

Assessing Student Satisfaction with the eBook 'Database All About': A Survey of DTK Students at Politeknik Sultan Azlan Shah

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Abstract

This study evaluates student satisfaction with the eBook Database All About, a resource developed for Diploma in Electronic Engineering (Computer) (DTK) students at Politeknik Sultan Azlan Shah. Prior to the introduction of this eBook, students relied on lecturers' notes and slides, which were not standardized and often resulted in difficulties in covering and understanding the subject matter. This gap led to challenges in exam performance. With the aid of the eBook, students now benefit from clearer explanations, attractive illustrations, and compact notes for each topic. The inclusion of sample questions in each chapter also aids exam preparation. This study investigates the eBook's effectiveness, focusing on its content, usability, and impact on learning. Results indicate high satisfaction levels, and future data from additional polytechnics will provide a clearer picture of its overall impact.

Keywords: Database Management; Digital Learning Resources; E-book Satisfaction; Technical Education

1. Introduction

The integration of digital tools into education has become increasingly important in recent years, especially within higher education institutions. The shift to online learning, accelerated by the COVID-19 pandemic, has highlighted the importance of accessible and effective learning materials that support both in-person and virtual classrooms. Polytechnic institutions, which specialize in technical education, often face challenges in providing students with adequate and up-to-date resources that meet the specific needs of their curricula. This is especially true in the case of students enrolled in technical diploma programs, such as the Diploma in Electronic Engineering (Computer) (DTK) at Politeknik Sultan Azlan Shah.

The eBook was introduced to offer a uniform, easily accessible resource that would support student learning. With the inclusion of attractive illustrations, concise explanations, and sample questions for each chapter, Database All About has made the subject matter clearer and more engaging for students. Furthermore, the eBook is freely distributed to all students, eliminating the need for additional reference books. This study assesses the satisfaction of DTK students with the eBook, examining how it has improved their understanding of the subject, facilitated exam preparation, and enhanced the teaching process.

1.1. Research Objectives

1. Evaluate the clarity and quality of the content in Database All About from the perspective of DTK students.
2. Assess the alignment of the eBook with the DTK syllabus and its effectiveness in supporting academic and project-based learning.
3. Investigate the usability of the eBook, including accessibility and navigation.

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4. Measure the reliability of the student satisfaction questionnaire using Cronbach's alpha to ensure data consistency.

2. Literature Review

2.1. Digital Learning Resources and Their Impact

The use of digital textbooks and eBooks has significantly enhanced educational delivery, especially in technical disciplines. Research by Mayer (2020) suggests that multimedia learning materials can improve understanding by integrating text, images, and interactive content [1]. In the case of Database All About, the clear illustrations and compact notes have been praised for their ability to simplify complex concepts, making them more accessible to students who previously struggled with less standardized learning resources [2].

A study by Kim et al. (2021) found that digital resources that offer consistency and clarity, along with user-friendly features, are particularly beneficial in helping students perform better academically, especially in fields that involve technical or abstract subjects like database management [3].



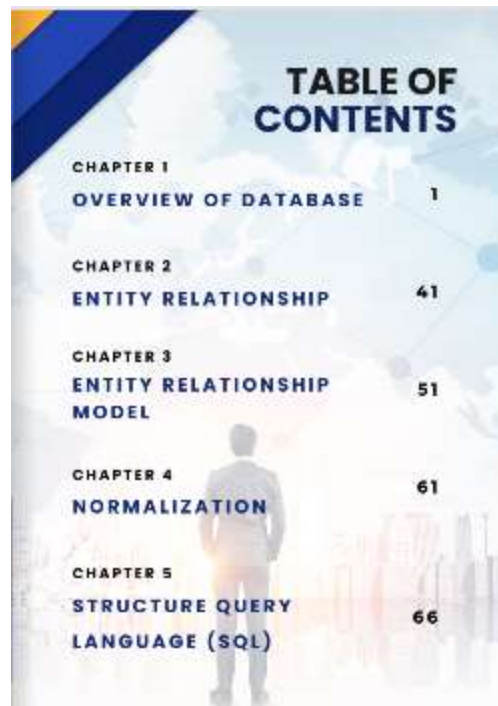
Figure 1 Front Page of the eBook 'Database All About'.

2.2. Alignment with the Syllabus

Ensuring that a digital learning resource aligns with the curriculum is key to its effectiveness. Previous studies have highlighted the importance of aligning content with the syllabus to ensure that students gain the knowledge and skills necessary for academic success [4]. The eBook Database All About was designed to cover all topics in the DTK syllabus, providing a comprehensive guide that students can use for both learning and revision.

The Database All About eBook is designed to directly correspond with the Diploma in Electronic Engineering (Computer) (DTK) syllabus, ensuring that students receive content that is both relevant and comprehensive. By providing a standardized resource for all students, the eBook also ensures that lecturers can guide students more uniformly, addressing any gaps in understanding that may arise from varying lecture notes or slides. The table of contents (figure 2) outlines the structure of the eBook, highlighting the alignment between the eBook's chapters and the key learning outcomes specified in the syllabus. This organization allows students to follow a logical progression of

topics, from foundational concepts to more advanced subjects, ensuring that all necessary materials are covered for the course.



The image shows the cover of an eBook titled 'Database All About'. The cover features a blue and white color scheme with a background image of a person standing in a bright, open space. The title 'TABLE OF CONTENTS' is prominently displayed at the top. Below the title, the chapters and their corresponding page numbers are listed:

Chapter	Topic	Page Number
CHAPTER 1	OVERVIEW OF DATABASE	1
CHAPTER 2	ENTITY RELATIONSHIP	41
CHAPTER 3	ENTITY RELATIONSHIP MODEL	51
CHAPTER 4	NORMALIZATION	61
CHAPTER 5	STRUCTURE QUERY LANGUAGE (SQL)	66

Figure 2 Table of Contents of 'Database All About' eBook

As depicted, each section of the eBook corresponds with the main topics in the syllabus, facilitating a seamless learning experience for students. This alignment is critical in addressing the issues faced by students who previously relied on inconsistent and fragmented lecture notes. With the eBook, students have a clear and unified resource that ensures consistent coverage of the entire syllabus.

This alignment with the syllabus is consistent with best practices in educational design, where materials are created to ensure that all required content is delivered in a structured and easily digestible format (Mayer, 2020; Sharma, 2018). By closely mirroring the course outline, the eBook helps students remain focused on the learning objectives and achieve better academic performance.

2.3. Usability and User Experience

The usability of digital resources plays a crucial role in their effectiveness. According to Sharma (2019), an easy-to-navigate design that works across multiple devices is essential for maximizing student engagement [5]. Since Database All About is freely accessible to all students, they no longer need to purchase additional reference materials, making the eBook a cost-effective and convenient resource that can be accessed anytime, anywhere.

2.4. Interactive Learning and Student Engagement

Interactive features such as sample questions and quizzes have been shown to improve student engagement and preparation. According to the Interactive Learning and Engagement Theory, students are more likely to retain information when they are actively involved in their learning process [6]. By including sample questions in each chapter, Database All About not only prepares students for their exams but also encourages active learning, ensuring they can practice the material as they go along. Figure 3 displays a sample set of questions from the eBook, further demonstrating its interactive elements. These questions engage students actively with the content, reinforcing their learning and improving exam preparedness.

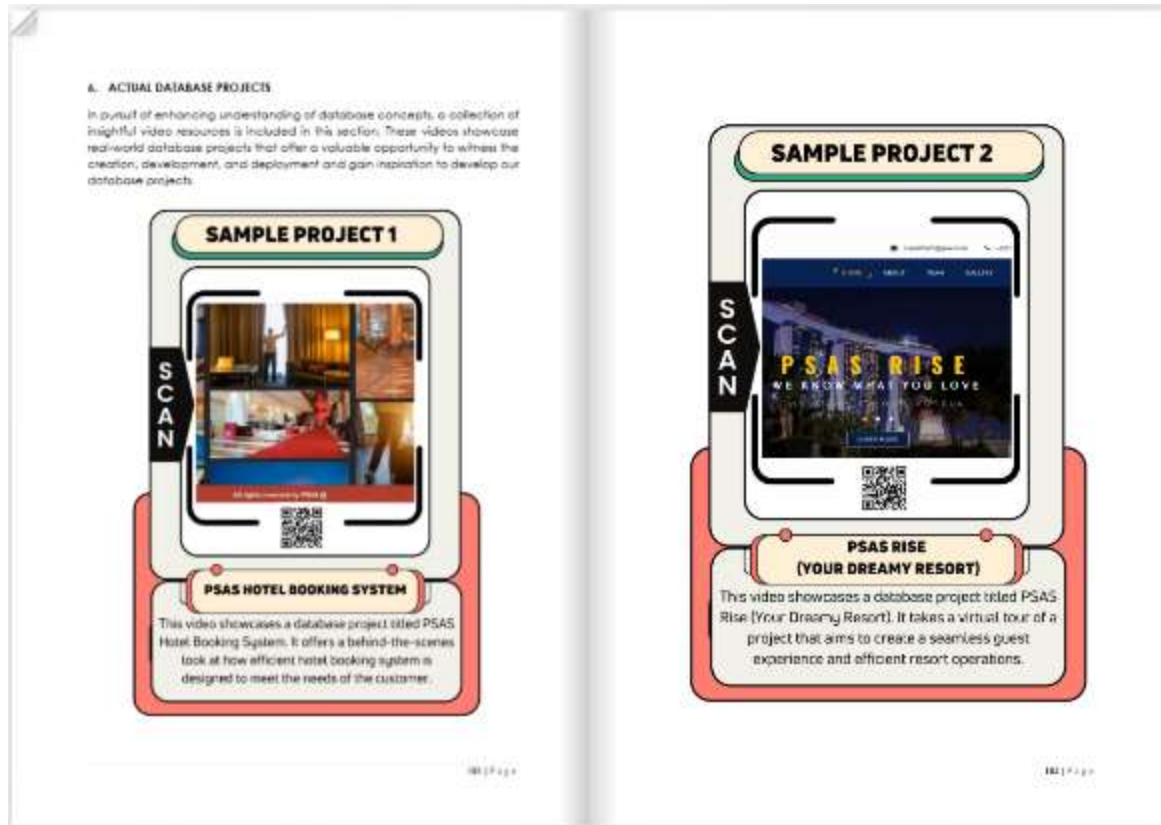


Figure 4 Sample Questions and QR Code for Related Video Resources from Database All About eBook

This combination of interactive questions and video resources encourages active learning, helping students bridge the gap between theoretical knowledge and practical application, ultimately improving their overall academic performance and project development skills.

3. Methodology

This study employs a mixed-methods approach, combining quantitative data from surveys with qualitative insights through open-ended questions. The focus is on evaluating student satisfaction with Database All About, particularly in relation to its content, usability, and impact on exam performance.

3.1. Participants

A sample of 41 students from the DTK program at Politeknik Sultan Azlan Shah participated in the survey, representing a 68% response rate. These students were the first to use the eBook as part of their learning resources.

3.2. Data Collection Tool

A structured questionnaire was developed to assess various aspects of student satisfaction with the eBook Database All About. The questionnaire aimed to evaluate key components such as content clarity, relevance to the syllabus, usability, engagement, and overall satisfaction with the eBook. The questionnaire was adapted from established satisfaction surveys on digital learning tools [3, 5], with modifications made to specifically address the unique features of the Database All About eBook, such as its interactive elements, case studies, and sample questions.

The survey comprised both closed-ended and open-ended questions, grouped into several sections:

1. Demographic Information: Questions on the student's gender, semester, program, and frequency of eBook usage.
2. Content Evaluation: Questions regarding how well the eBook explains fundamental concepts, its coverage of important topics, clarity of language, and helpfulness in understanding the subject.

3. Visual and Interactive Elements: Questions on how engaging the visuals (e.g., diagrams, charts) are, and whether exercises and quizzes help in understanding the topics.
4. Overall Satisfaction: Questions evaluating the overall satisfaction with the eBook as a learning resource, and whether the student would recommend it to others.

The questionnaire was designed to provide both quantitative data (via a Likert scale) and qualitative feedback (through open-ended responses), allowing for a comprehensive evaluation of the eBook's effectiveness.

3.3. Data Analysis

Descriptive statistics were used to analyze the survey responses, including mean scores and standard deviations. Cronbach's alpha was calculated to assess the reliability of the questionnaire, with a value above 0.70 indicating good internal consistency. The qualitative data were analyzed thematically to identify recurring suggestions and feedback.

4. Results and Analysis

4.1. Descriptive Statistics

The table below summarizes the mean scores for key satisfaction categories:

Table 1 Descriptive Statistics for Student Satisfaction with the eBook Database All About

Question	Mean	Median	Standard Deviation
Clarity of Language	4.3	4	0.5
Relevance to Syllabus	4.4	4	0.4
Helpfulness in Understanding	4.2	4	0.6
Engagement and Interest	4.0	4	0.8
Ease of Navigation	4.1	4	0.7
Overall Satisfaction	4.5	5	0.4
Willingness to Recommend	4.6	5	0.5

These results show that students are highly satisfied with the eBook, particularly with its clarity, relevance to the syllabus, and overall usefulness in understanding the subject.

4.2. Reliability Analysis

Cronbach's alpha for the survey was 0.83, indicating that the questionnaire is reliable for measuring student satisfaction.

4.3. Thematic Analysis

The open-ended responses revealed several key themes, including:

- Increased Understanding: Students reported that the eBook helped them understand the subject better, especially compared to the previous reliance on inconsistent lecture notes.
- Engagement: The attractive illustrations and sample questions helped make the content more engaging and accessible, improving students' interest in the subject.
- Exam Preparation: The inclusion of sample questions for each chapter was highlighted as a key feature, helping students prepare more effectively for exams.
- Uniformity in Teaching: Lecturers found it easier to guide students using a standardized resource, ensuring that all students received the same information and support.

5. Discussion

The results of this study suggest that the Database All About eBook has significantly improved student satisfaction and learning outcomes. The eBook's design, which includes clear and concise content, closely aligns with the Diploma in Electronic Engineering (Computer) (DTK syllabus, effectively addressing challenges students faced when relying on inconsistent and sometimes unclear lecture notes and slides. The standardization of content through the eBook provides a uniform learning experience, ensuring that all students, regardless of their class, receive the same foundational knowledge. This alignment with the syllabus is a key feature of digital learning resources, as research has shown that well-organized materials can significantly enhance learning outcomes and student engagement [1]

The use of attractive illustrations and sample questions not only makes the material more engaging but also aids in reinforcing important concepts. Interactive features such as sample questions and quizzes are widely recognized for improving student engagement, understanding, and exam preparation [6]. This is consistent with the Interactive Learning and Engagement Theory, which posits that engagement with interactive content is crucial for better retention and comprehension [6]. These features also help students become more prepared for final exams by providing them with practical tools for self-assessment and revision.

Moreover, the eBook's ease of access and cost-effectiveness have added value for students. The digital format eliminates the need for purchasing additional textbooks, offering students a free and easily accessible resource. This is particularly important in the context of increasing reliance on digital learning tools, as studies have indicated that students tend to perform better when they have immediate access to high-quality learning resources [2]. By providing a central, digital location for all course-related content, the eBook ensures that students can access study materials anytime, anywhere, promoting continuous learning.

From a teaching perspective, the standardized nature of the eBook has allowed lecturers to guide students more uniformly. It ensures that all students have the same set of resources to work with, reducing discrepancies between different groups and enhancing the overall teaching process. Lecturers can confidently assign exercises, monitor progress, and assess student performance based on the same content, making the teaching process more efficient and consistent.

The continued expansion of the eBook's use to other polytechnic institutions is an exciting development. As it is shared with additional schools, further data will be collected to assess its broader impact, enabling a more comprehensive understanding of the eBook's effectiveness in different educational contexts. This will allow for the refinement and enhancement of the resource to better meet the diverse needs of students and educators across institutions.

6. Conclusion

In conclusion, Database All About has proven to be an effective digital learning resource for DTK students at Politeknik Sultan Azlan Shah. The eBook's clarity, engaging illustrations, and alignment with the syllabus have significantly improved students' understanding and exam performance. Lecturers have found it easier to guide students with a uniform resource, and the eBook has eliminated the need for additional textbooks.

Recommendations

- **Multimedia Integration:** Incorporate more interactive features, such as video tutorials, to further engage students.
- **Self-Assessment Tools:** Add quizzes and exercises for students to test their understanding.
- **User Experience Improvements:** Make the eBook compatible with more devices and improve navigation.

As additional data is gathered from other polytechnics, further refinements can be made to enhance the eBook's effectiveness as a learning tool.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

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