

# Examining Factors Affecting Inventory Management Practice at Wollega University Main Campus

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**Abstract:** *Background:* Researchers studied about inventory management practice and other related concepts, but it's rare to find researchers work on the factors affecting inventory management practice in the case of universities, especially in Ethiopia. The researcher is interested in fulfilling the gap and aimed to show the advantage of having professional staff advanced inventory documentation/record, effective procurement practice, and well-organized storage facility. In case of Wollega University main campus. The main objective of this study was examining the factors affecting inventory management practice at Wollega University. *Objective:* researcher intended to examine the most crucial factors according to literatures that affect inventory management those are staff proficiency, facility management, procurement practice and documentation. *Methods:* to meet the objectives a sample of 324 employees were selected from each strata randomly out of 1731 total population. Explanatory research design was used, the study was both qualitative and quantitative (mixed approach) data was collected by mainly questionnaires to analyze data SPSS of computer software was used and analyzed through descriptive and inferential statistics. *Results:* The study finding shows the university is not given sufficient emphasis for staff proficiency the study was measuring the relationship between staff proficiency and inventory management there is strong positive relationship showing a unit improvement in staff proficiency will make inventory management practice better. *Conclusion:* the procurement practice is inefficient to handle the inventory management function. There is also moderate positive relationship between the effects of procurement practice and inventory management practice. Result shows procurement practice has the next most significant effect. Facility management also has a significant positive influence on inventory management practice.

**Keywords:** Inventory Management Practice, Procurement Practice, Facility

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## 1. Introduction

### 1.1. Background of the Study

The success of a product in today's global marketplace depends on Capabilities of firms in the products supply chain. Among these capabilities, effective inventory management is a capability necessary to lead in the global marketplace [4]. Historically, inventory management has often meant too much inventory and too little management or too little inventory and too much management. There can be severe penalties for excesses in either direction. Inventory problems have proliferated as technological progress has increased the organization's ability to produce goods in greater quantities, faster and with multiple design variations. The public has compounded the problem by its receptiveness to variations and frequent design changes [10].

Organizations from all industries are striving to achieve effectiveness, cost efficiencies and economies of scale. Most of these organizations hold inventory to meet their customers' needs. However, managing these inventories in order to achieve their objectives has posed a great challenge to the firms. Many firms have not yet been established.

How much to invest in inventories and the right inventory levels to hold so as satisfy customers [6].

There are many definitions of inventory stated by different authors. According to [5] an inventory is a list of items or goods. There are several types of inventories depending upon the context or situations. For example, inventory in a library means the list of books, journals, periodicals, furniture, fans, etc. Generally a firm has about 30 percent of its current assets and as much as 90 percent of its working capital invested in inventory [9].

If there is Less Frequent Inventory Checks, Incorrect unit

count, Incorrect unit of measure, Incorrect standard cost, Incorrect inventory layering, Incorrect part number, Cycle counting adjustment error, transfer imbalance, Poor communication, Poor decision-making, and other problems related to inadequate inventory management and the institution cannot achieve the desired goal.

All in all different authors agree on this general definition of inventory. Inventory is a material stored for future use of the institution. All institutions require inventories. Often, they are a substantial part of total assets. There is a cost of carrying inventories, good inventory management is essential for considering costs and minimizes the cost. [3].

Different researchers study about inventory management practice and other related concepts, but it's rare to find researchers work on the factors affecting inventory management practice in the case of universities. The researcher is interested in filling the gap and aimed to show the advantage of having professional staff advanced inventory documentation/record, effective procurement practice, and well-organized storage facility. In case of Wollega University main campus.

### **1.2. Problem Statement**

Inventory is a material stored for future use of the institution. All institutions require inventories. Often, they are a substantial part of total assets. There is a cost of carrying inventories, good inventory management is essential for considering costs and minimizes the cost. [3]. Inventory management problems have attracted researchers for many years. In the past, inventory management was not seen to be necessary, in fact excess inventories were considered as an indication of wealth. Management then considered overstocking beneficial. However today firms have started to embrace effective inventory management [7].

Just like other organizations, Wollega University also has an inventory, which are materials stocked to facilitate teaching learning and other important pillar functions of the university. materials starting from the paper to some laboratory use and several types of materials are stored for the whole university facilitation, inventory management practice in this university is stated to have some challenges such as lack of advanced technology, for counting the inventory, documentation, record, and coding (Wollega University inventory 2015 report) the university lacks organized warehouse and still using separately located small storage sites. Which includes even classrooms, holding materials which are expired, and longer lead time this makes storage practice difficult (researcher observation). Since materials are different, they should be stored separately. Researchers conduct different studies about the inventory management practice by taking into consideration these variables. Information technology, distribution channels, government policies. the study found that information technology reduces lead times on effective inventory

management; that information technology has no effect on increased lead times in effective inventory management; that no change on lead times brought by information technology. The study also found that most employees have basic staff competency in inventory management. [2], the other researcher conducts a research by considering resource availability, top management support, technology [8].

The other study conducted by considering those variables resource planning, just in time, economic order quantity and material requirement planning the study concluded that, of jit leads to match demand and supply, provides short lead times and short time deliveries for inventory [1].

According to the report of Wollega University, and the researcher observation the stated problems of Wollega University inventory management practice needs solutions in addition to the above stated gaps the other gap is researcher's conduct many research on inventory management practice. however do not give more emphasis to factors affecting inventory management practice in the case of universities the reason to select Wollega University is for the reason that of specified problems and the researcher proximity to the university to observe such problems the other reason is to contribute to the researcher's university.

Considering the stated problems, the researcher intended to examine the most crucial factors according to literatures that affect inventory management. those factors are staff competency, facility management, procurement practice, documentation.

### **1.3. Research Questions**

1. Is there a relationship between organizational facility and inventory management practice?
2. Is there a relationship between staff proficiency and inventory management practices?
3. Is there a relationship between procurement practice and inventory management practices?
4. Which factor determines the practice of inventory management?

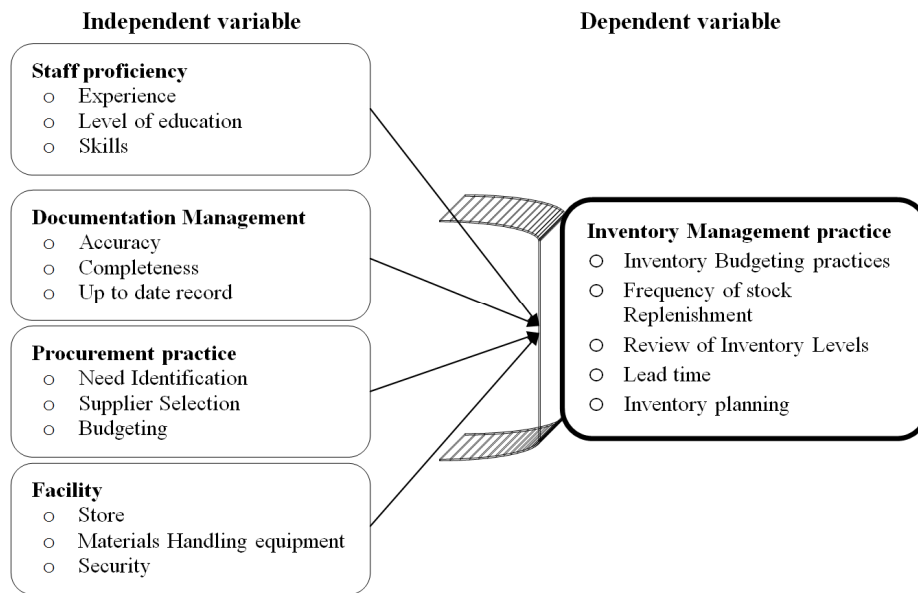
### **1.4. Objectives of the Study**

#### **1.4.1. General Objective**

The general objective of this research was examining factors affecting inventory management practice at Wollega university main campus.

#### **1.4.2. Specific Objective**

1. To examine the relationship between organizational facility and inventory management practices.
2. To describe the relationship between staff proficiency and inventory management practice.
3. To explain the relationship between procurement practice and inventory management practice.
4. To reveal the factor that determines the practices of inventory management.



Source: Own Developed for the Study

Figure 1. Conceptual framework.

## 2. Research Design and Approach

Explanatory research design was applied the research by using scientific explanation give details on factors affecting inventory management in Wollega University main campus. The study was both qualitative and quantitative (mixed approach) in that it tries to examine how the stated factors affect inventory management practice of Wollega University main campus.

### 2.1. Population and Sample Estimation

#### 2.1.1. Target Population

The target population of the study is selected employees of Wollega University who are concerned about inventory management According to Wollega University human resource office data 2020, there are 968 supportive staff employees and 763 academic staff members with total 1731 target population.

#### 2.1.2. Sample Size

To determine the sample size out of the whole population the researcher uses Slovin's 1960 Formula the researcher have selected 324 samples from the total population of 1773.

$$n = \frac{N}{(1+Ne^2)}$$

Where N= total population of the study

n = sample size of the study

E= margin of error

The total number of the target population is 1731.

N = 1731 e= 0.05

$$n = \frac{1731}{1+1731(0.05)^2}$$

$$\frac{1731}{1+1731(0.0025)} = \frac{1731}{5.3275} = 324$$

$$n = 324$$

Table 1. Population List.

BAND 1			BAND 2		
Academic			Supportive		
Strata	Total population	Sample	Strata	Total population	Sample
Technology and engineering	237	44	Business development vice president	104	19
FBE	90	17	Academic	238	44
Health Science	159	29	Research and industry transfer vice president	22	4
Natural /computational education	154	28	Natural and computational	28	5
Education	30	6	Engineering college	66	12
Institute of language	75	14	FBE	18	3
School of law	18	3	Health Science	35	9
Total	763	141	School of law	6	1
			Research and technology	13	2
			Administration vice president	438	87
			Total	968	186

Total sample academic 141; supportive 186; Grand total Sample 324

Source: - Wollega university human resource department.

Out of 327 samples 141 respondents from academic and 186 respondents from supportive staff was selected staff.

### 2.1.3. Sampling Technique

The researcher selected the samples from the target population by using probability sampling particularly stratified sampling technique. since stratified is used when the cases in a population fall into distinctly different categories (strata) of a known proportion Of that population to achieve proportional randomized sampling, a randomized sample is obtained from each stratum separately, sized according to the known proportion of each stratum in the whole population, and then combined as previously to form the complete sample from the population. [11].

The target population for the study is classified into different work unit, colleges for academic staff and work unit for supportive staff two main strata based on the departments. The samples were selected from each stratum rendering their share to the total population.

Stratified sampling technique was used to have the right proportion of people from every concerned department or section. The samples were selected from all departments by using a simple random sampling technique in Wollega University academic and supportive staff.

## 2.2. Source and Method of Data Collection

The researcher used primary data for the completion of the research. Primary Data was from inventory management area staff as well as selected employees of Wollega University.

### 2.3. Methods of Data Collection

Questionnaires: the researcher was used this method, a questionnaire was sent to the persons concerned with it to answer the questions and return the questionnaire. The questionnaires are given to respondents who are expected to read and understand the questions and write down the reply in the space meant for the purpose of the questionnaire itself. The content of questionnaires was both open ended and close ended questions.

### 2.4. Method of Data Analysis and Interpretation

All research questions were tested with the help of the SPSS of computer software. In order to analyze the data the two sets of Statistics: Descriptive as well as inferential statistics was used. Descriptive statistics include percentage and frequency whereas inferential statistics include correlation and regression analysis. Pearson correlation was used to measure the relationship between independent variables (staff competency, facility management, procurement, and documentation) has an effect on the dependent variable (inventory management) by using correlation. And multiple linear regressions were used to measure the effect of independent variables (staff competency, facility management, procurement, and documentation) on dependent variable inventory management.

#### 2.4.1. Multiple Linier Regression Models

Regression: - modeling the relationship between x and y

regression is a techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables (or 'predictors'). More precisely, regression analysis benefits one to recognize how the typical value of the dependent variable (or 'criterion variable') changes when any one of the independent variables.

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \varepsilon$$

$\beta_0$ = the Regression Coefficient

Y=Dependent Variable Which Is Inventory Management Practice

X1=Staff Proficiency

X2=Documentation /Record/

X3=Procurement Practice

X4=Facility

$\varepsilon$  = Error Term at 95% confidence level

Correlation: - is a statistical technique that can show whether and how strongly variables are associated. It indicates the degree of association between two variables.

### 2.4.2. Pearson Correlation Coefficient

Pearson Correlation, Measures the connections between dependent and independent variables. In the field of statistics, this formula is frequently appertained to as the Pearson R test. When conducting a statistical test between two variables, it is a promising idea to conduct a Pearson correlation measure value to determine just how strong that relationship is between those two variables.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

### 2.5. Ethical Considerations

All the research participants included in this study were appropriately informed about the purpose of the research and their willingness and consent was secured before the commencement of distributing questionnaires. Regarding the right to privacy of the respondents, the confidentiality of the identity of each participant and the researcher was report the findings in complete honesty.

### 2.6. Validity and Reliability (Data Quality Assurance)

Validity means the ability of the research method to find accurate reality. If the research is said to be valid then it really means that, what was intended to be measured has been measured accurately. Reliability means to measure regularity in producing equivalent results on dissimilar but comparable occasions. The validity of the research was calculated by sending questionnaires to the concerned respondents where the research is going on and ten pretest questions was distributed to sample respondents and the total sample respondents was addressed by the pre tested, commented, and well-structured questionnaire. Observation was also conduct to assure the validity and reliability of the research. Reliability was tested by using Cronbach's Alpha ( $\alpha$ ).

### 3. Data Presentation, Analysis and Discussion

The data collected have been analyzed through Descriptive statistics mainly percentage and frequency as well as inferential statistics correlation and regression analysis. Before distributing the whole questionnaire 30 questionnaires were distributed and the reliability/consistency of items with in each variables has been tested using Cronbach's Alpha through the help of SPSS 20 version and all the items under each variable have been proved to be reliable and the data analysis was proceeded after distributing 324 questionnaires to the whole samples and 315 were fully returned accounting for 97% of the intended data response rate.

#### 3.1. Descriptive Analysis Results

The inventory management affecting factors which are the staff proficiency, procurement practice, facility, and

documentation along with the major dependent variable of the inventory management is described based on the frequency and percentage of the respondents response presented as follows.

##### 3.1.1. Respondents' Personal Information

The respondents were asked about their personal information mainly their education level, their working experience, and their managerial or leading position and if they have managerial position the level of that position and was summarized as follows.

##### 3.1.2. Staff Proficiency

Staff proficiency of the inventory management unit in the university have been tried to evaluate being based on the qualification that these inventory related employees have, the training programs provided in this area and the number adequacy of the inventory management unit employees and their commitment and the results have been summarized as follows.

*Table 2. Staff proficiency.*

Item On Staff Proficiency	Response	Response Rates	
		Frequency	Percentage
1. Sufficient manpower is allocated for stores of Wollega University	Strongly Disagree	203	64.4
	Disagree	27	8.6
	Neutral	22	7.0
	Agree	45	14.3
	Strongly Agree	18	5.7
	Total	315	100.0
2. The storekeepers of the university can easily identify the placement or location of each and every material stored	Strongly Disagree	147	46.7
	Disagree	87	27.6
	Neutral	24	7.6
	Agree	43	13.7
	Strongly Agree	14	4.4
	Total	315	100.0
3. Staff Members Of Wollega University inventory management Have Good Commitment	Strongly Disagree	202	64.1
	Disagree	34	10.8
	Neutral	28	8.9
	Agree	26	8.3
	Strongly Agree	25	7.9
	Total	315	100.0
4. There Are Well-Qualified staffs Engaged In The Inventory Management Activities In Wollega University	Strongly Disagree	208	66.0
	Disagree	44	14.0
	Neutral	20	6.3
	Agree	14	4.4
	Strongly Agree	29	9.2
	Total	315	100.0
5. There Are Adequate Training & Development Program For inventory management Staff Employees in Wollega University	Strongly Disagree	187	59.4
	Disagree	54	17.1
	Neutral	26	8.3
	Agree	35	11.1
	Strongly Agree	13	4.1
	Total	315	100.0

Source: (own survey for the study).

As it can be seen from table 2, item one above most, 252 (80%) of the respondents have indicated the non-existence of qualified staff engaged in the inventory management activities at Wollega University, while some 43 (13.6%) have shown there is well qualified staff Engaged In The Inventory Management Activities In Wollega University, and the rest

20 (6.3%) of the respondents remains neutral, Here it can be observed that there are inadequate qualified employees engaged in inventory management activities in Wollega University; this decreases productivity for the university because managing inventory needs qualified employees.

As indicated by item two of the same table majority, 241

(76.5%) of the respondents have confirmed that there is no adequate training and development program for inventory management Staff in Wollega University whereas 48 (15.2%) of the respondents showed the existence of adequate training and development program for staff employees while 26 (8.3%) of the respondents remained neutral. It can be seen from this, there is no adequate training and development program for inventory management Staff in Wollega University.

On the item three of the same table above, it has been indicated that majority, 230 (73%) of the respondents indicated that there are no sufficient employees allocated for stores of Wollega University while 63 (20%) of the respondents showed that there are sufficient employees allocated for each store in Wollega University and the rest 22 (7%) of the respondents remained neutral, here it can be seen that there is insufficient workforce allocated for stores of Wollega University.

On the item four majority, 234 (74.3%) of the respondents demonstrated that the storekeepers of the university cannot easily identify the placement or location of each material stored while and less 57 (18.1%) of the respondent's answer

storekeepers of the university can easily identify the placement of stored materials 24 (7.6%) of the respondents remain neutral. Here it is indicated that most of the storekeepers of the university cannot easily identify the placement or location of each material stored.

On the item five of the same table above most, 236 (74.9%) of the respondents proved that of Wollega University inventory management engaged employees have no good commitment while less 51 (16.2%) of the respondents indicated that employees of Wollega University engaged in inventory management have good commitment. And 28 (8.9%) of the respondents remained neutral, Here it has been indicated that most of the employees of Wollega University inventory management engaged have no good commitment.

### 3.1.3. Procurement Practice

Here the procurement practice has been evaluated from the efficiency of need identification, supplier selection the lead time taken to deliver the required products and from the quality of the products procures and the results have been summarized as follows:

*Table 3. Procurement practice.*

Item On Procurement System Related Questions	Response	Response Rates	
		Frequency	Percentage
1. There is appropriate need identification in Wollega University	Strongly Disagree	218	69.2
	Disagree	28	8.9
	Neutral	20	6.3
	Agree	14	4.4
	Strongly Agree	35	11.1
	Total	315	100.0
2. There Is Effective Supplier Selection In Wollega University	Strongly Disagree	211	63.8
	Disagree	41	14.6
	Neutral	27	8.6
	Agree	17	7.0
	Strongly Agree	19	6.0
	Total	315	100.0
3. There Is Adequate Budget Available For Inventory Purpose In Wollega University	Strongly Disagree	219	69.5
	Disagree	12	3.8
	Neutral	19	6.0
	Agree	36	11.4
	Strongly Agree	29	9.2
	Total	315	100.0
4. There Is Short Lead Time Until The Product Is Order Till It Reaches To Office For Usage	Strongly Disagree	177	56.2
	Disagree	29	9.2
	Neutral	27	8.6
	Agree	18	5.7
	Strongly Agree	64	20.3
	Total	315	100.0
5. Quality Products Are Procured In Wollega University	Strongly Disagree	190	60.3
	Disagree	42	13.3
	Neutral	30	9.5
	Agree	24	7.6
	Strongly Agree	29	9.2
	Total	315	100.0

Source: (own survey for the study).

As Indicated in Table 3. Item One below most 246 (78.1%) of the respondents verified the non-existence of appropriate need identification in Wollega University by Procurement management units while 49 (15.5%) of the respondents verified the existence of appropriate need identification in

Wollega University and fewer 20 (6.3%) of the respondents remain neutral, Here it is indicated that there is no appropriate need identification in Wollega University by Procurement management units.

On the item two of the same table majority, 252 (78.4%) of

the respondents proved that there is no effective supplier selection in Wollega University while 36 (13%) of the respondents show there is effective supplier selection in Wollega University procurement practice while 27 (8.6%) of the respondents remain neutral, Here it indicates there is in effective supplier selection in Wollega University, but few number of respondents believed there is effective supplier selection in Wollega University so the university is advisable to select the right suppliers for materials.

Item three of the same table shown majority, 231 (73.3%) of the respondents proved there is in adequate budget available for inventory purpose in Wollega University though 65 (20.6%) of the respondents has proved there is adequate budget available for inventory purpose in Wollega University and other 19 (6%) remain neutral, Here it indicates there is in adequate budget available for inventory purpose in Wollega University it is better if the university is managed with adequate budget because it needs budget to have good inventory management.

On the item four of the same table above the majority 206 (65.4%) of the respondents has indicated there is no short lead time since the product is ordered until it reaches to office for usage while 82 (26%) of the respondents proven

there is short lead time since the product is ordered until it reaches to office for usage and other 27 (8.6%) of the respondents remain neutral. At this point it shows there is no short lead time since the product is ordered until it reaches to office for usage the university is advisable to shorten the lead time to take advantage of time because it interrupts the teaching learning process.

On item five of the same table above 232 (73.6%) of the respondents show quality products are not procured in Wollega University while 53 (16.8%) of the respondents prove quality products are procured in Wollega University the remaining 30 (9.5%) neutral, Here it indicated quality products are not procured in Wollega University the university is advisable to procure quality products to boost the employee's moral and to be productive or to make teaching learning process suitable.

### 3.1.4. Facility Management

Facility management is the other factor evaluated in terms of the availability of adequate store rooms, lay out of store rooms, the material handling and security aspects of facility for the inventories of Wollega University and the results have been summarize as follows.

**Table 4.** Facility management.

Item On Facility Management Related	Response	Response Rates	
		Frequency	Percentage
1. The Required Materials Are Always Available In The Store Of Wollega University	Strongly Disagree	164	52.1
	Disagree	29	9.2
	Neutral	27	8.6
	Agree	51	16.2
	Strongly Agree	44	14.0
	Total	315	100.0
2. The Material Which Require Special Attention (Like Chemicals) Are Stored Separately	Strongly Disagree	140	44.4
	Disagree	75	23.8
	Neutral	30	9.5
	Agree	14	4.4
	Strongly Agree	56	17.8
	Total	315	100.0
3. There Is Proper Layout Of Materials In The Store Of Wollega University	Strongly Disagree	137	43.5
	Disagree	55	17.5
	Neutral	19	6.0
	Agree	60	19.0
	Strongly Agree	44	14.0
	Total	315	100.0
4. There Is Effective Materials Handling Practice In Wollega University	Strongly Disagree	165	52.4
	Disagree	51	16.2
	Neutral	25	7.9
	Agree	28	8.9
	Strongly Agree	46	14.6
	Total	315	100.0
5. Much Emphasis Is Given For Material Security In Wollega University	Strongly Disagree	139	44.1
	Disagree	76	24.1
	Neutral	34	10.8
	Agree	9	2.9
	Strongly Agree	57	18.1
	Total	315	100.0
6. There Is Adequate Store Rooms In Wollega University	Strongly Disagree	151	47.9
	Disagree	41	13.0
	Neutral	25	7.9

Source: (own survey for the study).

As it can be observed from the table 3. item one for the most part 193 61.3%) of the respondents indicate the required materials are not available in Wollega University whereas 95 (30.2%) of the respondents show the required materials are always available in the store of Wollega University along with 27 (8.6%) of the respondents remain neutral, Here it indicates the required materials are not always available in the store of Wollega University.

On item two of the same table 215 (68.2%) of the respondents showed the required materials are not stored separately in Wollega University while 70 (22.2%) of the respondents proved the required materials are stored separately in Wollega University 30 (9.5%) of the respondents remain neutral, Here it indicates the required materials are not stored separately in Wollega University the university must store different materials separately because different materials need different storage according to their type.

As it can be observed on item three of the same table majority, 192 (61%) of the respondents proved there is no proper layout of materials in the store of Wollega University while 104 (33%) of the respondents prove there is proper layout of materials in the store of Wollega University and other 19 (6%) remain neutral, Here it indicates that there is no proper layout of materials in the store of Wollega University the university must have proper layout of materials in the store.

On the item four of the same table above most 216 (68.6%) of the respondents prove there is no effective

material handling practice in Wollega University even as 74 (23.5%) of the respondents prove there is effective material handling practice in Wollega University and the remaining 25 (7.9) remain neutral, Here it indicates that there is no effective material handling practice in Wollega University the university must have effective material handling and improved inventory management.

On the item five of the same table above majority, 215 (68.2%) of the respondents respond much emphasis is not given for material security in Wollega University while 66 (21.8%) of the respondents proven much emphasis is given for material security and the remaining 34 (10.8%) remain neutral, Here it indicates that much emphasis is not given for material security in Wollega University.

As it can be indicated on item six of the same table above most 192 (60.9%) of the respondents verified there is no adequate store rooms in Wollega University while 98 (31.1%) of the respondents there is adequate store rooms in Wollega University and 25 (7.9%) of the respondents remain neutral, Here it indicates there are no adequate store rooms in Wollega University the university is advisable to have adequate store rooms and warehouse.

### 3.1.5. Documentation Management

Documentation management has been reviewed from the point of document organization, accuracy of recording and the organization of documents along with reviews made.

*Table 5. Documentation management.*

Item On Documentation Management Related	Response	Response Rates	
		Frequency	Percentage
1. There are Well-Organized Information On The Inventories Status	Strongly Disagree	177	56.2
	Disagree	5	1.6
	Neutral	31	9.8
	Agree	74	23.5
	Strongly Agree	28	8.9
	Total	315	100.0
2. Inventory Information Is Accurately Documented In Wollega University	Strongly Disagree	197	62.5
	Disagree	57	18.1
	Neutral	19	6.0
	Agree	7	2.2
	Strongly Agree	35	11.1
	Total	315	100.0
3. Records Of In Wollega University Are Cross Checked For Accuracy	Strongly Disagree	145	46.0
	Disagree	24	7.6
	Neutral	30	9.5
	Agree	66	21.0
	Strongly Agree	50	15.9
	Total	315	100.0
4. There Are Well-Organized Documents For Inventory Management Purpose	Strongly Disagree	145	46.0
	Disagree	81	25.7
	Neutral	23	7.3
	Agree	11	3.5
	Strongly Agree	55	17.5
	Total	315	100.0
5. Recorders Of Wollega University Inventory System Have Adequate Knowledge About Inventory Recording	Strongly Disagree	168	53.3
	Disagree	41	13.0
	Neutral	17	5.4
	Agree	59	18.7
	Strongly Agree	30	9.5
	Total	315	100.0



Item On Documentation Management Related	Response	Response Rates	
		Frequency	Percentage
6. Records Of Wollega University Inventory System Are Periodically Reviewed	Strongly Disagree	105	33.3
	Disagree	29	9.2
	Neutral	23	7.3
	Agree	25	7.9
	Strongly Agree	133	42.2
	Total	315	100.0

Source: (own survey for the study).

As it can be observed on the same Table above 5 Item one majority, 182 (57.8%) of the respondents has proved there is no well-organized information on the inventories status while 102 (32.4%) of the respondents show there is a well-organized information on the inventories status and 31 (9.8%) remain neutral, Here it indicates that there is no well-organized information on the inventories status the university is advisable to have well-organized information.

As it is indicated on item two of the same table above most 254 (80.6%) of the respondents proven inventory information is not accurately documented while 42 (13.3%) of the respondents prove inventory information is accurately documented and 19 (6%) remain neutral, At this point it can be observed inventory information is not accurately documented this could be due to lacks of advanced technology. On item three of the same table above most, 169 (53.6%) of the respondents prove records of Wollega University inventory system are not crosschecked for accuracy although 116 (36.9%) of the respondents prove records of Wollega University inventory system are crosschecked for accuracy and 30 (9.5%) remain neutral, Here it indicates records of Wollega University inventory system are not crosschecked for accuracy the university inventory management unit is advisable to check the records because accuracy is usual.

On item four of the same table most 226 (71.7%) of the respondents indicate there is no well-organized documents for inventory management purpose whereas 66 (21%) of the respondents has proved is a well-organized documents for inventory management purpose 23 (7.3%) remain neutral,

Here it can be observed that there are no well-organized documents for inventory management purpose the university is advisable to have a well-organized documents for inventory management purpose by using technology. on item five of the same table above majority, 209 (66.3%) of the respondents show recorders of Wollega University inventory system have no adequate knowledge about inventory recording while 89 (28.2%) of the respondents show recorders of Wollega University inventory system have adequate knowledge about inventory recording and remaining 17 (5.4%) of remain neutral, here the result indicates most of recorders of Wollega University inventory system have inadequate knowledge about inventory recording.

on item six of the same table above most 134 (42.5%) of the respondents proven records of Wollega University inventory system are not periodically reviewed while 158 (50.1%) of the respondents show records of Wollega University inventory system are periodically reviewed the remaining 23 (7.3%) neutral, Here it indicates observed records of Wollega University inventory system are not periodically reviewed so records should be periodically reviewed for accuracy.

### 3.1.6. Inventory Management

Inventory management practice has been evaluated from its major elements point of view which is waste minimizing capability, capability to minimize shortage and reduce lead time by holding adequate inventories at hand and the results are shown below (Table 6).

Table 6. Inventory management.

Item On Inventory management	Response	Response Rates	
		Frequency	Percentage
1. The inventory management practice of Wollega University minimizes wastage of operational resource	Strongly Disagree	191	60.6
	Disagree	68	21.6
	Neutral	27	8.6
	Agree	18	5.7
	Strongly Agree	11	3.5
	Total	315	100.0
2. The inventory management practice of Wollega University leads to reduced delivery lead time	Strongly Disagree	165	52.4
	Disagree	91	28.9
	Neutral	30	9.5
	Agree	10	3.2
	Strongly Agree	19	6.0
	Total	315	100.0
3. Inventory is managed in a way that can prevent material shortage	Strongly Disagree	155	49.2
	Disagree	88	27.9
	Neutral	43	13.7
	Agree	10	3.2
	Strongly Agree	19	6.0
	Total	315	100.0

Item On Inventory management	Response	Response Rates	
		Frequency	Percentage
4. Inventory management system of the university promotes uninterrupted operation	Strongly Disagree	173	54.9
	Disagree	61	19.4
	Neutral	17	5.4
	Agree	45	14.3
	Strongly Agree	19	6.0
	Total	315	100.0

Source: (own survey for the study).

As it can be observed on the table 6 above item one most of, 259 (82.2%) of the respondents proved the inventory management practice of Wollega University not minimizes wastage of operational resource whilst 29 (9.2%) of the respondents respond the inventory management practice of Wollega University minimizes wastage of operational resource and 27 (8.6%) of the respondents remain neutral, here it indicates inventory management practice of Wollega University is not minimizing wastage of operational resource university is advisable to improve its inventory management then wastage will be minimized.

As indicated in the above table on the item two majority, 261 (82.8%) of the respondents show the inventory management practice of Wollega University not leads to reduced delivery lead time even as 24 (7.6%) of the respondents proved the inventory management practice of Wollega University leads to reduced delivery lead time and others 30 (9.5%) remain neutral, this indicates management practice of Wollega University leads to an increased delivery lead time; there is increased delivery lead time due to unfortunate inventory management. so the university supposed to improve its inventory Management practice to decrease delivery lead time.

On item three of the same table above majority, 253 (80.4%) of the respondents prove inventory is not managed in a way that can prevent material shortage while 24 (7.6%) of the respondents respond inventory is managed in a way that can prevent material shortage and the remaining 38 (12.1%) remain neutral, this indicates at Wollega University inventory is not managed in a way that can prevent material shortage there is material shortage in the university due to poor inventory management so the university is advisable to prevent material shortage.

Of Item four of the above table 244 (77.5%) of the respondents proves Inventory Management System of the University is not Promoting Uninterrupted Operation whereas 64 (20.3%) of the respondents show Inventory Management System of the University Promotes Uninterrupted Operation and the remaining 17 (5.4%) respondents remain neutral, This point toward Inventory Management System of the University is not Promoting Uninterrupted Operation and the university should improve its inventory management system to promote Uninterrupted Operation.

In the same table on above table item five majority, 256 (81.3%) of the respondents prove inventory management system of the university not assist to reduce cost of operation while 33 (10.5%) of the respondents show inventory management system of the university has assist to reduce cost of operation and 26 (8.3%) of respondents remaining

neutral, this point toward majority of the employees believed that inventory management system of the university is not assisted to reduce cost of operation, but a small number of respondents believe inventory management system of the university is assisted to reduce cost of operation, so this could be due to poor inventory management inventory is not kept in the way of minimizing wastage this could be due to lacks storage or due to lack in identifying the right goods.

On item six of the above table majority, 243 (77.1%) of the respondents prove employee morale is not boosted by efficient management of inventory in Wollega University while 44 (13.9%) of the respondents show employee morale is boosted by efficient management of inventory in Wollega University 28 (8.9%) remain neutral, this indicates most of employees morale is not boosted by efficient management of inventory in Wollega University, this could be the result of poor management of inventory due to poor inventory management the employees morale is degraded because they can't get the goods they want for their work so the university should improve its inventory management in order to increase the morale of its employees and to be effective because demoralized employees can't be productive.

### 3.2. Reliability Test

Before seeing the difference analysis result, it is necessary to test the reliability of the items. To make sure whether the variables measure what they are expected to measure, in this research study Cronbach's Alpha using SPSS version 20 was used to measure the reliability of the variables. The Cronbach's Alpha reliability test of variable item result from 28 items is presented in the following table below.

*Table 7. Reliability Statistics.*

Variables	Number of items	Cronbach's alpha
Staff proficiency	5	.974
Procurement	5	.966
Facility	6	.937
Documentation	6	.931
Inventory management	6	.961
Total number of items 28		

Source: (Own survey for the study).

If the reliability test value is greater than 0.7 the scale deemed to be reliable measure of for examining the sample Pallent (2001). As see from the above table the Cronbach's alpha result indicates that the items of all the variables which are staff proficiency, procurement practice, facility and documentation is reliable respectively shown as their result in

the table above all variables are reliable enough So, it is possible to the researcher precede to the study.

### 3.3. Response Rate

The study population consisted of 324 respondents. A total 324 Questionnaires were distributed to those respondents. The Questionnaires for the study were self-administered to supportive and academic staff of Wollega University. 315 quaternaries were filled and returned. The remaining nine questionnaires were not collected due to refusal to give response

for the questionnaires. By this reason, a response rate can be 97%. According to (Mugenda, 2003) the statistically significant response rate for analysis should be at least 50%. So, the response rate is adequate for this study.

### 3.4. Regression Analysis

To prove whether the identified factors which are staff proficiency, procurement practice, documentation, facility management and documentation provided have a significant effect on the inventory management.

**Table 8. Model Summary.**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.818 <sup>a</sup>	.670	.665	.57767
a. Predictors: (Constant), documentation, facility management, procurement practice, staff proficiency				

As it can be seen from the table 8 above, the predictors documentation, facility management, procurement practice and staff proficiency have been shown to have positive significant relation accounting for 81.8% indicating that a unit some change in these predictors will result in a positive direction change of the inventory management in this positive value as indicated by R. In addition to the degree of association stated, the R square value represents that a unit change in the sum of these variables affects the inventory management practice to be deviated by 67% up or down improvement showing that the better these predators are

managed the better the inventory output are to happen. Therefore, the predictors, staff proficiency, documentation, facility management and procurement are the most desirable factors having 67% effect on the overall inventory management practice and the remaining unaddressed variables are recommended for further researchers.

#### 3.4.1. Analysis of Variance

The regression models fitness to the measure of predicting the effect of the predictors on the inventory management practice has been shown as follows.

**Table 9. ANOVA Table.**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	209.691	4	52.423	157.093	.000 <sup>b</sup>
	Residual	103.448	310	.334		
	Total	313.139	314			
a. Dependent Variable: inventory management						
b. Predictors: (Constant), documentation, facility management, procurement practice, staff proficiency						

Source: (own survey for the study).

This table shows that the F value is significantly large enough to prove that the model used to measure the effect of the stated predictors on the inventory management is good to fit. Therefore, the measured degree of association and the effect of the whole and individual predictors on the inventory management are evidenced to be measured well with this model, here the remaining has been shown to be larger still there are more remaining factors to be addressed by future

studies, Depending on their cases.

#### 3.4.2. Coefficients of Factors of Inventory Management Output

The sum total degree of association and some effect of these predictors have been stated above well, but the individual effects of each of these independent factors are evaluated as follows.

**Table 10. Coefficients of Factors.**

Model		Un standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.351	.104		-3.378	.001
	Staff Proficiency	.598	.060	.525	9.984	.000
	Procurement Practice	.197	.048	.181	4.063	.000
	Facility Management	.117	.032	.143	3.697	.000
	Documentation	.134	.045	.120	2.987	.003
a. Dependent Variable: inventory management						

Source: (own survey for the study).

According to the table above the individual effects that the specific predictors have on the inventory management practice have been stated by the Beta values under UN standardized coefficients column values.

As such the most significant and higher effect from the four predictors has been shown to be from staff proficiency accounting for 59.8%. This means a unit change in the improvement of the staff proficiency will result in 59.8% deviation in the inventory management practice. The better the qualified staff the better the inventory management will be.

The other significant effect is from procurement practice stated to have an effect of 19.7% compared from all other factors addressed and unaddressed. This shows that a unit improvement in the procurement practice will improve inventory management practice 19.7% level and it is better to the university improve its procurement practice it has significant impact again.

The other significant factor stated by this table is facility management which has been shown to have 11.7% effect on the inventory management it is better if the university improve its facility management it has significant impact again.

Finally, other significant factor stated by this table is documentation which has been shown to have 13.4% effect on the inventory management it is better to the university improve its documentation it has significant impact again.

A multiple regression model was used to determine whether independent variables, as symbolized by  $X_1$  = staff proficiency,  $X_2$  = procurement practice,  $X_3$  = facility management, documentation all together affected the dependent variable  $Y$  = inventory management. The Multiple regression models stated as follows:

General Regression Model

Regression Model for this Study

$$IM = -0.351 + .598 SP + 0.197 PP + 0.117 FM + .134 DC + 0.577$$

Where:

IM: - the dependent variable inventory management practice,

$B_0$  is the regression coefficient/constant/Y-intercept,

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are the slopes of the regression equation,

SP staff proficiency,

PP procurement practice,

FM facility management,

DC documentation,

E an error term (0.577).

## 4. Summary of Findings, Conclusion and Recommendation

### 4.1. Summary of Findings

This study has tried to examine the factors affecting inventory management practice at Wollega University which have been seen from the point of the major variables of

inventory management staff proficiency, documentation, facility management and procurement practice which are identified by theorists and proved finally by this research too.

The first identified and most relevant factor in this study was proved to be staff proficiency of the employees engaged in inventory Management. This study also shown that the university has not given sufficient emphasis for staff proficiency as it can be observed from this study and even the existing ones are unqualified staff engaged in the inventory management activities of the Wollega University. Furthermore, there is a lack of adequate training and development program for staff of this unit in Wollega University plus the existing employee's number is much less than expected. Additionally storekeepers of the university do not have adequate skill to easily identify the placement or location of each inventory stored and finally commitment was shown to be lesser by this study.

This study showed that the procurement practice is inefficient to handle the inventory management function this can be observed in this university there is poor or inappropriate need identification by the University procurement units and there is ineffective supplier selection by procurement unit in the university plus it has been proved that there is inadequate budget available for inventory purpose for University procurement department as well as quality products are not procured in the university.

The required materials are not always available and the material which requires special attention (like chemicals) are not stored separately along with and no proper layout of materials in the store of Wollega University plus there is no effective materials handling practices at Wollega University and there are no adequate store rooms in the University.

There is Lack of well-organized information on the inventory status and inventory information is not accurately documented plus records are not cross checked for accuracy, in addition to this there are poorly organized documents for inventory management purpose.

the inventory management practice of Wollega University not minimizes wastage's of operational resources plus the inventory management practice of Wollega University didn't lead to reduced delivery lead time in addition to this inventory isn't managed in a way that can prevent material shortage and inventory management system of the university doesn't promote uninterrupted operation and inventory management system of Wollega University has not assisted to reduce cost of operation and employee morale is not boosted by efficient management of inventory in the university.

### 4.2. Conclusion

Being based on the data collected and analyzed through important techniques here the researcher has tried to conclude on the major finding of the study as follows.

1. The first intention of the study was measuring the relationship between staff proficiency and inventory

management, in this aspect the correlation result is found to be strong positive showing that a unit improvement in staff proficiency will improve inventory management practice strongly and the regression result for the effect of staff proficiency on inventory management practice has been found to indicate the most significant and higher effect compared with the remaining factors predictors showing a unit change in staff proficiency will result in high variation of inventory management practice.

2. The second objective in this study was measuring the relationship in between procurement practice and inventory management practices. The correlation result showed that there is moderate positive relationship between these variables and the effect of procurement practice on inventory management practice result shows procurement practice have the next most significant effect. This shows that a unit improvement in procurement practice will improve inventory management moderately.
3. The third research objective in this study was to measure relationship between facility and inventory management practice then the result of correlation in this study showed a moderate positive relationship between facility management and inventory management this indicates when there is adequate facility, inventory management practice will be better. The effect of facility on inventory management practice is also significant showing the facility changes by one unit the inventory management practice also changes in the same direction.
4. The last research objective in this study was the factor determines the practices of inventory management as the result of both correlation and regression analysis results all factors staff proficiency, procurement practice, facility and documentation determine the practice of inventory management, however the staff proficiency highly determines as staff proficiency has better relationship with inventory management compared to the three other factors.

#### 4.3. Recommendations

According to the findings, this study recommended that Staff proficiency is one of the requirements of the inventory management. So, Wollega University particularly the inventory management department of the University is suggested to work on related to Staff proficiency problems. Since having professionally qualified employees who have skill and experience engaged in inventory management is must, the university is recommended to hire qualified employees engaged in inventory management in addition to this the university should prepare training and development program concerning to inventory management it will increase the employee's knowledge and skill and it will support them to be updated with computerized system.

The other suggestion is stores of Wollega University need enough employees to handle the activities, the University is

recommended to allocate sufficient employees for stores of the university.

Again by hiring qualified employees plus the University is advisable to improve commitment of employee's by giving training, creating learning opportunities, providing additional benefits, clearly defining responsibilities, if they are committed they can be more productive by taking some techniques like giving training, controlling their time and by fulfilling materials needed. To solve the storage problem the University should build warehouse.

Documentation is also shown with some difficulties thus the inventory management unit of the university is recommended to work on improving Documentation practice. The university should have well-organized information system on inventory status, well-organized means computerized and accurate to achieve this it is better to use computerized system for recording and keeping inventory management concerning information plus to document inventory information precisely and to have well-organized documents for inventory management purpose. In addition to this the university inventory record should be cross-checked for accuracy.

the inventory management unit should do on this it is better to have the required material always available in the store Along with this it is better to store materials separately which need special attention like chemical. This can be done by building warehouse to find adequate storage place for each materials and the university inventory management department is recommended to have a proper layout of materials in the store of Wollega University in addition to this the university is recommended to have an effective material handling practice in the University.

The procurement practice unit is advisable to have appropriate need identification at Wollega University if there is no appropriate need identification the right materials will not be procured. The procurement department is advisable to have an effective supplier selection at Wollega University. It is advisable for the University to have an adequate budget available for inventory purposes if there is an inadequate budget it is difficult to perform in the right way. In addition to this The inventory management is advisable to have short lead time since the product is ordered till it reaches to office for usage because if its delayed it will interrupt the teaching learning process in the university. And the procurement department is advisable to procure Quality products.

Inventory management practice has to do with the proper management of inventory activities as the study result showed that Wollega University has low inventory management performance. The inventory management unit is advisable to improve the inventory management performance in the university by working on the following procurement practice. The university inventory management department is advisable to minimize wastage of resource since resources are scares by improving the inventory management it's better to minimize wastage plus the inventory management department of Wollega University is advisable to reduce delivery lead time in addition to this inventory management

department of the university is recommended to manage inventory in a way that can prevent material shortage and stock out costs and inventory management department of the university is advisable to promotes uninterrupted operation as well as inventory management department of Wollega University is advisable to reduce cost of operation and inventory management department of Wollega University is advisable to boost employee morale by efficient management of inventory in Wollega University.

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