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Article

Implementation of ABC and VED Analysis Methods in Book Inventory Management (Case Study: Toko Buku Al-Madinah)

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ABSTRACT

This study aims to evaluate and improve book inventory management at Al-Madinah Bookstore through the application of ABC and VED analysis methods. The ABC method is used to group books based on sales contribution and frequency of use, thus prioritizing the management of the most valuable books. Meanwhile, the VED method is used to classify books based on their level of importance for the continuity of store operations, namely Vital (V), Essential (E), and Desirable (D). This study uses a qualitative approach with descriptive methods to understand the phenomena in the field, while the data is presented and analyzed quantitatively to provide a statistical overview. The analysis results show that the ABC category is divided into 29% category A, 33% category B, and 37% category C, while the VED classification shows 10% of books are Vital, 63% Essential, and 27% Desirable. The ABC method helps prioritize stock control based on sales value, while VED ensures the availability of vital books based on user importance. The synergistic use of these two methods has proven effective in optimizing inventory, minimizing storage costs, and reducing the risk of shortages of important books, thus supporting the Books tore's business sustainability.

1. Introduction

The book retail sector continues to demonstrate significant growth, driven by increasing demand for diverse reading resources in urban areas (Setyanto et al., 2022). The Indonesian book market is projected to reach US\$133.69 million by 2025 (Alda, 2025), highlighting substantial business potential while also intensifying competition among bookstores. In such a competitive environment, a company's success largely depends on its ability to manage inventory effectively in order to meet customer demand. Therefore, an efficient inventory management system is essential to maintain operational performance and sustain business competitiveness (Agung et al., 2024). Furthermore, as the number of book titles and information resources continues to expand, effective inventory control becomes increasingly important to ensure product availability and accessibility for consumers (Yuliandi et al., 2023).

Al-Madinah Bookstore, a business unit engaged in publishing and book sales, plays a significant role in facilitating access to knowledge and supporting educational activities (Notluza, 2024). However, the wide variety of book titles and fluctuating demand patterns in the retail bookstore sector present unique inventory management challenges, which differ from those encountered in manufacturing or healthcare industries.

ABC and VED analyses have been widely applied in inventory control and have proven effective in optimizing stock levels and prioritizing critical items (Shaikh Teli et al., 2022). However, most previous studies have applied these methods separately, limiting the comprehensiveness of inventory classification. This limitation is particularly relevant in the retail bookstore context, where both economic value and item criticality need to be considered simultaneously. Therefore, this study integrates ABC and VED analyses to develop a more comprehensive and context-specific inventory control strategy for Al-Madinah Bookstore.

2. Literature Review

2.1 Inventory

Inventory is generally defined as items managed by a company for sale, including activities such as registration, recording, and reporting of company assets (Suharyanto et al., 2023). Other definitions describe inventory as

company-owned assets available for sale or used in the production of goods. These perspectives consistently position inventory as an economic and operational resource.

However, prior studies largely frame inventory

within administrative and financial dimensions, emphasizing control, valuation, and cost efficiency. While operations management literature introduces classification approaches such as ABC and VED to improve prioritization and reduce risk, these models remain predominantly quantitative. In contrast, behavioral studies highlight that product availability-particularly books-significantly influences user demand and engagement.

The main limitation of previous research lies in this separation between financial-operational perspectives and behavioral demand factors. Inventory is often treated as a static asset rather than a dynamic resource influenced by user preferences and market trends. Therefore, inventory should be understood not only as company-owned assets for sale but also as demand-driven resources whose classification and prioritization are shaped by consumer behavior. This broader view provides a stronger foundation for integrating inventory management with user demand variables.

2.2 Method ABC

ABC analysis is widely recognized as an effective method for inventory control, categorizing items based on usage value and sales frequency within a specific period (Naraya et al., 2024). Previous studies consistently demonstrate that ABC classification improves cost efficiency, enhances stock prioritization, and minimizes the risk of overstocking or stockouts. By focusing managerial attention on high-value and high-turnover items (Category A), organizations can allocate resources more strategically.

However, most prior research emphasizes financial contribution and quantitative consumption metrics as the primary basis for classification. The comparison of existing findings indicates that ABC analysis is predominantly applied within operational and cost-control frameworks, with limited integration of behavioral demand variables. In contexts such as bookstores or libraries, sales frequency and reorder patterns are not solely

determined by economic value but are also shaped by user preferences, reading interest, and market trends.

A critical limitation of earlier studies is their tendency to treat demand as purely numerical data, without examining the underlying behavioral drivers influencing sales frequency. Consequently, ABC categorization often reflects historical transaction records rather than dynamic shifts in user interest. This creates a conceptual gap between inventory classification and consumer behavior analysis.

Therefore, ABC analysis should be interpreted not merely as a cost-based classification tool but as a demand-responsive framework that can incorporate behavioral indicators into inventory prioritization. Integrating user-driven demand factors into ABC categorization strengthens its strategic relevance and enhances its applicability in sectors where consumer preference significantly determines stock turnover.

2.3 Method VED

Vital, Essential, and Desirable (VED) analysis is widely recognized as a method for classifying inventory items based on their level of importance to organizational operations. Particularly in sectors such as healthcare, education, and industry, previous studies emphasize that VED analysis plays a crucial role in ensuring resource availability and operational continuity (Minat, 2024). By prioritizing Vital items, organizations are able to minimize disruption risks and maintain service stability.

Compared to ABC analysis, which primarily focuses on financial value and consumption frequency, VED classification centers on functional criticality. This distinction highlights the complementary nature of both methods: while ABC optimizes economic efficiency, VED safeguards operational sustainability. Prior research confirms that VED is effective in environments where service interruption may have significant consequences.

However, a critical limitation of previous studies is that the assessment of "importance" is often determined from an internal managerial perspective rather than from actual user demand patterns. In many cases, criticality is defined based on organizational assumptions instead of empirical evidence derived from user behavior or consumption trends. Consequently, VED classification may not fully reflect dynamic

shifts in user needs.

Therefore, although VED analysis strengthens strategic inventory prioritization, its application can be enhanced by integrating demand-driven indicators. Combining functional criticality with behavioral data allows inventory systems to become more adaptive and responsive. This integrated perspective provides a stronger theoretical foundation for aligning operational importance with actual user needs, particularly in sectors where consumer demand significantly influences stock turnover and service effectiveness.

2.4 Reading Interest

According to World Bank report No. 16369-IND, as well as a 1992 study conducted by the International Association for the Evaluation of Educational Achievement (IAEA) in East Asia, Indonesia ranked lowest in terms of children's reading proficiency, with a score of 51.7. This score placed Indonesia below the Philippines (52.6), Thailand (65.1), Singapore (74.0), and Hong Kong (75.5) (Bangsawan, 2018).

Previous studies examining reading interest and literacy levels have predominantly employed quantitative survey methods and large-scale assessment analyses to measure reading proficiency and literacy performance across countries. Conducted within educational and socio-cultural contexts, these studies consistently indicate that low reading interest correlates with limited access to reading materials, weak literacy culture, and insufficient institutional support. The main findings suggest that reading interest significantly influences academic achievement and long-term educational outcomes.

However, a critical gap identified in prior research is the limited integration between literacy studies and resource management perspectives. Most studies focus on pedagogical or sociological dimensions of reading interest, while relatively few examine how reading interest affects institutional decision-making, particularly in inventory classification and demand prioritization within libraries or educational resource centers. As a result, the operational implications of low reading interest remain underexplored.

In the context of inventory management, reading interest directly influences demand patterns for reading materials. Higher reading

interest tends to increase circulation frequency, borrowing rates, and stock turnover of certain book categories. This demand dynamic can be systematically incorporated into inventory classification systems such as ABC and VED analysis. For instance, books with high borrowing frequency may be categorized as Class A items in ABC analysis due to their high usage value, while essential educational references may fall into the Vital category in VED analysis because of their functional importance in supporting learning processes. Conversely, materials with low circulation may be classified as lower-priority items.

Therefore, reading interest not only reflects literacy conditions but also shapes inventory prioritization and procurement strategies. Integrating literacy indicators with inventory classification methods enables institutions to align stock management with actual user demand, thereby improving service effectiveness and resource allocation efficiency.

3. Research Methodology

This research is a qualitative study using a descriptive research method approach, because this study identifies the phenomena that occur in inventory at a bookstore. In this study, the researcher wants to know how the description of book inventory and the results of the analysis using the ABC and VED approaches in managing book inventory at the Al- Madinah Bookstore.

3.1 Population and Sample

1. Population

Sugiyono (2017) defines a population as a generalization area consisting of objects or subjects with certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn. The population in this study was all entities in four elementary schools (SDN 009 Bangkinang City, SDN 007 Bangkinang City, SDN 016 Bangkinang City, and SDN 003 Bangkinang City).

2. Sample

A sample is a portion of the population in a study. In this study, the sampling technique used was Cluster Random Sampling, which is a group or area sampling technique used to take samples from a very large population. Samples are taken based on the

population area designated as the data source. The cluster sampling method is carried out in two stages: (1) selecting the sample area and (2) selecting the individuals involved in the sample (Wahab, 2021). Thus, it can be seen that the number of samples in this study was 86 informants.

3.2 Research Instruments

According to Sugiyono (2022) A research instrument is a tool used to measure observed natural or social phenomena. In qualitative research, researchers will use instruments using the interview method.

According to Saroso (2017): "Interviews are one of the most widely used tools for collecting qualitative research data. This method allows researchers to obtain information directly from respondents. Therefore, the questions asked to each respondent must be clear and structured. In this research interview, the ABC and VED methods were used for inventory control.

3.3 Data collection technique

In qualitative research, data collection is typically conducted through various techniques, such as interviews, observation, documentation, and focus group discussions (Ischak et al., 2019). In this approach, researchers attempt to construct a comprehensive picture, analyze words, and present detailed reports based on respondents' perspectives, while studying naturally occurring situations. Qualitative research data collection techniques include interviews, observation, and documentation.

3.4 Data analysis

Data analysis is a problem-solving process in research that involves gathering the necessary information. The accuracy and precision of analytical tools determine the accuracy of conclusions. Data analysis techniques are generally divided into two parts: qualitative and quantitative data analysis (Millah et al., 2023)

4 Results and Discussion

The research results show that the inventory structure at Al-Madinah Bookstore does not fully follow the classical ABC distribution pattern, which generally refers to the Pareto principle (approximately 20% of items contribute to 80% of the total inventory value).

In this study, the proportion of Category A items is not highly concentrated but rather distributed across several types of books.

This deviation can be explained by contextual demand characteristics. Unlike the manufacturing sector, which tends to have relatively stable demand patterns, demand in bookstores is influenced by reading interest, academic needs, curriculum changes, and school or semester enrollment periods. These conditions cause inventory value contributions to be spread across various book categories rather than concentrated on a small number of items.

In addition, it was found that books with high sales frequency do not always have the highest prices. Some textbooks have moderate prices but high turnover rates because they are essential for students. On the other hand, there are higher-priced books that contribute significantly to total value despite having lower sales frequency. This indicates that monetary value alone is not sufficient to determine inventory priority.

These findings differ from classical ABC theory, which assumes value concentration in a small percentage of items. In the context of bookstores influenced by reading interest and educational needs, inventory distribution patterns become more dynamic and do not strictly follow the 80/20 principle. Therefore, the implementation of ABC analysis needs to be adjusted to real operational conditions.

Although deviations from classical ABC theory were observed, the method remains relevant when applied with appropriate adjustments. In a bookstore context, inventory classification should not rely solely on monetary value but also consider demand frequency and reading interest.

This approach enables more effective inventory management aligned with customer needs.

4.1 General Description of Research Location and Subjects

This research was conducted at the Al-Madinah Bookstore, located on Jl. Mayor Ali Rasyid, Bangkinang, Bangkinang District, Kampar Regency, Riau. The store stocks a wide variety of books, from textbooks and novels to reference books. The store has a fairly diverse and varied stock of books, requiring effective inventory management to optimally meet

customer needs.

Therefore, the application of ABC and VED analysis methods is expected to improve inventory management efficiency and provide a positive impact on store operations. The researcher chose all 4 elementary school entities (SDN 009 Bangkinang Kota, SDN 007 Bangkinang Kota, SDN 016 Bangkinang Kota, SDN 003 Bangkinang Kota) and the staff of Al-Madinah Bookstore as informants in the preparation of this thesis, in order to find out what book students need in the teaching and learning process.

The number of informants in this study was 627 informants consisting of (school management, teachers, students, parents, publishers, and staff of the Al-Madinah Bookstore). Interviews were conducted with 86 informants who were considered representative of the research problem objects obtained from the cluster sampling technique. The description in this chapter is taken as a general overview, not a detailed explanation of the results of the interviews. This study uses a qualitative method with a descriptive approach.

The characteristics of the informants can be seen in the following table:

Table 1 Informant Characteristics

No	Karakteristik Informan	n	Persentase %
1.	School Management	8	9,3%
2.	Teacher	12	14%
3.	Students	60	69,7%
4.	Student Guardian	4	4,7%
5.	Shop Staff	2	2,3%
Jumlah		86	100%

Based on table 1, it can be seen that there are 86 informants from 4 elementary schools (SDN 009 Bangkinang City, SDN 007 Bangkinang City, SDN 016 Bangkinang City, SDN 003 Bangkinang City) and Al-Madinah Bookstore involved in this study, with several informant characteristics, namely 2 management from 4 elementary schools, 8 informants from 4 elementary schools (9.3%), 12 teachers from 4 elementary schools (14%), 60 students from 4 elementary schools (69.7%) 4 parents from 4 elementary schools (4.7%), and 2 staff from Al-Madinah Bookstore (2.3%)..

4.2 Data Collection Process

The data collection process in this study utilized three techniques: in-depth interviews, observation, and documentation. These techniques were chosen to gain a comprehensive understanding of the phenomenon under study.

The interviews were conducted in stages over a period of May and June 2025. Before conducting in-depth interviews in the field, the researcher first developed an interview guide as a reference for data collection using a semi-structured interview approach. In-depth interviews were conducted with 86 informants from all four elementary schools (SDN 009 Bangkinang Kota, SDN 007 Bangkinang Kota, SDN 016 Bangkinang Kota, SDN 003 Bangkinang Kota) selected using cluster random sampling. Each interview lasted 20-30 minutes and was recorded with the informant's permission. Data from these interviews helped gather direct information from informants regarding textbooks needed by students.

After conducting the interview process, the researcher conducted an observation analysis at the 4 elementary schools (SDN 009 Bangkinang City, SDN 007 Bangkinang City, SDN 016 Bangkinang City, SDN 003 Bangkinang City), the stages are as follows:

1. Visiting 4 elementary schools (SDN 009 Bangkinang City, SDN 007 Bangkinang City, SDN 016 Bangkinang City, SDN 003 Bangkinang City) to request permission to conduct research at these schools.
2. Visiting and observing the books available in the school libraries in the 4 elementary schools.
3. Participate directly in the field to observe the students' learning process and observe what lessons the students like.
4. Observing how often students visit the library to read books in their free time.
5. Observing the school's efforts in building students' interest in reading and the school's efforts in completing the school library with books.
6. Observing book stock inventory at Al-Madinah Bookstore.
7. Observing the management of book stock inventory at the Al-Madinah Bookstore before using the ABC and VED analysis methods.

The researcher included documentation techniques as supporting data when the

researcher did not obtain information from the interviews. Documentation that can support the information obtained includes book inventory records in the school library, book inventory records at the Al-Madinah Bookstore, book budget reports at the Al-Madinah Bookstore, book budget reports at the school, and finally sales data at the Al-Madinah Bookstore.

4.3 Temuan Penelitian

Based on the data presentation conducted by researchers at the Al-Madinah Bookstore and 4 elementary schools (SDN 009 Bangkinang City, SDN 007 Bangkinang City, SDN 016 Bangkinang City, SDN 003 Bangkinang City), in this study there were several findings obtained as follows:

1. Classification of Books Based on Sales Value (ABC Method)
 - a. Theme 1: Prioritizing Book Management (Highest Value)
Informants stated that Category A books are the main product, generating the highest sales volume in the store's total revenue. They stated that these books are managed very strictly to ensure stock is always available. An informant (Bookstore Staff), Mr. Andrian, stated: "We implement the ABC analysis method in managing book inventory in the bookstore. We can also group books based on which categories are of primary concern in terms of inventory. For example, Category A books are crucial to the bookstore's revenue, so we must always ensure sufficient stock to avoid disappointing potential customers." This grouping encourages the store to focus more on Category A book management with a more intensive inventory approach, including routine monitoring and rapid stock procurement.
 - b. Theme 2: Management of B and C Books (Medium and Low Values)
Management of B and C category books can be carried out with a more relaxed approach, eliminating the need for routine checks, perhaps once every two months, and maintaining stock at minimum requirements. Mr. Adrian, an informant (Bookstore Staff), stated: "From the results of applying the ABC method to book inventory, books in categories B and C are not our primary

focus. However, that doesn't mean we've eliminated these categories. However, we might only check stock in these book categories once a month. We will focus more on category A."

Table 2. ABC Data Analysis Results Table

ABC	KUANTITAS	PERSENTASE
A=0-70%	180	29%
B=0-20%	205	33%
C=0-10%	229	37%
TOTAL	614	100%

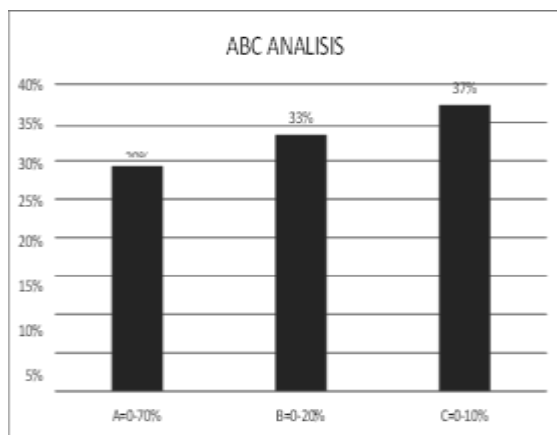


Figure 1 ABC Data Analysis Results Diagram

Based on the ABC analysis data above, we obtain an overview of the percentage distribution of values for categories A, B, and C. Category A has a percentage of 29% with a total of 180 units, indicating that a small portion of the total data falls within this category, with a range of 0-70%. Category B covers 33% or 205 units, with a range of 0- 20%, and category C covers 37% or 229 units, with a range of 0-10%.

These results indicate that category C at Al-Madinah Bookstore occupies the largest portion of the data distribution (37%), followed by categories B (33%) and A (29%). This interpretation indicates that the majority of data concentrated at Al-Madinah Bookstore is in category C, while category A has a smaller proportion.

Grouping Books Based on Vitality Level (VED Method)

- c. Theme 3: Vital Books (V) Important and Critical Informants stated that vital books must always be available and receive priority attention. They added that a shortage of vital books can disrupt operational continuity and customer

trust. An informant (Bookstore Staff) explained the following in an interview: "In addition to implementing the ABC analysis method, there is the VED analysis method, which can manage book inventory by grouping books based on their level of importance or customer need. We use this method by recording or finding out which books are most sought after by customers. This makes it easier for us to manage book inventory, ensuring customer satisfaction and satisfaction when shopping at our store." Based on the location of the Al- Madinah Bookstore which is close to several elementary schools, namely (SDN 009 Bangkinang City, SDN 007 Bangkinang City, SDN 016 Bangkinang City, SDN 003 Bangkinang City), researchers conducted observations at the 4 elementary schools, then there were findings in the 4 elementary schools regarding the needs of what books are needed by students. Informants said that the books needed by students are several incomplete textbooks and supporting books. As stated by Mr. Syukri, S.Pd., one of the principals of SDN 009 Bangkinang Kota, said: "The school's book supply is still incomplete. Only 10% of the government budget is allocated for books. Therefore, only textbooks can be provided for the children. Children also need books to support their personal development and skills. As the principal, I have implemented a temporary policy requiring children to bring their own books once a week and then exchange them with their classmates to read. I am currently looking for a publisher who can collaborate with the school to provide affordable, high-quality books so that the children can meet their needs at school." From the principal's statement, the researcher found that the interviewed school was seeking a publisher who could collaborate with the school, hoping to purchase books within their budget. The researcher identified an opportunity for the bookstore to collaborate with the school and group books that the school needed.

In this discovery, there is vital book management that is oriented towards sustainability and service, as well as procurement and storage of books which are always prioritized.

- d. Theme 4: Essential (E) and Desirable (D) Books Category E books are books that are needed regularly but not critically, while category D books are supplementary and considered based on needs and demand. Essential (E) books are maintained in stock, while D books are more supplementary and are rarely updated. Mhd. Hafizhan, a store staff member, explained: "For category E books, we strictly monitor the inventory and ensure they are always available. Meanwhile, for category D books, we display them whenever there is demand." This management increases the store's flexibility in developing inventory strategies and reduces excess inventory of non-essential items.

Table 3. VED Data Analysis Results Table

VED	KUANTITAS	PERSENTASE
V	64	10%
E	386	63%
D	164	27%
TOTAL	614	100%

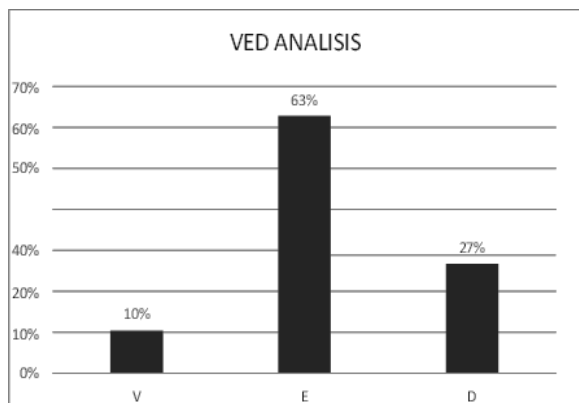


Figure 2. Diagram of VED Data Analysis Results

Based on the analysis of the VED data above, it can be concluded that category V accounts for 10%, followed by category E at 63%, and category D at 27%. The total data collection, which amounts to 614 units, shows a fairly balanced distribution, but is dominated by category E.

These results indicate that the majority of values included in category E have the most significant contribution to the overall data, while category V plays a relatively minor role. This is important to understand in decision-making and strategic planning, particularly in the context of managing or evaluating aspects related to VED. Integration and Implications of Inventory Management

- e. Theme 5: Effectiveness of Implementation and Its Impact on Operations. Informants stated that implementing these two methods helped them make better decisions, reduce costs, and improve customer service. A statement from a store owner: "After implementing ABC and VED analysis, book inventory is better organized and customer needs are met. Costs are more efficient, eliminating the drama of stockpiling unsold and irrelevant books." Implementing these two methods helps bookstore management identify priority books, thus maximizing the use of space and funds, and improving customer service by ensuring book availability. important and highly valuable. The results of this analysis indicate that the application of the ABC and VED methods in book inventory management at the Al-Madinah

Bookstore provides.

strategic advantages in book stock management. By grouping based on economic value and vitality level, the store is able to reduce costs, increase efficiency, and improve customer satisfaction levels. The use of these two methods simultaneously strengthens decision-making in managing book inventory effectively and efficiently.

4.5 Discussion

The results of the study on the implementation of ABC and VED analysis methods in book inventory management at Al-Madinah Bookstore indicate that both methods provide a fairly comprehensive overview of book inventory management.

Through ABC analysis, books can be classified based on their contribution to total sales. At Al-Madinah Bookstore, books are grouped according to ABC categories: category A (high value, 70% investment), representing

10% of the total inventory at Al-Madinah Bookstore; category B (medium value, 20% investment), representing 20% of the total inventory at Al-Madinah Bookstore; and category C (low value, 10% investment), representing 70% of the total inventory at Al-Madinah Bookstore. Category C dominates the data distribution at Al-Madinah Bookstore (37%). This allows store staff to understand that category C books currently dominate the inventory. Therefore, it is important to pay attention to category A books compared to category C books. This facilitates store owners and staff in prioritizing inventory control and management. Meanwhile, the VED analysis classifies books based on their level of operational importance, divided into Vital (V), Essential (E), and Desirable (D). At Al-Madinah Bookstore, the V (Vital) category has the largest percentage (10%), followed by E (Essential) (63%), and D (Desirable) (27%). The combination of these two methods allows the store to reduce storage costs and avoid excess stock. This implementation has proven to help Al-Madinah Bookstore identify book priorities, maximize space and budget utilization, and improve customer service by ensuring the availability of essential books.

The simultaneous use of both methods can improve stock management efficiency and reduce the risk of stockouts of vital books. The main implication of this finding is that the simultaneous use of both methods provides synergistic benefits, where ABC assists in management based on economic value, while VED emphasizes the importance and immediate needs of users.

This confirms that effective inventory management relies not only on financial aspects but also considers customer priorities and needs. Therefore, this method can improve stock management efficiency and reduce the risk of stockouts of vital books, which are vital to store operations.

The findings of this study utilize inventory management theory, which states that ABC and VED analysis are effective tools in the process of managing inventory (books) to ensure they are available in the right quantities, at the right time, and at an optimal cost.

This theory serves as the basis for inventory management to avoid stockouts or excesses. According to Shaikh Teli et al., (2022), ABC analysis functions to classify items based on

value and frequency of use, thereby helping to optimally control costs and inventory. Meanwhile, the theory developed by Matthew et al., (2016) emphasizes that VED analysis focuses on the level of priority of goods based on the speed and importance of users, which is very relevant for book management in a bookstore environment..

Penelitian terdahulu Pada penelitian Tafesse (2021)terdapat hasil penelitian yang menunjukkan bahwa Analisis matriks ABC-VED-FNS dapat meningkatkan efisiensi gudang penyimpanan dan keuangan di industri farmasi. Penggunaan kebijakan dan teknik pengendalian inventaris yang terletak pada matriks ini dapat membantu organisasi memprioritaskan upaya, mengurangi biaya, dan meningkatkan kepuasan pelanggan.

The results of this study support this argument, as book management at Al-Madinah Bookstore has become more structured and aligned with these principles. Based on this study, it can be concluded that the integration of the two methods in inventory management is empirically and theoretically supported, demonstrating their direct relevance and benefits for optimizing book stock management in the local book industry.

These findings not only enrich the literature on the application of ABC and VED methods in the context of bookstores, but also demonstrate that these theories have real practical applicability in inventory management in small and medium-sized businesses. The appropriate application of these two approaches can serve as a reference in developing a more efficient and adaptive inventory management model tailored to business and customer needs.

The impact of implementing ABC and VED analysis methods in inventory management at Al-Madinah Bookstore indicates that these two methods can help the store improve stock management accuracy, reduce unnecessary storage costs, and ensure the availability of vital books for customers. Practically, this can improve customer service and satisfaction levels, while supporting the bookstore's business sustainability.

The primary contribution of this research is to provide an empirical overview of the effectiveness and efficiency of using ABC and VED analysis in the context of book inventory management, particularly in small to medium-sized bookstores. Furthermore, this research

enriches the body of knowledge on inventory management through a qualitative approach with data obtained directly from industry players, thus serving as a reference for developing a more adaptive and efficient inventory management system. Going forward, the results of this study are expected to serve as a basis for further research on inventory management based on other methods that can support the optimization of company asset management as a whole.

5 Conclusion

This study examined the implementation of ABC and VED analytical frameworks in book inventory management at Al-Madinah Bookstore. The findings demonstrate that the combined application of value-based (ABC) and criticality-based (VED) classification provides a more comprehensive inventory control mechanism than either method applied independently.

ABC analysis effectively identifies items with significant financial contribution, thereby supporting cost control and revenue optimization strategies. However, the results indicate that reliance solely on monetary concentration may oversimplify prioritization in literacy-driven retail environments. In contrast, VED analysis introduces a functional and demand-oriented dimension by incorporating the relative importance of books based on user needs and academic relevance.

The integration of both approaches generates a multidimensional prioritization framework, enabling management to balance economic value with service continuity. This hybrid classification model enhances inventory responsiveness, reduces the probability of critical stockouts, and improves alignment between inventory investment and consumer demand dynamics.

Importantly, the empirical findings reveal a contextual deviation from classical ABC distribution assumptions, suggesting that Pareto-based concentration patterns are not universally applicable in sectors influenced by fluctuating reading interest and educational cycles. This reinforces the argument that inventory management models require contextual calibration rather than rigid standardization.

Several limitations should be acknowledged. First, the study relies on cross-sectional sales and inventory data within a defined observation period, which may not fully

capture longitudinal demand volatility. Second, the descriptive methodological approach limits causal inference and does not statistically quantify the interaction between reading interest patterns and inventory categorization outcomes. Third, operational variables such as supplier reliability, procurement lead times, price elasticity, and promotional interventions were not systematically modeled.

These constraints suggest that while the findings provide strong contextual insights, broader generalization requires replication in diverse retail and educational settings using longitudinal and inferential research designs.

From a strategic management perspective, this study offers several actionable implications:

1. Adoption of a Hybrid Inventory Governance Model
2. Dynamic Reclassification Mechanism
3. Strategic Capital Allocation
4. Risk Mitigation Strategy
5. Data-Driven Literacy Alignment

Collectively, these implications reposition inventory management from a purely operational function to a strategic decision-support system capable of enhancing retail sustainability in competitive and literacy-sensitive markets.

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