

## Application of Inventory Information Systems as a Work Practice Management Strategy in Improving Technology Learning in Education Management

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### ARTICLE INFO

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#### Article history:

Received : 21-12-2023

Revised : 01-01-2024

Accepted : 20-02-2024

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#### Keywords:

Inventory Information System,  
Work Practices, Technology  
Learning, Education  
Management, Management  
Strategy,  
Educational Technology  
Integration,  
Inventory Management.

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### ABSTRACT

*This study aims to investigate the application of Inventory Information Systems (IIS) as a work practice management strategy to enhance technology learning in education management. The research explores how the integration of IIS into educational institutions' management systems can improve the efficiency and effectiveness of technology learning processes. Through a comprehensive literature review, this study examines the potential benefits of employing IIS, such as streamlining inventory management, optimizing resource allocation, and facilitating data-driven decision-making in educational settings. Additionally, the research evaluates the challenges and limitations associated with implementing IIS in education management, including infrastructure requirements, staff training needs, and data security concerns. By analyzing case studies and empirical evidence, this study seeks to provide insights into best practices for integrating IIS into education management to foster enhanced technology learning outcomes. The findings of this research contribute to the development of strategies aimed at leveraging inventory information systems as a tool for advancing technology learning in educational institutions.*



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### 1. INTRODUCTION

In an era where technology continues to develop rapidly, education at all levels needs to adapt to be relevant to the demands of the times. Education management has a crucial role in ensuring that learning includes the appropriate application of technology. One important aspect of the learning experience is work practice, which is a bridge between the theory learned in class and practical application in the real world.

Although inventory information systems have been recognized as an effective tool in managing stock and assets in various organizational contexts, there are still research gaps that need to be explored, especially in the educational context. One significant gap is the lack of research that specifically explores the application of inventory information systems in the context of educational management. Although work practices are an integral part of the learning experience in the field of management education, little research has specifically discussed how inventory information systems can be optimized to support effective management of work practices.

In addition, although literature on inventory information systems in a business context is widely available, there is still a need to explore how the unique characteristics of the educational environment influence the implementation and effectiveness of inventory information systems. The educational environment has different dynamics and needs from the business environment, which requires an adapted approach so that the inventory information system can provide maximum benefits.

Apart from that, the need for research that identifies the obstacles that may arise in implementing an inventory information system in the context of educational management is also a gap that needs to be addressed. Identification of these barriers will provide valuable insight for decision makers in overcoming challenges that may arise during the implementation process, thereby ensuring the success and sustainability of the use of inventory information systems in increasing the efficiency and effectiveness of managing work practices and learning technology in education management.

One significant research gap is the lack of understanding of how inventory information systems can be effectively adapted and optimized to meet unique needs in educational contexts. In addition, there is an urgent need to explore the impact of implementing inventory information systems in managing work practices and learning technology in educational institutions. Although inventory information systems have been proven to provide efficiency in inventory management, it is still unclear how the specific implementation of this system can increase the effectiveness of technology learning and work practices in educational institutions. Furthermore, it is also necessary to carry out research that focuses on identifying obstacles that may arise in adopting and implementing an inventory information system in the educational environment. Because the educational context has different dynamics and needs than the business environment, an in-depth understanding of the constraints specific to the educational environment can provide valuable insight for decision makers in designing effective strategies.

By filling this research gap, it will provide a better understanding of the potential and challenges in implementing inventory information systems in the context of educational management, as well as provide a stronger basis for developing policies and best practices in optimizing the use of information technology to improve the quality of learning in institutions. educational institutions.

Despite the increasing adoption of Inventory Information Systems (IIS) in various industries, there is a noticeable dearth of research focused on its specific application within the context of education management, particularly in enhancing technology learning. Existing literature predominantly explores the use of IIS in business operations and logistics, with limited attention paid to its potential role in educational settings. Consequently, there is a significant research gap regarding the effectiveness, challenges, and implications of integrating IIS into education management practices to improve technology learning outcomes.

Furthermore, while some studies examine the impact of technology integration on educational processes, they often overlook the specific functionalities and features of IIS that could contribute to more efficient technology learning. This knowledge gap inhibits the development of targeted strategies for leveraging IIS as a work practice management tool in education management. Additionally, the existing research tends to lack empirical evidence and case studies illustrating successful implementations of IIS in educational institutions. This gap limits our understanding of the practical considerations, barriers, and facilitators associated with deploying IIS for technology learning enhancement in diverse educational contexts. Addressing these research gaps is crucial for informing evidence-based strategies and policies aimed at harnessing the potential of IIS to improve technology learning outcomes in education management. It requires comprehensive empirical studies that explore the specific mechanisms through which IIS can optimize inventory management practices and support technology-enhanced learning initiatives in educational settings.

## **2. METHODS**

This research uses an in-depth qualitative approach to explore the application of an inventory information system as a strategy for managing work practices in improving technology learning in educational management.

## Research design

This research will use an in-depth qualitative approach to gain a comprehensive understanding of the application of inventory information systems as a strategy for managing work practices in the context of technology learning in educational management.

## Research Participants

Research participants will consist of teaching staff and students of educational management programs who are involved in work practices at the educational institutions selected as research subjects. Participant selection will be purposive to ensure good representation of a variety of perspectives and experiences.

## Data Collection

Data will be collected through several techniques, including:

1. In-depth Interviews: Interviews will be conducted with teaching staff and students to gain in-depth insight into their experiences in using inventory information systems in managing work practices.
2. Observation: Observations will be carried out during the work practice process to directly observe how the inventory information system is applied in a real context.
3. Document Analysis: Documents such as work practice guides, inventory information system usage reports, and other related documents will be analyzed to understand implementation and impact.
4. Data Analysis: The qualitative data collected will be analyzed using a thematic analysis approach. Data will be organized, coded, and analyzed to identify emerging patterns, themes, and relationships. This analysis will help in a deep understanding of how the implementation of an inventory information system influences the management of work practices and learning technology in educational management.

## Validity and Reliability

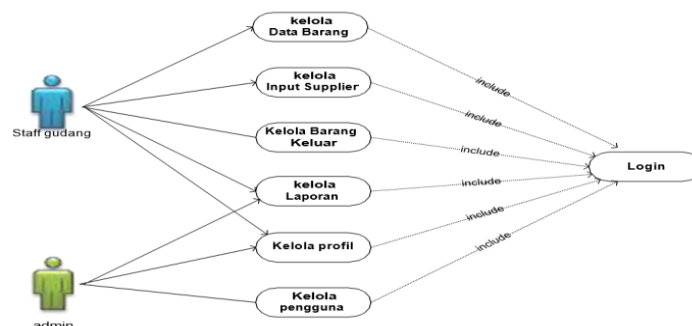
Steps to ensure the validity and reliability of the data will be taken, including data triangulation through the use of multiple data collection methods, reflexivity, and member-checking to verify data interpretation with research participants.

## 3. RESULTS AND DISCUSSION

### System Design Diagram

An inventory information system or inventory is a process of procuring goods as sales stock within a company. The following is a system design diagram specification for goods inventory.

### Use Case Diagrams



**Figure 2.**Use Case Diagrams

The actors in this system have 2 actors, admin and warehouse staff, where each job is differentiated according to Figure 2. Next, the description of the use case diagram in the picture above can be explained below, which can be seen in the following table:

**Table 1.**Use case diagram description

<b>No.</b>	<b>Use Cases</b>	<b>Description</b>
1.	Login	This use case is used for verification when a user wants to enter the inventory system
2.	Manage Item Data	This use case shows that users can view stock data, add, edit and delete items.
3.	Supplier Input	This use case is used to add and delete suppliers.
4.	Exit item	This use case illustrates that the user can delete data and display detailed data from outgoing goods.
5.	Profile	This use case illustrates that users can add, change and delete user data.
6.	Users	This use case illustrates that users can add, change and delete personal data.
7.	Report	This use case illustrates that users can view and print reports.

There are 2 actors in this inventory system, namely the warehouse admin and warehouse staff. An explanation of the actors in the adaptation system can be seen in the following table:

**Table 2.**Actor

<b>Actor</b>	<b>Description</b>
Admin	Actors who manage the system from managing user data, printing item data reports.
warehouse staff	Actors who can input data on incoming and outgoing goods, add suppliers, print reports

### **Class Diagrams**

It is a diagram that shows the required classes in the operating system. Programmers use these diagrams to develop classes. This system diagram is used to see the system design.

Class diagram of a web-based inventory information system for the CV company. Berjaya Jaya Abadi in picture 3. below:

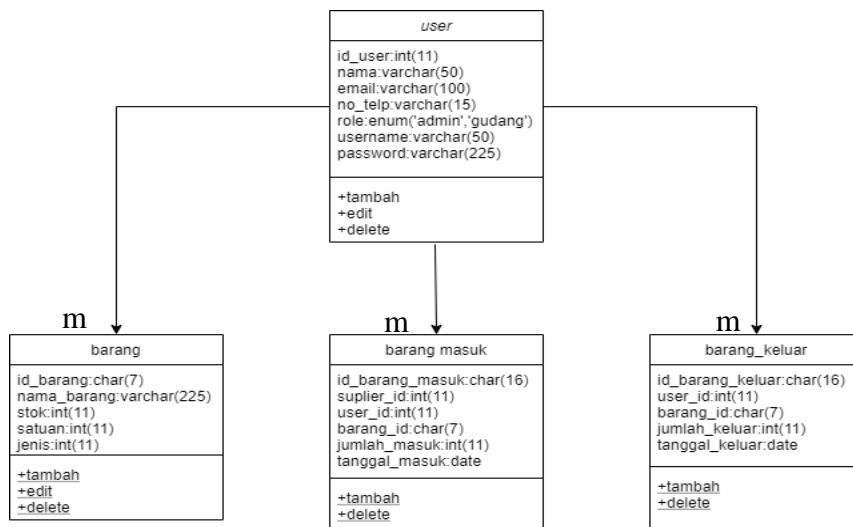


Figure 3. Class Diagrams

### Activity Diagrams

Activity diagrams explain the various activity flows that occur in the system being designed, the beginning, middle and end of each flow. Activity diagrams can also show processes that run simultaneously and may require multiple executions.

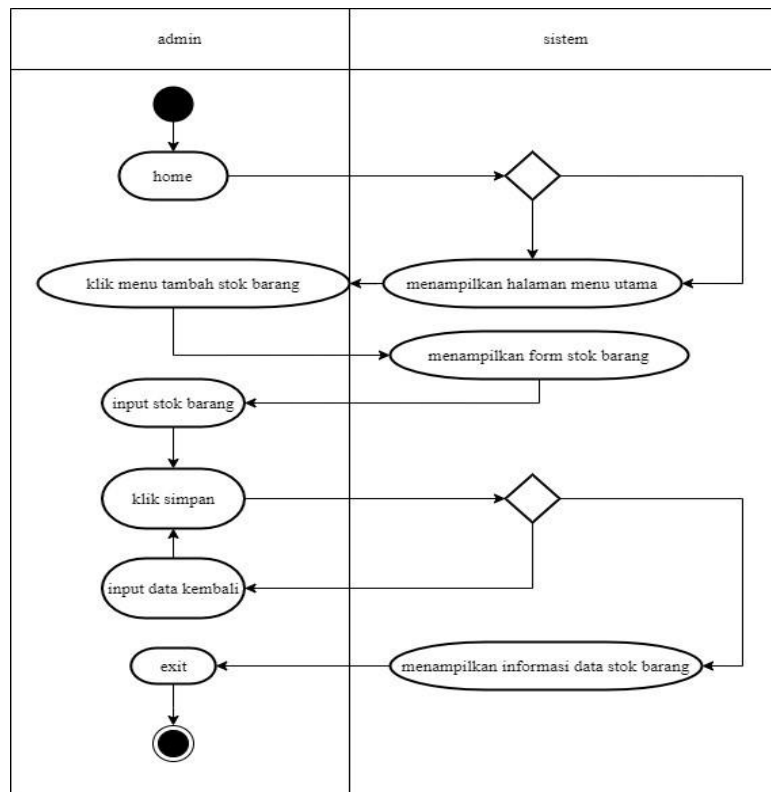


Figure 4. Activity Diagram

### Sequence Diagrams

Sequence diagrams explain how objects behave in a use case by describing their lifetime and the messages sent and received between them. Therefore, in explaining sequence diagrams, you need to know the objects and methods that are part of the class where the objects in the use case are created.

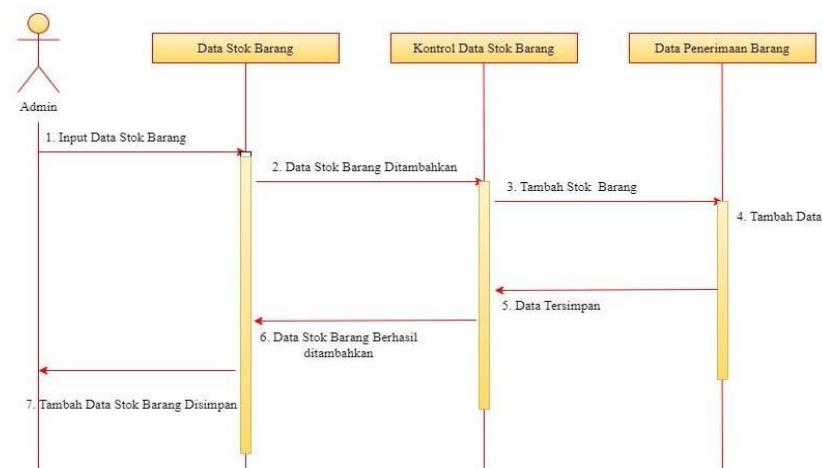


Figure 5. Sequence Diagrams

System Implementation

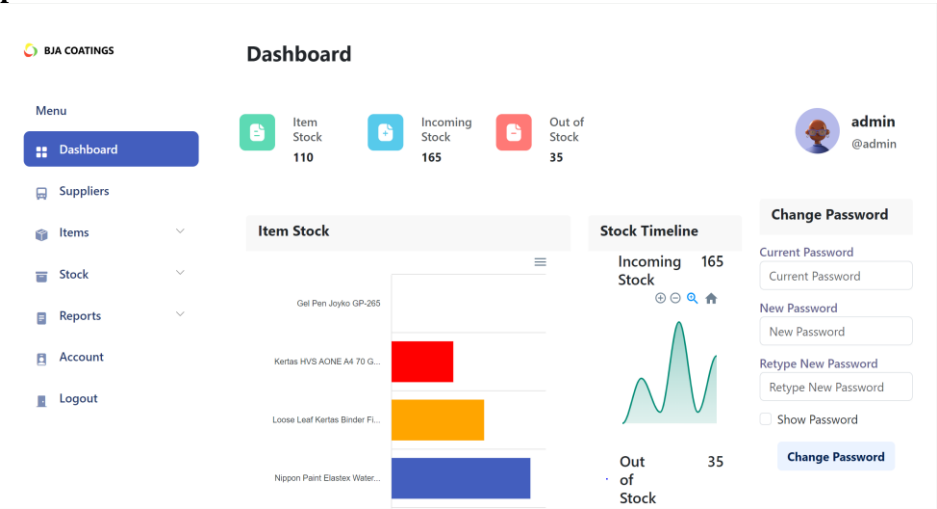


Figure 6. Dashboard View

The image above is a display of the system dashboard that has been created and designed to fulfill the system that will be used by the CV company. Berjaya Jaya Abadi. The display shows available stock, upcoming stock, and outgoing stock.

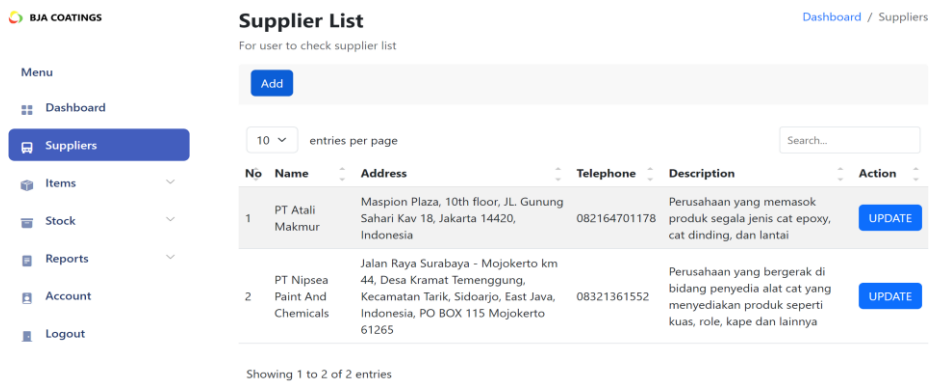


Figure 7. Supplier Data Display

In Figure 7 above, the supplier data menu displays the aim of which is to see the inventory of goods and which company the stock of goods was imported from.

**Item List**

Dashboard / Item List

For user to check item list

[Add](#)

10 entries per page

Search...

No	Item Name	Category	Description	Action
1	Dulux Light + Space Smaller	Cat	Cat dinding atas 5 KG	<a href="#">UPDATE</a>
2	Elektrik Mollar ESG300	Other	Alat Semprot Cat nozzle 2,5 mm kapasitas 800 ml	<a href="#">UPDATE</a>
3	Jotun Majestic Premium	Cat	Cat interior dalam rumah	<a href="#">UPDATE</a>
4	Jotun Wetherbond	Cat	Cat dinding exterior 15 KG	<a href="#">UPDATE</a>
5	Nippon Paint Elastex Waterproof 3 in 1	Cat	Cat Dinding Anti Air 20 KG	<a href="#">UPDATE</a>

Showing 1 to 5 of 5 entries

Figure 8. Item List Menu Display

Then the image above shows a list of goods in the company with all types of goods.

**Stock Item**

Dashboard / Stock Item

For user to check stock item list

[Add](#)

10 entries per page

Search...

No	Item Name	Supplier	Category	Stock	Action
1	Nippon Paint Elastex Waterproof 3 in 1	PT Atali Makmur	Cat	45	<a href="#">UPDATE</a> <a href="#">DELETE</a>
2	Jotun Majestic Premium	PT Atali Makmur	Cat	20	<a href="#">UPDATE</a> <a href="#">DELETE</a>
3	Elektrik Mollar ESG300	PT Nipsea Paint And Chemicals	Other	15	<a href="#">UPDATE</a> <a href="#">DELETE</a>
4	Jotun Wetherbond	PT Atali Makmur	Cat	30	<a href="#">UPDATE</a> <a href="#">DELETE</a>

Showing 1 to 4 of 4 entries

Figure 9. Stock Items

Figure 9 above is a display for entering the stock of goods available in the company to find out how much stock or remaining goods are available in the company.

BJA COATINGS

Menu

- Dashboard
- Suppliers
- Items
- Stock
- Reports
- Account
- Logout

Out of Stock

For user to check out of stock list

Add

10 entries per page

Search...

No	Date	Item Name	Supplier	Category	Description	Amount	Action
1	15 Apr 2023	Jotun Majestic Premium	PT Atali Makmur	Cat	Barang Keluar.	10	UPDATE
2	15 Apr 2023	Jotun Majestic Premium	PT Atali Makmur	Cat	Barang Keluar	5	UPDATE
3	31 Jul 2023	Jotun Wetherbond	PT Atali Makmur	Cat	Barang Keluar.	10	UPDATE
4	08 Aug 2023	Nippon Paint Elastex Waterproof 3 in 1	PT Nipsea Paint And Chemicals	Cat		10	UPDATE

Showing 1 to 4 of 4 entries

Figure 10. Out of Stock

The image above is a menu displaying outgoing goods along with the number of goods outgoing or used in painting construction.

Out of Stock

Periode: 01/01/2023

No	Date	Item Name	Supplier	Category	Description	Amount
1	15 Apr 2023	Jotun Majestic Premium	PT Atali Makmur	Cat	Barang Keluar.	10
2	15 Apr 2023	Jotun Majestic Premium	PT Atali Makmur	Cat	Barang Keluar	5
3	31 Jul 2023	Jotun Wetherbond	PT Atali Makmur	Cat	Barang Keluar.	10
4	08 Aug 2023	Nippon Paint Elastex Waterproof 3 in 1	PT Nipsea Paint And Chemicals	Cat		10

Out of Stock Reports

Periode: 01/01/2023 - 16/12/2023

No	Date	Item Name	Supplier	Category	Description	Amount
1	15 Apr 2023	Jotun Majestic Premium	PT Atali Makmur	Cat	Barang Keluar.	10
2	15 Apr 2023	Jotun Majestic Premium	PT Atali Makmur	Cat	Barang Keluar	5
3	31 Jul 2023	Jotun Wetherbond	PT Atali Makmur	Cat	Barang Keluar.	10
4	08 Aug 2023	Nippon Paint Elastex Waterproof 3 in 1	PT Nipsea Paint And Chemicals	Cat		10

Print

1 page

Destination

- Save as PDF

Pages

- All

Layout

- Portrait

More settings

Amount

- 10
- 5
- 10
- 10

Save

Cancel

Figure 11. Out of Stock Report

4. CONCLUSION

This research shows that the application of an inventory information system as a work practice management strategy has a positive impact in improving technology learning in educational management. Using a qualitative approach, the results of data analysis show that the implementation of an inventory information system provides significant benefits, such as efficiency in inventory management, monitoring work practice progress, and increasing accessibility of relevant information for students. Despite the clear benefits, the research also identified several challenges to implementation, including lack of adequate training and resistance to change. However, with an integrated and sustainable approach involving the participation of all stakeholders, these challenges can be overcome.



Overall, this research confirms the importance of implementing an inventory information system as part of a work practice management strategy in an educational context.

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