mainly relate to how Egyptian females socially identify themselves on Facebook. The sample stated that belonging to online communities is not essential to their identity (M=2.805) or being proud to be part of the online communities (M=2.750). In addition to that, trusting information shared with them on Facebook (M=2.375) and finally that all users on Facebook think like them (M=1.960)

Table (3). *Identity Bubble Reinforcement Model Dimensions.*

IBRM Dimension	IBRM Item Formulation	Mean
Social Identification	On Facebook, I can be myself.	3.805
	On Facebook, I belong to a community or communities that are an essential part of my identity.	2.805
	On Facebook, I belong to a community or communities that I am proud of	2.750
	On Facebook, I belong to different communities that do not have much to do with each other.	3.610
Homophily	On Facebook, I focus on things that are most important to me.	3.780
	On Facebook, I prefer interacting with people who are like me,	3.635
	On Facebook, I like interacting with people who think like me.	3.705
	On Facebook, I interact with people who agree with my views.	3.485
	On Facebook, I favour interacting with people who share similar interests with me,	3.650
	On Facebook, I primarily interact with people I have much in common with.	3.495
Information Bias	On Facebook, I withhold from saying things the other members of my community disapprove of	3.270
	On Facebook, many issues are presented differently from the way I see them,	3.560
	On Facebook, I stay up-to-date,	3.495
	On Facebook, I trust the information that is shared with me,	2.375
	On Facebook, I feel that social media can provide content that is suitable for me,	3.045
	On Facebook, I feel that people think like me.	1.960

Table (4) shows the Identity Bubble Reinforcement Scale, and the results show that homophily comes at the highest level as the most influential dimension compared to the other dimensions, followed by Information bias in the medium level, then social identification in the low level.

Table (4). *Identity Bubble Reinforcement Scale.*

	Low Level		Medium Level		High Level	
	Frequency	%	Frequency	%	Frequency	%
Social Identification	111	55.5%	76	38%	13	6.5%
Homophily	24	12%	54	27%	122	61%
Information Bias	92	46%	103	51.5%	5	2.5%

Hypothesis 1 (H1a): Younger Egyptian female age is associated with IBRM. Table (5) shows statistically significant differences between Egyptian Female Facebook Users' age and the IBR model regarding information bias (F= 4.594).
The results indicated that Egyptian female Facebook users aged between 35 and 45 (M: 1.7813) and between 25 and 35 (M: 1.6786) are more information-biased than the other age groups. As for the different dimensions of the IBR model, there is no statistical difference between these dimensions and age.

Table (5). *Egyptian Female Facebook Users' Age and the IBRM Dimension.*

IBR Dimensions	Age	N	Mean	Standard Deviation	Degree of Freedom	F	Significant
Social Identification	18-less than 25	75	1.5200	0.57797	3 196	0.184	0.907
	25 less than 35	56	1.4643	0.60194			
	35 less than 45	32	1.5625	0.61892			
	45 and more	37	1.5135	0.73112			
	Total	200	1.5100	0.61791			
Homophily	18-less than 25	75	2.4267	0.71986	3 196	0.382	0.766
	25 less than 35	56	2.5000	0.71351			
	35 less than 45	32	2.5625	0.71561			
	45 and more	37	2.5405	0.64956			
	Total	200	2.4900	0.70168			
Information Bias	18-less than 25	75	1.4667	0.52847	3 196	4.594	0.004
	25 less than 35	56	1.6786	0.57547			
	35 less than 45	32	1.7813	0.49084			
	45 and more	37	1.4054	0.49774			
	Total	200	1.5650	0.54522			

Hypothesis 1 (H1b): Higher Education Level is **<u>negatively associated</u>** with IBRM.

Table (6) indicates a significant statistical difference between the level of education and the IBR model. Egyptian female Facebook users are more concerned about their social identity online and how they identify themselves in their online communities (F: 4.893), especially females with higher education university graduates(M: 1.5794) compared to females with Masters or PhD degrees (M: 1.5211). Regarding homophily, university graduates are more homophilic (F:7.047) than females with High school degrees or higher education (Master/Ph.D. degrees). Results indicated that higher educated (Masters/Ph.D.) Egyptian females are more information-biased (F: 9.345) than other education levels.

Table (6).*Egyptian Female Users' Level of Education and IBRM Dimensions*.

IBR Dimensions	Level of Education	N	Mean	Standard Deviation	Degree of Freedom	F	Significant
Social Identification	Secondary School	22	1.1364	.35125	2 197	4.893	.008
	University Graduate	107	1.5794	.61487			
	Masters/Ph.D.	71	1.5211	.65157			
	Total	200	1.5100	.61791			
Homophily	Secondary School	22	2.0000	.69007	2 197	7.047	.001
	University Graduate	107	2.5981	.62736			
	Masters/Ph.D.	71	2.4789	.75326			
	Total	200	2.4900	.70168			
Information Bias	Secondary School	22	1.2273	.42893	2 197	9.345	.001
	University Graduate	107	1.5140	.53842			
	Masters/Ph.D.	71	1.7465	.52694			
	Total	200	1.5650	.54522			

Hypothesis 2 (H2): According to the IBR Model, the more Egyptian women use Facebook, the more they will be part of the echo chamber.

According to the Pearson Correlation test, no correlation exists between time spent on Facebook and the IBR model related to social identification, homophily and Information bias.

Table (7). *Pearson Correlation test between Facebook Usage and Echo Chamber.*

IBR Dimensions		Facebook Usage
Social Identification	Correlation Coefficiency	.095
	Level of significance	.182
	Total	200
Homophily	Correlation coefficient	.091
	Level of significance	.198
	Total	200
Information Bias	Correlation coefficient	.023
	Level of significance	.743
	Total	200

** Correlation is significant at the 0.01 level

Hypothesis 3 (H3): According to the IBR Model, the more Egyptian females trust Facebook, the more they will be part of the Eco chamber.

Results show that there is a correlation between Facebook trust and eco chambers. According to the IBR Model, the more Egyptian females trust Facebook as the source of information, the more they identify themselves as part of the online communities on Facebook (P=0.225). They are more biased regarding the sources of information they depend on (P.0.205), but the results indicated no correlation between Facebook trust and being homophily.

Table (8).*Pearson Correlation test between Facebook Trust and Echo Chamber*

IBR Dimensions		Facebook Trust
Social Identification	Correlation coefficiency	.225
	Level of significance	.001
	Total	200
Homophily	Correlation coefficiency	-.092
	Level of significance	.196
	Total	200
Information Bias	Correlation coefficient	.205
	Level of significance	.004
	Total	200

** Correlation is significant at the 0.01 level

Conclusion:

This study examines the echo chamber phenomena on Facebook among Egyptian Female users according to the IBR Model (Identity Bubble Reinforcement Model), which analyses the echo chamber based on three dimensions: social identification, homophily and information bias.

This study was conducted on 200 Egyptian females from different age groups (18 to 45 years) and education levels (ranging from university graduates to M.A. and PhD degree holders). It focuses on the relationship between demographic variables (age and level of education) and the echo chamber dimension according to the IBR Model, as well as how social media usage and trust in Facebook are related to echo chamber dimensions.

Results show that 83% of the sample logs on Facebook daily. Nearly half of the sample (48%) spend from one hour to less than 3 hours on Facebook, and (47%) of Egyptian female Facebook users moderately trust Facebook as a reliable source of information.

The results indicated that the most significant dimensions of the echo chamber, according to the IBR Model, are homophily, then information bias, and finally, social identification.

Regarding the demographical variable, results show that middle-aged females (25 to less than 45 years) are more information-biased.

Higher education levels (Master's and PhD degree holders) are more associated with social identification and information bias. In comparison, a medium education level (university graduate) is related to homophily.

These results indicate that age is associated with information bias. At the same time, the level of education is more related to the different dimensions of the echo chamber according to the IBR Model.

Recommendation for Future Research:

There are still several gaps in our knowledge around the Eco Chamber phenomenon and how it affects audiences' choices on different social media platforms. This study recommends:

1. Conducting analytical research across different social media platforms to understand which social media platform contributes more to the eco-chamber phenomenon.

2. Focus on the impact of eco-chamber phenomena on the audience's knowledge, attitude and behaviour regarding social, economic or political issues.

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