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ZIMBABWEAN FAST-FOOD RESTAURANT SECTOR: THE OPERATIONAL EFFICIENCY OF PIZZA RESTAURANTS

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Abstract
This study aimed to scrutinize the prevalent industry claim within the fast-food restaurant sector, asserting pizza delivery within a 10-minute waiting period. Additionally, the research aimed to evaluate the degree of disparity between the actual waiting duration for pizza and the perceived waiting time among customers. A sample of 500 pizza transactions underwent measurement of their order cycle time, and corresponding perceived waiting times were recorded from the involved respondents who initiated these transactions. The findings revealed statistically significant differences between the stipulated standard waiting time and the actual waiting time, as well as between the actual waiting time and the perceived waiting time. Consequently, this study recommends that pizza restaurateurs meticulously evaluate their human and equipment resources to minimize discrepancies in lead times. Moreover, they should consider providing diverse materials and activities to engage customers, mitigating perceived waiting time's impact.

Keywords: pizza, fast-food, restaurants

Introduction

Since a Simbisa franchisee introduced pizza in 1994, Pizza Hut, Pizza Slice, Pizza Matty, and Pizza Inn have joined the Zimbabwean fast-food business. Pizza is a hot, savoury dish, according to Limongi, Simos, and Demiate (2012). The flattened dough is topped with meats, veggies, pepperoni, mushrooms, tomatoes, and cheese. Pizza, an Italian dessert, is also popular (Natal, Dantas, Vidigal, Ribeiro, Piovessan, Martino & Dias, 2014). It became popular in the US (Balkaran, Giampiccoli & Mtapuri, 2016) and among the most popular fast meals worldwide (Caparaso, Panariello & Sacchi, 2015).

A pizza factory can employ operations management's make-to-stock or make-to-order methodologies (Chopra, Meindl & Kalra, 2016). Make-to-stock allows companies to promptly fill customer requests by establishing an inventory pile ahead of demand (Forster, Sampson, Walliam & Webb, 2019). Client orders promote make-to-order production, which delays order fulfilment (Heizer & Render, 2011). Pizza delivery in Zimbabwe takes 10 minutes to satisfy orders. Service industries routinely estimate how long a service will take, resulting in client wait times (Tasar, Ventura & Cicekli, 2000). From arrival to departure, customer waiting time is the time it takes to complete an order. Operators often ask how long a journey, barbershop visit, class presentation, or performance is. Like other Zimbabwean pizza restaurants, most offer to deliver within 10 minutes.

Slack, Chambers, and Johnston (2010) define the order fulfilment cycle as the time it takes to complete a customer order. Such operational assumptions have never been verified.

Operations management often makes sweeping statements based on biased, misinformed, or unsubstantiated ideas, according to Burns and Burns (2008). It's crucial to determine if Zimbabwe's fast food business's 10-minute customer wait time is the typical pizza-making time. Nobody knows if customers can monitor how long pizza orders take to fulfill. Thus, this article seeks to determine if real, perceived, and standard waiting times vary statistically.

Waiting is an unavoidable aspect of the initial interaction between patrons and service providers, as acknowledged by Bordoloi, Fitzsimmons, and Fitzsimmons (2019). This waiting experience unfolds in three distinct phases: pre-process waiting, in-process waiting, and post-process waiting. Pre-process waiting encompasses the time before a consumer begins receiving a service, while in-process waiting pertains to the actual wait during service provision. Post-process waiting refers to the duration between placing an order and receiving it. In service outlets, waiting typically arises from a temporary misalignment between service demand and capacity, where demand surpasses capacity.

Recognized as a significant source of customer dissatisfaction in service delivery systems (Hwang, 2008), waiting induces negative emotions such as tension, anger, shouting, hatred, and even provocation of rebellious behaviors (De Vries et al., 2018). Consequently, operations management primarily focuses on minimizing waiting time to alleviate the impact on customer experience (Taylor, 1994).

Operational processes designed to deliver goods or services may deviate from prescribed standards, introducing variations in output volume and task completion time (Chase, Aquilano, & Jacobs, 2002). Two types of variations exist: common variation and assignable variation. Common variation is inherent, arising from stable and predictable factors like the type of equipment used in tasks (Chase et al., 2002). Assignable variation, on the other hand, is generally not inherent to any production process, stemming from identifiable but extraordinary factors such as employee actions and machine performance (Slack et al., 2010).

The reduction of common variation and the elimination of assignable variation directly impact quality (Chase et al., 2002). Adhering to prescribed waiting times contributes to effective personal time management for customers who are inherently averse to unnecessary delays (Maudie & Pierrie, 2006). Consequently, minimizing delays in order fulfillment cycles stands out as a key objective for modern businesses, aiming to enhance customer satisfaction by avoiding unnecessary inconveniences (Slack et al., 2010).

Actual waiting time serves as a predictor for the perceived waiting time experienced by customers, and it's noteworthy that individuals often perceive waiting durations differently (Sumaedi & Yarmen, 2015). Perceived waiting time is the subjective duration customers express as the time spent waiting for their orders (Taylor & Fullerton, 2000). Discrepancies commonly arise between the actual time customers wait and their perceived waiting time, primarily due to the impatience prevalent among contemporary customers (Zeithaml, Bitner & Gremler, 2013; Wu, Lu. & GE, 2013). Maudie and Pierrie (2006) vividly describe waiting with negative superlatives, characterizing it as agonizing, frustrating, annoying, and demoralizing. Additionally, a study by

De Vries, Roy & De Koster (2018) revealed that perceived excessive waiting can lead to rebellious behaviors.

While emphasizing the importance of reducing order fulfillment waiting time, Clow and Kurtz (2003) underscore the equal significance of diminishing customers' perceived waiting time. Strategies to alleviate perceived waiting time have been outlined by Maister (2005), who suggests manipulating the waiting environment through activities that engage customers, such as initiating group waiting, occupied waiting, in-process waiting, and fair waiting.

Methodology

The study encompassed the entire customer population that purchased pizza during the initial weekend of October 2019, coinciding with the data collection period. Due to the absence of a proper sampling frame for pizza customers, a convenience sampling method was adopted, leading to a selected sample size of 500 respondents drawn from Bindura town. Bindura, situated in the Mashonaland Central province of Zimbabwe, serves as the provincial capital and is surrounded by productive farms and mines, marking it as the breadbasket province of the country. The focus of the study was on in-process waiting, representing the duration between placing an order and receiving it. Data collection spanned one month and encompassed all pizza-producing fast-food restaurants in Bindura. Despite the limitations of convenience sampling, which may compromise generalizability (Saunders, Lewis & Thornhill, 2016; Bryman, 2016), it was deemed appropriate due to the unavailability of a suitable sampling frame. Actual waiting time data were collected unobtrusively, while data on perceived waiting time required the consent of customers, often constrained by low participation rates in the restaurant industry, further justifying the use of non-probability-based sampling methods.

Research assistants, equipped with stopwatches, facilitated the data collection process by recording actual waiting time observations discreetly within target restaurants. Subsequently, data on perceived waiting time were gathered from consenting respondents as they left the restaurant or while they were dining.

Data analysis unfolded in two phases using Statistical Package for Social Scientists (SPSS) v 25. The initial phase involved descriptive statistics, presenting the profile of respondents and studied variables through the arithmetic mean and standard deviation. The second phase employed paired sample t-tests, assessing whether the mean difference between the two observations was similar. The paired sample t-test, also known as the dependent sample t-test, is commonly applied in repeated-measures designs. The magnitude of differences unveiled by the paired t-tests was evaluated using the Cohen's d value (Cohen, 1988).

Results and Discussion

Table 1: Demographic profile of respondents

Attribute	N	%
Age		
18-29	205	41.5
30-39	148	29.6

40-49	110	22.0
50-59	20	04.0
60+	7	01.4
Total	**500**	**100.0**
Gender		
Male	220	44.0
Female	280	56.0
Total	**500**	**100.0**
Marital status		
Single	295	59.0
Married	205	41.0
Total	**500**	**100.0**
Education		
Primary	116	23.2
Secondary	264	52.8
Tertiary	120	24.0
Total	**500**	**100.0**

The demographic profile of respondents the age, gender, marital status and educational levels of the respondents and the results are shown in Table 1.

Table 1 reveals a notable prevalence of young adults (aged 18-29) in the surveyed sample, constituting 41.5%. This suggests that pizza restaurants attract a significant portion of this age group. The majority of respondents were females (56%), indicating a potential preference for pizza among women or possibly highlighting their role as primary purchasers of pizza for their families, including men. As anticipated, singles constituted a significant portion of the respondents (59%), aligning with the expectation that individuals without dependents tend to have more discretionary income to spend at pizza restaurants. It is noteworthy that in Africa, and specifically in Zimbabwe, pizza is often considered a status dish, accessible to those in the high-income bracket or individuals with ample discretionary income, such as single working professionals. Lastly, a substantial portion of the respondents (52%) possessed a secondary education qualification, which is a common prerequisite for urban employment.

The descriptive analyses of the data related to actual and perceived waiting time are shown in table 3.

Table 3: Descriptive statistics on actual and perceived waiting time

		Mean	N	Std. Deviation	Std. Error Mean
	Standard Time	10.00	500	.000	.000
Pair 1					
	Actual Time	10.87	500	2.780	.124
	Actual Time	10.87	500	2.780	.124
Pair 2					
	Perceived Time	15.05	500	2.341	.105

The descriptive findings of this study reveal an average difference of 0.87 minutes between the standard order fulfillment time and the actual order fulfillment waiting time. In contrast, the disparities between the actual order fulfillment time and the perceived order fulfillment waiting time were approximately 5 minutes. Notably, both the actual waiting time and perceived waiting time exhibited very low standard deviations, indicating a general consensus in the responses from the surveyed participants. Standard deviation serves as a measure of the dispersion of a data set (Levine, Stephan, Krehbiel & Berenson, 2013), and the low values here suggest that data points are closely clustered around the mean. Conversely, a high standard deviation would raise uncertainty about the accuracy of the outcome (Swink, Melnyk, Cooper & Hartley, 2014). To ascertain whether these differences are statistically significant or mere chance occurrences, the subsequent section on hypotheses testing will provide a conclusive determination.

Table 4: Paired samples test

		Paired Differences					T	df	Sig.
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Standard Time Actual Time	-.870	2.780	.124	-1.114	-.626	-6.998	499	.000
Pair 2	Actual Time Perceived Time	-4.180	3.794	.170	-4.513	-3.847	-24.634	499	.000

The paired sample t-test results indicated a statistically significant mean difference between the standard waiting duration and the actual waiting duration (MD = -0.870, SD = 2.780, 95% CI [-1.114, -0.626]) at the 0.05 level of significance, with t = -6.998, df = 499, and $p < 0.001$. The null hypothesis, suggesting no significant differences between the means of the standard waiting duration and the actual waiting duration, is rejected. The magnitude of the difference falls within the 0.20 to 0.50 range, indicating a weak difference.

Similarly, the paired sample t-test results revealed a statistically significant mean difference between the standard waiting duration and the actual waiting duration (MD = -4.180, SD = 3.794, 95% CI [-4.513, -3.847]) at the 0.05 level of significance, with t = -24.634, df = 499, and $p < 0.001$. The null hypothesis, positing no significant differences between the means of the actual waiting duration and the perceived waiting duration, is rejected. The magnitude of the difference falls within the 0.80 to 1.20 range, indicating a weak difference.

The findings of this study indicate a slight unfavorable variance between the standard pizza lead time and the actual lead time, suggesting that many pizza establishments in Zimbabwe are not adhering to their prescribed standard order fulfillment lead times. The complexity of managing waiting times in restaurants is compounded by the variability and uncertainty of demand (Hwang,

2008), with literature suggesting that these variations may stem from either human factors or machine-related issues (Slack et al., 2010). A comprehensive approach that examines both human and machine factors is deemed appropriate for investigating the causes of adverse variances in operations management performance metrics.

Concerning human factors, the prevailing hyperinflationary environment and stringent austerity measures may contribute to variations, with economic struggles potentially resulting in decreased employee motivation and prolonged lead times for service delivery. Economic challenges often lead to high employee turnovers, introducing new staff as boundary spanners. The adjustment period for new employees can affect operational efficiencies, emphasizing the need for innovative employee motivation strategies to enhance retention and reduce turnover (Sturman & Ford, 2011). In the event of new hires, swift and thorough training sessions are recommended before deploying them to handle boundary-spanning roles (Zeithaml et al., 2013).

Delays in lead times may also be attributed to underserviced and inefficient production equipment, a common occurrence in the austerity environment where businesses may exceed prescribed operating hours before major maintenance. Lack of timely maintenance can result in prolonged production and service delivery lead times, leading to customer dissatisfaction (Fullerton & Taylor, 2015).

Furthermore, the study reveals an adverse variance between actual waiting time and perceived waiting time. The finding that perceived waiting duration is often longer than the actual waiting duration aligns with earlier studies by Lee and Lambert (2000). This emphasizes the need for initiatives to occupy customers during their wait, as unoccupied waiting tends to feel longer (Maister, 2005). Suggestions include providing reading material such as menus and magazines, offering television entertainment, and more recently, facilitating free internet access to enhance the perceived waiting environment.

Conclusion

Waiting is generally deemed unacceptable as it has implications for perceived service quality, customer satisfaction, and ultimately influences customers' intentions to revisit or make repurchases (Chuo & Heywood, 2014). Management must minimize customer waiting times to enhance overall satisfaction. The observed variances between actual waiting time and perceived waiting time underscore the need for management to implement practical measures aimed at reducing perceived waiting time. Maister (2005; 1985) has proposed a range of psychological measures to diminish the perception of waiting time, including avoiding waits that are unoccupied, uncertain, unexplained, pre-process, solo, and unfair.

Management must also invest in technology that expedite the production and delivery of customers' orders. Such technology includes the automated pizza cutting machines which are prevalent in developed markets, but largely unavailable in most of the local pizza restaurants. The automated pizza cutting machines cut pizzas as large as 12 inches into eight equal slices in less than 20 seconds, and can also slice pizzas as large as 21 inches into 12 equal slices (Saeed, Sattar & Ferguson, 2020).

In practical terms, this could involve providing complimentary beverages and offering menu lists to customers (Taylor, 1995). Additionally, management should consider investing in technology to streamline the production and delivery of customer orders. Examples of such technology include automated pizza cutting machines, commonly found in developed markets but largely absent in many local pizza restaurants. These automated machines can swiftly cut 12-inch pizzas into eight equal slices in less than 20 seconds and can also efficiently slice larger 21-inch pizzas into 12 equal slices (Saeed, Sattar & Ferguson, 2020).

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