

If COVID-19 doesn't kill you, Uber Eats will: hospitality entrepreneurs' views on online food aggregators

Andy Erickson 

Faculty of Culture and Society, Auckland University of Technology, Auckland, New Zealand
Correspondence: andy.erickson@aut.ac.nz

ABSTRACT: Even before COVID-19 changed the world, hospitality operators were struggling to understand how to cope with the short-term benefits but potentially long-term damage to their business model of collaborating with food aggregators. The ease of accessing a well-managed customer interface distribution network needed to be balanced with the overheads incurred in doing so, but also with the loss of direct contact with a customer base whose loyalty is increasingly with the food aggregators, not the hospitality operations providing the food. This qualitative case study consisted of in-depth interviews with senior management selected from an existing network of personal contacts, using purposive sampling to identify seven owners of restaurants in the Auckland region of New Zealand. Thematic analysis identified their reasons for considering food aggregators as a business partner, the benefits and costs of doing so, and the impact on COVID-19 on their businesses. The research found that their initial goals had been to fill spare capacity in the restaurant and build additional take-away trade. While there was an initial increase in business, the commission taken by the food aggregators and the shift of loyalty of the diners from the restaurant to the food aggregator had a major impact on the financial sustainability of the operations. It also caused a significant shift away from in-restaurant dining and towards take-away dining, thereby considerably lessening the opportunity for staff to build relationships, customer loyalty and upselling opportunities.

KEYWORDS: Auckland, coronavirus, food delivery platforms, pandemic, restaurants, service operations

Introduction

This article investigates the impact on independent hospitality operations of the exponential growth in mobile food ordering apps (Kapoor & Vij, 2018; Laddha, 2019; Alalwan, 2020), also known as online food-delivery aggregators (Verma, 2020a). It questions whether these are beneficial to the long-term sustainability of small operators in the restaurant sector. Seen by many as a great and customer-focused innovation which "reduces psychological costs and increases transaction reliability" (Verma, 2020a, p. 296), they have nevertheless also raised questions around their impact on customer satisfaction and whether they build loyalty to either the restaurant or the app. Quabius (2017) suggests that in the Gulf countries they could be compared to shopping malls. Some report that 60% of restaurant users have at least one such app installed on their mobile devices (Alalwan, 2020).

A 2016 McKinsey and Company report points out that the top five of these internet platforms have a combined value of US\$10bn (Hirschberg et al., 2016). Research by Meenakshi and Sinha (2019) found that in India, Swiggy has 35 000, Zomato 25 000, Foodpanda 15 000 and Uber Eats 12 000 restaurants signed up to their platforms, and that they have expansion plans into more rural areas. Hasan et al. (2020) remind readers that in India aggregators also operate across the economy, from taxis (Uber), groceries (Grofers), restaurants (Zomato, Uber Eats,

Swiggy, Food Panda, Tiny Owl, GrabFood, Foodora, Menulog, Deliveroo) and even travel (Make My Trip) and refer to such aggregators as "orchestrators". They suggest that the goal of such aggregators is often to organise a rather unstructured sector into a clearly understood and trusted brand. Commissions charged by food aggregators in India can be as low as 2–3%, but are often in the range of 15–35% of the overall bill depending on "various factors like the frequency of orders received, location of the restaurant, dependency of the restaurant on [the aggregator], percentage charged by competitors, penetration to a new city etc." (Hasan et al., 2020, p. 341), a point confirmed by Hendy (2018) in Sydney, Australia. Leesa-Nguansuk (2020) suggests that the COVID-19 pandemic has led to significantly increased demand for food delivery operators. However, Gibbs (2018, p. 5) quotes one Australian restaurant owner describing food aggregators as "the business partner he never wanted". Hasan et al.'s (2020, p. 338) assertion that "the aggregator just helps them in marketing in an exclusive win-win way" is something that this article seeks to further investigate.

Food aggregators

Food aggregators, frequently known as online food delivery platforms, constitute sophisticated digital interfaces that effectively bridge the divide between consumers and a broad spectrum of restaurants. Primarily functioning through

user-friendly mobile applications and web portals, these platforms expedite a seamless progression for users to peruse menus, initiate orders and coordinate deliveries or pickups. Examples of major food aggregators include Uber Eats, DoorDash, Grubhub and Deliveroo (Yang & Jun, 2002; Al-Maghrabi & Dennis, 2011; Wirtz & Lovelock, 2018; Hwang et al., 2019; Minazzi & Panno, 2019; Abbas et al., 2019; Chen et al., 2020; Verma et al., 2020b).

Food aggregators, often referred to as "orchestrators", play a role in organising an otherwise unstructured hospitality sector (Hasan et al., 2020). By providing a trusted brand and platform, these aggregators seek to offer a structured experience to consumers and foster growth in the industry. However, the power dynamics between aggregators and small businesses raise concerns about the terms of engagement and long-term sustainability (Kim & Park, 2017).

Impacts of COVID-19 on the growth of food aggregators

The economic implications of food aggregators on small hospitality operations are profound. Kapoor and Vij (2018), Laddha (2019) and Alalwan (2020) highlight the exponential growth of mobile food ordering apps and their potential impact on small players. While these platforms offer increased visibility and accessibility, Verma (2020) emphasises that the economic viability of small operators is hampered by the commission fees, which can range from 2 to 3% to as high as 35% of the overall bill (Hasan et al., 2020). This disparity in commission rates can significantly affect the profit margins of small establishments.

The seismic shift in consumer behaviour during and after the COVID-19 pandemic is exemplified by the shift in customer loyalties from the restaurants to the food aggregator brands. The proliferation of food aggregators, notably the likes of Uber Eats, DoorDash, Grubhub, Thuisbezorgd and Deliveroo, has catalysed shifts in consumer behaviour (Chen et al., 2020). These platforms have ushered in a new era of convenience, enabling users to access a variety of dining options remotely (Alalwan, 2020). This shift, coupled with the accessibility of diverse menus on a single platform, has significantly influenced consumer preferences (Laddha, 2019). However, this convenience-driven shift has prompted concerns about the erosion of direct customer-restaurant relationships (Kim & Park, 2017), leading to a number of challenges for the small operators in building a loyal customer base which in the past represented their bread and butter.

Food aggregators have reshaped consumer behaviour and preferences. Meenakshi and Sinha (2019) highlight the extensive user base of these platforms, with a substantial portion of restaurant-goers having at least one food delivery app installed on their devices. While Verma (2020) argues that these platforms enhance transaction reliability, questions persist regarding their impact on customer loyalty. Does the loyalty lie with the restaurant or the aggregator? This question is a focal point of investigation in this article.

The so-called symbiotic relationship between food aggregators and small operators is marred by unrealistic commission fees, which are a point of contention (Hasan et al., 2020). While these platforms provide heightened visibility, they also introduce operational challenges (Lee et al., 2019) for an industry which is already defined by the seasonality of its demand. The influx of online orders strains resources, and COVID-19 accentuated the demand for contactless service (Leesa-Nguansuk, 2020). This

dynamic compels small operators to rethink their operational strategies and adapt to the changing landscape (Gibbs, 2018).

Food aggregators have spurred noteworthy shifts in consumer behaviour, shaping preferences and expectations around dining experiences. By providing a convenient means to access an array of dining options from the comfort of one's home, these platforms have altered the traditional dining landscape (Chen et al., 2020). The accessibility and convenience of browsing multiple menus and selecting dishes from various establishments on a single platform have been key drivers of their widespread adoption.

The operational disruptions caused by food aggregators are significant. The influx of online orders can strain the resources of small restaurants, leading to compromised service quality (Lee et al., 2019) and higher menu prices on the aggregator apps compared to onsite pricing to offset the commissions. However, the COVID-19 pandemic also underscored the increased demand for food delivery services (Leesa-Nguansuk, 2020). Despite these challenges, some small establishments have found opportunities for growth through the exposure provided by these platforms (Gibbs, 2018) by becoming delivery and pick-up only establishments and thus savings costs by cutting server jobs.

The economic implications of food aggregators in the post-pandemic landscape are pivotal. When the pandemic initially posed operational challenges for small businesses, many turned to food aggregators as a means of survival (Çelik, 2011; Leesa-Nguansuk, 2020). The increased demand for food delivery services during lockdowns and restrictions offered a lifeline for small establishments. However, as the industry shifted towards recovery, questions arose about the continued reliance on these platforms and the sustainability of commission fees (Hasan et al., 2020). Operational strategies in the hospitality sector have been fundamentally altered by the pandemic. The influx of online orders and demand for contactless services necessitated adaptations in small restaurants' operations (Gibbs, 2018). Some businesses embraced the opportunities provided by food aggregators to reach customers in their homes. However, concerns about the long-term feasibility of these adaptations and their impact on operational efficiency persist (Lee et al., 2019).

The post-pandemic era has witnessed shifts in consumer preferences and behaviours. Lockdowns prompted a surge in the use of mobile food ordering apps, and the convenience of these platforms has ingrained new habits among consumers (Chen et al., 2020). Research by Meenakshi and Sinha (2019) suggests that the challenge now lies in converting the occasional users into loyal customers. The post-pandemic loyalty dynamics warrant further exploration, as customers' loyalty could now be divided between the restaurant and the aggregator. The pandemic has redefined power dynamics between food aggregators and small hospitality businesses (Suresh, 2022). The increase in demand has prompted aggregators to offer incentives and reduced commission rates, altering the relationship between the two parties (Hendy, 2018). As small establishments increasingly rely on these platforms, questions about the sustainability of this partnership and the potential for reasserting control over the customer relationship remain relevant (Kim & Park, 2017).

The post-pandemic recovery of the hospitality industry also involves the preservation of community identity. Small restaurants are often integral to the cultural fabric of

neighbourhoods, and the encroachment of food aggregators could further challenge their unique contributions (Martinez et al., 2010). As communities seek to recover and rebuild, reconciling the convenience of aggregators with the preservation of local culinary experiences becomes a key consideration.

The rise of food aggregators, exemplified by platforms like Uber Eats and Deliveroo, has transformed the restaurant landscape, providing users with convenient access to a diverse range of dining options through user-friendly mobile apps and web interfaces. These platforms offer unparalleled ease in exploring menus, placing orders and managing deliveries, fundamentally reshaping customer behaviour and expectations. However, this evolution has introduced complex dynamics to the hospitality industry. While food aggregators strive to structure an otherwise fragmented sector, concerns have emerged regarding their economic impact and operational challenges. Commission fees, which can fluctuate from as low as 3 or 4% to as high as 35%, present a notable challenge for small operators, affecting their profit margins and sustainability (Alalwan, 2020; Hasan et al., 2020). The symbiotic relationship between aggregators and small establishments, while offering increased visibility, can also undermine direct customer relationships and lead to shifts in loyalty (Kim & Park, 2017).

The COVID-19 pandemic magnified these dynamics. Lockdowns propelled the demand for food delivery services, aiding the survival of small businesses, albeit at the cost of unique dining experiences and customer relationships (Leesa-Nguansuk, 2020). Yet, the post-pandemic landscape raises pivotal questions about the industry's recovery trajectory. The delicate balance between aggregator convenience and the preservation of local culinary experiences, coupled with evolving customer loyalties and power dynamics, shapes the intricate tapestry of the modern hospitality realm (Suresh, 2022).

Research methods

As this topic is a very new one about which relatively little is known (particularly from the perspective of entrepreneurs rather than those of the food aggregators or the consumer), an exploratory, interpretivist approach was taken. Seven in-depth, semi-structured interviews were conducted face to face where COVID-19 restrictions allowed, or otherwise on MS Teams, Skype, Zoom, or WhatsApp. Informed consent was obtained from the interviewees prior to the interviews. The average length of the interviews was thirty minutes. Transcripts were made and themes emerged and were discussed between two researchers (Braun & Clarke, 2006; Bryman & Bell, 2011).

Every research has limitations, and this research presents data seen through the eyes of a small number of Auckland restaurant owners. Economic factors are different in different regions (labour costs in Auckland are 40% compared to 12% in India). This may mean the commission structure has less impact in other regions. This research was conducted at the start of the pandemic period, so a follow-up series of interviews or a survey might yield different views now. The views expressed in this article are those of small business owners, and so larger operators may have different views because of their increased bargaining power. The next section presents and discusses the main findings to emerge from the research.

Findings and discussion

The research identified several themes from the data, which are discussed in turn in the following sections.

Motivation

Fear-of-missing-out (FOMO) was a commonly stated reason for collaborating with food aggregators. Several respondents recounted stories of being told that their customers are online and in the food aggregator's database, so if they did not participate, those customers would go elsewhere. *"We have no option. All the competition is using them. If we don't, then we lose whatever business we can get"* [P3].

Finance

Commission rates ranged from as low as 3 to 4% (a rate most agreed would be fair) for very large fast-food companies all the way to 35% for very small start-up food operators. All of them reported a drop in dine-in business which reduces some staffing costs (30%), but not restaurant overheads (often around 30%). Food costs remained the same at around 30%. This means that some small operators are paying 35% commission when their profit margins are 7 to 10%. It also removes the opportunity to upsell. Cash flow also became an issue as food aggregators only make payments fortnightly while many small restaurants pay their staff weekly.

Yes, we are losing money, but we do it so that we at least have a cash flow to be able to pay the rent and salary for the chef. I haven't drawn a salary now for the last six months. Don't know how I can carry on working like this [P1].

Fairness

As noted in the point above, the lack of transparency and widely varying commission rates was felt to be deeply unfair. Restaurants can also pay to appear higher up the web page – this means the more a restaurant can afford to spend with the aggregator, the more business they can obtain.

It is definitely not fair, the big players like MacDonal'd's are paying commissions like 2 or 2.5%, whereas we are paying 33%, I guess they need MacDonal'ds so that they can say that everyone is using Uber Eats, for advertising purposes [P7].

Discussion

All the respondents pointed out that the customers' loyalty was to the food aggregator, and not to the individual restaurant, in a similar way to what has happened with accommodation websites such as Booking.com. This loss of the ability to get to know your customer was a major worry to small businesses. Some restaurants also pointed out that while they welcomed customer feedback and had no problem with it being publicly available online, on regular occasions the fault was a delivery or order fault by the food aggregator, yet the restaurant was negatively impacted by the review.

In terms of motivation, the research findings resonate with the literature review's discussions on the motivations of small restaurant operators to collaborate with food aggregators. The fear-of-missing-out (FOMO), as mentioned by the respondents, is in line with Kapoor and Vij's (2018) assertion that small

operators often feel compelled to join these platforms due to the perception that their customers are already engaged with food aggregators. The reference to "*losing whatever business we can get*" by one respondent (P3) echoes Alalwan's (2020) suggestion that not participating in these platforms might result in losing customers to competitors who are already active on food aggregator apps.

The financial aspects highlighted in the research findings closely align with the economic challenges discussed in the literature review. The wide range of commission rates, as mentioned by the respondents, corresponds to the disparities described by Hasan et al. (2020) and Alalwan (2020), where commission rates can vary significantly from as low as 3 to 4% to as high as 35%. The financial strain caused by high commission rates on small operators with slim profit margins is consistent with the literature's concerns about the economic viability of these collaborations. The issue of cash flow due to food aggregators' payment schedules also matches Hasan et al.'s (2020) point that the payment frequency of these platforms can be incongruent with the financial needs of small restaurants.

The fairness issues highlighted in the research findings substantiate the literature's concerns regarding transparency and commission structures. The lack of transparency in commission rates and the ability for larger restaurants to pay for higher visibility on aggregator platforms parallel Hendy's (2018) and Kim and Park's (2017) arguments about the power dynamics favouring bigger players. The comparison between commission rates paid by smaller operators and large chains like McDonald's aligns with the literature's contention that commission structures are often inequitable, highlighted by Hasan et al. (2020).

The findings regarding customer loyalty dynamics align with the literature's discussions on this topic. The consensus among respondents that customer loyalty tends to be with the food aggregator rather than the individual restaurant reflects concerns raised in the literature about the erosion of direct customer-restaurant relationships (Kim & Park, 2017). Additionally, the challenges faced by small operators in managing customer feedback, especially when issues are related to the aggregator's service, resonate with the literature's argument that restaurants may be negatively impacted by reviews over circumstances that are not entirely within their control (Hasan et al., 2020).

In summary, the research findings provide specific and referenced evidence that supports the key points made in the literature review. They underscore the economic challenges, loyalty dynamics, fairness issues and customer relationship management concerns faced by small operators in their interactions with food aggregators, reaffirming the literature's assertions.

Conclusions and implications

Small operators are fearful of the large food aggregators, but also fearful of being pushed out of the marketplace. The question arises if "dine-in" will become the preserve of the wealthy, and small operators will disappear (as has happened to many independent budget hotels and motels in the face of large hotel groups and brands). Will small restaurants with good food merely become "ghost kitchens" operating out of low-cost industrial zones? Other issues include what will happen to customer loyalty, the power difference between large

aggregators and small hospitality operations, and whether small operators could "band together" for support.

The research findings highlight several critical issues in the relationship between small restaurant operators and online food aggregators. These insights offer valuable suggestions for both industry stakeholders and future academic research.

For industry (operators and online food aggregators)

1. **Transparent collaboration:** To build trust and fairness, online food aggregators should consider implementing transparent and standardised commission structures. This would help alleviate concerns about varying commission rates and promote healthier partnerships.
2. **Financial flexibility:** Food aggregators can introduce more flexible payment schedules to support the cash flow needs of small restaurant operators. Weekly or bi-weekly payments, especially during challenging periods, could provide significant relief.
3. **Collaborative branding:** Collaborative marketing efforts that highlight the uniqueness of each restaurant could strengthen customer loyalty. Aggregators should focus on promoting the individuality of restaurants to foster stronger connections between customers and establishments.
4. **Review management systems:** Food aggregators should refine their review management systems to ensure fairness. Clear guidelines and dispute resolution mechanisms can prevent small operators from being unfairly penalised for issues beyond their control.
5. **Support initiatives:** Aggregators should consider launching support programmes tailored to the needs of small operators. These programmes could encompass marketing assistance, training, or financial relief during challenging times like the COVID-19 pandemic.
6. **Community engagement:** Aggregators can engage with local communities to emphasise the importance of supporting small, independent restaurants. By highlighting their cultural significance and contributions to the local economy, these establishments can retain their identity.

For further academic research

1. **Long-term impact analysis:** Conducting long-term studies to assess the sustained impact of food aggregators on small restaurant operators is crucial. These studies can provide comprehensive insights into financial sustainability, customer loyalty and market dynamics over time.
2. **Regional variations:** Exploring regional differences in the impact of food aggregators, considering variations in economic conditions, labour costs and cultural preferences, can yield a more nuanced understanding of the phenomenon.
3. **Consumer behaviour studies:** In-depth research into consumer behaviour can uncover the factors influencing loyalty to either the restaurant or the aggregator. Understanding the psychology of customer choices and the role of aggregators is essential.
4. **Collaboration models:** Analysing successful collaboration models between food aggregators and small operators can offer strategies for empowering small restaurants while maintaining their identity and customer relationships.
5. **COVID-19's lasting effects:** Investigating the lasting effects of the COVID-19 pandemic on the relationship between food aggregators and small operators is crucial. This research

can assess whether changes in consumer behaviour and operational strategies persist post pandemic.

6. Regulatory implications: Evaluating the regulatory landscape surrounding online food aggregators and its impact on small operators can shed light on the effectiveness of government policies in ensuring fair practices in the industry.
7. Community resilience: Examining the role of small, independent restaurants in fostering community resilience and identity is vital. Research can explore how communities can actively support and preserve these establishments in the face of aggregator-driven competition.

Incorporating these suggestions into future research endeavours will contribute to a deeper and more comprehensive understanding of the complex dynamics between online food aggregators and small restaurant operators. This knowledge can benefit both industry practitioners and scholars in addressing the challenges and opportunities in this evolving landscape.

Acknowledgement

An earlier version of this article was presented as a poster at CAUTHE2021 Conference Online. The author is grateful for the feedback from delegates.

ORCID iD

Andy Erickson – <https://orcid.org/0009-0005-0954-2994>

References

- Abbas J, Raza S, Nurunnabi M, Minai MS, Bano S. The impact of entrepreneurial business networks on firms' performance through a mediating role of dynamic capabilities. *Sustainability*, 11(11), 3006. <https://doi.org/10.3390/su11113006>
- Alalwan, A. A. (2020). Mobile food ordering apps: An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management*, 50, 28–44. <https://doi.org/10.1016/j.ijinfomgt.2019.04.008>
- Al-Maghrabi, T., & Dennis, C. (2011). What drives consumers' continuance intention to e-shopping? Conceptual framework and managerial implications in the case of Saudi Arabia. *International Journal of Retail & Distribution Management*, 39(12), 899–926
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Bryman, A., & Bell, E. (2011). *Business Research Methods*. Oxford University Press.
- Celik, H. (2011). Influence of social norms, perceived playfulness and online shopping anxiety on customers' adoption of online retail shopping: An empirical study in the Turkish context. *International Journal of Retail & Distribution Management*, 39(6), 390–413. <https://doi.org/10.1108/09590551111137967>
- Chen, C. L., & Chen, M. H. (2021). Hospitality industry employees' intention to stay in their job after the COVID-19 pandemic. *Administrative Sciences*, 11(4), 144.
- Chen, L., Li, X., & Su, J. (2020). Consumer intentions to use food delivery apps: Extending the theory of planned behavior. *International Journal of Hospitality Management*, 87, 102470.
- Gibbs, B. (2018). Delivery apps prove a mixed blessing for restaurants. *The Age*, 18 January, 5.
- Hasan, S., Deogaonkar, A., Seelam, S., & Vichoray, C. (2020). Food channel distribution in the internet era – the aggregator model boost to channel power. *International Journal of Management*, 11(3), 337–345.
- Hendy, N. (2018). UberEats faces new food order fight. *The Sydney Morning Herald*, 2 July, n.p.
- Hirschberg, C., Rajko, A., Schumacher, T., & Wrulich, M. (2016). *The changing market for food delivery*. McKinsey & Company.
- Hwang, J., Lee, J. S., & Kim, H. (2019). Perceived innovativeness of drone food delivery services and its impacts on attitude and behavioral intentions: The moderating role of gender and age. *International Journal of Hospitality Management*, 81, 94–103.
- Kapoor, A. P. & Vij, M. (2018). Technology at the dinner table: Ordering food online through mobile apps. *Journal of Retailing and Consumer Services*, 43, 342–351. <https://doi.org/10.1016/j.jretconser.2018.04.001>
- Kim, Y., & Park, J. E. (2017). Beyond "being there": Exploring the extent of small business dependence on online platforms. *Journal of Information, Communication and Ethics in Society*, 15(4), 363–382.
- Laddha, S. (2019). Impact of consumer demographics on usage of online food services. *IUJ Journal of Management*, 7(2), 1–5. <https://doi.org/10.11224/IUJ.07.02.01>
- Lee, J. H., Kim, S. J., & Park, M. K. (2019). Operational challenges of restaurant food delivery apps: The perspectives of restaurant managers. *International Journal of Contemporary Hospitality Management*, 31(12), 4552–4572.
- Leesa-Nguansuk, S. (2020). New food delivery apps seeking a bite. *Bangkok Post*, 10 June, n.p.
- Martinez, S., Hand, M., Da Pra, M., Pollack, S., Ralston, K., Smith, T., Vogel, S., Clark, S., Lohr, L., & Low, S. (2010). *Local food systems: Concepts, impacts, and issues*. Economic Research Report No. (ERR-97). U.S. Department of Agriculture, Economic Research Service.
- Meenakshi, N. & Sinha, A. (2019). Food delivery apps in India: wherein lies the success strategy? *Strategic Direction*, 35(7), 12–15. <https://doi.org/10.1108/SD-10-2018-0197>
- Minazzi, R., & Panno, A. (2019, July). Social media marketing in the hospitality industry: the evolution of European hotels' approaches from 2012 to 2018. In *9th Advances in Hospitality and Tourism Marketing and Management Conference* (p. 345).
- Quabius, B. (2017). Delivery 2.0. *Food Service Europe & Middle East*, 28 June, 30–34.
- Suresh, K. G. (2022). Zomato: repositioning amid COVID-19 [Video file]. *The Business & Management Collection, Henry Stewart Talks*. <https://hstalks-com.ezproxy.aut.ac.nz/bm/4948/>
- Verma, P. (2020a). The effect of presentation, product availability and ease upon transaction reliability for online food delivery aggregator applications – moderated mediated model. *Journal of Foodservice Business Research*, 23(4), 285–304. <https://doi.org/10.1080/1537802.0.2020.1761586>
- Verma, P., Singh, M., & Aggarwal, N. (2020b, June). The effect of next-level housekeeping via technology on the perceptions of the hospitality aspirants. In *2020 8th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)*. (pp. 1150–1156). IEEE.
- Wirtz, J., & Lovelock, C. (2018). *Understanding service consumers*. WS Professional.
- Yang, Z., & Jun, M. (2002). Consumer perception of e-service quality: from internet purchaser and non-purchaser perspectives. *Journal of Business Strategies*, 19(1), 19–42.