



The Impact of Interactive Marketing on Instagram on Customer Loyalty or the Mediating Role of Social Capital and the Moderation of Anxiety Caused by Excessive Digital Use (Asiacell Company)

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أثر التسويق التفاعلي على الانستغرام على ولاء العملاء أو دور الوساطة من رأس المال الاجتماعي والاعتدال من القلق الناجم عن الإفراط الرقمية (دراسة حالة شركة آسياسيل)

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هدفت الورقة إلى تقصي أثر التسويق التفاعلي على وسيلة التواصل الاجتماعي (الانستغرام) كشبكة اجتماعية على ولاء العملاء، معتبرا دور الوساطة من رأس المال الاجتماعي ودور الاعتدال من القلق الناتج من الإفراط في استخدام الرقمية. تم تطبيق هذه الدراسة من حيث الغرض والارتباط الوصفي من حيث الطريقة. تكون المجتمع الاحصائي من الاشخاص النشطين باستخدام تطبيقات (الانستغرام)، والمتفاعلين مع العلامات التجارية. كانت أداة جمع البيانات عبارة عن استبيان قياسي يتضمن أربع محاور هي: للتسويق التفاعلي، ولاء العملاء، رأس المال الاجتماعي، والقلق الرقمي، استخدم مقياس ليكرت الخماسي في تحليل بيانات الاستبانة. تم تحليل البيانات باستخدام برنامج (Smart PLS version 4). وأظهرت النتائج أن التسويق التفاعلي له تأثير إيجابي وكبير على ولاء العملاء ورأس المال الاجتماعي يلعب دورا وسيطا فعلا في هذه العلاقة. كما لوحظت علاقة مباشرة وقوية بين التسويق التفاعلي ورأس المال الاجتماعي. كما أشار فحص التأثير المعتدل للقلق الرقمي إلى أن الوجود المفرط عبر الإنترنت يمكن أن يضعف شدة تأثير التفاعل على الولاء. وفقا لذلك، لتعزيز الولاء الرقمي، يجب على المؤسسات تطوير استراتيجيات تسويق تفاعلية، وزيادة رأس المال الاجتماعي للعلامة التجارية من خلال بناء الثقة والتفاعلات الهادفة، وفي نفس الوقت منع التعب والقلق لدى المستخدمين. بشكل عام، تشير نتائج البحث إلى أن تحقيق الولاء المستدام في اقتصاد الشبكة المستقبلي يتطلب مزيجا ذكيا من المشاركة النشطة والعلاقات الاجتماعية الديناميكية والتوازن النفسي للمستخدمين الرقميين

Abstract

The present study aimed to investigate the effect of interactive marketing on the Instagram social network on customer loyalty, considering the mediating role of social capital and the moderating role of anxiety resulting from excessive digital use. This study is applied in terms of purpose and descriptive-correlational in terms of method. The statistical population consisted of active Instagram users who are in continuous interaction with the brand. Using the random sampling method and the Cochran formula, 384 people were selected as a sample. The instrument used for data collection was a standard questionnaire containing four constructs of interactive marketing, customer loyalty, social capital, and digital anxiety, which was designed using a five-point Likert scale. The data was analyzed using Smart PLS version 4 software and structural equation modeling (PLS-SEM). The results showed that there is a positive and significant impact of interactive marketing on customer loyalty, and social capital has an effective mediating role in this respect. It was also found that there is a direct and strong relationship between interactive marketing and social capital. The results of the analysis of the moderating role of digital anxiety showed that over presence in the online world can decrease the strength of the impact of interaction on customer loyalty. Therefore, it is important for organizations to design interactive marketing, create social capital for brands, and avoid digital anxiety to create digital loyalty. Thus, it is essential for organizations to develop interactive marketing strategies, build brand social capital, and prevent digital anxiety for building digital loyalty. Overall, the research findings suggest that for building customer loyalty in the future network economy, it is essential for organizations to develop an intelligent combination of interaction, social relationships, and psychological balance of digital users.

Keywords: Interactive marketing, customer loyalty, social capital, digital anxiety, social networks, brand-user interaction

Introduction



In the past decade, the changes in the communication technology and the emergence of social networks have brought a paradigm shift in the traditional brand-customer relationship model. In this context, Instagram as a social network has been found to be a viable medium for interactive marketing with its own attributes of visual interaction, two-way interaction, and intelligent algorithms (Li et al, 2023). Interactive marketing, in its true sense, is about creating connections, sharing, and developing emotional synergies between the brand and the customer, which is beyond the traditional boundaries of advertising and selling, and hence creating a sense of shared experience and emotional brand identity in the minds of the target audience (Wang, 2021). Interactive marketing, as a concept, is about continuous interactions, instant replies, and human responses, which transform the customer from a passive entity of the target audience to an active participant in the meaning and value of the brand. In the present competitive scenario, organizations have realized that the way to create and sustain differentiation is not through expensive advertising, but through human and authentic interactions with the customers (Lim et al, 2023).

However, with the emergence of the digital economy, the very concept of customer loyalty has also undergone a change. Thus, customer loyalty is no longer just about purchasing and re-purchasing, or choosing a brand again, but has also encompassed emotional, behavioral, and even word-of-mouth loyalty towards the brand (Xia et al. 2024). The customer of today is flooded with a plethora of content and options in the digital world, and his loyalty is at an all-time low. Therefore, in order to remain at the top, brands need to develop a relationship based on trust, understanding, and emotional involvement (Anser et al, 2023). Under these circumstances, interactive marketing on Instagram can prove to be a potent force for brands to develop customer loyalty based on human involvement. When a customer feels that he is being heard by a brand and is involved in creating content, a relationship beyond a purely economic one is developed (Shabbir et al, 2024).

Despite these opportunities, the challenge of building lasting loyalties in the online space is complex. Some of the primary challenges relate to trust and social cohesion in a virtual relationship. In a space where realities can easily be manipulated and interactions take place in an algorithmic environment, social capital is doubly important (Maurya, 2025). Social capital is defined as the bonds of trust and cooperation and the networks of communication between individuals and organizations through the process of interaction. In the digital space, social capital is built through interactions and feedback between individuals virtually and not through physical interactions (Saz-Gil et al, 2021). Therefore, as a marketing strategy, interactive marketing through Instagram can be an effective tool if it can help build social capital among customers. Companies that can help build social capital among customers can lay the foundation for lasting loyalties (Hidalgo et al, 2024).

On the other hand, one of the emerging phenomena within the digital world, particularly within the industry of communications and internet services, is the anxiety stemming from the excessive use of digital technologies. As a matter of fact, the user, particularly within young and developing societies, is using a lot of time on social network sites, and this is leading to anxiety, fatigue, and disconnection from physical interactions (Ambat, 2025). At this particular point, there is a kind of behavioral paradox, as the user is dependent on interacting within the virtual world, and at the same



time, there is a kind of anxiety stemming from this particular fact (Tamba & Iancu, 2023). For a brand with an active social media presence, this has a particular meaning, as it is a fact that the anxiety stemming from the excessive consumption of content will not lead to the development of positive feelings (Khan et al, 2024). Therefore, it is crucial for brand managers to understand the moderating role of digital anxiety in the relationship between virtual interactions and customer loyalty. If brands don't manage to find a proper balance between being present and being sensitive to the mental health of users, the marketing strategies implemented might end up backfiring (Wang & Wu, 2022).

At the same time, Asiacell, being one of the most prominent telecommunication companies in Iraq and the leading digital service provider in the country, is working in an environment that is full of opportunities and challenges alike. In the past few years, the company has been seeking to establish a stronger connection with young and tech-savvy cable internet subscribers through social media platforms such as Instagram. However, the Iraqi communications environment is also facing increasing pressure as a result of the challenges of competition and technology, as well as consumers being more sensitive to digital experiences than ever before. The consumers of Asiacell's services today are seeking a real connection with the brand and a sense of being able to share their opinions and feedback on the company's Instagram page. However, the evidence suggests that this is not happening.

Moreover, there are some Iraqi users, particularly in Baghdad, who are experiencing a new phenomenon called digital fatigue. This is due to the fact that the excessive use of advertisements and contents, as well as a lack of time for mental relaxation, has led many people to experience anxiety and boredom related to using social media. This has led to a point where interactions on social media do not necessarily provide a positive and supporting experience for the brand. Therefore, despite the fact that Asiacell is active on Instagram in terms of technology and content, maintaining customer loyalty is a problem that is facing the firm. In these circumstances, it is a vital necessity to understand the psychological and social factors that affect customer behavior, as well as the mediating effect of social capital and the moderating effect of anxiety resulting from excessive consumption of digital media.

In other words, the research problem of the present study is whether the interactive marketing of Asiacell through Instagram can eventually lead to customer loyalty in Baghdad, given the circumstances. Although the interaction between the brand and the customer has a high potential for proximity, the actual outcome depends on the existence of social capital between the brand and the customer. In fact, social capital can act as a mediator between the customer and the brand, which can eventually lead to the formation of a relationship and trust. However, anxiety stemming from the excessive use of cyberspace can act as a barrier to the relationship between the brand and the customer. Whereas, there is a lack of indigenous research on the concurrent effect of these three issues on the Iraqi telecommunications industry. Therefore, the purpose of this study is to offer a holistic model of explaining customer loyalty in Asiacell's Baghdad branch based on the relationship between interactive marketing, social capital, and digital anxiety. This issue should be highlighted, not only on a theoretical level, but also on a managerial level, as it can offer useful implications for marketing managers on



how to create more humane and interactive marketing communications from a psychological point of view.

Research literature

1. Interactive Marketing on Instagram

Interactive marketing is considered a major shift in new forms of modern marketing, which has transformed the idea of one-way communication into two-way, experiential interaction. Interactive marketing is based on dialogue and active participation by the customer, where the customer changes from a passive audience to a value-creating partner in the process of interaction. Interactive marketing has transformed the idea of brands as message senders, where they are also considered message facilitators in human, two-way, and sustainable relationships (Peltier et al, 2024). In the context of cyberspace, Instagram, as a social network based on visuals and interaction, is considered an optimal tool for implementing such a form of marketing. The technology of such a platform, such as the ability to share narrative, live, and direct interaction in the comments and messages section, has transformed the relationship between the brand and the user from a message-sending relationship to a shared experience relationship (Ayeni et al, 2024).

The principles of interactive marketing on Instagram are based on aspects such as authenticity, responsiveness, human focus, and trust. Interactive marketing, such as feedback, opinions, user-generated content, and transparency in brand decisions, not only generates brand awareness and purchase intentions but also creates a feeling of belongingness and trust towards the brand. According to the logic of relationship marketing, as discussed in the previous question, the more human and valuable the experience of interactive marketing, the better are the prospects for developing a relationship between the consumer and the brand. Interactive marketing also focuses on aspects such as the idea of simultaneous experience, i.e., value and meaning are not created before but during the experience. Under such a scenario, the consumer is recognized, and his voice matters in creating the message for the brand. However, as a result of such a feeling of belongingness towards the brand, emotional and social ties are developed, ultimately creating brand loyalty. The principles of interactive marketing on Instagram involve authenticity, responsiveness, the human focus, and trust. Such interactions, including feedback, opinions, user-generated content, and transparency in brand decisions, not only enhance brand awareness and purchase intentions, but also evoke a sense of belonging and trust with the brand (Rachmad, 2024). As per the logic of relationship marketing, the more human and valuable the interactive experience, the higher the probability of developing a long-term relationship between the customer and the brand. Additionally, the interactive marketing approach is based on the idea of the simultaneous experience, which means that the value and significance of the experience are not generated before the experience but during the experience. In such a scenario, the customer is recognized, and his voice is considered in determining the message of the brand. The outcome of the feeling of belonging to something is the creation of emotional and social bonds, which eventually leads to brand loyalty (Gao & Liu, 2023).

However, while it has numerous advantages, its application depends on understanding human behavior in terms of their interaction with digital technology. Interactive marketing is successful if the message is not only symbolic but also real.



However, if only superficial interaction is taking place, it could lead to mistrust and discontent on the part of consumers (Kim & Kim, 2023). Therefore, it is vital for brands to strike a balance between the number and depth of interactions. In this sense, interactive marketing on Instagram could be seen as a bridge between technology and humanity, where participation, credibility, and sociality are vital components for value (Vashisht, 2023).

2. Customer loyalty

Customer loyalty is one of the most basic ideas in the contemporary marketing discipline, which explains the connection between satisfaction, trust, and the repetition of interactions with a brand. In the traditional sense, loyalty means the customer's continuous willingness to repurchase a brand, as opposed to other brands, but in the contemporary sense, this idea is considered not only a repurchase behavior, but also includes attitudinal, emotional, and cognitive aspects (Singh et al, 2023). A loyal customer does not make decisions only because of quality or price, but the emotional bond and shared values with the brand also affect his behavior. Such customers have an internal desire to continue the relationship, recommend the brand to others, are resistant to competitor messages, and tend to return even in situations of temporary dissatisfaction (Jenneboer et al, 2022).

Loyalty has two main parts: attitudinal loyalty and behavioral loyalty. While attitudinal loyalty can be defined in terms of the customer's felt brand dedication, behavioral loyalty can be defined in terms of repurchasing the brand. These two spheres interact bidirectionally; positive attitudes fuel positive experiences, which in turn keep behavior going. Modern theories of loyalty stress how experience-based encounters and emotions help to define it. Positive interactions with employees, effective support, quick response, and creating a sense of respect and belonging are all key drivers of loyalty (Cui et al, 2023).

In the digital age, customer loyalty has taken on a more dynamic and social meaning. Social media users are not just consumers of information, but also co-creators of brand identity. Loyalty in this space is built on personal experiences, peer feedback, and virtual interactions (Magatef et al, 2023). Therefore, brands that can maintain a sense of participation, respect, and trust during digital interactions will be able to build long-term relationships and deep loyalty. In fact, loyalty is the result of the accumulation of positive experiences over time; experiences that both satisfy the user's cognitive desires and respond to his emotional needs (Naini et al, 2022).

3. Social Capital

As one of the most important forms of intangible capital, social capital refers to the network of human relationships, mutual trust, and norms of cooperation among members of a society or organization. Unlike economic capital, which is based on the ownership of material resources, social capital is nourished by the quality of relationships and the degree of social cohesion (Carmen et al, 2022). This concept suggests that value lies not in individuality, but in the connection between people. In a social and digital context, continuous interactions between individuals can give rise to trust, respect, and a sense of belonging to a community, and this is also viewed as a form of capital (Gao et al, 2025).



Social capital is normally studied from three perspectives: structural, relational, and cognitive social capital. Structural social capital is based on the pattern of communication, relational social capital is based on the quality of relationships and trust and emotional commitment between people, and cognitive social capital is based on values, expectations, and shared understanding of the goal (Portes, 2024). In the marketing field, if there is a high social capital, then the interaction between the brand and consumer transcends the level of mere interaction and becomes more of a relationship based on trust and participation. In such cases, the consumer feels part of something, and such feelings enhance their supportive behavior (Chetty et al., 2022).

Social capital can also act as a mediator in economic and social interactions from a behavioral perspective, given that trust is the basis for cooperation. In the context of the virtual environment, the creation of social networks is the basis for the creation of social capital. The more the members of the online community engage in dialogue, share their experiences, and cooperate with one another, the more social capital is created, which eventually leads to the sustainability of relationships. In this context, social capital can act as the mediator between the interactive experience and loyalty, given that only interactions can be sustainable if trust is the basis for the relationship (Al-Tit et al, 2022).

4. Anxiety from excessive digital use

Digital addiction is a series of psychological states that develop as a consequence of continuous exposure to virtual media and platforms. As real life and virtual life continue to merge into one, people develop a sense of anxiety, stress, and a compulsion or need to be in a virtual world at all times. It includes a series of dimensions, such as “the fear of being left behind” in news and relationships, the need for instant replies, and constant comparisons. Ultimately, excessive use of virtual media leads to mental fatigue, boredom, and a decline in mental vitality. (Wei et al, 2023).

From a marketing perspective, it is also noteworthy that, as a marketing tool, social media can lead to an increase in superficial relationships, rather than improving the quality and content of communication. For instance, users who are constantly anxious and under pressure due to the nature of online communication are less likely to form meaningful relationships with brands, and their responses to advertising messages are likely to be driven by boredom and lack of interest rather than real interest. As a result, there is a negative impact on user experience and satisfaction (Kim et al, 2025).

This variable is described as a “moderating factor” in new analytical approaches, which means that high anxiety can impair the positive relationship between virtual interactions and desired consumer behaviors. When users feel tired and stressed, even effective and honest communication can be less effective (Shutzman & Gershy, 2023). On the other hand, digital spaces that are created using a human-centered approach and take into consideration the mental health of users are able to reduce this anxiety and increase positive interactions. In this respect, the control and management of anxiety created by the overuse of digital spaces are not only a human need but also a successful marketing strategy, since brands that are able to create a balance between interaction and the mental comfort of the audience are able to create a stable and healthy relationship with their audience based on trust and satisfaction (Sun, 2023).

Explanation of assumptions and conceptual model



The relationship between interactive marketing on Instagram and customer loyalty

Interactive marketing on Instagram, as a new tool for two-way communication between brands and customers, plays a decisive role in the formation of loyalty. When the brand is able to develop the human and participatory experience with the help of engaging content, interaction, and responses, the sense of belonging and trust is developed in the minds of the users. This further strengthens the positive image of the brand in the minds of the users and further deepens the emotional connection between the users and the brand (Lim et al, 2023). In fact, the concept of loyalty is the extension of the satisfying experience in which the customer feels valued and his presence is significant to the brand. On Instagram, any form of interaction between the users and the brand, whether in the form of responses to the views and mutual likes, sharing the content of the users, etc., is considered an act of respect and honesty from the brand, thus further strengthening the loyalty of the customer in terms of behavior and emotion. Interactive marketing can develop an everlasting bond between the customer and the brand with the help of the development of human connections, empathy, etc. (Mousavi Motlagh & Taheri Goodarzi, 2023). **Hypothesis 1:** Interactive marketing on Instagram has a significant impact on customer loyalty.

The relationship between interactive marketing on Instagram and social capital

The nature of interactive marketing is defined by the constant flow of communication, exchange of ideas, and a sense of community. These are the very same elements that constitute social capital. Instagram is a social media platform that facilitates communication between brands and their followers, as well as between users. When brands communicate in good faith, create an opportunity for participation and open dialogue, and respect user feedback, they are actually building a web of relationships founded on trust and respect (Mostafa, 2021). These relationships, with repetition and persistence, become social bonds and norms of cooperation that constitute the very essence of social capital. From a theoretical standpoint, successful interactive communication enhances three primary aspects of social capital: the structural aspect (enlarging the web of relationships between users), the relational aspect (enhancing trust and mutual obligation), and the cognitive aspect (enhancing meaning and shared purpose in the minds of members). Thus, as the level of interactive marketing in cyberspace increases, the level of social cohesion within the users, the feeling of belonging to the brand community, and the sense of shared values will also be enhanced (Barrutia & Echebarria, 2022). **Hypothesis 2:** Interactive marketing on Instagram has a significant impact on social capital.

The relationship between social capital and customer loyalty

Social capital acts as a foundation for long-term customer loyalty because it generates a sense of trust, bonding, and common understanding. When a customer feels a sense of belonging to a connected community and receives empathy and support from other people while interacting with them, and can trust them, their desire for a long-term relationship with them increases. In other words, customer loyalty is not based on a single customer's experience but on a network of relationships in which every successive experience generates a sense of security, friendship, and bonding (Yoshida et



al, 2021). Based on the logic of social capital, a sense of trust and bonding generates a sense of satisfaction and a positive attitude. A sense of belonging and identification with the brand community causes the customer to behave in accordance with the norms of the group and defend the brand as part of their social identity. Therefore, social capital, as a motivating factor, transforms the customer from a mere consumer into a loyal and committed activist (Agnihotri et al. 2022). **Hypothesis 3:** Social capital has a significant impact on customer loyalty.

The mediating role of social capital in the relationship between interactive marketing on Instagram and customer loyalty

The impact of interactive marketing on loyalty largely depends on how social capital is formed among users. If marketing interactions are limited to the exchange of messages, they will have a short-term effect; but when these interactions lead to the creation of trust, connection, and collective understanding between the brand and users, they leave a deep and lasting impact. In such a case, digital interaction transforms from a level of transient communication to a social and reciprocal network in which customers have an organic connection with each other and with the brand (Ting et al, 2021). This connection is the same social capital that, as a mediating factor, transforms marketing interactions into behavioral and attitudinal loyalty. From a psychological perspective, social capital strengthens positive emotional reactions towards the brand by creating a sense of security and mutual respect. In such an environment, the customer continues to interact not only because of the attractiveness of the content, but also because of collective trust and a sense of belonging to the brand community. Therefore, interactive marketing has the greatest impact on loyalty when it can create the basis for the formation of social capital among followers (Jeong et al, 2021). **Hypothesis 4:** Interactive marketing on Instagram has a significant impact on customer loyalty with the mediating role of social capital.

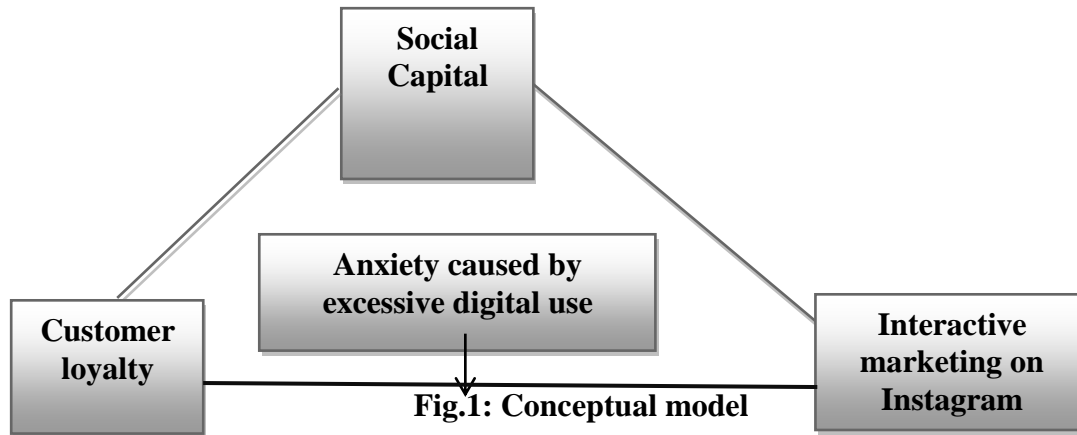
The moderating role of anxiety caused by excessive digital use in the relationship between interactive marketing and customer loyalty .

Although interactive marketing on Instagram can generally increase customer loyalty, this relationship is altered when the user suffers from anxiety due to excessive digital consumption. Digital anxiety is a negative psychological reaction to constant presence in cyberspace, which is accompanied by feelings of pressure, mental fatigue, and decreased concentration. Users who suffer from this condition may become sensitive or indifferent to brand messages and interactions and cannot maintain their positive relationship (Cachón-Rodríguez et al, 2022). Therefore, even if the brand operates at a high level of interaction, an anxious user may engage in digital burnout and lose the ability to accept marketing messages. Within the framework of the moderation model, digital anxiety can change the intensity or direction of the relationship between interactive marketing and loyalty. When anxiety levels are low, users enjoy interacting with the brand and establish a lasting relationship; but at high levels of anxiety, frequent contact and advertising messages may cause boredom and reduce loyalty. Therefore, brands that pay attention to the emotional and psychological aspects of users when designing their interaction strategy will be able to reduce the negative effect of anxiety and maintain the positive relationship between interaction and loyalty (Zhou et al,



2022). **Hypothesis 5:** Interactive marketing on Instagram has a significant impact on customer loyalty by moderating anxiety caused by excessive digital use.

Thus, the conceptual model of the research is based on three direct relationships and one indirect relationship:



Research methodology

The methodology of this study is quantitative, descriptive-correlational, and applied in terms of purpose, and it is designed to investigate the causal relationships between interactive marketing on Instagram and customer loyalty with the mediating role of social capital and the moderating role of anxiety caused by excessive digital use. This study is cross-sectional and data is collected from real users over a specific period of time.

The statistical population of the study is all active users of Asiacell on Instagram; that is, those customers who interact with the company's pages, campaigns, and digital content. Since the number of these users is very large and nationally dispersed, the statistical population of the study is considered unlimited. Accordingly, using the Cochran formula for unlimited populations and considering the number of model variables (four main constructs and several direct, mediator, and moderator paths), the appropriate sample size for structural model analysis was determined to be 384 people.

The data collection tool is a standard, composite questionnaire that includes four main sections:

1. Interactive Marketing on Instagram: Based on the Interactive Marketing Scale adapted from Vivek, Beatty & Morgan (2012) and Hyken (2018), adapted for the environment of Asiacell's official Instagram page.
2. Customer loyalty: Includes indicators derived from the Customer Loyalty Scale by Dick & Basu (1994) and developed by Zeithaml, Berry & Parasuraman (1996), which covers attitudinal and behavioral dimensions of loyalty.
3. Social capital: Based on the Social Capital Scale questionnaire adapted from Nahapiet & Ghoshal (1998) and the empirical model of Onyx & Bullen (2000), including structural, relational, and cognitive dimensions.
4. Anxiety due to digital overuse: taken from the Digital Overuse/Technostress Scale (Tarafdar et al., 2015) and the Social Media Fatigue Scale (Bright, Kleiser & Grau, 2015).

Response options are designed based on a five-point Likert scale (from “strongly disagree” to “strongly agree”). To ensure face and content validity, the questionnaire



will be revised after consulting several digital marketing experts and academics. In order to assess the reliability and validity of the constructs, Cronbach’s alpha, composite reliability (CR), and average variance extracted (AVE) indices will be calculated.

To test the hypotheses, SmartPLS version 4 software and the partial least squares structural equation modeling (PLS-SEM) approach are used. First, the measurement model is evaluated for convergent and divergent validity, then the structural model is examined based on path coefficients, deterministic values (2R), overall goodness of fit (GoF) and path significance test in the form of Bootstrap method with 5000 repeated sampling. Also, to test the mediating role of social capital and the moderating role of digital anxiety, a multi-stage analysis process will be used in the PLS framework.

As a result, this method allows the research model to be empirically tested within the context of the actual behavior of Asiacecell's Instagram users and achieve a more accurate understanding of the psychological and social mechanisms affecting the loyalty of this brand's digital customers.

The features of the audience group—namely gender, age, educational attainment, and history of Instagram activity—are discussed in Table 1.

Table 1: Characteristics of the study sample

	Description of features	frequency	percentage
Gender	Male	153	39.8
	Female	231	60.2
Ege	Under 20 years old	88	22.9
	21-30	106	27.6
	31-40	75	19.5
	41-50	64	16.7
	Over 50 years old	51	13.3
Literacy	Diploma and less	76	19.8
	post graduate	82	21.4
	Bachelor's	121	31.5
	Master's	64	16.7
	Ph.D	41	10.7
Instagram activity history	Less than 3 years	102	26.6
	4-6	89	23.2
	7-10	151	39.3
	Over 10 years	42	10.9

Table 2 presents descriptive statistics related to the research variables.

Table 2: Descriptive statistics of research variables

	Min	Max	Mean	SD	Kolmogorov-Smirnov test	Sig.
Interactive marketing on Instagram	1.50	5	3.875	0.781	0.105	0.000



Customer loyalty	1.00	5	3.705	0.857	0.091	0.000
Social capital	1..00	5	3.627	0.804	0.096	0.000
Anxiety caused by excessive digital use	1.00	5	4.032	0.694	0.098	0.000

The research hypotheses were investigated utilizing the partial least squares technique using SmartPLS3 software because the research variables are not normal based on the Kolmogorov-Smirnov test results shown in Table 2.

The Results of Study

To verify the veracity of the measurement tool, content validity, construct validity, convergent validity, and divergent validity were reviewed. Ensuring the alignment of the measurement markers with the current literature helps to determine content validity, which was obtained via a questionnaire sent to academics. Construct validity is to check whether the chosen signs have relevance and accuracy, therefore indicating if the research model's measured constructs have adequate factor structures. To investigate this problem, t-values—which, at a 95% confidence level, are more than 1.96—are used; they offer appropriate factor structures for measuring the examined dimensions in the research model. Convergent validity is the theory that each construct's signals have a moderate association with one another. Fornell and Larker (1981) contend that the criterion for convergent validity is that the mean output variance (AVE) exceeds 0.5. Moreover, Cronbach's alpha coefficient and composite reliability (CR) were employed in this research to establish the reliability of the questionnaire. Reliability of the questionnaire is shown by coefficients of these over 0.7. Table 3 presents the total findings on the reliability and validity of the measuring instrument.

Table 3: Reliability and validity of the measurement tool

Variables	scale item	Factor Loading	T-Value	Ave.	CR	Cronbach's alpha
Interactive marketing on Instagram	Asiacell maintains a two-way and continuous communication with its followers on Instagram.	0.776	29.981	0.545	0.866	0.814
	The company's responses to user comments and messages are prompt and respectful.	0.861	49.493			
	Content posted on the company's Instagram page stimulates my engagement (likes, comments, or shares).	0.845	57.775			
	On Asiacell's official page, customer opinions are reflected in marketing decisions.	0.576	10.152			
	I feel like interacting with the Asiacell page creates a personalized experience for me.	0.637	14.714			
	Events, surveys, or interactive competitions on the Asiacell page make me feel like my opinion matters.	0.689	17.058			
Customer loyalty	Even if I receive similar offers from other companies, I would prefer to keep Asiacell.	0.634	15.451	0.524	0.867	0.816
	I plan to use Asiacell services in the future.	0.671	15.674			
	Using Asiacell services is my main choice among telecommunication brands.	0.725	21.160			



	Among those around me, I mention the Asiaccell brand as a reliable choice.	0.822	37.555			
	If there is a problem, I would like to contact Asiaccell support first to check other brands.	0.761	27.288			
	My interactions on Instagram have made me feel more connected to the Asiaccell brand.	0.713	27.203			
Social capital (Mediator Variable)	There are friendly and respectful relationships among users of Asiaccell's official Instagram page.	0.819	42.169	0.530	0.838	0.786
	I feel that the information published by Asiaccell on social media can be trusted.	0.828	45.276			
	Users and Asiaccell share common understanding and values in communication content.	0.615	15.470			
	When interacting with the Asiaccell page, a sense of mutual trust and confidence is formed.	0.519	9.197			
	My connection with other Asiaccell followers allows for a useful exchange of experience and knowledge.	0.839	44.981			
	I believe Asiaccell has created a virtual community where its members have a sense of belonging.	0.689	16.110			
Anxiety caused by excessive digital use(Moderator Variable)	Constantly being on social media makes me feel mentally exhausted.	0.801	34.753	0.559	0.768	0.725
	Sometimes I feel like using Instagram too much reduces my concentration.	0.621	13.991			
	If I stay away from my phone or social media for a while, I feel anxious.	0.797	21.476			
	The large volume of content and messages on Instagram causes me psychological stress.	0.777	24.527			
	I feel like being constantly on Instagram takes up a lot of my time from other activities.	0.777	24.469			
	My excessive use of my cell phone sometimes causes personal distress or dissatisfaction.	0.693	17.070			

The third requirement for assessing validity in the PLS technique, divergent validity is last among. This research looked at dissimilar validity using Fornell and Larker's method (1981). Acceptable divergent validity shows that a model construct interacts more with its indicators than with other constructs. Fornell and Larker claim that when the AVE for each construct is higher than the shared variance between that construct and others, or in other words the square root of the AVE is higher than the correlation coefficients, divergent validity is acceptable. This matrix is shown in Table 4. This model has acceptable divergent validity if the numbers in the main diagonal (square root of the AVE) are greater than the values below it:

Table 4: Discriminant validity analysis

	Interactive marketing on Instagram	Customer loyalty	Social capital	Anxiety caused by excessive digital use
Interactive	0.738			



marketing on Instagram				
Customer loyalty	0.722	0.724		
Social capital	0.603	0.680	0.728	
Anxiety caused by excessive digital use	-0.124	0.227	0.328	0.748

The above matrix suggests that the model constructs interact more with their indicators than with other constructs because the AVE root value for each construct is higher than the correlation values between them. In essence, the model's differing validity is at an appropriate level. The results of Tables 3 and 4 show that the measuring tools possess suitable validity—content, convergent, divergent structure—and reliability—Cronbach's alpha coefficient and composite reliability.

Goodness of fit

Figures 2 and 3 of the research model are associated with the research hypotheses. The coefficients in Figures 2 and 3 are divided into two types. One type is associated with the relationship between the latent and manifest variables, referred to as factor loadings, and the second type is associated with the relationship between the latent and latent variables, referred to as path coefficients and used to test the hypothesis. All coefficients are tested with the t-statistic value. This value is considered significant when it is greater than 1.96 in absolute value.

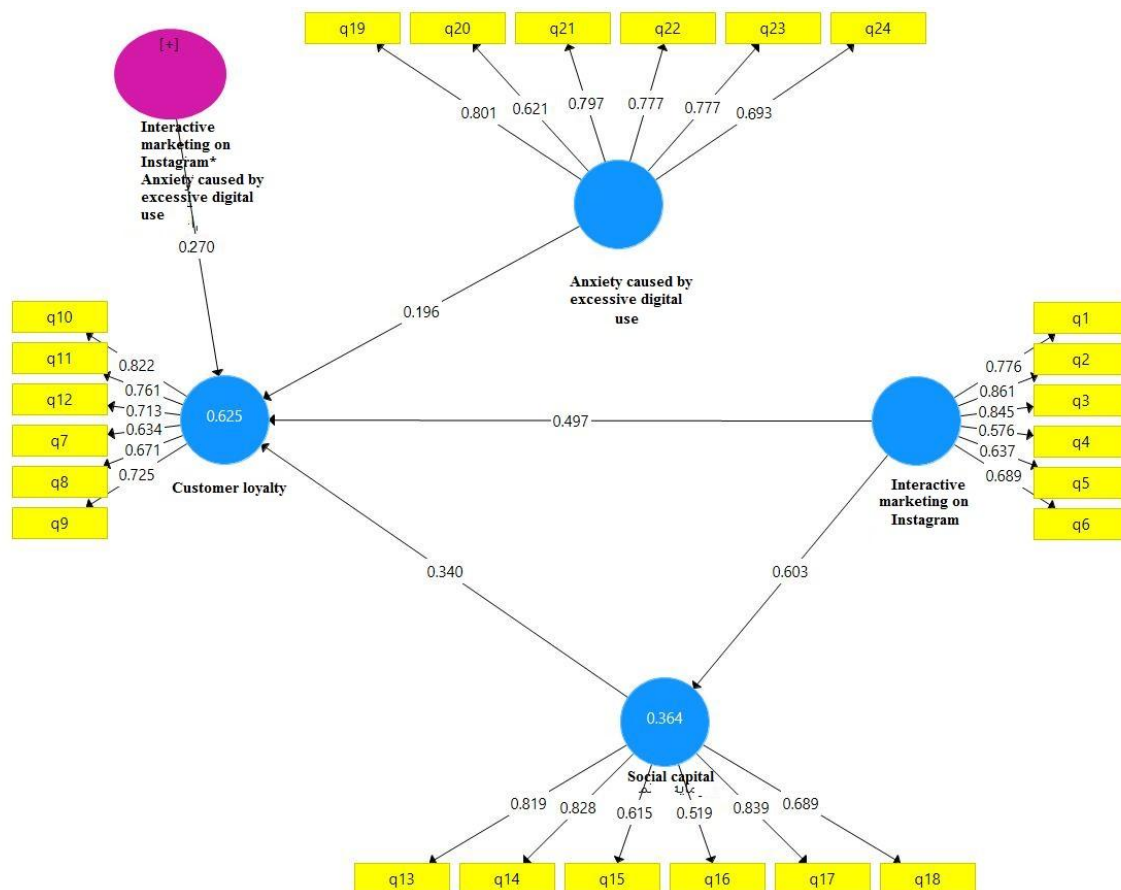




Fig. 2: Factor coefficients and path coefficient of the research model

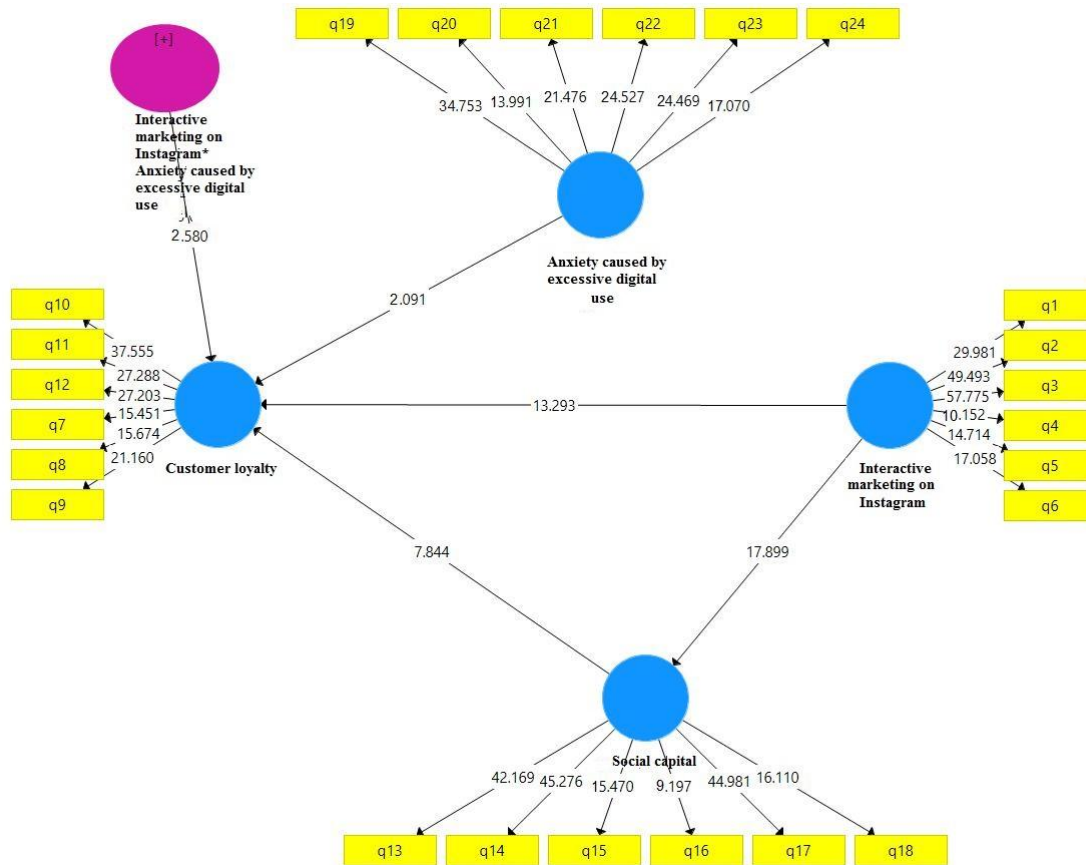


Fig. 3: Significance of the path coefficients of the research model

According to the data analysis algorithm in the PLS method, after fitting the measurement models, the structural model fit of the research is examined. The purpose of model fit is to determine to what extent the model is consistent and agrees with the relevant data. In structural equation analysis, after estimating the parameters and before interpreting them, the model fit must be ensured. For this purpose, the coefficient of determination (R²), the Stone-Geisser criterion (Q²) and the goodness of fit test (Gof) have been used.

The predictive power of the designed model is analyzed using the explained variance (R²) value for the dependent variables. Coefficient of determination analysis helps to understand how much of the variance of the dependent variable can be determined by a set of predictors (Sekaran, 2007) (three values of 0.19, 0.33 and 0.67 are used as criteria for the coefficient of determination values, which indicate a weak, moderate and strong coefficient of determination, respectively. (Chin, 2003). Another criterion for the predictive power of the model is the Q² criterion. If the Q² value for an endogenous construct (dependent variable) obtains three values of 0.02, 0.15 and 0.35, it indicates a weak, moderate and strong predictive power of the exogenous construct or constructs related to it, respectively.



Table 5: Model fit indices

	R ²	Q ²
Customer loyalty	0.625	0.298
Social capital	0.364	0.151

According to the results obtained in Table 5, the suitability of the structural model is confirmed.

The overall measure of goodness of fit that encompasses both the measurement and structural model components is called (Gof). The goodness of fit value is obtained from the following formula:

$$GOF = \sqrt{AVE * R^2}$$

In this relation (AVE)⁻ means the average of the extracted variance and (R²)⁻ is the average coefficient of determination.

$$GOF = \sqrt{0.540 * 0.494} = 0.516$$

Considering the values of 0.01, 0.25, and 0.36 as weak, medium, and strong values, the value of 0.516 indicates a strong fit of the overall model.

Results from the hypotheses

In this section, the effect of independent variables on the dependent variable is examined. The significant effect of each of the independent variables on the dependent variables is determined using the T-statistic. If the absolute value of this statistic is greater than 1.96, the hypothesis is confirmed.

Table 6: Examining research hypotheses

Paths	Beta	Std. error	t	Sige
Hypothesis 1: Interactive marketing on Instagram has a significant impact on customer loyalty.	0.497	0.037	13.293	acceptance
Hypothesis 2: Interactive marketing on Instagram has a significant impact on social capital.	0.603	0.034	17.899	acceptance
Hypothesis 3: Social capital has a significant impact on customer loyalty.	0.340	0.043	7.844	acceptance
Hypothesis 4: Interactive marketing on Instagram has a significant impact on customer loyalty with the mediating role of social capital.	0.205	0.029	7.019	acceptance
Hypothesis 5: Interactive marketing on Instagram has a significant impact on customer loyalty by moderating anxiety caused by excessive digital use.	0.270	0.105	2.580	acceptance

According to Table 6, it can be stated that the result of the first hypothesis test with a path coefficient of 0.497 and a T statistic of 293.13 shows that interactive marketing on Instagram has a significant positive effect on customer loyalty. In the second hypothesis test with a path coefficient of 0.603 and a T statistic of 899.17, it was concluded that interactive marketing on Instagram has a significant positive effect on social capital. In



the third hypothesis test with a path coefficient of 0.340 and a T statistic of 844.7, it was concluded that social capital has a significant positive effect on customer loyalty.

In examining the effect of social capital on the relationship between interactive marketing on Instagram and customer loyalty, based on the Bootstrapping method, the path coefficient is 0.205 and the t-statistic is 7.019. It was concluded that interactive marketing on Instagram has a significant effect on customer loyalty with the mediating role of social capital. In other words, the indirect effect of interactive marketing on Instagram on customer loyalty is significant. Therefore, the fourth hypothesis of the study is accepted.

To examine the effect of the mediating variable, the VAF (variance-affected factor) index is used. If its value is less than 0.2, the mediating effect is weak, if it is between 0.2 and 0.8, the mediation effect is partial, and if it is more than 0.8, the mediation will be complete.

$$VAF = \frac{\text{Direct effect value}}{\text{Direct effect value} + \square \text{Direct effect}} = \frac{0.205}{0.205 + 0.497} = 0.292$$

Given that the variance inclusion value is 0.292, which is less than 0.8, it is a partial mediation.

Table 7: Indirect impact in the research model

Paths	Direct path coefficient	Indirect path coefficient	Total path coefficient
Interactive marketing on Instagram on customer loyalty	0.497	0.205	0.702

In testing the fifth hypothesis, with a path coefficient of 0.270 and a T-statistic value of 2.580, it was concluded that interactive marketing on Instagram has a significant effect on customer loyalty by moderating anxiety caused by excessive digital use.

Research Conclusion

In the context of the findings of the present study, confirming all the hypotheses presented means proving a coherent model of the impact of interactive marketing on Instagram on customer loyalty through social capital and in the presence of the moderating role of anxiety resulting from excessive digital use. These results show that in the context of social networks, the main value of marketing no longer lies solely in transmitting the advertising message, but in creating a two-way experience and a lasting emotional bond with the user. Interactive interactions such as quick response, user-centered content, and instant feedback create a sense of belonging and mutual trust, and this is directly associated with loyalty. This is consistent with new approaches to relationship marketing, which focus on the customer as a partner in value creation rather than just a passive receiver of the marketing message.

On the other hand, the fact that the mediating effect of social capital has been confirmed indicates that trust, cooperation norms, and communication networks created in cyberspace play a vital role as a link between the experience of interaction and loyalty. The more the audiences in the digital environment perceive that they belong to a certain community with social ties with each other, the more likely they will continue interacting and even defending the brand. This indicates that loyalty in the digital



environment is nothing but the result of social relations and communication capital between the users and the brand, rather than the result of advertising and discounts.

The confirmation of the moderating role of digital anxiety is also a subtle and cautionary note. The findings indicate that overconsumption of content and the presence pressure on social networks can negatively affect some of the positive outcomes of active communication. This means that while continuous communication with the brand on Instagram increases loyalty, overstepping the digital saturation threshold can lead to mental exhaustion, brand avoidance, and decreased effectiveness of communication. Thus, brands must formulate their communication policies with consideration for the psychological equilibrium of users; that is, they must achieve a balance between the level of communication and the need for psychological distance.

From the management perspective, the study stresses how investments in interactive marketing should be aimed at creating digital social capital by enabling venues for discussion, user-centric content production, and interactions that promote community and participation. Digital customer experience management must be modified for media consumption patterns so as to prevent stress caused by excessive presence. By doing it this way, the brand can chase two goals: one for effective participation and another to stop digital exhaustion.

Finally, now that all hypotheses of this study have been validated, it has been demonstrated that customer loyalty in the age of social media results from a synergistic combination of active engagement, trust-based social relationships, and smart management of the user's cognitive pressure. Not only does such a conclusion have significant strategic ramifications for the field of digital marketing, but it might also provide a conceptual foundation for creating a more sustainable model of brand-consumer relationships in the future digital economy

Practical suggestions

Based on the research results, some recommendations for marketing managers and brand strategists can be formulated, which can positively affect the performance of communication and customer loyalty in the context of social networks. First of all, it would be important to move the concept of interactive marketing from the level of promotional communication to the level of participatory experience. In other words, the Instagram page of the brand should not only become a source of information, but also a space of dialogue, co-experience, and co-creation of value between the audience and the organization. The development of a sense of collective identity, such as challenges, competitions, questions, and feedback, will lead to the establishment of a virtuous cycle of interaction and loyalty.

The second suggestion is that marketing management should purposefully invest in the development of digital social capital. Social capital cannot be easily developed through advertising; instead, there is a need to develop recurring relationships, the transparency of communications, and genuine responsiveness to the audience. The development of transparent approaches to handling complaints, showing appreciation for the audience's participation, and using human language in digital communications are among the most important tools for the development of mutual trust and long-term loyalty. Additionally, the development of special discussion groups or small fan communities on other platforms such as Telegram, WhatsApp, or Clubhouse may assist



in the development of closer and more informal forms of communication between the audience and the brand, which is a powerful driver of loyalty.

Third, special management attention must be given to the management of digital anxiety and fatigue that results from excessive consumption of digital content. For instance, over-posting, excessive notifications, and advertising can not only fail to boost engagement but can also cause fatigue and mental resistance among users. Brands can use intelligent algorithms to schedule the posting of their content in ways that ensure the right balance of frequency, variety, and emotion to ensure that users feel in charge and comfortable.

Fourth, marketing can capitalize on the behavioral data collected through social media sites to create a personalized interactive experience. By examining the behavior of users who "like" and comment on a message, for example, a message can be created that is not only more personalized and relevant, but also less cognitively demanding. This data-centric approach is valuable when combined with the importance of data ethics and transparency in the collection of data, as honesty in digital behavior builds social capital.

Finally, there is a need for internal training regarding human connection in the digital space for the organization's marketing and response teams. The employees who are familiar with the principles of empathetic communication, positive language, controlling response times, and caring for the digital mental health of users will be the most powerful factor for creating the perception of brand intimacy. Thus, the interactive marketing will not be just an advertising tool but will become part of the human experience management system in the digital age, in which customer loyalty is not the result of advertising but is naturally created by trust and long-term satisfaction.

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