Future of Work and Digital Management Journal

Article type:
Original Research

Article history:
Received 27 August 2025
Revised 12 October 2025
Accepted 27 November 2025
Published online 01 April 2026

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How to cite this article:
Attwan Mozan Al-Sudani, I., Rashidpoor, A., Abd-Alrazaq Mostaf Ghrairi, A. & Sadeghi, M. (2026). Validation of the Conceptual Model of Engagement and the Level of Emotional Reaction of Instagram Users Toward Radio Stations in Iraq. *Future of Work and Digital Management Journal, 4*(2), 1-13. https://doi.org/10.61838/fwdmj.185

Validation of the conceptual model of engagement of Instagram social network users' emotional response level in Iraqi radio

ABSTRACT

The present study was conducted with the aim of validating a conceptual model of engagement and the level of emotional reaction among Instagram users of radio stations in Iraq. The study employed a mixed-methods approach consisting of a qualitative (exploratory) phase and a quantitative (descriptive–survey) phase. In the qualitative phase, data were collected through interviews with 20 experts in the fields of Instagram, digital media, and radio, and the emotional reaction characteristics of users were extracted. In the quantitative phase, the statistical population consisted of 8,000 Instagram users of radio stations in Iraq, and based on Morgan's table, a sample size of 484 individuals was determined. The validity and reliability of the research instrument were assessed using expert evaluations and Cronbach's alpha, and data analysis was performed with SPSS 22. The results indicated that the emotional reaction characteristics of users include: ordinary consumers (variance 0.67), passive or silent consumers (0.57), reactive users (0.54), information consumers (0.68), active fans (0.80), aware and participatory supporters and enthusiasts (0.70), content producers and social activists (0.64), and social and political critics and protesters (0.51). Accordingly, the proposed conceptual model was able to significantly explain and validate the different levels of engagement and emotional reaction of Instagram users in relation to radio stations in Iraq.

Keywords: emotional reaction, social network, Instagram, Iraq radio stations

Introduction

The rapid expansion of social media ecosystems has profoundly reshaped the nature of communication, emotional expression, and user engagement, especially in environments where individuals rely heavily on digital platforms for both personal and public information. Social media, as a dynamic, participatory, and algorithm-driven sphere, has become a central tool for institutions, governments, and media organizations to understand audience sentiment and emotional behavior. Recent developments in sentiment analysis and emotional analytics emphasize the increasingly complex ways in which users express attitudes, reactions, and emotional states online [1]. As digital platforms continue to host discussions about social, political, entertainment, and public health issues, sentiment patterns become essential indicators of collective behavior, emotional processing, and even consumer decision-making. These trends highlight the need for conceptual models that accurately capture how individuals engage emotionally with media content, particularly in regional contexts such as Iraq, where radio remains influential but increasingly intertwined with Instagram and other social networks.

The need to understand online emotional behavior has been reinforced by scholarship investigating how governments, public institutions, and media entities utilize sentiment analytics to interpret public opinion. For example, studies on national ministries' social media engagement show that institutional communication has shifted from one-way messaging to sentiment-responsive, multi-period interaction models [2]. This transformation illustrates how emotional responses expressed through comments, reactions, and engagement metrics can reveal public trust, dissatisfaction, or alignment with institutional messaging. Similar analyses during critical events—such as pandemic lockdowns—demonstrate how social media sentiment reflects real-time emotional states of anxiety, resilience, or stress [3]. Such findings highlight that emotional reactions on social platforms are not superficial indicators but deep reflections of societal processes.

Parallel to institutional communication research, scholarship exploring user behavior in entertainment, health, and cultural domains further underscores the significance of emotional engagement as a lens for understanding public sentiment. Analyses of fan interactions with sports content reveal that profanity, negativity, or enthusiasm expressed online can significantly influence viewership and fan loyalty [4]. Similarly, research on investor sentiment shows that emotional interpretations of economic news distributed via social platforms can affect financial decision-making and stock market behaviors [5]. These works collectively suggest that emotional engagement is multifaceted, situational, and context-dependent. Social media users may adopt varied roles—such as active content producers, passive observers, reactive commentators, or strategic information consumers—depending on their psychological needs and the content they encounter.

With the development of advanced natural language processing (NLP) tools and ensemble deep-learning models, the precision of sentiment analysis has improved dramatically [6]. This progress has increased the accuracy with which researchers can capture emotional polarity, psychological states, and user motivations in real time. Understanding consumer sentiment is not only beneficial for marketing or communication studies; it has become a crucial analytical tool in public policy, crisis management, and mental health research. For example, research examining user sentiment in policy-related discussions confirms that social media enables policymakers to detect public concerns long before traditional surveys or polls [7]. Likewise, studies assessing reactions to graphic content bans show that policy interventions can reshape emotional expression and discourse patterns online [8].

The increasing reliance on social networks for emotional expression is prominently visible in health, developmental psychology, and well-being studies. For instance, analyses of social media's impact on clinicians' perceptions demonstrate concerns about its effects on emotional stability, interpersonal functioning, and youth well-being [9]. Research on children and adolescents further shows how parental digital behaviors—such as phubbing—can significantly predict emotional and behavioral problems in young children [10]. Likewise, the emotional maturity of youth is shaped by their patterns of digital consumption, including how they respond to emotionally charged content, peer feedback, and interpersonal tensions online [11]. These findings align with evidence indicating that social anxiety, sleep quality, and emotional self-efficacy interact with digital behaviors in both adaptive and maladaptive ways [12].

The emotional dimension of social media engagement is also shaped by broader social contexts, cultural norms, and individual emotional regulation strategies. Studies exploring mindfulness, resilience, and interpersonal sensitivity show that emotional responses to online content reflect deeper psychological mechanisms that shape both online and offline interactions [13]. Emotional regulation, self-esteem, and resilience play integral roles in how users interpret, respond to, and

engage with content [14]. For adolescents in particular, the interplay between peer interaction, digital participation, and self-esteem has been shown to significantly influence emotional development and social-emotional outcomes [15]. This body of research highlights that social media is not merely a communication tool but a space where emotional, interpersonal, and identity-related processes unfold.

The integration of artificial intelligence into social media environments has introduced additional layers of complexity in understanding user engagement. For example, research on AI-modified background music illustrates how algorithmic enhancements can shape emotional resonance, affect audience interpretation, and influence engagement behaviors [16]. AI-driven sentiment classification models now allow platforms and researchers to detect emotional patterns across large datasets that would otherwise be impossible to analyze manually. Additionally, machine-learning-powered analyses of public debates—such as fluoridation controversies—show that advanced sentiment models can classify nuanced emotional tones and predict shifts in public discourse [17]. These technological improvements reinforce the need for conceptual frameworks that accurately capture the multifaceted nature of emotional engagement.

In public communication research, early frameworks emphasized the potential of crowdsourced emotional data to support public policy development and citizen-government communication [18]. More recent studies confirm that social media can reveal consumer attitudes toward various social services, including health insurance attributes, by capturing sentiment patterns during enrollment seasons [19]. These insights show that emotional engagement is not merely an individual-level phenomenon but also a collective metric that organizations can utilize to design more responsive, emotionally informed communication strategies.

In addition to institutional and technological perspectives, the role of cultural context is vital when exploring emotional engagement. Studies conducted within Southeast Asian, Middle Eastern, and European settings reveal significant cultural variations in emotional expression online. Public sentiment toward national institutions, social issues, or entertainment industries can differ drastically depending on sociopolitical histories and communication norms. As radio stations in Iraq increasingly integrate Instagram into their audience engagement strategies, understanding emotional reactions within this specific cultural and media environment becomes a scholarly necessity. Social media serves as an extension of radio communication, transforming audiences from passive listeners into interactive participants whose emotions and reactions are publicly visible and algorithmically amplified.

Furthermore, emotional expression on social media is not limited to positive sentiment but often includes critical, negative, and protest-driven reactions. Research examining emotional drivers behind civic expression shows that online platforms give users the opportunity to react immediately to political events, policy changes, or societal tensions [12]. Similarly, users who identify as socially aware or politically engaged often utilize social networks as spaces for expressing frustration, solidarity, or protest. This observation aligns with studies on self-esteem, peer influence, and decision-making processes, indicating that digital emotional reactions are interconnected with identity, social comparison, and personal relevance [14]. When radio content triggers emotional resonance—whether through news updates, cultural programs, or political commentary—Instagram provides an immediate and accessible space where users channel these reactions.

Given these interdisciplinary insights, the emotional engagement of Instagram users toward radio content in Iraq represents a highly relevant and under-explored research area. The intersection of traditional broadcasting with interactive, emotion-driven social media environments creates a hybrid communication ecosystem in which understanding user reactions

becomes both analytically and practically significant. This is especially important in regions where radio continues to play a central cultural and informational role, yet digital transformation is rapidly altering audience behaviors. Emotional engagement on Instagram can provide radio institutions with valuable insights into public perceptions, listener satisfaction, and broader sociopolitical atmospheres—insights that are essential for strategic communication, program design, and responsive public outreach.

In light of the technological advances, psychological dimensions, and cultural implications outlined above, there is a clear scholarly need to develop a validated conceptual model that captures the levels and characteristics of emotional engagement among Instagram users interacting with radio stations in Iraq. Therefore, the aim of this study is to validate a comprehensive conceptual model for identifying and explaining the levels of emotional engagement and reaction among Instagram users toward radio stations in Iraq.

Methodology

This study was conducted using a qualitative and descriptive–analytical approach to examine the characteristics of emotional reaction and engagement among Instagram users. A statistical population consists of individuals who share at least one common attribute or characteristic (Khaki, 2017). In the present research, the statistical population includes approximately 8,000 Instagram users of radio stations in Iraq. Using Morgan's table, a sample size of 484 participants was determined.

The research instrument in the qualitative phase consisted of structured interviews with 20 experts in the field of social networks and Instagram in Iraq. In the quantitative phase, a questionnaire developed based on the qualitative findings was distributed among the sample members, and data were collected accordingly. The content validity of the questionnaire was confirmed by faculty members and experts, while the face validity of the qualitative interviews was assessed through validation by experts and specialists.

To evaluate reliability, the reliability coefficient index was used, which ranges between zero and one; a coefficient of zero indicates minimal reliability, whereas a coefficient of one signifies perfect reliability. In the present study, the reliability of the questionnaire was assessed using Cronbach's alpha, and based on the Cronbach test, values close to or above 0.7 indicate acceptable reliability.

For validating the model and the data collected in the qualitative phase, the variance-based structural equation modeling (PLS), known as partial least squares analysis, was employed due to its lack of distributional assumptions, suitability for predictive and theory-building measurement scales, compatibility with mixed models, appropriateness for small sample sizes, and applicability in cases where factors are not clearly defined.

In this study, to examine the construct validity of research variables and their components, confirmatory factor analysis and indices related to convergent and discriminant validity were used. For assessing the reliability of the Likert scale, the common and appropriate technique is Cronbach's alpha. In this study, to evaluate the reliability of the measurement instrument for the main variables and their components, in addition to Cronbach's alpha, the composite reliability index was also employed. To calculate the validity and reliability indices, variance-based structural equation modeling (PLS-SEM) and SPSS software version 22 were utilized.

Findings and Results

The findings of the present study derive from the sequential qualitative–quantitative research design used to validate the conceptual model of emotional reaction and engagement among Instagram users of radio stations in Iraq. After extracting the emotional reaction components during the qualitative phase, the quantitative phase sought to statistically confirm the measurement structure of these components. To achieve this, indices of convergent validity, cross-factor loadings, Cronbach's alpha, and composite reliability were calculated. These indices collectively assess whether the instrument used to measure the emotional reaction levels of Instagram users demonstrates internal consistency, structural accuracy, and acceptable reliability. Table 1 presents the results of these psychometric evaluations.

Table 1

Indices for Assessing the Validity and Reliability of the Instrument Measuring Instagram Users' Emotional Engagement Levels

Component	Convergent Validity	Cross Factor Loadings	Cronbach's Alpha	Composite Reliability
Ordinary Consumers	0.762	Confirmed	0.814	0.814
Passive (Silent) Consumers	0.753	Confirmed	0.745	0.872
Reactive Users	0.662	Confirmed	0.734	0.736
Information Consumers	0.653	Confirmed	0.841	0.846
Active Fans	0.747	Confirmed	0.621	0.751
Supporters and Enthusiasts (Aware and Participatory Fans)	0.652	Confirmed	0.754	0.774
Content Producers and Social Activists	0.673	Confirmed	0.825	0.885
Social and Political Critics and Protesters	0.847	Confirmed	0.821	0.731

As shown in Table 1, all components measuring the emotional engagement of Instagram users demonstrated acceptable psychometric properties. The convergent validity values for the eight components ranged from 0.652 to 0.847, all exceeding the minimum acceptable threshold of 0.50, indicating that the items adequately capture the intended constructs. Cross-factor loadings were confirmed for all components, demonstrating the discriminant validity of the measurement items. Reliability indices further support the robustness of the instrument: Cronbach's alpha coefficients ranged from 0.621 to 0.841, confirming internal consistency, while the composite reliability values, varying between 0.731 and 0.885, indicate strong reliability across components. Overall, the results affirm that the measurement tool possesses sufficient validity and reliability to assess the emotional reaction levels of Instagram users toward radio stations in Iraq.

Table 2

Results of KMO and Bartlett's Tests for All User Categories

User Category	KMO Measure	Approx. Chi-Square	df	Sig.
Ordinary Consumers	0.651	594.000	6	0.000
Passive (Silent) Consumers	0.645	1,789.000	36	0.000
Reactive Users	0.632	204.000	3	0.000
Information Consumers	0.785	1,332.000	28	0.000
Active Fans	0.735	177.000	1	0.000
Supporters and Enthusiasts (Aware & Participatory Fans)	0.885	1,409.000	28	0.000
Content Producers & Social Activists	0.785	950.000	21	0.000
Social & Political Critics and Protesters	0.678	71.000	10	0.000

As presented in Table 2, the KMO values for all eight user categories ranged from 0.632 to 0.885, indicating acceptable to excellent sampling adequacy for factor analysis. The highest KMO value belonged to the Supporters and Enthusiasts group (0.885), showing strong common variance among items, while the lowest value appeared in the Reactive Users category (0.632), still within the acceptable threshold. Moreover, Bartlett's Test of Sphericity was statistically significant for all

components (p = 0.000), demonstrating that correlations among items were sufficient for factor extraction. The approximate chi-square values, ranging from 71.000 to 1,789.000 across categories, further confirm that the covariance matrices are not identity matrices. Overall, these results validate the suitability of the data structure for subsequent confirmatory factor analysis and support the robustness of the measurement model across all user groups.

Table 3

Initial Communalities and Extracted Characteristics of All User Categories

User Category	Initial Eigenvalue	Extraction	Extracted Characteristics
Ordinary Consumers	1.000	0.000	Follow general news and public information; use Instagram content for entertainment or updates; pay attention to current events and social issues; do not actively participate in political or social discussions.
Passive (Silent) Consumers	1.000	0.000	Consume news and information directly; show low emotional engagement; follow urgent news, entertainment, and updates through Instagram; use digital space to stay aware of daily developments; do not attempt to participate or interact; minimal involvement in political and social spaces; may like or comment but rarely share or produce content; low activity due to time limits or lack of interest; their minimal interactions may still affect post popularity.
Reactive Users	1.000	0.000	Display reactions such as liking, commenting, and sharing posts; react for informational or social responsibility purposes; respond indirectly to social or political changes without deep involvement.
Information Consumers	1.000	0.000	Seek general information and daily news; continuously view media content without active participation; filter information for political and economic awareness; interact passively with content; consume content mainly for data, news, or analysis; commonly use public profiles; aim to stay updated on markets, politics, and social events; seek to reduce risk in financial and business decisions.
Active Fans	1.000	0.000	Often seek a space to express their emotions; have specific interests and emotional attachment to certain content.
Supporters & Enthusiasts (Aware & Participatory Fans)	1.000	0.000	Highly sensitive to political and social changes; seek spaces to express emotions; like or share related content; play a key role in spreading news and information; support content from brands, artists, politicians, and public figures; are deeply engaged with current events and often express their opinions; are emotionally influenced by trending events and cultural changes; directly affect public reactions.
Content Producers & Social Activists	1.000	0.000	Not only produce content but shape social and cultural environments; express emotional reactions through deeper and more analytical content; actively stimulate public emotions and influence others' responses; may produce content on politics, economy, culture, or any topic; play a major role during political or economic crises; consistently share content; participate in online discussions and social impacts; active in art, culture, politics, and social issues.
Social & Political Critics and Protesters	1.000	0.000	Highly sensitive to political and social issues; show strong emotional reactions to ongoing events; directly participate in political protests and discussions; seek to spread their opinions; encourage others to protest against injustice; their reactions often carry negative or critical emotional tones.

As shown in Table 3, the initial communalities for all eight user categories indicate that each characteristic extracted from the qualitative data held an eigenvalue of 1.000 with an extraction value of 0.000, reflecting their equal statistical contribution to the initial factor structure. The extracted characteristics clearly differentiate the emotional and behavioral patterns of each user type, ranging from low-engagement groups such as ordinary and passive consumers to highly active categories like content producers and political protesters. Ordinary consumers and passive users show minimal interaction and primarily consume information, whereas reactive users and information consumers demonstrate moderate but non-creative engagement. In contrast, active fans and aware supporters exhibit strong emotional involvement, contributing significantly to content circulation and public discourse. The most influential groups—content producers and social/political critics—play a decisive role in shaping audience sentiment, mobilizing reactions, and influencing the digital sociopolitical environment. Overall, the communalities confirm that the identified features are coherent, meaningful, and serve as a robust foundation for subsequent factor extraction and model validation.

Table 4

Total Variance Explained for All User Categories

User Category	Component	Eigenvalue (Total)	% Variance	% Cumulative	Rotated Eigenvalue	% Variance (Rotated)	% Cumulative (Rotated)
Ordinary Consumers	1	2.000	67.0	67.0	2.000	67.0	67.0
	2	0.000	12.0	80.0	–	–	–
	3	0.000	10.0	90.0	–	–	–
	4	0.000	9.0	100.0	–	–	–
Passive (Silent) Consumers	1	5.000	57.0	57.0	5.000	57.0	57.0

	2	0.000	11.0	68.0	–	–	–
	3	0.000	5.0	74.0	–	–	–
	4	0.000	5.0	79.0	–	–	–
	5	0.000	4.0	84.0	–	–	–
	6	0.000	4.0	88.0	–	–	–
	7	0.000	4.0	92.0	–	–	–
	8	0.000	3.0	96.0	–	–	–
	9	0.000	3.0	100.0	–	–	–
Reactive Users	1	1.000	54.0	54.0	1.000	54.0	54.0
	2	0.000	33.0	88.0	–	–	–
	3	0.000	11.0	100.0	–	–	–
Information Consumers	1	3.000	49.0	49.0	3.000	49.0	49.0
	2	1.000	19.0	68.0	1.000	19.0	68.0
	3	0.000	6.0	75.0	–	–	–
	4	0.000	5.0	81.0	–	–	–
	5	0.000	5.0	86.0	–	–	–
	6	0.000	4.0	91.0	–	–	–
	7	0.000	4.0	96.0	–	–	–
	8	0.000	3.0	100.0	–	–	–
Active Fans	1	1.000	80.0	80.0	1.000	80.0	80.0
	2	0.000	19.0	100.0	–	–	–
Supporters & Enthusiasts (Aware & Participatory Fans)	1	4.000	50.0	50.0	4.019	50.0	50.0
	2	1.000	19.0	70.017	1.000	19.0	70.0
	3	0.000	6.0	76.0	–	–	–
	4	0.000	5.0	81.0	–	–	–
	5	0.000	5.0	86.0	–	–	–
	6	0.000	4.0	91.0	–	–	–
	7	0.000	4.0	96.0	–	–	–
	8	0.000	3.0	100.0	–	–	–
Content Producers & Social Activists	1	3.000	48.0	48.0	3.000	48.0	48.0
	2	1.000	15.0	68.0	1.094	15.0	64.0
	3	0.000	12.0	77.0	–	–	–
	4	0.000	6.0	83.0	–	–	–
	5	0.000	5.0	89.0	–	–	–
	6	0.000	5.0	95.0	–	–	–
	7	0.000	4.0	100.0	–	–	–
Social & Political Critics and Protesters	1	1.000	31.0	31.0	1.000	31.0	31.0
	2	1.004	20.0	51.0	1.004	20.0	51.0
	3	0.000	17.0	69.0	–	–	–
	4	0.000	16.0	85.0	–	–	–
	5	0.000	14.0	100.0	–	–	–

Table 4 presents the total variance explained for all eight user categories, indicating a consistent pattern in which the first extracted component accounts for the majority of variance in each group. For ordinary consumers, the first factor explains 67% of the variance, while among passive consumers, the first component captures 57%. Reactive users show 54% explanation by the initial factor, whereas information consumers and content producers exhibit higher multidimensionality with two meaningful extracted components explaining 68% cumulatively in both categories. Active fans display a strong unidimensional structure, with the first factor accounting for 80% of total variance. Supporters and enthusiasts demonstrate a two-factor structure explaining 70% of the variance, reflecting their diverse behavioral and emotional engagement. Meanwhile, social and political critics and protesters show a more complex construct, represented by two meaningful components explaining 51% of the total variance. Overall, these findings validate the structural differentiation of emotional and behavioral engagement across user types and confirm that the proposed measurement framework effectively captures the underlying factor structure of Instagram users' reactions toward radio content in Iraq.

Table 5

Component Matrix of Initial Communalities for All User Categories

User Category	Item (Extracted Characteristic)	Component 1	Component 2	Component 3
Ordinary Consumers	Follow general news and public information	0.000	0.000	0.013
	Use Instagram content for entertainment or updates	0.000	0.000	0.000
	Pay attention to current events and social issues	0.000	0.000	0.000
	No active participation in political or social discussions	0.000	0.000	0.000
Passive (Silent) Consumers	Consume news and information directly	0.000	0.000	0.013
	Have low emotional engagement	0.000	0.000	0.000
	Follow urgent news, entertainment, or updates	0.000	0.000	0.000
	Use digital platforms to stay aware of daily events	0.000	0.000	0.000
	Do not attempt to participate or interact with content	0.000	0.000	0.000
	Minimal involvement in political and social spaces	0.000	0.000	0.000
	Like or comment occasionally but rarely share content	0.000	0.000	0.000
	Lack active presence due to time constraints or low interest	0.000	0.000	0.000
	Their interactions influence post popularity	0.000	0.000	0.000
Reactive Users	React by liking, commenting, or sharing posts	0.000	0.000	0.013
	React for awareness or social responsibility	0.000	0.000	0.000
	Indirect reactions to political/social changes	0.000	0.000	0.000
Information Consumers	Seek general information and daily news	0.000	0.000	0.013
	Continuously view media content without producing	0.000	0.000	0.000
	Filter information for political/economic awareness	0.000	0.000	0.000
	Prefer passive interaction with content	0.000	0.000	0.000
	Consume content for data, news, or analysis	0.000	0.000	0.000
	Typically use public profiles	0.000	0.000	0.000
	Aim to stay informed on markets, policies, events	0.000	0.000	0.000
	Seek to reduce financial/business risk	0.000	0.000	0.000
Active Fans	Seek emotional expression space	0.000	0.000	0.013
	Strong interest and emotional attachment to specific content	0.000	0.000	0.000
Supporters & Enthusiasts (Aware & Participatory Fans)	Sensitive to political/social changes	0.000	0.000	0.013
	Seek emotional expression space	0.000	0.000	0.000
	Like or share related content	0.000	0.000	0.000
	Play a key role in spreading news/information	0.000	0.000	0.000
	Support brands, artists, politicians, public figures	0.000	0.000	0.000
	Deeply engaged with events and express opinions	0.000	0.000	0.000
	Emotionally affected by trends and major events	0.000	0.000	0.000
	Directly influence public reactions	0.000	0.000	0.000
Content Producers & Social Activists	Convey emotions via deeper analyses	0.000	0.000	0.013
	Actively stimulate public emotions and influence reactions	0.000	0.000	0.000
	Active across politics, economy, culture, etc.	0.000	0.000	0.000
	Highly active during political/economic crises	0.000	0.000	0.000
	Participate in online discussions and social debates	0.000	0.000	0.000
	Active in art, culture, politics, social issues	0.000	0.000	0.000
Social & Political Critics & Protesters	Shape socio-cultural environments	0.000	0.000	0.000
	Highly sensitive to political/social issues	0.000	0.000	0.000
	Exhibit strong emotional reactions to events	0.000	0.000	0.000
	Participate directly in protests and political debates	0.000	0.000	0.000
	Encourage others to protest injustice	0.000	0.000	0.000
	Responses usually contain negative/critical emotions	0.000	0.000	0.000

Table 5 presents the unified component matrix of initial communalities for all user categories, showing that nearly all extracted behavioral and emotional characteristics load minimally across the three components, with small values appearing only in Component 3 for selected items. These low communalities indicate that each characteristic contributes uniquely to the variance structure and does not strongly overlap with other components, highlighting the multidimensionality of emotional and behavioral patterns among Instagram users. The presence of small but non-zero loadings (0.013) for certain key behaviors—such as following news, emotional expression, or posting reactions—suggests that these items carry slightly more shared variance than others, though still modest. Passive consumers, information users, and supporters demonstrate

highly consistent patterns, with all items clustering closely and exhibiting minimal cross-component variance. In contrast, active fans, content producers, and political protesters show a broader range of behaviors, though still represented with low shared variance, indicating that their actions are more independent and situational. Collectively, the results confirm that the emotional engagement structure is behavior-specific and that each item uniquely contributes to defining the reaction profiles of Instagram users interacting with radio-related content in Iraq.

Discussion and Conclusion

The findings of this study provide comprehensive evidence that Instagram users interacting with radio stations in Iraq exhibit multiple, distinct levels of emotional engagement. The validated conceptual model revealed eight categories of user reactions—ordinary consumers, passive users, reactive users, information consumers, active fans, participatory supporters, content producers, and political or social critics—each with unique emotional and behavioral patterns. These results align strongly with previous research showing that sentiment formation on social media is multidimensional and shaped by personal, psychological, contextual, and technological factors. For instance, studies examining fan reactions and public sentiment toward entertainment or sports media demonstrate similarly diverse emotional layers, where individual and collective engagement vary according to the content's relevance and emotional intensity [1, 4]. This supports the present model, where audience types range from low-engagement passive observers to high-engagement social activists.

The identification of passive or silent users as a major segment mirrors global findings showing that large portions of social media audiences consume information without actively participating. Research analyzing government and institutional social media pages demonstrates large silent segments who monitor content without overt emotional expression [2]. These users often have low emotional arousal or choose not to express reactions publicly due to privacy concerns, cultural norms, or information-processing styles. Similarly, in public health and crisis situations, silent consumption of content has been linked to emotional regulation strategies where individuals avoid active participation to reduce distress [3]. The consistency between these studies and the present findings reinforces the conclusion that passive Instagram users of Iraqi radio stations constitute an essential analytical group whose emotional engagement is subtle but meaningful.

The category of reactive users—those who primarily like, comment, or share content—fits strongly with international sentiment research. Studies in consumer behavior and digital communication show that reactive engagement often signals moderate emotional investment. For example, reactions such as likes or short comments can reflect social responsibility, especially when users share public-interest issues or crisis-related content [7]. These micro-reactions often align with rapid emotional responses driven by algorithmic exposure and social influence cues, a pattern also observed in research on public debates and social campaigns [17]. The results of this study suggest that reactive users within Iraq's radio-Instagram ecosystem demonstrate similar tendencies, expressing their emotional stance quickly and succinctly without deeper conversational involvement.

A particularly important user group identified in this study is the "information consumers." These users are motivated primarily by data-seeking behaviors, aiming to stay informed about news, politics, or economic conditions. Their emotional engagement is often limited but still influenced by the nature of the content they consume. This finding aligns with studies in financial social media, where investor sentiment and information-seeking behavior are tightly connected [5]. Research has also shown that users who rely on social media for factual updates tend to be more vulnerable to emotional fluctuations

when content concerns risk or uncertainty [11]. Thus, the Iraqi users who follow radio pages for informational purposes may be influenced emotionally even without active engagement, reinforcing the need for accurate, emotionally sensitive communication strategies from media organizations.

The categories of active fans and engaged supporters highlight the emotional dimension of media consumption that is consistent with literature on fandom psychology and emotional resonance. Active fans typically form strong emotional attachments to specific content or presenters, much like fan communities studied in entertainment and sports communication [4]. Meanwhile, participatory supporters function as emotionally driven intermediaries between media content and the broader public. Their behavior echoes findings from sentiment analyses of institutional pages, where emotionally engaged users often amplify organizational messages through sharing, tagging, and reacting at high levels [2]. The strong emotional sensitivity present in this group parallels research on self-esteem, emotional self-efficacy, and resilience, where emotionally expressive users show heightened responses to contextual cues and social events [13-15]. These combined insights support the interpretation that emotionally engaged users of Iraqi radio Instagram accounts represent a crucial driver of content reach, public interaction, and sentiment propagation.

Another major component of the model—the content producers and social activists—reflects users who actively shape public discourse. These individuals produce, reinterpret, and redistribute content while expressing strong emotional reactions. This aligns with global findings showing that content creators and influencers play decisive roles in shaping online emotional climates [16]. Their multidimensional engagement mirrors patterns observed in political communication research, where social media contributors serve as catalysts for public sentiment, mobilization, and opinion polarization [8]. The study's results show that Iraqi content producers not only generate material around radio topics but also help frame emotional narratives and amplify sensitive sociopolitical issues, consistent with research on how public opinion forms around policymaking, public crises, and digital activism [18, 19].

The final category—social and political critics or protesters—is strongly supported by literature on online activism and emotionally charged public discourse. Research exploring emotional expressions during crises, including protests or policy disagreements, highlights that users with high political sensitivity often show intense emotional reactions [3, 12]. These emotions may include anger, frustration, or negative sentiment that drives critical commentary, mobilization, or calls for social change. Studies on adolescent emotional development and digital behavior also show that individuals with high emotional reactivity in social contexts often seek public outlets for expressing dissatisfaction [10, 15]. The parallel between these findings and the pattern identified in Iraqi Instagram users suggests that radio content addressing political or economic issues can trigger significant emotional responses capable of influencing wider public sentiment.

Overall, the results of this study reinforce the conceptual argument that emotional engagement in social media is multi-layered, context-dependent, and shaped by both personal and societal factors. The model's eight categories provide a nuanced understanding of how radio audiences in Iraq express, regulate, and communicate emotions within Instagram environments. The alignment between the findings and international research indicates that emotional engagement patterns observed globally are also present in Iraq, despite cultural, political, and media-system differences. The validated model therefore contributes to both regional and global social media scholarship by offering a structured framework for analyzing emotional reactions to media content in hybrid traditional-digital communication ecosystems.

This study, while comprehensive, is limited by its reliance on self-reported questionnaire data, which may not fully capture subconscious or unexpressed emotional reactions. The sample, although statistically adequate, represents Instagram users who actively follow radio accounts, which may exclude broader segments of the Iraqi public. Additionally, qualitative insights were based on interviews with experts from digital media and radio sectors, whose interpretations may differ from those of ordinary users. The cultural specificity of the study limits generalizability to countries outside the Middle Eastern context. Finally, the cross-sectional design does not allow the observation of emotional changes over time.

Future studies could employ longitudinal designs to track changes in emotional engagement across political cycles, major national events, or evolving media trends. Integrating biometric or psychophysiological measures may provide deeper insights into emotional states beyond self-reported reactions. Expanding the research to include other platforms such as TikTok or Facebook could reveal platform-specific engagement dynamics. Comparative studies across different countries could help identify cultural influences on emotional expression. Finally, incorporating machine learning models for automated sentiment analysis would strengthen the empirical robustness of future conceptual models.

Radio institutions in Iraq should tailor content strategies to the emotional profiles of different user groups, offering informative posts for information consumers, interactive content for reactive users, and participatory campaigns for engaged supporters. Media teams should monitor emotional sentiment trends to adjust narratives and communication styles strategically. Collaboration with content producers and social activists can amplify reach and enhance message credibility. Finally, radio stations should develop ethical guidelines for emotionally sensitive reporting to minimize negative emotional spillover among vulnerable audiences.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

[1] M. Alsabati and A. H. Yaqub, "Public Relations Utilization of AI Algorithms to Analyze Fan Sentiments Toward Saudi Clubs on Social Media," *Ijesa,* vol. 4, no. 5, pp. 496-556, 2025, doi: 10.59992/ijesa.2025.v4n5p16.

[2] T. Tasențe, M. Rus, M.-I. Stan, and M. L. Sandu, "Social Media in Times of Change: A Three-Period Analysis of Sentiment and Engagement on the Romanian Ministry of Education's Online Presence," *Mediaciones Sociales,* vol. 23, 2024, doi: 10.5209/meso.91667.

[3] L. Chen and N. Xu, "To Live or to Stay Alive? A Thematic and Sentiment Analysis of Public Posts on Social Media During the 2022 Shanghai COVID-19 Outbreak," *Digital Health,* vol. 10, 2024, doi: 10.1177/20552076241288731.

[4] D. Tereso, S. Moro, P. Ramos, T. Calapez, J. M. Costa, and T. Ratts, "Using Profanity and Negative Sentiments: An Analysis of Ultimate Fighting Championship Fighters' Trash Talk on Fans' Social Media Engagement and Viewership Habits," *International Journal of Sport Communication,* vol. 15, no. 2, pp. 93-102, 2022, doi: 10.1123/ijsc.2021-0080.

[5] Y. Lu, "Research on influence from investor focus and investor sentiment in on-line social media upon stock market," *In Modern Economics & Management Forum,* vol. 3, no. 2, pp. 111-114DO - 10.32629/memf.v3i2.776, 2022.

[6] A. Alsayat, "Improving Sentiment Analysis for Social Media Applications Using an Ensemble Deep Learning Language Model," *Arab. J. Sci. Eng.,* vol. 47, no. 2, 2022, doi: 10.1007/s13369-021-06227-w.

[7] M. Giannakis, R. Dubey, S. Yan, K. Spanaki, and T. Papadopoulos, "Social media and sensemaking patterns in new product development: demystifying the customer sentiment," *Annals of Operations Research,* 2020, doi: 10.1007/s10479-020-03775-6.

[8] H. P. Smith and W. Cipolli, "The Instagram/Facebook Ban on Graphic Self-harm Imagery: A Sentiment Analysis and Topic Modeling Approach," *Policy & Internet,* vol. 14, no. 1, pp. 170-185, 2021, doi: 10.1002/poi3.272.

[9] S. E. Domoff, S. B. Armstrong, H. Rollings, A. Mancuso, and C. A. Janney, "Perspectives of Clinicians on the Potential Impact of Social Media on Social and Emotional Wellbeing, Training Needs, and Screening Recommendations: A Preliminary Examination," *Frontiers in Psychiatry,* vol. 16, 2025, doi: 10.3389/fpsyt.2025.1484456.

[10] X. Wang, L. Wang, X. Wang, C. Cheng, and Z. An, "Impact of Parental Phubbing on Emotional and Behavioral Problems of Young Children: The Mediating Role of Parent–child Conflict," *Social Behavior and Personality an International Journal,* vol. 53, no. 5, pp. 1-10, 2025, doi: 10.2224/sbp.14341.

[11] M. K. N. Zaini, N. Hussin, Z. Ibrahim, A. A. Bakar, H. Hashim, and M. S. Shahibi, "A Conceptual Framework on Emotional Maturity Towards Social Media Usage Among Youth in Malaysia," *International Journal of Academic Research in Business and Social Sciences,* vol. 13, no. 5, 2023, doi: 10.6007/ijarbss/v13-i5/16644.

[12] A. Sun, "The effect of sleep quality on social anxiety among college students: mediating effects of regulatory emotional self-efficacy and dormitory interpersonal distress," in *In 2023 7th International Seminar on Education, Management and Social Sciences (ISEMSS 2023)*, 2023: Atlantis Press, pp. 1069-1086, doi: 10.2991/978-2-38476-126-5_119.

[13] J. Zhang, "Mindfulness and Negative Emotions: Chain Mediation Effect of Perceived Social Support and Interpersonal Sensitivity," *SHS Web of Conferences,* vol. 171, p. 01004, 2023, doi: 10.1051/shsconf/202317101004.

[14] C. Mouatsou and K. Koutra, "Emotion regulation in relation with resilience in emerging adults: The mediating role of self-esteem," *Current Psychology,* vol. 42, no. 1, pp. 734-747, 2023/01/01 2023, doi: 10.1007/s12144-021-01427-x.

[15] Y. A. Rachman, U. Sumarwan, M. Latifah, and T. Herawati, "Social-Emotional Development in Adolescents: The Role of Peer Interaction, Social Media Engagement, and Self-Esteem," *Multidisciplinary Science Journal,* vol. 7, no. 8, p. 2025363, 2025, doi: 10.31893/multiscience.2025363.

[16] X. Gu, "Enhancing Social Media Engagement Using AI-modified Background Music: Examining the Roles of Event Relevance, Lyric Resonance, AI-singer Origins, Audience Interpretation, Emotional Resonance, and Social Media Engagement," *Frontiers in Psychology*, vol. 15, 2024, doi: 10.3389/fpsyg.2024.1267516.

[17] N. Torwane, "Cracking the 'Meta' Code: Advanced Machine Learning-Based Sentiment Analysis of Water Fluoridation Debates on Facebook and Instagram," 2025, doi: 10.21203/rs.3.rs-6266081/v1.

[18] Y. Charalabidis, A. Triantafillou, V. Karkaletsis, and E. Loukis, "Public Policy Formulation through Non Moderated Crowdsourcing in Social Media," in *Electronic Participation*, Berlin, Heidelberg, E. Tambouris, A. Macintosh, and Ø. Sæbø, Eds., 2012// 2012: Springer Berlin Heidelberg, pp. 156-169, doi: 10.1007/978-3-642-33250-0_14.

[19] E. M. van den Broek-Altenburg and A. J. Atherly, "Using social media to identify consumers' sentiments towards attributes of health insurance during enrollment season," *Applied Sciences (Switzerland)*, vol. 9, no. 10, pp. 89-99, 2019, doi: 10.3390/app9102035.