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THE EFFECT OF INVENTORY MANAGEMENT PRACTICES ON PRODUCTIVITY

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ABSTRACT

Inventory management provides an effective way to track products and goods down to the market from the supervisor. There are many ways to manage inventory that offer many benefits. The company should ensure the proper flow of goods in and out without overstocking. This study has examined the effect of inventory management practices on productivity at Jeddah, Saudi Arabia. The study focused on a gap that hasn't been explored before: the effect of internal structure. Qualitative, quantitative, and mixed research was used on both primary and secondary data. The sample size was 50 obtained across 5 firms using a stratified sampling method. The data were subjected to a Pearson chi-square test using SPSS. The findings have shown that inventory management practice has reduce production costs, minimizes scrap and objects, prevents shortages and stock out costs, minimizes machine downtime, reduces the length of delivery time, and meets customer requirements. Thus, there is a positive connection between inventory management practices on productivity.

INTRODUCTION

Inventory management methods are techniques used in a business that manages the company's stock and non-capitalized properties [1]. It is a way of controlling the movement of goods from the supervisor, from the producer to the warehouse, from the warehouse to the point of sale. Inventory management can be classified in three different ways: stock of natural resources, process work and inventory of finished goods. Inventory of raw materials is the stock needed by the producer to maintain the productivity of the goods to be produced [2]. Work in process inventory is the inventory needed for manufacturing, which can be in the type of equipment that is

needed. The inventory of finished products is the stock that has been manufactured waiting to be shipped to the factories and then to the purchasers [2].

Inventory management practices help the business in a number of ways. Inventory management maintains the balance required for the company's required inventories so as not to overstock or under-stock [3]. In order to keep the necessary continuous cash flow in the company, the company should avoid stocking and overstocking at all costs. Furthermore, overstocking causes the company to have a cash flow problem because it could have invested in what was not necessary. On the other hand, under-storage causes under-productivity, which results in the under-use of the resources used in production [3]. The cash flow of the company is affected by either way. By practicing inventory management, the company is in a position to prevent damage and the expiration of goods, maximizing the profits of the company. In addition, an inventory management system ensures the efficiency of employees and of all staff in general [4].

Over the years, the models used in inventory management practices have evolved tremendously as a result of technology change. Some of the models are technologically advanced while others are not [5]. A company should consider models that are highly efficient and can maximize profits if they are used in a company. A highly effective model is directly proportional to the high productivity rates of the company. Some of these models include, among others, the ABC analysis, the Just-in-Time model and economic order quantity model [6]. The models used often depend on the type of business, since large companies will use a more advanced model than small businesses.

The productivity of a company is the overall measure of the quantity of labor the organization is subjected to, taking into account processes. There are a number of ways in which the productivity of a company can be measured. It may be the company as a whole, an individual, specific aspect that the company considers important, and even the efficiency of both the company and its employees in general [7]. In addition, a company can be considered productive when the objectives, objectives, vision have been achieved or there is a greater possibility for a company to achieve them [8]. A company that satisfies its customers by providing them with what they need and also by listening to them can also be considered productive, especially when their products have fully penetrated the market. Economic metrics provided to companies provide a good basis for a company to know its rate of productivity compared to other competing companies. In order for a company to increase its productivity rates, it must invest in inventory management practices [9].

Previous empiric evidence indicates that a number of studies have been conducted in the field of business studies to establish a correlation between the effects of inventory management on the firm's performance effectiveness. The analysis carried out by Teplická and Čulková [10] showed that a clear negative association between the gross operating profits and the total number of keeping days in inventories. Moreover, the work of Nemtajela and Mbohwa [11] showed that businesses with high inventory ratios were more likely to

have poor financial results than those with low inventory ratio stocks. Similarly, the work of Zhiteng and Haifeng [12] showed that there is a need for businesses to carry out analytical research on the impact of inventory strategies on the financial performance of a company. Moreover, the work of Yan et al. [13] has demonstrated that manufacturing firms that use higher levels of existing sophisticated inventory management techniques have improved performance and are more competitive in their production chain.

Resource procurement activities have been recognized as a critical area for the company most in need of priority [14]. While several businesses have applied inventory control techniques, some have neglected them in the same manner. It is clear that most of the empiric studies referred to have focused solely on the relationship between inventory productivity and financial performance based on the overall inventory. Few considerations have been paid to the influence of the internal structure. The goal of this study is therefore to resolve this void by presenting the impact of inventory models on the output of firms in the Kingdom of Saudi Arabia. Thus, this paper has examined the effect of inventory management practices on productivity.

METHODOLOGY

This work has adopted a descriptive cross-sectional study design and quantitative research approach. This approach has been used to establish the relationship between the dependent and independent variables involved in the study. Independent variables were the different inventory management practices of different private firms in the study area of Jeddah, Saudi Arabia. Dependent variables were the performance of the company. The study adopted proportionately stratified sampling procedures, as the study population is diverse. The sample populations were employees from various retail industries in Jeddah Saudi Arabia, and the sample sizes were 50 respondents. In this study, Likert Scale question of a scale of 1-5 was used as the major instruments of data collection. The study utilized closed end questionnaire to make it easier to administer and arrange the data for analysis as standard data were obtained. The questionnaire had a question pertaining the inventory management, productivity, and production performance. The data were analyzed using SPSS version 22. Both descriptive statistic and the chi-square test were carried out to establish the relationship between the independent and dependent variables. The final result was presented using tables, graphs, and figures.

RESULT AND DISCUSSION

Demographic Characteristics

Figure 1 demonstrates the age of the respondents. Based on Figure 1, 53.33% of the respondents were between ages 25–35, 23.33% were between ages 36-45, 16.67% had less than 25 years and only 6.67% had over 45 years.

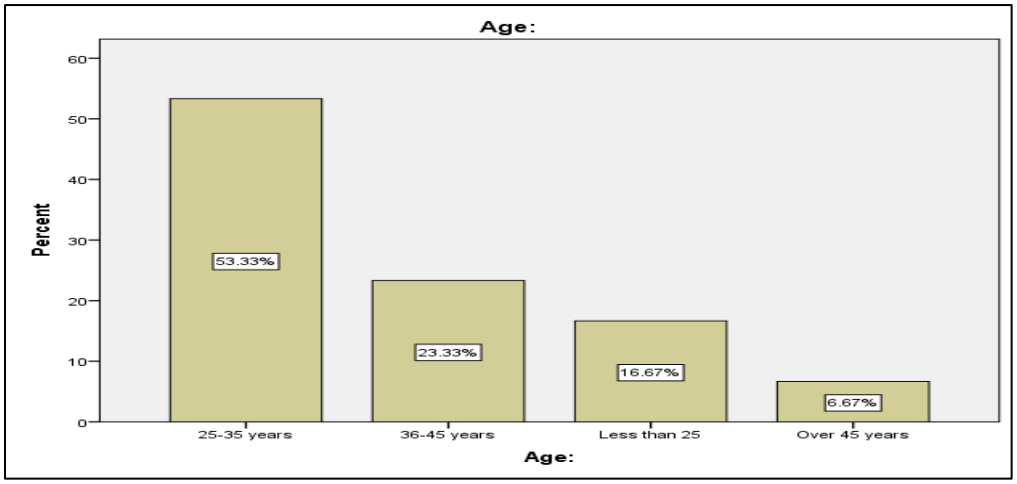

Figure 1: Age of Respondents

Gender is generally categorized into two: male and female. In Figure 2, it can be seen that the larger percentage of the respondents belonged to the males (80%). Females only constituted 20% of the respondents.

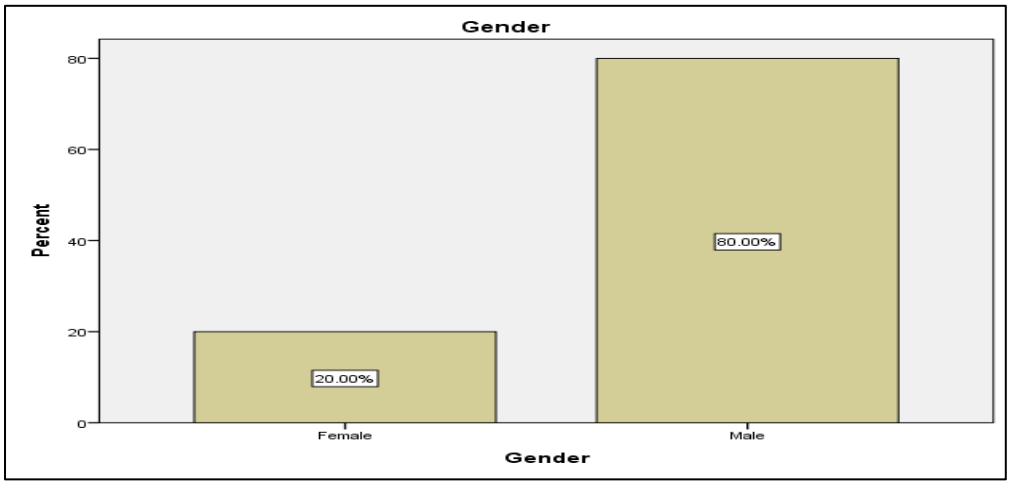

Figure 2: Gender of Respondents

Figure 3 shows the classification for level of education. Based on Figure 3, 60% of the respondents were university degree holders, 23.33% has masters, and 16.67% had diplomas or college degrees.

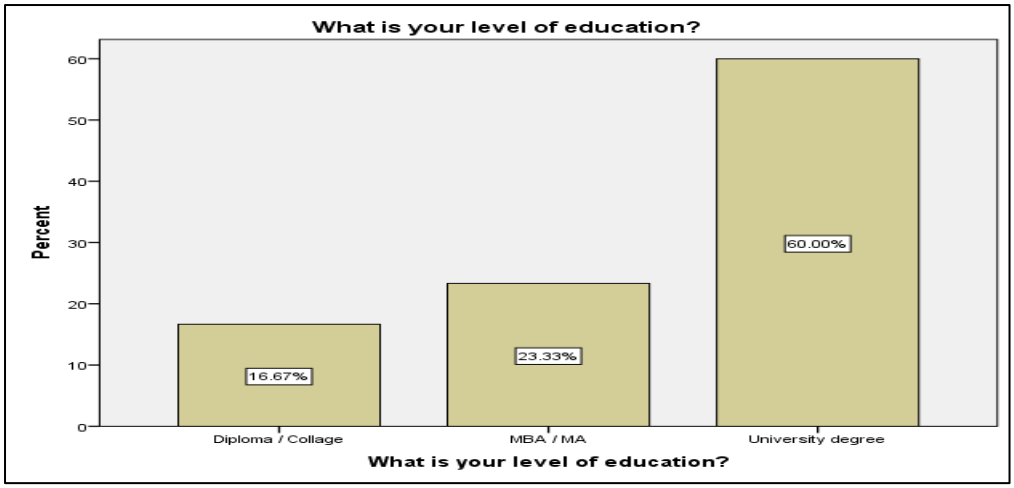

Figure 3: Level of Education

Figure 4 shows the classification for job position of the respondents. Based on Figure 4, a massive percentage (80%) were regular employees. General managers, managers, partners, production engineers, quality engineers, and supply chain coordinators constituted 3.33% of the respondents.

Figure 5 shows the number of years worked. Based on Figure 5, most respondents have been working in their current station for less than 2 years (36.67%). 26.67% have been in their current station for 2-5 years. 23.33% have worked for 10 years and above and 13.33% have been in their current station for 6-9 years.

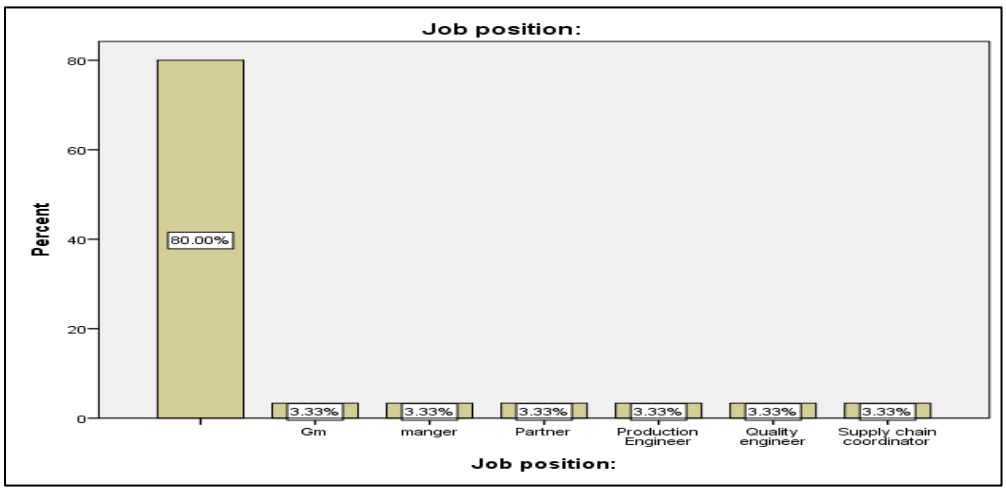

Figure 4: Job Position

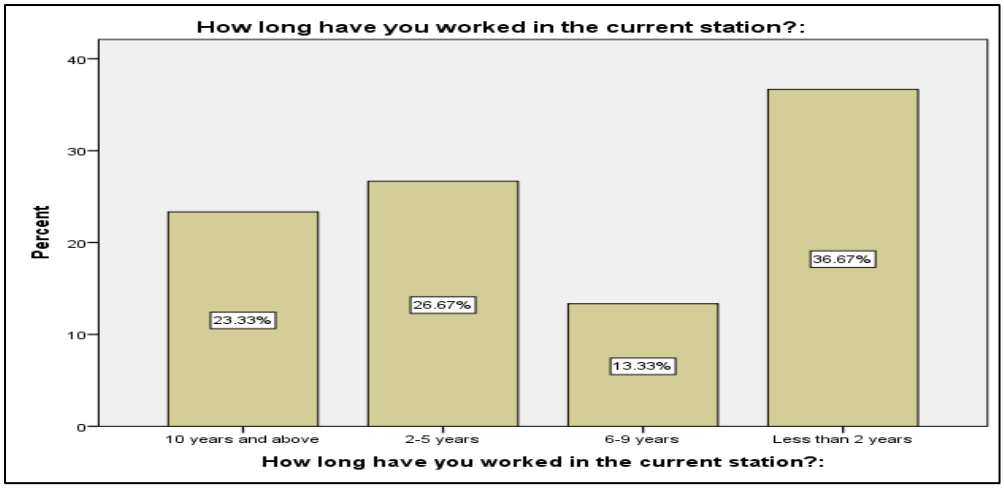

Figure 5: Number Of Working Years

Chi- Square Test

This part analyzes the impact of inventory management on the organization's productivity. But first, how the different practices of inventory management enhance productivity will be analyzed. The following results, which were the Chi-square values, the degrees of freedom, and the asymptotic significance, are discussed. The cut-off value will be 0.05 (95% confidence interval). This value means that when the asymptotic significance value is less than 0.05 ($p<0.05$), it is concluded that there exists a significant relationship between the variables in question.

Table 1 shows the results for the effect of various inventory practices on productivity. Based on Table 1, it can conclude that the idea of the firm using an activity-based costing as an inventory classification system to allocate time and money in inventory management does not enhance productivity (chi-square=12.241a, df=9, p=.200). Optimal ordering quantity for an item of stock that minimizes cost enhances productivity (chi-square=32.200a, df=9, p=.000). Vendor managed inventory practices for supplier partnerships enhances productivity (chi-square=22.158a, df=9, p=.008). Materials requirement planning to control the flow of supplies to meet planned requirements enhances productivity (chi-square=35.006a, df=9, p=.000). Orders within a supply chain by using distribution requirements planning enhances productivity (chi-square=37.371a, df=9, p=.000).

Table 1: The Effect of Various Inventory Practices on Productivity

Inventory Practices	Pearson chi-square	df	Asymptotic Significance (two-tailed)
The firm uses activity-based costing as an inventory classification system to allocate time and money in inventory management	12.241*	9	.200
The firm orders the optimal ordering quantity for an item of stock that minimizes cost	32.200*	9	.000

The firm uses vendor managed inventory practices for supplier partnerships	22.158*	9	.008
The firm uses materials requirement planning to control the flow of supplies to meet planned requirements	35.006*	9	.000
The firm plans orders within a supply chain by using distribution requirement planning	37.371*	9	.000

Table 2 shows the benefits of inventory management practices. Based on Table 2, it can be seen that inventory management practices reduce production costs (chi-square=23.295a, df=9, p=.006). Inventory management practices do not reduce resource wastage (chi-square=14.890a, df=9, p=.094). Inventory management does not boost employee work morale (chi-square=15.347a, df=9, p=.082). However, it minimizes scrap and objects (chi-square=34.707a, df=9, p=.000). It prevents shortages and stock out costs (chi-square=37.658a, df=9, p=.000). It reduces the length of delivery time (chi-square=34.067a, df=9, p=.000). Minimizes machine downtime (chi-square=20.676a, df=9, p=.014). Inventory management practices meets customer requirements (chi-square=34.707a, df=9, p=.021).

Table 2: The Benefits of Inventory Management Practices

Inventory Practices	Pearson chi-square	df	Asymptotic Significance (two-tailed)
Reduces production costs	23.295*	9	.006
Reduces resources wastage	14.890*	9	.094
Boosts employee work morale	15.347*	9	.082
Minimizes scrap and rejects	34.707*	9	.000
Prevents shortage and stock out costs	37.658*	9	.000
Reduces delivery time	31.067*	9	.000
Minimizes machine downtime	20.676*	9	.014
Meets customer requirements	19.471*	9	.021

Table 3 shows the challenges facing inventory management systems. Some possible challenges that might affect inventory management systems were brought up. The matter of expensiveness, unavailability locally, lack of recognition from the management, and unwillingness of suppliers to divulge information are the possible challenges in this study. Based on Table 3, the results shows that procurement systems such as ERP are not expensive to buy, install and maintain (chi-square=17.433a, df=12, p=.134). It also tells us that the notion that procurements systems are not locally available is a blatant lie (chi-square=10.849a, df=12, p=.542). It is true that the management doesn't recognize the benefits associated with procurement function (chi-square=24.630a, df=12, p=.017). It is also not true that suppliers and users are not willing to share information regarding the inventory management system (chi-square=7.873a, df=12, p=.547).

Table 3: Challenges Facing Inventory Management Systems

Inventory Practices	Pearson chi-square	df	Asymptotic Significance (two-tailed)
Procurement systems such as ERP are expensive to buy, install and maintain	17.433*	12	.134
Procurement systems are not locally available	10.849*	12	.542
The management doesn't recognize the benefits associated with the procurement function	24.630*	12	.017
Suppliers, users are not willing to share information	7.873*	12	.547

OVERALL DISCUSSION

In any serious organization, whoever wants to be competitive in the market, it is important to have an efficient and effective inventory management system in place. There are therefore some factors that need to be taken into account. This study did a good job of evaluating variables and concluded that activity-based costing as an inventory classification system for the allocation of time and money to inventory management does not improve productivity. It can also be concluded that an optimal order quantity for a stock item that minimizes cost increases productivity. Vendor managed inventory practices for supplier partnership improves productivity. The requirement for materials to plan to control the flow of supplies in order to meet the planned requirements also increases productivity. In addition, ordering within the supply chain by planning on distribution requirements improves productivity.

This study has shown that some of the challenges supposedly posed are true, while others are not true: for example, it is not true to say that ERP systems are expensive to purchase, install and maintain. It is also not true that procurement systems are difficult to find locally. Again, it is not true that suppliers and users are not willing to share information about the inventory management system. It is true, however, that the management does not recognize the benefits of the procurement function.

Furthermore, the work found that optimal ordering quantity for an item of stock that minimizes cost enhances productivity. In addition, inventory management minimizes scrap and avoids shortages and costs [15]. It reduces the delivery time. It also minimizes downtime of the machine and satisfies customer requirements. Procurement systems such as ERP are not expensive to acquire and are available locally. Management recognizes the benefits of procurement. Suppliers and users therefore need to share information on inventory management and improve the overall process for effective management [16].

CONCLUSION

This work has examined the effect of inventory management practices on productivity. The key findings have shown that here is a significant association between inventory management practices on productivity. It is therefore concluded that the direction and intensity of the relationship between

inventory management and firm performance are very closely linked and the organization should pay attention to these elements in order to improve inventory management in the future. The study also recommends that management be trained in order to recognize and understand the benefits of the procurement function and its incorporation into the production process.

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