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Article

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OPERATIONS, INFORMATION & TECHNOLOGY | RESEARCH ARTICLE

The effects of business process outsourcing on the quality of catering services in tertiary education industry in Zimbabwe

Paul Mukucha^{1*}, Tecla Manyika¹, Garvin Madhuku¹ and Felix Chari¹

Abstract: The study sought to determine the effects of Business Process Outsourcing (BPO) on service quality of catering services in the tertiary education industry. Specifically, the outcome variables were food quality, service quality, and the quality of ambience. A statistically determined sample size of 200 was surveyed over a period of one month. The findings indicated that BPO has got statistical significance on all the hypothesised variables. Based on the results attained it was recommended that tertiary education institutions must outsource non-core functions like catering services and concentrate on the provision of education services which are inherently their core business.

Subjects: Education - Social Sciences; Economics; Industry & Industrial Studies

Keywords: Business process outsourcing; food quality; quality service; quality of ambience

1. Introduction

Business Process Outsourcing (BPO) is a management strategy of transferring non-core functions to more specialised external service providers (Benton, 2014) who are either based onshore, near-shore, or offshore (Duening & Click, 2005). The fundamental proposition of BPO is for organisations to focus on what they are best at and relegate everything else to strategic partners (Lysons & Farrington, 2016). Since the turn of this century, many business organisations particularly those in developed countries have enthusiastically embraced BPO with Asian countries being the most preferred BPO destination (Duening & Click, 2005). BPO has proved to be beneficial to BPO customers in terms of increasing competitive advantage (Belcourt, 2006), access to new technology (Duening & Click, 2005), transforming fixed costs into variable costs (Mohiuddin & Su, 2014),

ABOUT THE AUTHOR

The authors are procurement professionals at Bindura University of Science Education with research interests in sustainable procurement, humanitarian supply chains and strategic sourcing. This article, on business process outsourcing, is one of a variety of strategic sourcing articles the authors have worked on.

PUBLIC INTEREST STATEMENT

In this study, the researchers sought to establish the effects of business process outsourcing on service quality of catering services in tertiary education institutions. Precisely, the dependent variables were food quality, service quality, and the quality of ambience. Using a sample size of 200, these researchers conducted a survey over a period of one month. The findings reveal that business process outsourcing has a significant influence on all the hypothesised variables. Based on these results, the study recommends that tertiary education institutions must outsource non-critical processes like catering services and concentrate on their core business of providing educational services.

risk pooling (Simchi-Levi et al., 2009), and operational flexibility (Cohen & Roussel, 2005), leading to quality services (Wu & Blackhurst, 2009), despite its drawbacks such as hidden costs (Belcourt, 2006), loss of control and over-dependence on suppliers (Benton, 2014), low employee morale (Belcourt, 2006), and loss of flexibility (Duening & Click, 2005).

BPO has also been embraced in Zimbabwe, but exclusively taking the form of onshore. BPO was adopted in Zimbabwe by both the private and the public sector alike. One of the public sector industries that adopted BPO is tertiary education. In the tertiary education industry non-core functions that are usually candidates for outsourcing include, but not limited to cleaning, repairs and maintenance, security, and catering services. The management and running of the later services have been of late topical in the prevailing austerity environment where cutting costs, increasing productivity, and profitability are the norm. Catering is the culinary business of providing food service to institutions such as hospitals, army barracks, schools, and universities. Catering services in academic institutions possess all the characteristics of good candidates for BPO initiatives such as being resource intensive, availability from niche market suppliers, relatively discrete, subject to fluctuating work patterns, potential for establishing clear contractual accountabilities, and require little client-side management (Lysons & Farrington, 2016).

While it is an altruism that the concept of BPO has received a widespread acceptance and application on the global arena (Duening & Click, 2005), the effects of outsourcing on business performance in third world countries have received limited attention (Kamanga & Ismaeli, 2016). One industry that has of late embraced BPO is the tertiary education industry where activities such as cleaning, security, and catering are outsourced. While many tertiary education institutions have outsourced catering services, a search in literature revealed no empirical study has evaluated the effectiveness of BPO in improving the quality of service in Zimbabwe. Therefore, this study sought to determine the effects of BPO on the quality of catering services in the tertiary education industry.

2. Literature review

BPO refers to the strategic engagement of external service providers (Gerbl et al., 2014) for business processes that are deemed less critical to a business organisation (Duening & Click, 2005). BPO has evolved from its information technology (IT) roots (Lacity et al., 2009) as a socio-technical phenomenon (McIvor, 2010) to encompass several business processes (Duening & Click, 2005) such as cleaning, security, fumigation, and catering (Lysons & Farrington, 2016).

Business processes that are usually candidates for outsourcing are those that are peripheral as characterised by “low or generalised skill requirements, internally focused responsibilities, well defined or limited tasks, jobs that are easily separated from each other and no supply restrictions” (Atkinson and Meager, 1986 as cited in Lysons & Farrington, 2016, p. 368). This augur well with the characterisation of BPO candidates as those business processes that are positioned in the Type 6 segment of the BPO Selection Matrix identified with low cost, low productivity, and low mission criticality (Duening & Click, 2005).

Extant BPO literature has revealed that the implementation of BPO leads to several benefits such as cost savings (Gerbl et al., 2014; Lacity et al., 2009), improved service and product quality (Van Weele, 2014), and performance (Lysons & Farrington, 2016). Quality as a major driver of outsourcing is motivated by the three aspects, namely: increased demand for quality, shortage of qualified employees, and transitional period outsourcing (Lysons & Farrington, 2016).

The relationship between BPO and quality is grounded in the Resource-Based View (RBV) theory (Burney, 1991) which states that a firm’s core competencies and competitive advantage are leveraged on resources at its disposal (Barney & Hesterly, 1996). The resource theory also known as the resource advantage theory proposes that a firm’s capabilities and core competencies are derived from its internal resources that are both human and material (Burney, 1991). This theory emerged as an alternative approach to strategic formulation and implementation that has

emerged as a rival to the prescriptive environmental analysis theories (Das & Teng, 2000). It advocates for an unbalanced focus on the resources than the external environment. The strategic advantage espoused in the resource-based theory emanates from the fact that resources at the disposal of firms are heterogeneous (Alvarez & Barney, 2000). Heterogeneity of resources is a necessary prerequisite condition for creating sustainable competitive advantage (Alvarez & Busenitz, 2001). Therefore, in the context of BPO, a vendor with superior resources tends to deliver improved service quality than the services previously offered by the BPO customer.

Usually, lack of adequate resources ignites the need to outsource the functions where resource deficiency is manifesting (Van Weele, 2014). Similarly, the BPO vendor is chosen based on the invested resources. There are several technological resources specifically designed for the catering services such as online table reservation and online ordering system (OTROOS), table management system (TMS), kitchen display systems (KDS), self-service technologies (SST), and the Point of Sale system (POS) (Kimes, 2011). Furthermore, human capital in the form of experienced and trained chefs, waiters, bakers, and cooks at the disposal of specialised catering firms is an important resource in the catering industry (Mhlanga & Tichawa, 2016) which firms having catering entities as their noncore departments may lack.

The positive and significant relationship between BPO and service quality received empirical support from several studies such as Chebet and Kwasira (2016) in the manufacturing industry, Dzogbewu (2010) for logistics and customer support services, Mwichigi and Waiganjo (2015) in the electricity generation industry, Kamuri (2010) for security, cleaning and catering services, Waweru (2014) in the local government sector, and Sang (2010) in the tertiary education industry. It, therefore, implies that in the catering industry the BPO vendor having the above superior resources than those of a BPO customer is most likely to improve the quality of catering services. Thus, the quality of the outsourced business process would improve as a result of outsourcing (Gerbl et al., 2014).

The quality of services in the catering industry is delineated into food quality, service quality, and the quality of ambience (Jang & Namkung, 2009). Food quality is characterised by pleasant taste, appropriate temperature, appealing smell, and comfortable texture (Namkung & Jang, 2007). Service quality is an outcome of the interaction between service employees and customers (Bitner et al., 1997). Ambience quality refers to invisible background characteristics (Jang & Namkung, 2009) whose sensory channels are touch (cleanliness), scent, sound (music, sound levels), and sight (light, colour) (Kotler, 1973).

The most important outcome of reviewing literature is specification of the linkages between variables (Hair et al., 2014; Saunders et al., 2016). Therefore, drawing from the resource-based theory and the empirical evidence demonstrated above it can be hypothesised that

H¹: BPO has a positive and significant effect on food quality.

H²: BPO has a positive and significant effect on service quality.

H³: BPO has a positive and significant effect on the quality of ambience.

3. Methodology

3.1. Sampling and data collection procedures

The population in this study comprises all the students and staff of the leading tertiary education institution identified as the National University of Science Education (NUST), based in Bulawayo which is the second biggest city in Zimbabwe. There are some controversies on what constitutes the appropriate sample size (Burns & Burns, 2008). There are several factors that are considered when determining a sample size such as population heterogeneity and size, available time, cost, and the proposed data analysis technique (Bryman, 2016). In this study, the sample size was fixed at 200 respondents which were determined from the requirements of the factor analysis statistical tool (Hair et al., 2014). Data was

collected from staff and students who dine at the canteens of NUST over a period of one month using a self-administered questionnaire. In order to avoid confounding factors, lone customers were targeted (Barger & Grandey, 2006) using purposive sampling (Bryman & Bell, 2015).

3.2. Measures

The questionnaire was constructed using measures selected from the extant literature based on how they tapped into the conceptual domain of their respective focal constructs (Watkins, 2018). The items were drawn from the extant culinary literature on food quality (Namkung & Jang, 2007; Raajpoot, 2002; Ryu et al., 2012), ambience quality (Han & Ryu, 2009; Lim, 2010; Lin et al., 2011; Ryu et al., 2012), and service quality (Lin et al., 2011; Ramseook-Munhurrin, 2012; Ryu et al., 2012; Steven et al., 1995).

3.3. Data analysis procedures

Data analysis was conducted in two phases using the Statistical Package for Social Scientists (SPSS). The first phase involved the determination of the factor structure of the measures representing all the latent variables in the measurement model using exploratory factor analysis (EFA) (Hair et al., 2014). Measurement model assessment involved determining construct validity of the measurement scales. Convergent validity was assessed through testing the significance of *t*-values for item loadings (Anderson & Gerbing, 1988). Discriminant validity was tested by comparing the average variance extracted (AVE) for pairs of constructs to their squared correlation (Fornell & Larcker, 1981). Construct reliability was assessed using Cronbach's alpha coefficient (Cronbach, 1951).

Measurement model assessment was followed by hypothesis testing of the relationships between BPO and quality of service dimensions using *t*-tests. *T*-test is a statistical tool also known as an Independent *t*-Test, Independent Two-sample *t*-Test, Student *t*-Test, Unpaired *t*-Test, or Unrelated *t*-Test (Saunders et al., 2016). The independent variable also known as the grouping variable in this test was BPO, while the dependent variables also known as test variables were food quality, service quality, and ambience quality. However, in order for Independent *t*-tests to be valid there are some assumptions that must be met (Field, 2013). The conditions are that the dependent variable must be continuous and normally distributed, the independent variable must be categorical, samples must be independent, and there must be homogeneity of variance amongst the sample groups (Hair et al., 2014; Saunders et al., 2016). The conditions were met at the design stage save for the normality and homogeneity conditions which were tested post data collection (Grady, 2014; Saunders et al., 2016).

4. Results

This section presents the results from data analysis in three sections, namely the demographic profile of the respondents, measurement model assessment, and hypotheses testing.

5. Demographic profile of the respondents

The demographic profile of the respondents is shown in Table 1.

Table 1 reveals that most of the respondents in this study are in the age group of 18–30 (55%), reflecting the universal age group that mostly enrol at universities. The age group of 31–40 years was represented by 20%, 41–50 (15%), 51–60 (10%), while the 60+ year age group had 0% only. The gender of the respondents was 54% male, and 46% female reflecting the gender gap that is still prevalent in third world tertiary education industry. Lastly, the majority of the respondents (82%) were enrolled for undergraduate degree programmes, while 18% were enrolled for postgraduate degree programmes.

5.1. Measurement model assessment

Data was tested for factorability using several indices that include correlation matrix correlations, anti-image diagonals, measure of sampling adequacy in the form of Kaiser-Meyer-Olkin (KMO), and identity matrix using a Bartlett's test of sphericity (Hair et al., 2014). Most of the correlation matrix coefficients were above 0.3, anti-image diagonals were above 0.5, KMO index was 0.894, and the

Table 1. Demographic profile of respondents

Attribute	N	%
Age		
18–30	110	55
31–40	40	20
41–50	30	15
51–60	20	10
60+	0	0
Gender		
Male	108	54
Female	92	46
Programme enrolled		
Undergraduate	164	82
Masters	36	18

Bartlett's test of sphericity was $X^2(105) = 1125.487$, $p = 0.00$. All the above tests indicated that the data was suitable for factor analysis.

All the 30 items measuring the quality of canteen services were entered into a dialogue box for PCA. Since the dimensions of quality are believed to be independent of each other, a special type of orthogonal rotation called Varimax was used to rotate factors (Hair et al., 2014). Initially, five factors were extracted from the data. Hair et al. (2006) recommended the deletion of items with loadings that are ($<.5$). Therefore, items labelled DE9, DE10, DE11, DE12, DE14, DE15, DE20, and DE28 which did not load significantly ($<.5$) into any component were excluded from further analysis.

Cross loading items on at least two factors with values ≥ 0.32 were also supposed to be deleted, since they lack discriminant validity (Costello & Osborne, 2005). Item DE29 was cross loaded on Component 2 and Component 3 and was excluded from further analysis. Items that load on factors that they do not conceptually belong to were also good candidates for deletion (Rahim & Magner, 1995). Items D19 and D20 loaded on Factor 1, while item D18 loaded on Factor 3 where they did not conceptually belong to and were also excluded from further analysis.

Less than threetems were deemed not enough to represent a construct (Fabrigar et al., 1999; Izquierdo et al., 2014; Tabachnick & Fidell, 2007). Component 3 had only two items loading on it and those two items were deleted. Similarly, Component 5 was represented by a single item and that item was also deleted. Component 1 and 2 ended up with six items each which were all retained, while Component 4 had three items which were also retained. Thus, out of 30 dining experience items, 15 were retained for further analysis. After excluding some of the items for various reasons explained above, another PCA was run. The second round of PCA yielded three components. Final rotated component matrix is shown in Table 2.

Components with eigenvalues ≥ 1 were chosen on the basis of the Kaiser criterion which advocate for the exclusion of components with eigenvalues of <1 for lacking additional value (Kaiser, 1974). An Eigenvalue is a conceptual representation of variance that is accounted by a component (Hair et al., 2014). PCA extracted three components with eigenvalues greater than 1 making up dining experiences. The extracted components were designated as posteriori constructs. Posteriori constructs are latent variables derived from analysed data (Bollen, 2002). Components 1, 2, and 3 were labelled as food experience, atmospheric experience, and service experience, respectively. Naming of components was based on what their manifest variables (items) had in common (Watkins, 2018). These extracted components and their naming corresponded with priori constructs in a previous study by Sulek and Hensley (2004). The three factors

Table 2. Final rotated component matrix

	Factors		
	1	2	3
The food was delicious	.755		
The food was attractively packaged	.751		
The food was tasty	.735		
The quality of food was excellent	.725		
The food was fresh	.686		
The food was served at the right temperature	.675		
The restrooms were clean		.857	
The dining room were clean		.786	
The seating arrangement was comfortable		.713	
The lighting was adequate		.691	
The atmosphere provided a pleasant dining experience		.652	
Temperature in the restaurant was pleasant		.623	
The employees were very friendly			.756
The waiting time for my order was short			.723
The employee served me with a smile			.674
Alpha coefficient	0.874	0.871	0.773

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

^aRotation converged in five iterations.

extracted accounted for 62.6% of the variance and were represented as follows: food experience (45.1%), atmospherics experience (10.6%), and service experience (6.9%). The loading of items on their respective factors and the absence of cross loadings provided convergent and discriminant validity, respectively, for all the factors. All the three extracted factors had an alpha coefficient above 0.7 which is the threshold for reliability (Zikmund & Babin, 2007).

5.2. Hypotheses testing

Independent *t*-tests are conducted when data for the dependent variable is assumed to be normally distributed. The test of normality was conducted using Shapiro–Wilk test.

Table 3 indicates that all the dependent variables in this study are normally distributed as evidenced by the insignificant *p*-values ($P > 0.05$). An insignificant *p*-value implies that the data collected is not normally distributed. After the test of data normality, a test for homoscedasticity was carried out. Homoscedasticity is a requirement for homogeneity of variance in Independent *t*-tests

Table 3. Tests of normality

	Kolmogorov–Smirnov ^a			Shapiro–Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Food quality	.078	150	.027	.969	150	.002
Service quality	.090	150	.005	.970	150	.002
Ambience quality	.116	150	.000	.954	150	.000

^aLilliefors Significance Correction.

(Zikmund & Babin, 2007). A Levene's test of equality of variance was used to test for homoscedasticity. Levene's test compares the variance of a metric variable across levels of a non-metric variable (Hair et al., 2014). A statistically insignificant level of confidence (i.e., $p > 0.05$) indicates that the group variances are equal.

Results from Table 4 indicate that food quality and ambience quality indicated that their variances are equal in all categories of the grouping variable and this is indicated by $F = 0.873$, $p = 0.352$, and $F = 0.401$, $p = 0.528$, respectively. However, service quality indicated that there is an inequality in variances between the male and female customers as evidenced by a statistically significant p-value ($p > 0.042$). Therefore, a Welch-Satterthwaite method of correcting this violation was used to adjust the degrees of freedom so as to increase the p-value (Satterthwaite, 1946). The net effect was the reduction of the t statistic from -579 to -583 , and degrees of freedom from 148 to 146.384 . Having tested and satisfied all the requirements for independent t-tests, hypotheses testing was done. The inferential statistics related to hypothesis testing for all the three hypotheses are also shown in Table 4.

H_1 stated that there is BPO leads to improved food quality. The results shown in Table 4 reveal that there are significant food quality differences from the customers' evaluations ($t_{148} = -624$, $p > 0.533$). Therefore, hypothesis H_1 was supported. This suggests that BPO leads to improved food quality in the catering services.

H_2 stated that BPO leads to improved service quality. The results in Table 4 demonstrate that customers' perceptions of service quality outsourced and non-outsourced catering services are statistically different ($t_{146.384} = -583$, $p > 0.563$). Therefore, the hypothesis that BPO leads to improved service quality was supported.

Lastly, H_3 stated that BPO leads to improved ambience quality. The results in Table 4 indicate that there are statistically significant ambience quality differences with regards to customers' evaluations of outsourced and none outsourced ($t_{148} = -228$, $p > 0.820$). Therefore, the hypothesis that BPO leads to ambience quality was supported.

6. Discussion

This study has managed to empirically demonstrate that BPO leads to improved quality of the catering services in the tertiary education industry in terms of food, ambience, and service. The link between BPO and quality of catering services was supported by the causality premises espoused by Hair et al. (2014) which are time sequence, and theoretical support. In terms of time sequence, the quality of catering services was measured in one sample after the implementation of BPO initiative, and the RBV theory lends the theoretical support.

The fact that the relationship between BPO and food quality was found to positive and significant we can infer that BPO vendors in the catering industry tend to possess ample skills in food preparation as a result of the learning curve emanating from specialisation. Moreover, since BPO vendors of catering services are specialists in their trade they tend to source food preparation materials that are of high quality at a reasonable cost due to most probably long established supply chain relationships that are reinforced by contractual agreements and bulk purchasing.

Ambience quality surrounding the services of catering BPO vendors was found to be better than the one found in non-outsourced services. This suggests that BPO vendors provide pleasant atmospherics in the surroundings of their service delivery areas. Thus, it is expected that BPO vendors provide pleasant temperature, aromatic smell, adequate light, and soothing colours as packaging design for their services (Mhlana & Tichawa, 2016). This contrasts the traditional catering services provided in house by tertiary education institutions where deplorable surroundings are staged as venues for service delivery.

Table 4. Independent samples test

		Levene's test for equality of variances									
	Construct	F	Sig.	T	Df	Sig. (2-tailed)	Mean difference	Std. error difference			
Food Quality	Equal variances assumed	.873	.352	-.624	148	.533	-.16043	.25695			
	Equal variances not assumed			-.627	147.938	.532	-.16043	.25591			
Ambience Quality	Equal variances assumed	.401	.528	-.228	148	.820	-.05912	.25875			
	Equal variances not assumed			-.228	146.535	.820	-.05912	.25895			
Service Quality	Equal variances assumed	4.193	.042	-.579	148	.563	-.14744	.25461			
	Equal variances not assumed			-.583	146.384	.561	-.14744	.25273			

There were some indications of improvements in service quality levels in this study as a result of embarking on BPO exercise. The inferences that can be drawn from this finding are that BPO vendors tend to have lean and efficient labour force that responds with alacrity to customer needs and wants. Moreover, the improvements in the levels of service quality of catering services as a result of BPO implementation can also be attributed to employee empowerment that enables front-line employees to attend to customer requests and possible service failures without customers being subjected to frustrating malfeasance practices that are characteristic of the non-outsourced services.

Having empirically proved a case for BPO of catering services by tertiary education institutions, caution should be taken into consideration when proposing a BPO rollout in area such as change management and employee relations. The layoff of employees as a result of BPO implementation may result in complicated labour disputes (Lacity et al., 2009). The history of BPO is littered with cases of exploitative labour practices levelled against PBO vendors which can eventually tarnish the image of BPO clients (Lysons & Farrington, 2016). Moreover, there is an inherent propensity to resist BPO by affected employees who stand to lose privileges they may have enjoyed in their current workstations under the existing employment conditions (Duening & Click, 2005). Unlike in the USA, in Zimbabwe, there is a need for a lengthy notification period before laying off employees and an indemnity for employee wages equivalent to the years they have worked for the organisation.

7. Conclusion and future research

In conclusion, the empirical results indicated that there are marked improvements in the quality of catering services in the tertiary education industry as a result of BPO. The improvements are in terms of food quality, ambience quality, and service quality. It is therefore recommended that tertiary education institutions should channel their resources towards their core business which is education and relegate non-core activities to third-party service providers. Although the studied function was catering, BPO may also be extended to other non-critical services at tertiary education institutions which Lysons and Farrington (2016) catalogued as security services, cleaning services, repairs and maintenance services, transport management, reception, library, staff recruitment, estate management, internal audit, legal services, payroll administration, quality control, records management, procurement, waste disposal, and fumigation services.

This study concluded that BPO of catering services at tertiary education institutions leads to improved service quality in all the aspects surrounding service delivery of culinary services that include, but not limited to ambient factors, design factors, and social factors. However, besides quality output, there are several issues in operations management such as speed and cost of service delivery (Slack et al., 2010), that are crucial in evaluating BPO, but were nevertheless excluded in this study. It is, therefore, necessary for future studies in the domain of BPO to evaluate these equally important aspects that hitherto has never been studied in the catering industry targeted at tertiary education institutions.

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