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IMPLICATIONS OF YIELD MANAGEMENT SYSTEMS ON STUDENT ACCOMMODATION SERVICES IN STATE UNIVERSITIES

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Abstract

The study was necessitated by the observation that despite that state-owned universities in developing countries have self-sustaining business approaches; however, they are continuously failing to generate enough financial resources, resulting in over depending on government grants. Consequently, the inefficiencies have adverse impacts on students' academic life. Therefore, the current study explored the implications and contributions of yield management to the performance of the Accommodation departments in state-owned universities. The explorative study employed a quantitative research design. Yield management practice is the independent variable and financial performance is the dependent variable. The sample size was comprised of three managers and 357 operational staff to make a total of n (360) from multiple-case studies of three largest universities in Zimbabwe. Simple random sampling was employed on non-management staff, while purposive sampling was done on managers. Statistical Package for Social Sciences version 22 was used to test factor analysis, regression analysis and mean rankings. The key result confirmed a positive correlation between yield management and the financial performance of Accommodation departments of the selected state-owned universities. The practical implication is that state-owned universities have to invest heavily in manpower training and technological infrastructure for easy data storage, processing, and transfer. The recommendations points for a need to motivate employees through reward systems for successful yield management adoption. The study limitations are skewed towards the usage of three state universities out of ten state universities in one developing country in the Southern African higher education. Therefore, further studies should be focusing on all higher institutions for better contribution to policy and decision making as regulated by the governments in developing states.

Keywords

Yield Management, Performance, Students, Higher Education and Training, Accommodation Departments, State Universities

1.0 Introduction

The higher education is central to development of local and global village. Research contributes to integrating socio-economic value as enshrined in Sustainable Development Goal 4 (quality education) (UN, 2015). Thus, higher education plays a pivotal role towards the realisation of SDGs through knowledge and skills development that can address socio-economic livelihoods, equality and equity. Thus, universities are institutions found in the education space to further teaching, learning, research and community service (Mawonde, 2017). Apart from the three key result areas associated with university core business, the economic situation prevailing in Zimbabwe has entrusted state universities with the fourth area of responsibility which is resource mobilisation (Mawonde, 2017). Strategies that universities use to mobilise funds for universities include research grants, tuition fees and income-generating projects (Mawonde, 2017). It therefore becomes a necessity to seek operational-based mechanisms to optimise the resources usage through use of the yield management approach.

Yield management is an optimisation strategy seeking to maximise the income of services under the constraint of available capacity that must be allocated according to the expressed demand (Aras et al., 2018). While yield strategy has been successfully applied in the tourism and hospitality including airlines and travel agents, it is

imperative to assess its contribution to financial performance in the departments of Accommodation in the state-owned universities within a low-resources setting country like Zimbabwe.

The increase in student enrolment in higher education is a worldwide phenomenon that developing economies like Zimbabwe have not been spared. On average, it is estimated that 80% of university budgetary support in Africa is from government, 15% from fees and 5% from other sources (Bank, 2016). In Zimbabwe, state universities have been mandated to raise funds to finance their business since 2005 after the withdrawal of government full support to university operations (Madzimure, 2016; Garwe, 2013). In response to the calls to generate income, there has been an administrative change in which two Pro-Vice Chancellors were created; one of the Pro-Vice Chancellors was responsible for business development, and the other was in charge of academic affairs (Mutambara & Chinyoka, 2016). Although business units have been operational in state universities in the form of supermarkets, tuck shops, credit unions, works, estates, transport and departments of accommodation, a closer financial performance analysis of the strategic business units has indicated that they are facing financial challenges (Mutambara & Chinyoka, 2016). A financial report from one state university indicates that the Bursary Department is funding the Department of Accommodation to 20% (Midlands State University (MSU), 2016). The financial performance reports on food and accommodation show losses or, at most, break-even year in and out, which is a worrisome trend (MSU, 2016). Therefore, it is imperative to explore the implications and contributions of yield management to the performance of the Accommodation departments in state-owned universities. It is because the accommodation services play a crucial role in the well-being of students who will be attending both classroom and industry or field-based learning. Little is known about how state-owned universities in developing states like Zimbabwe can utilise this cost centre for greater sustainable value-co-creation (Mutambara & Chinyoka, 2016). Furthermore, information is scarce on the contribution of yield management to the performance of state-owned universities in African countries like Zimbabwe, despite the dire need for revenue generation. If the yield management concept is not explored from a Zimbabwean university context with socio-economic distress, universities will fail to perform. The university education system that is expanding rapidly from one institution in 1980 (The University of Zimbabwe (UZ)) to ten state universities and six private universities to date (Jafiya & Jingu, 2020; Government portal, 2020), may fail to sustain its mandate.

Therefore, the study aims to investigate implication of yield management adopted in accommodation services departments at state-owned universities using Zimbabwe as a case study. The selected universities are the major universities in Zimbabwe in terms of size of enrolment and impact in various communities like business and society at large (Jafiya & Jingu, 2020). UZ facilitated the development of the other universities in Zimbabwe (Jafiya & Jingu, 2020). It implies for the need to figure out how yield management is operationalised in state university setting; and how state universities (an example of public institutions) use yield management. It, therefore points towards the implications to the university revenue management strategy. The present article first presents a literature review to position the present debate within the academic scholarship. Second, the methodology explains the scientific procedure that was followed by the authors. Third, the results are presented and discussed. The article closes with a conclusion and recommendations.

2.0 Literature Review

The purpose of the current section is to explore yield management in education. While uncovering the value of accommodation services in university setting. The section presents yield management in higher education within the context of a developing country with a distressed socio-economic environment.

2.1 The Yield Management in the African higher education sector

The education sector has adopted yield management strategy as a result of inadequate funding which started from the period of Economic Structural Adjustment programme (World Bank, 2004). In Europe and Africa, universities are predominantly public organisations (Bank, 2016). Nevertheless, universities in Africa face the challenge of balancing the need to raise educational quality with the increasing social demand for its access (Globenewswire, 2023). Financial sustainability is a crucial area in African state universities. The major explanations are that public institutions do not have a profit motive and that decisions and authority rest with their national governments instead of individual organisations (Canton & Meer, 2001). Although every government department has been challenged to generate the much-needed revenue for its operations, its statutory mandate should be attained in one way or the other. Similarly, universities are structured based on mainstream and supporting departments and Accommodation Services Departments are one of supporting service departments. In Zimbabwean state universities,Accommodation Departments struggle to raise revenue to adequately fund operations in a sustainable manner.

A bulky of first-generation African universities was formed in the 1950s. During that time African higher education organisations were seen as symbols of prestige and governments intervene to address market failures and concern on income redistribution (Beverwijk, 2005; Hauptman, 2007). African governments made substantial investments in higher education covering the entire cost of establishing infrastructure such as buildings, equipment and other facilities such as offering tuition fees, free education, stipends and free full boarding to students (Bank,

2016; Bank, 2004). From the late 1970s onwards, full government funding for public universities in Africa became challenging because of the continent's rate of population growth and economic hardships (Property Reporter, 2017; Nnenna et al., 2016; Sawyerr, 2004). Across Africa, there were six universities in the 1960s, and at least 1015 tertiary institutions by 2010 (Guide to Higher Education in Africa, 2010). According to Hauptman (2007), the finance challenge confronted by state universities around Africa is huge, coupled by soaring enrolments which are growing faster than available financial resources. Zimbabwean universities have not been spared as they have been affected by the same challenges to a greater extent since the 2000 political, social, technological, and economic turmoil (Bank, 2010).

The public expenditure per student in Africa declined from US$ 2,800 in 1991 to US$ 2,000 in 2006 showing a reduction in government funding (Hauptman, 2007). Financial sustainability has become one of the key challenges for African universities today (Mutambara & Chinyoka, 2016). Many countries in Africa transformed state-owned university system from being full governmental funded for all the financial responsibilities like accommodation and instructional expenses to institutional-centric income generation approaches. A greater share of the actual costs of instruction and the full cost of food and lodging is borne by parents and students (Johnston, 2004). Consequently, universities have been put under continuing pressure to diversify their revenue base and reduce their dependence on public funding (OECD, 2008). Limited government funding has increasingly encouraged universities to engage in various revenue generation activities (Clark, 2004). Globalisation and technological trends have also encouraged higher education to become more business-oriented than before due to competition (OECD, 2008).

Due to underfunding, state universities have started to use revenue generation strategies after the withdrawal of full government funding in various facets such as student enrolment, accommodation and catering (Garwe, 2005). Yield management has recently become an area of debate by policy makers because, a number of countries in Africa, including Zimbabwe, have taken a stance to privatise some of its state universities' services such as accommodation and catering (Mukeredzi, 2019). In response to the economic challenges faced by several African governments with regard to university grants and support, the concept of yield management has recently begun to take centre stage in the state universities cost-centres (Murimi, Wadoyo & Olielo, 2021). Leasing university accommodation facilities to private entities or exploiting university facilities for commercial purposes are some of the ways state universities generate revenue (Kirp and Roberts, 2002). However, a dent remained as the government of Zimbabwe has accumulated a huge external debt coupled by a wage bill that gobbles 90% of its revenue that further complicates availability of adequate funds for public universities (Mawonde, 2017).

The use of yield management concept in universities has various value adding benefits including facilitating decisions with regard to the allocation of undifferentiated units of capacity to available demand in a way that maximises revenue and the utilisation of available capacity over time (Altin et al., 2017; Kimes, 2011). It uses revenue management as a technologically systems-based strategy which gives birth to capacity utilisation, focuses on selling every available unit even to the possible detriment of the price obtained. Therefore, yield management strategy minimises the loss of customer good will; for example, services can be provided despite conventional business operation-hours and even with discounted rates for its clientele base (Altin et al., 2017; Pullman & Rodgers, 2010).

The use of revenue management maximises the net present value meaning the time horizon may be too short that the additional accuracy of discounting the cash flows received in different time periods would not be worth the effort (Pullman & Rodgers, 2010). This implies that revenue management extracts each customer's maximum price. The strategy is ideal but not really possible in most situations because it would involve tough negotiation with every customer, which might be a daunting task in universities with high enrolment figures (Clarke, 2009). However, the creation of a robust student database makes the manipulation of demand and supply easy as the system can compute and analyse data, predict trends and help make decisions.

2.2 Perceptions of Yield Management Strategy in African state universities

Majority of yield management systems focus on maximising revenue; companies using such a system develop an undue focus on short-term profits and ignore long-term profits which could result in managerial attention in producing and delivering good service (Josephi, Stierand, & Mourik, 2016). The private company mind-set is not at the forefront among education-leaders in state university structures (Josephi, Stierand, & Mourik, 2016). Despite the need for sustainable financial growth in an organisation, there is need for a balance on short, medium and long-term financial gains (Josephi, Stierand, & Mourik, 2016). Though state universities imitate private service organisations, unlike the private service providers, the former struggles to offer competitive quality services that address the expectations from the high demand. The emphasis on efficient and effective utilisation of resources that is embedded in yield management, if not properly understood in the public higher education space, may insinuate diversion of managerial attention from customer service (Josephi, Stierand, & Mourik, 2016). Consequentially nurture a misconception of service concept, loss of customers which are translated to financial loss-equivalent for the state-owned universities, especially in low-resources setting. However, these perceptions can change when

adequate training has been given to employees who are major stakeholders in the yield strategy matrix (Clarke, 2009).

It is a common standard that yield management can lead to customer alienation (Kimes, 2015). For example, in the airline industry, customers have the attitude and purchases behaviuor to buy tickets for a future-planned travel; but the question is whether clients for state-owned universities accommodation services will follow suite. However, the strategy perfectly works in industries composed of limited competitiveness, which is not the accommodation sector that is comprised of private and public players who are serving the accommodation student-market. Such gives options to customers/students based on aspects like affordability, expected service quality-price charged. There is high misconception that yield management system takes much of the guess work out of how many items of inventory to sell at what price; there is tendency to overlook that yield strategies also take some of the judgment out of the jobs of reservationists (Corti et al., 2013). It is important to note that such an assumption is not necessarily true as judgemental forecasting is done by people with vast experience who base their forecasts on previous trends to predict the future. Unless properly structured to allow for some judgment, yield management systems could be met with resentment from people using the system (Kimes, 2011). Perceptions about yield management can be turned to realities if proper education of all stakeholders concerned is done coupled by training (Tranter et al., 2009).

2.3 The challenges in using Yield Management in African state universities

Small players in the hospitality business are not keen on investing in technology as yield management involves compiling data using software. For yield management strategy to work for public institutions, it requires a change of the mind-set of the people on the ground who are implementers of the strategy; hence, investment in training to equip the public service employees with the relevant mental skills to articulate revenue management issues like modifying capacity is needed (Marmorstein et al., 2003; Stanislav & Zhechev, 2012).

Lack of product knowledge is another limitation as the concept of yield management is still new in the university-based accommodation service industry. An underestimation of the benefits offered by revenue management is another setback in the adoption and implementation of the yield strategy in the higher education sector, as there are few documented success stories of institutions that have massively benefited from the use of yield management to raise revenue (Materu, 2007).

Sharing data internally and externally with competitors has always been a problem in the public sector (Materu, 2007). This has been caused by the use of absolute technology in the public sector, whereas successful adoption of yield management depends on heavy investment in information technology that enables fast, efficient storage, process, and transfer of data and information whether within or outside the organisation (Kimes, 2011).
Organisations adopting yield management programmes may face consumer education problems as customers need to be appraised of the existence of the yield strategy and its possible benefits to them such that they will embrace it with a positive mind (Kimes, 2015). Such approach should take into account fragile customer base of students and staff in accommodation services departments of state universities.

A study done by the Joint Hospitality Industry Congress in 2015 has highlighted that the accommodation sector in state universities has conventionally been slow in adopting new technologies. The natural unwillingness to use new systems or to invest in research and development has caused other industries and countries to gain competitive advantage. A similar study on Revenue Generation Strategies in Sub Saharan Africa Universities revealed that public universities are reeling under pressure to raise revenue due to increasing student populations; high teaching, and research costs (World Bank, 2010). The research sought to gather the actual revenue generation tactics in Sub African universities. The study results from an analysis of case studies revealed that Sub-Saharan universities are trying to widen their revenue generation strategies taping into revenue generation in student enrolment, student fees and campus services such as accommodation. Moreover, to a varying degree, the case study universities implemented incentives and professional approaches towards revenue generation which resonates well with the recommendations of the current study. While current research's preliminary study indicated that managers have a general knowledge with the concept of yield management; however, the bulk of them are still unacquainted on how it is operationalised in state university setting. Therefore, the study investigated how state universities (an example of public institutions) use yield management and the implication thereof to the university revenue management strategy.

2.4 Theoretical underpinnings for the study

The Theory and Practice of Yield Management (TPYM) can be used a baseline theory of this study. The theory alludes on the optimisation of scarce resources accessible to a various market segments while not compromising maximum possible income-flow into the organisation. The theory advocates at allocating the right product; to the right customer, at the right time and the right price (4Cs of yield management: calendar and clock capacity,) to optimise total revenue (Netessine and Shumsky, 2002). The TPYM nurtures the understanding and worldview of a shared-similar condition that Departments of Accommodation Services in State Universities operate with

constrained capacity and have dire need to generate revenue by allocating perishable inventory (i.e student accommodation) in a way that realises full revenue potential.

3.0 Research Design

An exploratory research design was chosen to gain an opportunity to find what is happening and discover new insights on the applicability and adoption of revenue management strategies in public universities. This is a quantitative study which sought to assess the contribution of yield management practices (independent variable) to performance (dependent variable). A positivist approach was adopted so as to obtain valid information by being objective, maintaining distance from respondents, using a large sample size, adhering to values and ethics which maintain anonymity and confidentiality and protect respondents from any physical and emotional harm. As such, it suffices that the research methodology behind this study resonates well with the principles of positivism.

3.1 Data collection

Data was co-created/generated from Directors, who affiliates with UZ, MSU and CUT using semi-structured questionnaires. According to directors at UZ, MSU and CUT, who profiled their team members as being a total of two hundred and thirty, eighty and fifty tenured employees respectively. The study adopted Krejcie and Morgan's (1970) table for determining sample size from a given population, which states that a population of 360 should have a sample size of 186 plus or minus 5% standard error.

Structured questionnaires were distributed physically to managers, supervisors, cost controllers and housekeepers as self-administered and respondents were given time and privacy to complete the questions. The research instrument sought to explore the implication of yield management adopted in accommodation services departments at state universities in Zimbabwe; assess the level of adoption and challenges on implementing yield management in state universities. The data collection tool used was a compilation of themes deduced from literature review. A pilot test was done to check validity and reliability of the semi-structured and structured questionnaires (Krejcie and Morgan, 1970). The structured questionnaire had a Cronbach's alpha coefficient greater than 0.7 which pointed out that the instrument was reliable.

The researcher observed the five (5) Cs of research ethics principles specifically, Confidentiality, Coercion, Consent, Care and Communication. A five-point Likert Scale as mechanism to measure the relationship between dependent and independent variables. Some of the closed-ended questions included non-comparative scales in which the questions listed a series of attributes of an object that were assigned numerical values ranging from strongly agree to strongly disagree.

Section A was a survey of yield management practices used by Accommodation Departments in Zimbabwean State Universities. which sought to establish the yield management practices used by Accommodation Departments in Zimbabwean State Universities. Section B sought to assess views of respondents on the contribution of yield management practices to the performance of Departments of Accommodation. The section comprised of questions B1 to B9 where respondents' opinions on the contribution of yield management practices to the performance of Departments of Accommodation in Zimbabwean State Universities were recorded. A list of contribution of yield strategy was given and respondents had to agree or disagree with the contributions. Section C sought to assess respondents' views on the stakeholder's perceptions on the applicability of yield management strategies. The section comprised of questions C1 to C6 in which the respondents' views on the stakeholder's perceptions on the applicability of yield management strategies were assessed. Section D sought to assess respondent's opinions on the strategies which can be used to enhance the contribution of yield management to the performance of Accommodation Departments Zimbabwean State Universities. Questions D1 to D8 were closed-ended questions where respondents agreed or disagreed with a list of yield management strategies. Section E was an open-ended question which allowed respondents to suggest any strategies which can be used to enhance the contribution of yield management to the performance of Accommodation Departments in Zimbabwean State Universities. Section E which is the last but not least part of the research instrument sought to collect background data of respondents on work experience.

187 questionnaires were personally distributed, 100 were returned with no invalid outliers recorded to influence validity and reliability of the study outcome. The collected data was edited, coded and tabulated before performance of formal analysis. Content analysis was used which includes recording of data, transcription, obtaining an overview, the coding process, evaluations of relevance, list of categories, identification of thematic patterns and transcription. The deductive approach was chosen as it enables grouping of various responses according to their meaning to come up with themes. Clarke (2001) supports deductive analysis by stating that it tends to be driven by the researcher's theoretical and analytical interest in the area being studied into predefined categories.

The SPSS version 22 was instrumental in computer-based data analysis. The completed questionnaires were safely kept for data analysis. The first phase of data analysis involved data cleaning, where questionnaires were screened of any irregularities. The second step involved data coding of the variables. SPSS was used to

statistically test for factor analysis, regression analysis and mean rankings. The analysed evidence was presented in bar graphs and tables.

4.0 Results and Discussion

The results which emerged from the analysis are as follows:

4.1 Yield Management Practices in Accommodation and Catering Services Departments in State Universities

Based on the results, the following descriptive statistics emerged as presented in Table 4.1.

	N	Min	Max	Mean	Std. Deviation
Charging different prices for same product	97	1.00	5.00	2.6392	1.37072
Overbooking of accommodation	98	1.00	5.00	2.8265	1.34720
Market Segmentation	98	1.00	5.00	3.4592	1.02714
Distribution channel management	95	1.00	5.00	3.1053	1.16211
Charging differently depending on booking time	99	1.00	5.00	2.6364	1.46702
Demand forecast	97	1.00	5.00	3.7423	1.05355
Capacity management	99	1.00	5.00	3.9091	1.04091
Valid N (list wise)	90				

Table 4.1: Descriptive Statistics of Yield Management Practices

Source: Primary data

Table 4.1 illustrates the distribution of the types of yield management practices used by accommodation Services departments at three Zimbabwean state universities. Results suggest capacity management (mean=3.91, Std=1.04), Demand forecasting (mean=3.74, Std=1.05), market segmentation (mean=3.46, Std=1.06), Distribution channel management (mean =3.10, Std=1.16 were the mostly used practices while charging different prices, overbooking, and discounting whose mean was below neutral value (neutral=3) were used to a lesser. The findings are supported with the research done by Kimes & Wirtz, 2015) where yield management strategy affects operations in capacity planning and business strategy through the way the service firm positions itself in the market. The research results are further concretized by the theory of yield management (Netessine *et al.,* 2002).

	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Charging different prices for same product	-2.593	96	.011	-.36082	-.6371	-.0846
Overbooking of accommodation	-1.275	97	.205	-.17347	-.4436	.0966
Market Segmentation	4.426	97	.000	.45918	.2533	.6651
Distribution channel management	.883	94	.380	.10526	-.1315	.3420
Charging differently depending on booking time	-2.466	98	.015	-.36364	-.6562	-.0710
Demand forecast	6.939	96	.000	.74227	.5299	.9546
Capacity management	8.690	98	.000	.90909	.7015	1.1167

Table 4.2: One-Sample Test on Yield Management Practices

Source: Primary data

Table 4.2 reflects that, One Sample T-test revealed the four strategies as most statistically and significantly used which are capacity management ($t(98)=8.69$, $p<0.05$; demand forecasting ($t(96)=6.94$, $p<0.05$), market segmentation ($t(97)=4.43$, $p<0.05$) and distribution channel management ($t(94)=0.88$,$p,<0.05$). The remainder of yield management practices were rarely used as they were not statistically, not different from not using them at all ($p>0.05$).

Overbooking of accommodation, varying prices of same product at different times and also the time of booking were other strategies that the departments employed at times though to a lesser extent. The strategy requires careful planning of the optimal level of overbooking as supported by a similar study undertaken by Tranter et al. (2008). In Tranter (2008) the results revealed that careful planning of the optimal level of overbooking is of paramount importance so as to fully utilise available capacity. In addition the current results relates to the theory of yield management in that an organisation can optimise revenue by investing in capacity. Due to high demand of accommodation in state universities, an overbooking policy may need to be adopted after through trend analysis to

maximise capacity. This implies that overbooking can be used to effectively manage demand at the same time as a revenue generation strategy.

The results show similarity assertion that price discrimination is the heart of pricing in revenue management (Kimes and Wirtz, 2003). Such is alluded by the theory of yield management in that a pivotal role in revenue generation. Therefore, university strategy should entail charging different prices for the same room or service because there are differences in price sensitiveness among the students. However, to avoid customers switching from high to low priced products, findings by Zhang and Bell (2010) suggested that organisations should introduce price fences. This speaks to the theory of yield management in that revenue should be optimised in each market segment and this most likely leads to overall revenue boost for the entire organisation.

Table 4.6 Rotated Component Matrix[a]	**Component**		
	1	**2**	**3**
Charging different prices for same product			.744
Overbooking of accommodation		.603	
Market Segmentation	.714		
Distribution channel management	.773		
Charging differently depending on booking time		.673	
Demand forecast			.774
Capacity management	.523	-.667	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation.			
a. Rotation converged in 6 iterations. b. 3 components extracted.			

4.3 Factor Analysis on Yield Management Practices

Source: Primary data

Table 4.3 shows factor analysis on yield management practices. These results are supported by findings from Zhang and Bell (2010) which show that organisations use a mix of yield strategies to raise revenue by continuously producing the right product for the right customer at the right price and through the correct channel of distribution. Therefore, the results have shown that the Accommodation services departments have adopted and implemented yield management strategy on a minimum scale. Based on the theory of yield management, it implies that for optimal effect of yield management approach, there is need to change the way of doing business by embracing yield practices for better organisational performance.

4.2 Yield Management Practices and Performance of Departments of Accommodation Services.

The results shows the relationship of yield management practices as contributing to the performance of departments of accommodation services in three Zimbabwean state universities. These results address the second objective of the study as shown in Table 4.4.

	Test Value = 3					
	t	**df**	**Sig. (2-tailed)**	**Mean Difference**	**95% Confidence Interval of the Difference**	
					Lower	**Upper**
Students paying less	4.706	67	.000	.73529	.4234	1.0472
Demand accommodation	20.321	98	.000	1.63636	1.4766	1.7962
Increased revenue location	7.834	98	.000	.92929	.6939	1.1647
Increased capacity utilisation	3.103	98	.003	1.30303	.4697	2.1364
Increase in profit maximisation	2.812	98	.006	1.19192	.3507	2.0331
Increased productivity	12.297	97	.000	1.11224	.9327	1.2918
Flexible operating times	3.667	98	.000	.49495	.2271	.7628
Increased employee motivation	.259	98	.796	.04040	-.2690	.3498
Wider choice of accommodation	5.386	97	.000	.68367	.4317	.9356

Table 4.4 One-Sample Test on Contribution of Yield Management Practices

Source: Primary data

Table 4.4 shows that yield management contributed less to employee motivation and increased capacity utilisation contrary to similar study by Matsuoka (2022) which found that yield management practices thrive where employees are motivated. Therefore, it implies that the Departments of Accommodation Services in the three state

universities are paying less attention on performance related pay which might reduce profit maximisation of the departments.

The results can mean that yield management can influence improvement in overall performance though the strategy has little positive influence in terms of employee motivation and cost of meals. The results are supported by (Murimi et al, 2021; Clarke ,2007) who concluded in similar research that yield management improves sales through price discrimination, raises productivity through enticing more demand, increases competitive advantage through capacity utilisation and revenue generation. However, Clarke (2007) focused on the private institutions, which contrast the current study that focused on public institutions. Despite different contexts, a common assertion is maintained, which points to yield management practices stimulates demand, increasing capacity utilisation and productivity as major contributions to accommodation services departments in the three state universities in Zimbabwe.

4.3 Regression analysis on Yield Management and Performance

Linear regression analysis was employed to test the extent yield management contributes to the performance of Departments of Accommodation Services in Zimbabwe. Performance (Dependent Variable) was measured by stakeholder perceptions towards the applicability of yield management to revenue and capacity utilisation, while yield management (Independent variable) was measured by yield management practices being employed by the departments.

Since the data was on a nominal scale (categorical data), it was transformed into a continuous variable by finding the mean score for all the questions measuring the two dimensions. This was done in order to avoid violating some non-parametric assumptions. Data has to be on an interval for linear regression to be computed. The results of this study revealed that yield management practice has improved the financial performance for accommodation departments, resulted in increased productivity, increased capacity utilisation, increased profits, increased revenue collection, variety accommodation and flexible operating time respectively. The findings have been supported by similar study findings which reflect that yield management systems improve the financial performance of an organisation by allocating scarce resources in a way that optimise revenue (Kimes, 2015). However, the current research revealed that motivation among employees was not high as evidenced in the indifference responses rate gathered and presented in Table 4.5.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.381[a]	.145	.136	.98917

a. Predictors: (Constant), yield practice

4.5 Regression Table Model Summary

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	15.650	1	15.650	15.995	.000[b]
	Residual	91.975	94	.978		
	Total	107.625	95			

a. Dependent Variable: Performance

c. Predictors: (Constant), Yield, Practice

4.6 Regression Table: Model Summary

Source: Primary data

Based on the results, shown in Table 4.5 and 4.6the regression model summary indicates R, R-squared and adjusted R squared error. The R indicates the correlation between the independent variable (yield management) and the Dependent Variable (perceived applicability). A moderate positive relationship was found ($r=0.381$, $p<0.05$), implying that linear regression may be possible, and the independent can predict performance. The regression model summary relationship is supported by Kimes (2011) in a similar study that found out that there is a positive relationship between yield practice and performance of hospitality with resonates well with the theory of yield management.

4.4 Stakeholder Perceptions on the Applicability of Yield Management Strategies

The results show the views on stakeholder perception with regards to the applicability of yield management strategies, which was the third object of the study. One Sample Test stakeholder perceptions on the applicability of yield management is a prerequisite test to check confidence and consistency in the sample as indicated in Table 4.7.

	N	Mean	Std. Deviation	Std. Error Mean
Bad image because of price increases	97	2.7216	5.58596	.56717
Loss of customer services	96	2.2708	2.35072	.23992
High quality accommodation	95	3.9684	1.22433	.12561
Service concept will change	97	3.0412	1.36868	.13897
Short term success compared to long term profits	95	2.7474	1.33662	.13713
Student and administration conflict	96	2.6146	1.61812	.16515

Table 4.7 One-Sample Statistics on Stakeholder Perceptions on the Applicability of Yield Management Strategies

Table 4.7 shows that respondents have believed that yield management results in high quality of accommodation and that service concept can change as the two components had mean of 3.97 and 3.04 respectively. The results imply that the three university's image was neither affected by price increases nor by loss of customer service. This share similarity on result findings from Marmorstein *et al*., (2003) in a similar study that found out that yield strategy is mostly successful in organisations that have high quality products and customers have a perception that a higher price equates to high quality services such that it becomes imperative that price changes should be justified by corresponding quality. In like manner also, the results concurs with the TYMP in that yield management systems improves the decision making of an organisation by enabling the relevant pricing for the accommodation and catering service to the clients who are willing and able to purchase without inducing customer alienation.

	Component	
	1	2
Bad image because of price increases		.672
Loss of customer services		.541
High quality accommodation	.869	-.674
Service concept will change	.767	
Short term success compared to long term profits		
Student and administration conflict		.634
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation.		
a. Rotation converged in 3 iterations.		
Total Variance Explained Extraction Method: Principal Component Analysis		
Component | Initial Eigen values | Extraction Sums of Squared Loadings | Rotation Sums of Squared Loadings		

Table 4.8 Rotated Component Matrix[a]

Source: Primary data

The Table 4.8 shows Critical Variance analysis as reflecting results that two components were the most critical for this study which were high quality accommodation. The two factors constituted 54.27 % out of the six components in the study. The research results revealed that, generally, respondents feel yield management strategies are applicable in state universities. In addition, the results have indicated that the quality of accommodation can improve as a result of yield management practices. The results have pointed out that yield management practice has reduced student and administration conflict. The findings have been backed by similar research undertaken Wang (2012) who found out that conflict can be avoided between customers and management as long as there is an integrated management and revenue management tailor made to boost and build customer relations. In contrast, Matsuoka (2022) found out that yield management practice has great potential to cause conflict if not properly integrated. The results uncovered that employees perceives yield management strategy to have short term success than long term. Kimes (2015) concurs with the current result in yield management as it is viewed as a short term revenue generation strategy if only pricing strategies are employed and the opposite happens when yield management is embraced as a broad long-term strategy as prices alone lead to short term goals in revenue management. It therefore makes the theory of yield management to hold water if applied in state university setting as indicated by (Netessine *et al.,* 2002).

4.5 Strategies to Enhance Yield Management

The results shows views of respondents on yield management strategies that enhance performance of Accommodation Services departments in the three state universities in Zimbabwe. This was the fourth objective of

the study. As a requirement, one sample test was contacted to test normalcy of sample as shown in Table 4.9. Results are indicated in Table 4.9 that show mean ranking scores for each strategy.

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Promote dynamic pricing	3.231	95	.002	1.80208	.6948	2.9094
Differential pricing	1.827	96	.071	1.01031	-.0873	2.1079
Frames of accommodation	2.467	95	.015	1.34375	.2624	2.4251
Create market segments	7.369	94	.000	.84211	.6152	1.0690
Introduce forecast and overbooking policy	2.001	92	.048	.91398	.0067	1.8212
Introducing more distribution	10.63	95	.000	1.02083	.8304	1.2113
Introduce capacity inventory management	2.789	95	.006	1.51042	.4354	2.5854
Introducing performance-based pay	4.641	95	.000	.69792	.3994	.9965

Table 4.9: One-Sample Test Strategies to Enhance Yield Management

Source: Primary data

	Component			
	1	2	3	4
Promote dynamic pricing			.881	
Differential pricing	.627	-.765		
Frames of accommodation	.637	-.755		
Create market segments	.690			
Introduce forecast and overbooking policy				.841
Introducing more distribution	.731			
Introduce capacity inventory management				
Introducing performance-based pay	.648			
improved information sharing among universities	.570			

Table 4.10. Critical Component Matrix[a]

Extraction Method: Principal Component Analysis. 4 components extracted.

Source: Primary data

The results reflect that Accommodation Services departments can use a variety of strategies to raise revenue. The following are the strategies mostly used: creation of market segments, promotion of dynamic pricing, and the introduction of capacity inventory management, rate frames, and differential pricing. Forecasting and overbooking and performance-related pay were the least used strategies to enhance the contribution of yield management practice. A similar study on yield strategies conducted by Guillet (2015) concurs that improved information sharing, introduction of more distribution channels for product on offer, the introduction of capacity inventory management, promotion of dynamic pricing, introduction of market segmentation and rate frames are some of the essential ingredients to enhance yield strategy. It may be safe to suggest that the strategies listed above enhance the contribution of yield management as all their mean is above the minimum threshold of 3. Hayes and Miller (2011) also found that demand forecasting and overbooking are strategies that give positive results in terms of generating revenue for organisations where companies safely overbook their capacity basing on calculated trend of no shows. The study results concur with the theory of yield management as put forward by Netessine *et al.*, (2002).

Extraction Method: Principal Component Analysis

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.751	30.564	30.564	2.751	30.564	30.564	2.131	23.679	23.679
2	1.654	18.379	48.943	1.654	18.379	48.943	2.007	22.299	45.978
3	1.099	12.214	61.158	1.099	12.214	61.158	1.271	14.121	60.099

4	1.037	11.520	72.677	1.037	11.520	72.677	1.132	12.578	72.677
5	.878	9.752	82.429						
6	.671	7.459	89.888						
7	.481	5.342	95.230						
8	.397	4.412	99.642						
9	.032	.358	100.000						

Source: Primary data

Based on the results in Table 4.11, out of nine components used in this study, only four were extracted, and these were capacity inventory management, promotion of dynamic pricing, and introduction of market segmentation and rate frames. The extracted four components constituted 72.68 % of the total. However, the other yield strategies remained important as they had a mean coefficient of greater than. The research results are supported similar findings by Guillet (2015) which are in agrreement with the theory of yield management (Netessine *et al.*, 2002).

4.6 Demographic Data: Work Experience

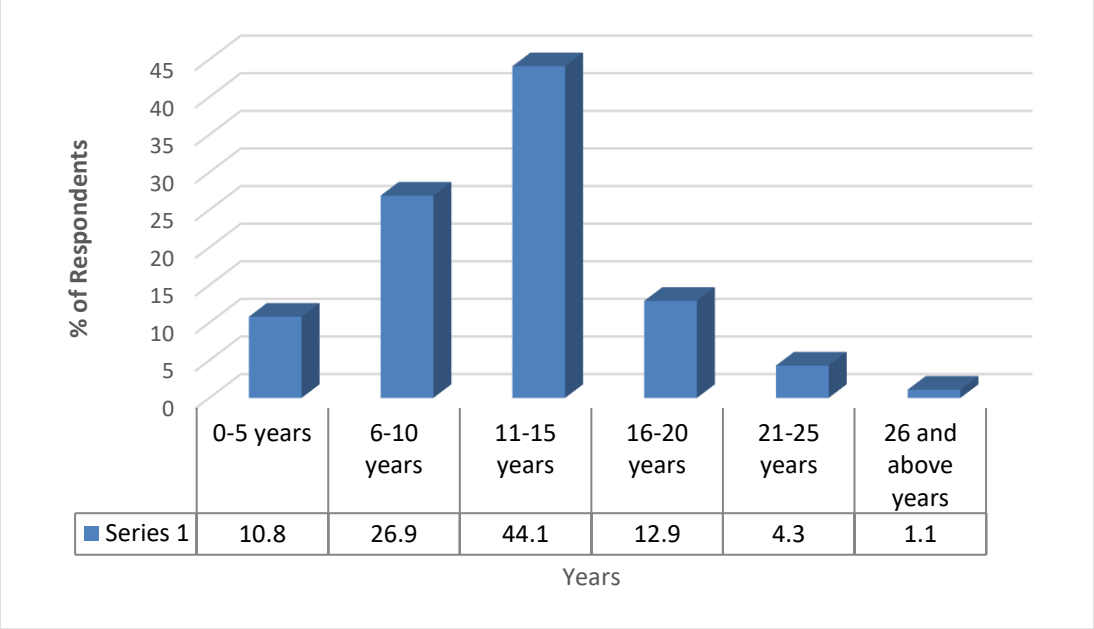

Figure 4.1 Respondents' Work Experience

Figure 4.1 shows the distribution of respondents according to work experience. The majority (44%) had experience ranging from 11 years to 20 years. The implications are that the sample constituted people who were knowledgeable of the subject being investigated hence contributes to the validity and results for this study. The smallest percentage of 1.1 % had experience of 26 and above meaning that very few respondents constituted the old population assuming that the minimum age at which a person gets into full time employment is 25 years. Out of interest, the researcher went a step further to investigate if there was a relationship between work experience and performance using a statistical tool Anova although this was not part of this study's objectives.

Performance	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	8.101	5	1.620	1.413	.228
Within Groups	96.354	84	1.147		
Total	104.456	89			

Table 4.4 ANOVA

One way ANOVA was used to investigate whether work experience had any influence in organizational performance of Departments of Accommodation in state owned universities. Results suggest that work experience has no influence on performance in this regards: F (5) =1.42, p>0.05. The results indicate that the experience of employees might be less significant with regards to performance. This however, is contrary to volumes of literature in this area which found a positive and statistically significant relationship between the two (Kimes, 2011). However, this association was done in the private, not much information is available with regards, in the public sector.

5.0 Conclusion

The study aims to investigate implication of yield management adopted in accommodation services departments at state-owned universities using in Zimbabwe as a case study. Based on theoretical and empirical results, the study provides guidelines and insights on the adoption of yield management in state universities. Available literature has shown that very little is known and documented on the applicability of yield management in the public sector-state universities in Zimbabwe among developing economies. The major practical implications that state-owned universities have to invest heavily in manpower training and technological infrastructure for easy data storage, processing, and transfer. The recommendations points for a need to motivate employees through reward systems for successful yield management adoption. The state-owned universities' policies on accommodation services should nurture staff development on yield management. The human resource capital policies should also relate with remuneration of the staff to bring a nexus in value of staff performance and departmental performance on key results areas. Furthermore, revenue management that is under sales and Bursars' office should have a broader and holistic understanding of yield management which should speak to overall university policy and other legislative frameworks. Therefore, the conclusion fosters that empirical research obtained a positive correlation between yield practice and performance implies for the need for the state universities to invest in yield management using a systematic and holistic organisational lens to optimise value co-creation. Thus, investing in information technology is crucial in the successful adoption of yield management system. Consequently, it may be safe to recommend the full adoption of yield management in the public universities students' affairs in which accommodation services is found.

The current study was limited by just focusing on accommodation services departments, yet state university operates as a system with cost-centres that implicates each other directly and indirectly. In addition, the study limitations are skewed towards the usage of three state universities out of ten state universities in one developing country in the Southern African higher education. Therefore, further studies should be focusing on all higher institutions for better contribution to policy and decision making as regulated by the governments in developing states of Zimbabwe. In addition, further research is recommended to broaden focus and consider the nexus of state university cost-centres under accommodation services. These future studies can incorporate various yield management strategies which can bring more layers and dimensions to the debate, while determining their effects or implications on the performance of Departments of Accommodation Services in state-owned universities in low-resources setting.

References

Altin, M., Schwartz, Z., & Uysal, M. (2017). "Where you do it" matters: The Impact of Hotels Revenue Management Implementation Strategies on Performance. *International Journal of Hospitality Management*, *7*(12): 46-62.

Aras, S., Buyusalvaric, A., & Halil, A. (2018). Revenue Management Practices in Hospitality Industry: A Research on Hotels in Konya, *Turkey, KKG Publications*, *2*(4): 2-52.

Bank, W. (2016). Financing Higher Education in Africa. Washington Dc: World Bank.

Beverwijk, J. (2003). Coalition Formation in Mozambican Higher Education. *The Genesis of the System*, 25-40.

Canton, E. & Vaan der Meer, E. (2001). Economics of higher Education in CBP/CHEPS, Higher Education Reform: Getting the Incentives Right. SDU, Den Haag.

Chinyoka, A. (2020). Sustainable survival strategies in a volatile economic environment: A case of Zimbabwean universities. *Cogent Social Sciences*, 1(6): 1-16.

Clarke, B. (2001). Sustaining Change in Universities: Continuities in case studies and concepts. London: SRHE/OUP.

Corti, V. (2013). *Measuring hotel performance:Using a Balanced Scorecard prespective approac*h. International Journal of Hospitality Management, 150-159.

Garwe,E.C. (2013). Quality Assurance in Higher Education in Zimbabwe. *Journal of Case Studies in Education*, 119-135.

Guillet, B. M. (2015). "Revenue management research in Hospitality and Tourism: A critical review of current literature and suggestions for the future research*". International journal of contemporary Hospitality Management*, 526-560.

https://www.idbz.co.zw. Accessed 04 May 2021.

https://www.worldbank.org/en/topic/tertiaryeducation. Accessed 20 February 2021.

http://www.zim.gov.zw/index.php/en/my-government/government-ministries/state-universities?. Accessed 10 January 2021.

https://www.nust.ac.zw/index.php/student-accommodation.html

http://www.zimtreasury.gov.zw/index.php?option=com_phocadownload&view=category&id=54&Itemid=787.Accessed 6 May 2021.

Hauptman, A. (2006). Innovations in Tertiary Education Financing*: A Comparative Evaluation of Allocation mechanisms*. Washington DC: World Bank.

Jafiya, G., Shingu J.J. & Joseph,S. (2020). Problems of Hostel Accommodation on Campus, A Survey of College of Education, Hong, Adamawa State. *Journal of African Sustainable Development*, 2(16):195-203.

Josephi, S. H. G., Stierand, M. B & Mourik, A. (2016). Hotel Revenue Management: Then, now and tomorrow. *Journal of Revenue and Pricing Management*, *4*(15): 252-257.

Kim, K.W. & Lee, J. (2016). The Effect of Accommodation on Academic Performance of College Students with Disabilities. Sage Publications Limited.

Kimes, S. E. & Wirtz, J. (2003). Has Revenue Management Become Acceptable? *Journal of Service Research*, *6*(2): 125-135.

Kimes, S. E. (2011). The Future of Hotel Revenue Management. *Journal of Revenue and Pricing Management*, 10:62-72.

Kimes, S.E & Wirtz, J. (2015). Revenue Management: Advanced Strategies and Tools to Enhance Firm Profitability. *Foundations and Trends in Marketing*, 8(1):1-68.

Kirp, D., & Roberts, P. (2002). Mr. Jefferson's University Breaks Up: The public Interest, 70-84.

Krejcie, R. (1970). Determining sample size for research statistics and activities. *Educational and Psychological Measurement*, *1*(30), 607-610.

Madzimure, J. (2016). Zimbabwe education system: A survival of the fittest. Available at:
http://nehandaradio.com/2016/10/04/zimbabwean-university-education.

Marmorstein H., R. J. (2003). Unleashing the Power of Yield Management in the Internet
Era :Opportunities and Challenges . *California Management Review*, 147-167.

Matsuoka, K. (2022). Effects of Revenue management on perceived Value, Customer Satisfaction, and Customer loyalty. *Journal of Business Research*, 148:131-148.

Materu, P. (2007). Higher Education Quality Assurance in Sub- Saharan Africa: status, challenges, opportunities and promising practices. Human Development Department Africa: World Bank.

Mawonde, M. (2015, May 25). Government to wean Off Universities, Herald, *p.1*. Accessed 09 September 2022.

Mbandlwa, Z. (2021). The Comparison of Academic Performance of Students that are Staying at Student Residences and those Staying in their Homes. *Elementary Education Online*, *20*(4):1562-1571.

Mukeredzi,T. & Mashininga, K. (2019). Student Housing – Raising Standards and Sharing the Load. University World News, 14 June. Available at: https://www.universityworldnews

Murimi, M., Wadongo, B. & Olielo, T. (2021). Determinants of revenue management practices and their impacts on the financial performance of hotels in Kenya: A proposed theoretical framework, *Future Business Journal, 1*(7): 1-7.

Mutambara, E., & Chinyoka, A. (2016). The budgetary process for effective performance of universities in a resource stricken economy, *6*(2): 96–112.

Netessine, S. and Shumsky, R. (2002). Introduction to the Theory and Practice of Yield Management. *INFORMS Transactions on Education* 3(1):34-44.

Nnenna, I., Caudia, B., Athena, & L. (2016). For universities, there are gains in reputation and, as university provided housing can serve as a tool for student recruitment, in income from tuition. *Planning for Higher Education Journal, 4*(3): 46-48.

OECD. (2008). Tertiary Education for the Knowledge Society. Paris: Organisation for Economic Cooperation and Development.

Parameswaran, A., & Bowers, J. (2012). Student Residences: From Housing to Education. Journal for Further Higher Education, *38*(1):1-10.

Property Reporter. (2017, October 24). IDBZ Concludes Students Accommodation Deals. *Herald News*, Available at https://www.herald.co.zw. Accessed: 6 June 2023.

Queiro's, A., Faria, D., Almeida, F. (2017). Strengths and Limitations of qualitative and Quantitative Research Methods. *European Journal of Education Studies, 9*(3): 6-45.

Sabi, S.C., Kolanisi, U., Siwela, M., Naidoo, D. (2020). Students' vulnerability and perceptions of food insecurity at the university of KwaZulu-Natal. *African Journal of Clinical Nutrition, 9*(3): 144-151.

Saunders, M. (2009). *Research methods for Business Students 5th Ed.* Edinburgh: Pearson Education Limited.

Sawwyerr, A. (2004). Challenges Facing African Universities: Selected Issues. Accra: Association of African Universities.

Stanislav, I., & Zhechev, V. (2012). Hotel Revenue Management- A Critical Literature Review. *Tourism Review, 60*(2): 175-197

University of Glasgow, (2022). Report on Student Housing Globenewsire.com.2023

Wang, X.L. (2012). Relationship or revenue: Potential management conflicts between customer relationship management and hotel revenue management. *International Journal of Hospitality Management,* 31(3):864-874.

Zhang, M. & Bell, P. (2012). Price Fencing in the Practice of Revenue Management: An Overview and Taxonomy. *Journal of Revenue and Pricing Management,* 11(2):146–159.