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Augmented reality integration in Jordanian fast-food apps: Enhancing brand identity and customer interaction amidst digital transformation

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Abstract: This study looked at how adding augmented reality (AR) to Jordanian fast-food apps during the pandemic impacts brand identity, consumer views, and interactions. It wanted to see if AR strengthens brand connections or leads to brand dilution concerns in the industry. The research utilized a qualitative approach, employing semi-structured interviews with 52 marketing managers from diverse fast-food establishments across Jordan. The study highlighted how mobile apps, especially AR, changed brand interactions in Jordan's fast-food market. They boosted convenience and engagement but raised worries about food quality and brand dilution due to heavy app use. It stressed the need to balance tech innovation, preserve brand identity, offer personalized experiences, understand user behavior, and tackle app development challenges for better brand loyalty. The research offers practical implications for stakeholders, recommending strategic AR integration, a user-centric approach, cultural sensitivity in tech adoption, and the preservation of emotional connections. It emphasizes the significance of maintaining a delicate balance between leveraging technological advancements and safeguarding the distinctiveness of individual brand identities within an increasingly app-centric landscape. This study uncovers AR's influence in Jordan's fast-food scene, highlighting its transformative power and possible drawbacks. It offers practical advice for industry players, guiding them on how to navigate the digital shift without compromising brand integrity or customer connections.

Keywords: augmented reality; fast-food industry; brand identity; consumer perceptions; mobile applications; brand engagement

1. Introduction

A fast-food restaurant is a specific type of restaurant that is defined by the limitation of meals and quick-prepared food. Upcoming fast-food restaurants are also called fast-food restaurants. A restaurant chain is a group of related restaurants with different locations that are operated either through franchise agreements or under the ownership of McDonald's in the United States. The restaurants within the structure are not only designed according to an architectural prototype, as required, but also implemented for traditional meal services and menus. Fast-casual restaurant chains support and are active in major shopping malls and highways (Chun and Nyam-Ochir, 2020).

The fast-food industry in Jordan has witnessed a significant digital transformation with the emergence of mobile applications, revolutionizing consumer experiences and interactions with brands (Shukla and Nigam, 2018; Barrera and Shah, 2023). Among the various technological advancements, the integration of augmented reality (AR) within these mobile apps has emerged as a pivotal tool, offering immersive and

engaging experiences (Crofton et al., 2019; McLean and Wilson, 2019). However, despite this technological surge, there exists a critical research gap concerning the nuanced effects of AR integration on brand identity and consumer perceptions within the context of fast-food chains in Jordan (Ali-Alsaadi et al., 2023; Sharifirad, 2023).

Existing research predominantly focuses on the impact of mobile applications, particularly third-party delivery apps, on consumer behavior and brand engagement within Jordan's fast-food industry. However, within this landscape, the specific influence of AR integration on brand identity and consumer interactions remains inadequately explored. Understanding the subtle yet potentially transformative role of AR in shaping brand perceptions amidst the accelerated reliance on digital platforms and collaborations during the pandemic is a research void that needs attention.

This study aims to examine how AR integration within Jordanian fast-food chain apps during the pandemic affects brand identity, consumer perceptions, and interactions. By exploring the influence of AR on brand-customer relationships, this research seeks to ascertain whether AR enhances brand connections or contributes to concerns of brand dilution while improving consumer experiences in the fast-food industry.

To achieve the aim this research employed the following questions,

- 1) Influence of AR on Brand Identity: How does AR integration within fast-food mobile apps influence brand identity amidst digital reliance and pandemic-driven collaborations?
- 2) Unique Impact of AR on Brand Interactions: In what ways does AR uniquely shape brand interactions within delivery apps versus traditional experiences in Jordan's fast-food market?
- 3) AR Integration and Brand Differentiation: To what degree does AR integration in mobile apps enhance brand differentiation and loyalty within Jordan's digitally-driven fast-food landscape?

This study's findings hold practical implications for stakeholders in Jordan's fast-food industry, offering insights into leveraging AR as a strategic tool for brand reinforcement and consumer engagement. Understanding the impact of AR integration on brand perceptions and interactions could guide industry practitioners in developing tailored strategies to balance technological innovations with preserving brand uniqueness. Moreover, the research outcomes will contribute to the academic discourse by filling the research gap and providing insights into the evolving dynamics of consumer-brand relationships in the digital era.

The literature review is presented in Section 2, methodology is described in Section 3, findings are presented in Section 4, and the discussion, implications, and conclusion are presented in Sections 5 and 6.

2. Literature review

2.1. Categorization of mobile applications for fast-food chains in Jordan

In the context of Jordan's fast-food landscape, existing research concurs that mobile applications offer a diversified array of options for consumers (Hayajneh and

Alkhaldeh, 2023). Third-party delivery apps like Talabat and Jeeran have streamlined access to various fast-food chains, significantly enhancing convenience and choice for users across the country (Li et al., 2020). These platforms act as comprehensive hubs, aggregating numerous restaurants and providing a seamless ordering experience (Leung and Loo, 2022). However, opposing viewpoints highlight potential drawbacks, emphasizing that while these delivery-oriented apps offer variety, concerns about compromised food quality due to longer delivery times or mishandling by delivery partners have been noted. This raises questions about their impact on user satisfaction, potentially influencing consumer perceptions of these platforms and their reliability (Amini et al., 2020; Ndraha et al., 2020).

2.2. Technology acceptance models (TAM) and user engagement with fast-food apps in Jordan

Scholarly consensus supports the premise that TAM principles significantly influence user behavior within the Jordanian fast-food app domain (Lee, 2023). Intuitive interfaces and efficient services aligning with TAM's perceived usefulness and ease of use contribute to positive user experiences (Zubir and Abdul Latip, 2023). This fosters continued app usage and brand loyalty among consumers in Jordan (Yuen et al., 2023). Conversely, disagreement to this view posits that TAM might overlook critical cultural nuances impacting user preferences (Ashal, 2023). Factors such as local taste preferences or specific cultural habits might supersede conventional TAM elements, thereby influencing app adoption and usage patterns differently within this market (Thomas-Francois and Somogyi, 2023).

2.3. Collaboration during the pandemic and AR integration in Jordanian fast-food apps

Research acknowledging collaborations during the pandemic emphasizes the expansion of fast-food chains' reach through an intensified reliance on mobile channels. These collaborations allowed fast-food brands to sustain visibility and accessibility during challenging times. AR integration within apps has emerged as a transformative factor, enhancing user experiences and portraying brands as adaptive and innovative in Jordan's competitive market (Durão et al., 2023). On the contrary, divergent research perspectives raise concerns about potential brand dilution due to over-reliance on delivery apps during the pandemic (Vinnakota et al., 2023). There's a suggestion that extensive dependence on these platforms might blur distinct brand identities, leading to overshadowing by the app's interface or the branding of delivery partners, possibly diluting the essence of individual brand experiences (Ravn et al., 2020).

2.4. Consumer-brand engagement (CBE) and smartphone screen size impact on fast-food apps in Jordan

Existing studies endorsing CBE within fast-food apps affirm its positive influence on brand loyalty among Jordanian consumers (Algharabat et al., 2020). Larger smartphone screens, according to these findings, facilitate enhanced engagement as they enable users to explore menus, visuals, and customization options

more thoroughly, leading to deeper connections with the brand (Çınar, 2020). However, counter opinions suggest that while CBE plays a pivotal role in shaping brand loyalty, larger screens might not inherently guarantee deeper engagement within apps (Menet and Szarucki, 2020). Contrary to prevailing beliefs, some users on smaller screens might prioritize quicker transactions over in-depth exploration, questioning the direct correlation between screen size and the depth of user engagement within the app (Park et al., 2021).

2.5. Digital channels and brand engagement in Jordanian fast-food chains, and mobile apps as brand touchpoints

Agreement among researchers supports the notion that digital channels, especially mobile apps, wield significant influence over brand engagement within Jordan's fast-food industry (Denham and Gladstone, 2020). These apps are recognized for their ability to offer personalized experiences, fostering trust and encouraging repeat business among Jordanian consumers (Alzoubi et al., 2022). Yet, dissenting opinions argue that while digital channels influence engagement, an overemphasis on apps might inadvertently limit personal interaction between consumers and fast-food brands (Lu et al., 2020). This perspective highlights concerns about a potential dilution of the emotional connections users have traditionally formed with fast-food brands in Jordan, posing questions about the evolving nature of brand-consumer relationships in a digitally dominant landscape (Doeim et al., 2022).

2.6. Research gap and aim

Despite the prevailing focus on the impact of mobile applications on consumer behavior within Jordan's fast-food industry, there remains a lack of comprehensive understanding regarding the nuanced effects of AR integration on brand identity and consumer perceptions amidst the accelerated reliance on delivery-oriented apps during the pandemic. Current research has primarily highlighted the benefits and challenges associated with third-party delivery apps and consumer-brand engagement within fast-food apps. However, the potential influence of AR integration on brand dilution or enhancement amidst the digital dominance and collaboration dynamics during the pandemic remains underexplored.

This study examines how AR integration in Jordanian fast-food chain apps during the pandemic affects brand identity, consumer perceptions, and interactions. It seeks to understand whether AR enhances brand connection or addresses brand dilution concerns while improving consumer experiences in the fast-food industry.

3. Research methodology

3.1. Study design

The qualitative research framework was purposefully chosen to intricately explore the multifaceted behaviors, mindsets, and motivations of participants within the specific context under study. This methodology allowed for a deep and immersive examination of participant experiences and perspectives, providing a comprehensive understanding that goes beyond mere surface observations. Opting for semi-structured

interviews was deliberate as they afford the flexibility to delve into nuanced details and intricacies often overshadowed or missed by more rigid quantitative methods. However, it's imperative to acknowledge that these interviews, while rich in insights, demand meticulous analysis due to their detailed nature (Gupta et al., 2021). Moreover, they can be susceptible to interviewer bias, emphasizing the need for rigorous scrutiny, and they inherently require a considerable time investment for thorough exploration and comprehension (Morshed, 2020; Ramadan et al., 2024).

3.2. Participant selection

The meticulous selection process involved engaging 52 marketing managers from diverse fast-food establishments across Jordan. The most famous restaurants. This strategic selection aimed to capture a broad spectrum of perspectives within this industry segment, ensuring a comprehensive and representative view of the experiences and insights from various managerial roles.

3.3. Language used

Conducting interviews exclusively in Arabic was a deliberate choice to create an environment where participants could comfortably and authentically express their thoughts and experiences. Subsequently, meticulous translations were carried out to present the findings accurately and effectively in English, ensuring the integrity and fidelity of the participants' expressions.

3.4. Sample size determination

Adhering to the saturation principle, the sample size was not predetermined but organically determined during the research process. This approach allowed data collection to continue until reaching a point where no new information or novel insights emerged, ensuring a comprehensive and exhaustive understanding without arbitrary constraints on participant inclusion (Morshed and Ramadan, 2023).

3.5. Data collection

Utilizing online video conferencing software, the semi-structured interviews were conducted, recorded, transcribed, and subjected to rigorous analysis. The interview questions were meticulously crafted and strategically designed to elicit detailed responses that would unearth a comprehensive understanding of participants' professional experiences in financial management. This method aimed to capture the multifaceted aspects of their attitudes, behaviors, and viewpoints within their roles, providing a holistic perspective (Morshed, 2023, 2024).

3.6. Data analysis

A meticulous analysis was undertaken using thematic and hermeneutic approaches to discern patterns, themes, and underlying meanings within the collected data. These methodologies were specifically chosen for their ability to uncover recurring elements and interpret the deeper significance behind the participants' narratives. Leveraging NVivo, a robust qualitative data analysis software, facilitated a comprehensive and detailed examination through both automated and manual analyses.

Ensuring rigor and reliability, two human analysts independently scrutinized the data, contributing to a nuanced understanding of the complexities and subtleties within the dataset.

3.7. Ethical considerations

Ethical guidelines were strictly followed throughout the entire interview process. These measures encompassed obtaining informed consent from participants, prioritizing the protection of their privacy and confidentiality, and minimizing any potential harm or discomfort they might encounter. Participants engaged voluntarily and had the autonomy to discontinue their participation at any stage without any form of coercion. Upholding ethical standards, participant identities remained strictly confidential, aligning with the stringent ethical protocols governing research involving human subjects.

4. Findings

Q1: How does AR in Jordanian fast-food mobile apps influence brand identity amidst digital reliance and pandemic-driven collaborations?

- Advantages of mobile apps in fast-food marketing:

Interviewees emphasized the transformation brought by mobile apps in fast-food marketing, emphasizing their role as a direct link to customers, providing convenience, personalization, and increased engagement. This echoed existing research that recognized delivery apps like Talabat and Jeeran in Jordan for diversifying options and significantly enhancing convenience and choice for consumers (Hayajneh and Alkhawaldeh, 2023). However, while interview insights focused on the positive aspects of engagement and convenience, the literature review highlighted concerns about potential drawbacks, specifically compromised food quality due to longer delivery times, which might impact user satisfaction and perceptions of reliability (Amini et al., 2020; Ndraha et al., 2020).

- Importance of a solid marketing strategy:

Both interviewees and existing literature stressed the significance of a well-crafted marketing strategy in the context of fast-food apps in Jordan. Interview insights emphasized continuous improvement based on user feedback, aligning with literature discussing the influence of Technology Acceptance Models (TAM) principles on user behavior. However, while interviewees focused on the need for tailored strategies, discussions in the literature also highlighted potential oversights concerning critical cultural nuances impacting user preferences within this market (AL-Nawafleh et al., 2019; Lee, 2021).

- The role of AR in branding:

Interview perspectives and literature findings emphasized AR as a transformative tool within branding strategies, lauding its potential to facilitate meaningful interactions and align with a brand's core values. Interviewees had highlighted AR's capacity to offer personalized, immersive experiences, fostering deeper connections between consumers and brands. Similarly, literature had recognized AR's ability during the pandemic to enhance user experiences, portraying brands as adaptive and innovative (Durão et al., 2023). However, concerns had arisen from both interviewees

and literature regarding potential brand dilution resulting from over-reliance on delivery apps, raising doubts about AR's effectiveness in maintaining brand individuality (Ravn et al., 2020). These discussions had underscored the need for a balanced approach to AR integration, ensuring it complemented and enhanced a brand's unique identity rather than overshadowing it within the competitive landscape of fast-food marketing.

- Customer-brand interaction and digital channels:

In Jordan's fast-food industry, both interviews and research recognized mobile apps' positive impact, enhancing customer engagement, offering personalized experiences, and building trust for repeat business. While apps facilitated seamless interactions, concerns arose about relying too heavily on them. Literature (Alzoubi et al., 2022) highlighted the risk of eroding emotional connections between consumers and brands due to excessive tech dependence, stressing the need to balance convenience and genuine emotional ties. To preserve traditional bonds, integrating app experiences with personalized interactions emerged as crucial (Lu et al., 2020). Achieving harmony between tech convenience and authentic emotional connections proves vital for lasting consumer-brand relationships in this market.

- Challenges and mistakes in app development:

Both interviews and literature underscored shared concerns about common mistakes in fast-food mobile app development, highlighting critical challenges in the industry. Worries centered around compromised food quality due to increased reliance on delivery apps, citing longer delivery times or mishandling by delivery partners as factors impacting user satisfaction and perceived reliability (Amini et al., 2020; Ndraha et al., 2020). Additionally, the risk of brand dilution emerged as a significant concern, where an excessive focus on delivery apps might overshadow distinctive brand identities, potentially undermining traditional brand experiences (SHARABATI et al., n.d.). Proposed solutions from both interviews and literature emphasized tailored approaches, emphasizing genuine value and personalized experiences to enhance engagement and retain consumer loyalty. This strategy aimed not only to attract customers but also to ensure repeated app usage, highlighting the importance of addressing these challenges to maintain unique brand identities while providing an engaging user experience in fast-food mobile app development.

To sum up, the impact of mobile apps on fast-food marketing in Jordan is undeniable, offering convenience, personalization, and enhanced engagement. However, challenges like compromised food quality and potential brand dilution highlight the need for a balanced approach. Crafting tailored marketing strategies and integrating technologies like AR while preserving genuine emotional connections emerge as crucial. Achieving this delicate balance between convenience and authenticity is key to ensuring a successful and engaging user experience while maintaining the essence of individual brand identities in this evolving landscape.

Q2: In what ways does AR uniquely shape brand interactions within delivery apps versus traditional experiences in Jordan's fast-food market?

- Mobile app transformation:

Both the interviews and scholarly literature shared a consensus on the transformative impact of mobile apps in the fast-food industry. Interviews emphasized how these apps revolutionized marketing by providing personalized experiences,

simplifying orders, and enhancing customer engagement. This aligns with scholarly findings that acknowledged mobile applications, such as Talabat and Jeeran, for significantly broadening consumer options, streamlining access to various fast-food chains, and offering a seamless ordering experience (Li et al., 2020; Hayajneh & Alkhaldeh, 2023). The synthesis between interview insights and academic research emphasized how these apps acted as pivotal connectors between customers and brands, not merely facilitating orders but also fostering loyalty, offering exclusive deals, and providing valuable insights into consumer behavior.

- AR's role in customer-brand interaction:

The discussions across interviews and scholarly literature highlighted the unique role of AR in shaping brand interactions. Interviewees emphasized AR's potential to deliver meaningful engagements aligned with brand values, emphasizing the need for integration across various touchpoints. This mirrored scholarly perspectives that recognized AR's transformative impact on customer-brand interaction within fast-food apps in Jordan, portraying brands as innovative and adaptive (Durão et al., 2023). However, both sources raised concerns about potential brand dilution, emphasizing the need for caution in the extensive reliance on these apps during challenging times, which might overshadow individual brand experiences.

- Challenges in app development:

Interview insights aligned with scholarly concerns about challenges in app development. The interviews highlighted mistakes such as overlooking user value and irregular updates, echoing scholarly worries about compromised food quality and longer delivery times affecting user satisfaction and app reliability (Amini et al., 2020; Ndraha et al., 2020). This shared emphasis underlined the critical importance of addressing these challenges to ensure optimal user experiences and maintain brand reliability.

- Potential brand dilution:

Both interviewees and scholarly sources expressed apprehension regarding potential brand dilution amid increased reliance on delivery apps. They shared concerns that such dependence might dilute distinct brand identities, potentially overshadowing brands with the app's interface or delivery partners' branding (Ravn et al., 2020). This parallel focus on maintaining individual brand experiences amid digital dominance highlighted the evolving landscape of brand-consumer relationships in the fast-food industry.

- AR integration and brand identity:

The interviews with fast-food marketing managers and the scholarly literature converged on the significance of AR in reinforcing brand identity and enhancing engagement. Both sources emphasized the need for comprehensive AR integration across various platforms to maintain consistent brand reinforcement. Despite acknowledging AR's potential in creating value-added experiences, both expressed cautiousness about potential brand dilution amid the app-centric market (Durão et al., 2023; Vinnakota et al., 2023). This alignment showcased a unanimous recognition of AR's pivotal role in fortifying brand identity and elevating customer engagement within the fast-food industry. There existed a shared cautiousness regarding the risk of potential brand dilution within an increasingly app-centric market landscape, emphasizing the delicate balance required between leveraging AR's immersive

capabilities to reinforce brand identity while safeguarding the distinctiveness of individual brand experiences amidst evolving digital trends.

In summary, both interviews and scholarly insights underline the transformative impact of mobile apps, notably AR, on brand interactions in Jordan's fast-food market. While these apps revolutionize consumer experiences and offer innovative engagements, concerns about potential brand dilution surface due to excessive reliance on app interfaces. Challenges in app development also highlight the need for reliability and user-centric approaches. The consensus emphasizes AR's pivotal role in reinforcing brand identity but stresses the importance of balancing its immersive capabilities while preserving the uniqueness of individual brand experiences within the app-dominated landscape of the fast-food industry in Jordan.

Q3: To what degree does AR integration in mobile apps enhance brand differentiation and loyalty within Jordan's digitally-driven fast-food landscape?

- Mobile apps as transformative platforms:

The interviews highlighted how mobile apps fundamentally transformed fast-food marketing in Jordan, emphasizing their role as direct connections to customers, which aligned with the literature's acknowledgment of these apps providing diverse options and convenience (Li et al., 2020; Hayajneh & Alkhaldeh, 2023). However, while the interviews emphasized their convenience, the literature raised concerns about potential compromises in food quality due to longer delivery times and handling issues by delivery partners, underlining a critical divergence between perceived benefits and actual challenges (Ndraha et al., 2020).

- AR's role in customer-brand interaction and differentiation:

The interview insights highlighted AR's transformative potential, aligning with literature that identified AR as a tool enhancing customer-brand interaction and innovation within the fast-food market (Durão et al., 2023; Vinnakota et al., 2023). However, both sources expressed shared concerns about the possibility of diluting distinct brand identities due to excessive reliance on delivery apps, indicating a potential trade-off between technological advancement and brand individuality (Ravn et al., 2020). The literature also emphasized the adaptive nature of brands during the pandemic, leveraging AR to maintain visibility and accessibility, further supporting the interviews' observations on AR's adaptability and innovation (Durão et al., 2023).

- Personalization and user value:

Interviews stressed the necessity for personalized offers and consistent updates, resonating with scholarly literature emphasizing the significance of tailored experiences in fostering trust and encouraging repeat business (Alzoubi et al., 2022). This alignment highlighted the shared understanding of the importance of user-centric approaches in maintaining brand loyalty. Moreover, the literature discussed how collaborations during the pandemic allowed fast-food chains to sustain visibility and accessibility, reinforcing the interviews' emphasis on personalized engagement and its critical role in brand sustenance during challenging times (Denham & Gladstone, 2020).

- Challenges in app development:

Insights from interviews regarding challenges in app development, particularly regarding user value and updates, correlated with concerns highlighted in the literature about the impact of delivery app usage on food quality and the potential limitations in

personal interaction between fast-food brands and consumers (Lu et al., 2020). This convergence underlined the critical need for balancing technological advancement with core brand values and consumer relationships. Additionally, the literature pointed out how larger smartphone screens facilitated enhanced engagement, echoing the interviews' emphasis on creating user-centric experiences through app development (Çınar, 2020).

- **Integration and brand reinforcement:**

Interviews emphasizing the integration of AR across various platforms echoed the literature's suggestion for strategic integration while preserving brand identity and unique experiences (Denham & Gladstone, 2020). This shared emphasis on multi-platform integration signified an agreement on the need for a cohesive brand presence across digital touchpoints. Moreover, the literature explored Technology Acceptance Models (TAM) and their influence on user behavior, addressing potential cultural nuances impacting app adoption, which resonated with the interviews' focus on understanding user behavior and preferences (AL-Nawafleh et al., 2019).

To sum up, the integration of AR within mobile apps in Jordan's fast-food sector offers a promising avenue for brand differentiation and loyalty. This synthesis of interviews and scholarly insights underscores the transformative impact of mobile apps as direct connections to consumers, emphasizing convenience while raising concerns about potential compromises in food quality due to delivery-related challenges. AR emerges as a potent tool for enhancing customer-brand interaction and innovation, yet there's a cautious note about the risk of diluting brand identities through excessive reliance on delivery apps. The critical role of personalized experiences in fostering trust and repeat business, especially during challenging times like the pandemic, resonates strongly, emphasizing the need for a nuanced balance between technological advancement and maintaining essential consumer-brand relationships. Ultimately, successful AR integration demands a strategic approach that harmonizes technological innovation, brand identity preservation, personalized engagement, and an understanding of consumer behavior within Jordan's digitally driven fast-food landscape.

5. Discussion and implications

The literature review and the findings share notable similarities and differences in their exploration of the mobile app landscape within Jordan's fast-food industry. Both sources converge on recognizing the transformative impact of mobile applications, emphasizing their role in enhancing convenience, personalization, and engagement for consumers through platforms like Talabat and Jeeran (Li et al., 2020; Hayajneh & Alkhaldeh, 2023). AR emerges as a key focus, lauded for its potential in revolutionizing brand interactions and portraying brands as adaptive and innovative, albeit with shared concerns about potential brand dilution due to over-reliance on delivery apps (Durão et al., 2023; Vinnakota et al., 2023). Furthermore, both sources emphasize the importance of customer-brand interaction facilitated by mobile apps, while expressing concerns about eroding emotional connections due to excessive tech dependence (Alzoubi et al., 2022; Lu et al., 2020).

However, differences arise in their depth of discussion and perceived benefits

versus challenges. The literature review delves deeper into theoretical models like Technology Acceptance Models (TAM), cultural nuances impacting user preferences, and concerns about emotional connections, providing a broader theoretical perspective (AL-Nawafleh et al., 2019; Alzoubi et al., 2022). Conversely, the findings from interviews emphasize more user-centric perspectives, highlighting personalized experiences and challenges in app development, such as user value and updates (Çınar, 2020; Denham & Gladstone, 2020).

There's alignment between the literature and the findings on the integration of AR across platforms to reinforce brand identity. Both emphasize the need to balance technological advancements with preserving brand individuality amidst the app-centric market landscape (Durão et al., 2023; Vinnakota et al., 2023). The synthesis of these sources underscores the transformative nature of mobile apps and AR in brand interactions, while revealing varying perspectives in terms of depth of discussion and emphasis on theoretical models versus user-centric experiences within Jordan's fast-food industry.

The convergence between the literature review and the findings offers several practical implications for stakeholders within Jordan's fast-food industry, particularly concerning mobile app integration and AR utilization:

- **Marketing Strategies:**
 - 1) **Personalization through AR:** Use AR for creating personalized, immersive customer experiences to enhance brand connection.
 - 2) **Balance Innovation and Identity:** Strategically integrate AR while maintaining the fast-food brand's unique identity.
- **App Development:**
 - 1) **User-Centric Features:** Focus on intuitive, culturally sensitive app interfaces that enhance user experience.
 - 2) **Continuous Improvement:** Regularly update apps based on user feedback, especially in AR features.
- **Delivery Businesses:**
 - 1) **Unique Brand Experiences:** Incorporate AR to differentiate brand experiences within delivery apps.
 - 2) **Brand Identity Preservation:** Ensure delivery services don't overshadow individual fast-food brand identities.
- **Managerial Implications:**
 - 1) **Strategic Implementation of AR:** Manage AR integration to boost brand loyalty and differentiate in the market.
 - 2) **Data-Driven Decisions:** Utilize app-generated data for informed decision-making and marketing adjustments.

6. Conclusion

This research aimed to explore the impact of AR integration in Jordanian fast-food chain apps amidst the digital reliance and pandemic-driven collaborations. The study addressed the research gap concerning the nuanced effects of AR on brand identity and consumer perceptions, contributing to a deeper understanding of AR's role in the fast-food industry. Three key research questions guided this exploration:

AR significantly influences brand identity in Jordan's fast-food industry, enhancing engagement and innovation while raising concerns about potential brand dilution from excessive app reliance.

AR transforms brand interactions in delivery apps, creating personalized experiences but also prompting worries about preserving brand uniqueness in an app-centric environment.

Integrating AR in mobile apps holds potential for brand differentiation and loyalty, yet challenges like compromised food quality and diluted brand identities due to heavy app reliance need careful handling.

This research significantly contributes by shedding light on the impact of AR integration in Jordan's fast-food industry, particularly during the pandemic era. It fills the research gap by emphasizing the need to understand AR's nuanced effects on brand identity and consumer perceptions. The study underscores the transformative potential of AR while cautioning against potential drawbacks related to app-centric experiences, offering valuable insights for industry practitioners and researchers.

Based on the findings, several recommendations are proposed for stakeholders in Jordan's fast-food industry:

- **Strategic integration of AR:**

Stakeholders should strategically integrate AR across platforms while preserving brand uniqueness, ensuring a harmonious blend of technological innovation and brand identity reinforcement.

- **User-centric approach:**

Emphasizing personalized experiences and addressing user concerns regarding app reliability, quality, and updates is crucial to foster brand loyalty.

- **Cultural sensitivity in tech adoption:**

Understanding local tastes and preferences should guide tech innovations to align with cultural nuances, enhancing app adoption and usage patterns.

- **Preservation of emotional connections:**

Balancing tech convenience with genuine emotional ties is essential to maintain lasting consumer-brand relationships in the digital landscape.

Future research can explore the long-term effects of AR on brand identity and consumer behavior post-pandemic, conduct comparative studies across markets to understand AR's impact on brand perceptions, delve into user experiences within fast-food apps using AR, and investigate effective AR adoption strategies considering consumer preferences and technological advancements in the industry.

In conclusion, this study provides valuable insights into the impact of AR integration within Jordan's fast-food industry, highlighting its transformative potential while cautioning against potential pitfalls. The findings offer practical implications for stakeholders and pave the way for future research directions in this dynamic and evolving landscape.

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