

# Optimizing Instruction in Air Conditioning Technology: A VAK Learning Styles Perspective in Malaysia TVET

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## Abstract

Technical and Vocational Education and Training (TVET) refers to technology-focused education in Malaysia. TVET emphasizes skill-based education programs to meet industrial needs, with air conditioning technology being a prominent area of focus within TVET. Air conditioning is a technology that controls the temperature and humidity of the air in a particular area. Aviation maintenance students at a TVET university must study air conditioning and cabin pressure. This topic is essential for ensuring the safety and comfort of passengers while traveling by air. Some methods of transmitting knowledge about inaccessible parts of the aircraft are ineffective, resulting in a lack of engagement and comprehension among students. The study examines the insufficient teaching resources for Module 11 on turbine airplane aerodynamics, structure, and systems, particularly focusing on the air conditioning and cabin pressure subtopic at a Malaysian polytechnic. This study employs the product design and development research (DDR) technique. The researcher concentrated on creating an instructional teaching board for the educational process through a quantitative approach. The concept is rooted in Visual, Auditory, and Kinesthetic (VAK) learning styles, aiming to enhance learning experiences for students and teachers. The research adheres to the ADDIE instructional design technique, progressing through analysis, design, development, implementation, and evaluation phases. Three experts evaluated a questionnaire based on specific predetermined criteria for this research. They all concurred that the teaching board paradigm is effective as a teaching tool. The aircraft air conditioning basic cycle model is anticipated to significantly enhance the teaching and learning process.

## 1. Introduction

Education is the transmission and acquisition of knowledge, skills, attitudes, and traditions that aid in enhancing an individual's capabilities and potential. Education can be acquired through formal institutions like schools or through personal experiences (Admiraal et al., 2021). Education is a crucial element in moulding a society and country towards improvement. Technology-related education in Malaysia is referred to as Technical and Vocational Training Education (TVET). TVET is an educational approach focused on skill-based programs

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designed to fulfil the needs of the industry in our country (Wolf, 2021). This initiative intends to support the country's economic growth by aligning with globalization, knowledge-based economy, technological advancement, and global labour mobility. The TVET program aims to generate graduates who can proficiently master technical information and skills compared to academic graduates. This benefit can enhance job prospects and entice firms to hire TVET graduates with specialized abilities in a particular area. UNESCO has defined TVET as an educational process that includes instruction in technology and science, practical skills training, and knowledge in diverse domains of economy and social life (Subrahmanyam, 2020).

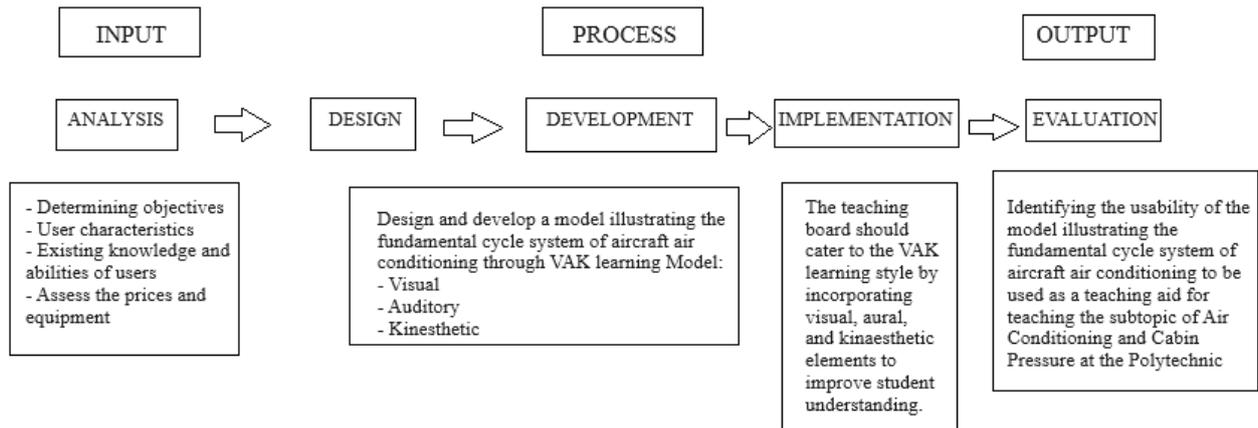
Education has a crucial role in the advancement of a nation (Chankseliani & McCowan, 2021). Developed countries including Japan, Korea, China, Germany, the United Kingdom, and the United States have emphasized the importance of the TVET sector in boosting economic growth by mastering skills and technology. A crucial aspect of technology in modern society is air conditioning technology (Javed et al., 2022). Air conditioning is a technology used to regulate the temperature and humidity of the air in a specific location. Air conditioning serves multiple purposes such as cooling, heating, temperature regulation, humidity control, and air purification. Air conditioning technology has advanced significantly and is now widely used in diverse settings such as homes, workplaces, factories, and vehicles, including aircraft (Jennions et al., 2020).

TVET students specializing in aircraft maintenance at the TVET institution are required to learn about air conditioning and cabin pressure. This topic is crucial as it pertains to the safety and well-being of passengers during air travel. Student comprehension is crucial for this subject to guarantee mastery of the abilities. Educators are making various efforts to enhance students' comprehension and mastery of this subject. Diverse concepts are generated for the development of teaching aids that align with modern technologies. The pupils will be more engaged in this learning process compared to previous methods. Thus, the method of teaching through lectures and oral presentations by the instructor is currently considered less significant (Haleem et al., 2022). Quality and sufficient teaching aids enhance the effectiveness of the teaching and learning process when integrated into the teaching process (Kilag et al., 2023). Teaching aids provide students with the necessary skills to install or maintain a system following correct safety measures, which may be challenging to acquire in a real-life scenario. Students can enhance their comprehension of a system by using instructional aides to visualize the components and dynamics of the system in real-world scenarios.

Over the past few centuries, there has been a significant transformation in technical education worldwide. This shift has moved the focus from practical aspects to analytical aspects, result-oriented education, engineering design, a blend of learning and social education, and the integration of communication technology in technical education or engineering. A new development has emerged in the education sector regarding the shift towards industry 4.0. (Mian et al., 2020). Techniques and practical sessions in aircraft engineering are continuously enhanced to match the standards of proficient employees in the area. To develop high-quality skilled professionals, it is essential to cultivate them through the school system. Ng (2023) suggest that a strong theoretical foundation is essential in aviation engineering to enhance job performance. Some knowledge delivery processes cannot be effectively transferred due to the need for interaction with inaccessible parts of the aircraft, leading to a lack of activity and understanding among students (Pinheiro Melo et al., 2020).

The researcher conducted an initial survey of students who finished the aircraft maintenance course at a well-known TVET institution, a polytechnic in Selangor, Malaysia. The survey concentrated on module 11: Turbine Airplane Aerodynamic, Structure, and System, to pinpoint current contextual obstacles. Students encounter challenges with air conditioning and cabin pressure, focusing on the basic cycle and operational methods. The teaching aids for this topic are deemed ineffective due to their reliance on two-dimensional images. This issue stems from varying levels of acceptability among students. Ghafar & Lestari (2023) found that over 50% of pupils in various student groups can effectively learn through visual activities, aural approaches, kinesthetic drawing, and system representation. The teaching board model of an airplane's air-cooling system is crucial for aiding teachers in effectively communicating course information and descriptions. This interactive board allows students to visually, verbally, and tactilely connect with the components being discussed, surpassing the limitations of a basic two-dimensional image. Kaya & Akgül (2017) found that educators who use the same teaching approaches consistently may cause pupils to become easily distracted and bored.

The researcher suggests doing a study to create a model of the aircraft air conditioning system's teaching board as an educational tool to enhance students' understanding of the system. The researcher discovered that studying the air conditioning and cabin Pressure subtopic involves comprehending the fundamental aircraft air conditioning cycle and its operation to enhance learning effectiveness. The construction of this aircraft air conditioning system teaching board model can be utilized as an Aircraft Air Conditioning System Board Model for students studying aircraft maintenance. Figure 1 displays the conceptual framework utilised in this research as the researcher utilised the ADDIE paradigm as a framework in developing the teaching board. The researcher has identified instructional approaches and tools for the design part, namely utilising teaching board models to provide a system overview.



**Fig. 1** Conceptual framework for the development of the teaching board of the basic cycle system of aircraft air conditioning

This project intends to develop a teaching board model that demonstrates the essential cycle model of aviation air conditioning. The model is created to improve the educational process by visually illustrating the cycle evolution among various stages. The teaching board concept is designed to improve the teaching and learning process by using a modern educational method to increase student involvement and understanding, ultimately helping them succeed in the topic. The researcher will evaluate the effectiveness of this teaching board model as a teaching aid by assessing the students' comprehension level in the educational process. The main goal of developing the teaching board model for the aircraft's fundamental air-cooling system is to:

- Designing an educational teaching board illustrating the fundamental cycle system of aviation air conditioning for instructing air conditioning and cabin pressure at the Polytechnic.
- Develop an educational teaching board illustrating the fundamental cycle system of aviation air conditioning for instructing air conditioning and cabin pressure at the Polytechnic.
- Identifying the usability of an educational teaching board illustrating the fundamental cycle system of air conditioning for instructing air conditioning and cabin pressure at the Polytechnic.

The main goals of developing this teaching board model are to evaluate its usefulness and accomplish the specific study objectives based on recognized concerns. This primary objective will act as a guiding framework for the researcher during the development process. This study aims to assess experts' acceptance of teaching aids created based on content design, interaction, and content rating and relevance to enhance the learning process of the topic. This technique might indirectly enhance students' comprehension by fostering their interest in utilizing instructional materials and cultivating their motivation to acquire knowledge.

## 2. Methodology

This study employs the product design and development research (DDR) approach. The researcher concentrated on creating an instructional board for the educational process through a quantitative method, consulting specialists using a checklist format. The researcher selected the ADDIE model as the primary reference for designing and developing the teaching and learning application product due to its simplicity and compatibility with the application's architecture. This methodology consists of five stages: analysis, design, development, implementation, and assessment. The DDR approach method outlines three primary phases that must be considered, as shown in table 1.

**Table 1** Main phases of the DDR approach method

Phase	Process
Phase 1: Needs Analysis	Literature Review
Phase 2: Design and Development	Application Development
Phase 3: Functionality	Quantitative Methods (Questionnaire)

## 2.1 Sampling

The researcher utilized a questionnaire to analyse the data acquired in the study on developing a teaching board model for the basic cycle system of air conditioning as educational tools. The study utilized purposive random sampling, where certain factors are considered to pick study respondents based on the researcher's unique expertise and study objective. This sampling method is employed to gather essential information from specific experts (Sekaran & Bougie, 2013). The researcher will select three experts with specific predetermined qualities to serve as a sample for this study. Professional experts' selection criteria are based on expertise, number of publications, and work experience (Cabero-Almenara, Romero-Tena & Palacios-Rodríguez, 2020). The researcher has identified that one of the features is having five years or more of expertise in a similar sector and working in the aircraft repair industry.

## 2.2 Data Analysis

The researcher needs to ensure that the product produced will meet the objectives that have been set. The objective can be assessed by using research instruments as mentioned before, which is by using questionnaires from experts in the related field. After receiving feedback from experts, analysis and formulation should be carried out by researchers to ensure that the product can be developed according to the correct specifications. According to Denton, Ciancio & Fletcher (2006), studies that have a 70% level of validity show that they have reached a good level of achievement. To determine the level of validity for the development of this product, the researcher uses the total score that has been filled in by the expert ( $x$ ) and divided by the total actual score ( $y$ ) then multiplied by one hundred.

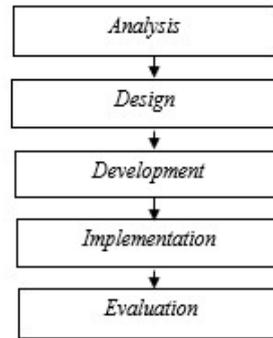
**Table 2** Determination level table

Assessment	Deterministic Level Indicators
High	80-100
Medium	40-79
Low	0-39

The research instrument is used to gather essential data and information about the developed product. The product's development must be assessed by field experts to determine the functionality of the teaching board model as an educational tool. The researcher utilized a questionnaire as a research tool in this study. The questionnaire contains information regarding product design, product development, functionality, as well as an area for comments and ideas. Prior to distributing the questionnaire, the researcher created a questionnaire consisting of four key sections: item A focused on respondent demographics, item B on development needs, item C on product design, and item D on the functionality of the product as a teaching aid.

## 2.3 Product Design

The approach must be carefully prepared and executed to achieve high-quality research results that are in line with the study's objectives. Strategic planning can minimize or eradicate unforeseen mistakes. The application was created using the ADDIE paradigm inside the product development process. The ADDIE model provides a structured approach for designing educational materials, incorporating an iterative process and all essential steps for building a well-crafted course or program. Figure 1 depicts the five primary steps of the ADDIE model technique, designed to offer directions for application development:



**Fig. 2** Model ADDIE (Molenda, 2003)

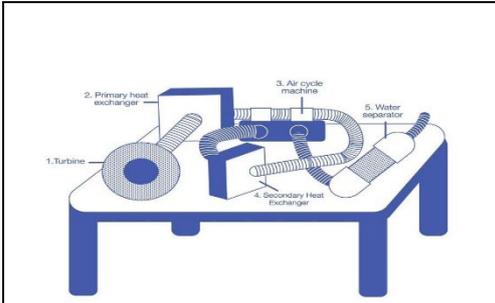
### 2.3.1 Analysis Phase

Prior to initiating product development, the researcher must do a thorough examination of the problem at hand and potential solutions. The analysis step is crucial for identifying the factors or causes of the problem. The researcher must do a comprehensive examination of the learning requirements and project context. This involves determining objectives, aims, user characteristics, and the existing knowledge and abilities of users. Furthermore, the researcher must assess the prices and equipment necessary for producing the product. During this phase, the researcher gathered information from many journals and previous research articles to enhance the understanding of prior challenges and reinforce the objectives of product development. Once a clear purpose is established, the researcher must gather knowledge regarding the system to be utilized in developing the forthcoming product. Subsequently, the researcher must enumerate the necessary equipment for the development of this product. The researcher must consider the quality and price of the equipment to optimize the cost of constructing the teaching board model for the fundamental cycle system of aviation air conditioning, as shown in table 3.

**Table 3** Analysis phase process for the design and development of teaching aids model

Criteria	Explanation
Functionality	This teaching aids model's design must possess operational value that aligns with or fulfils the study's scope.
Controllability	Users must follow the handbook to effectively oversee this teaching aids model and demonstrate its operation clearly.
Outline	This teaching aids model's development must align with the functions and operational methods utilized for educational objectives.
Endurance	Choosing materials for this teaching aids model is crucial as it impacts both its longevity and functionality.
Economy	Factors such as cost, time, and energy must be considered when developing this teaching aids model. This teaching aids model is affordably priced and serves as an effective tool for educational purposes.

**Table 4** Utilizing the VAK Learning Model in the design phase of instructional aids

No	VAK Learning Model	Display and Description
1.	Visual	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p data-bbox="612 719 754 748">Final Sketch</p> </div> <div style="text-align: center;">  <p data-bbox="1098 719 1256 748">Final Product</p> </div> </div>

The researcher created a physical product with distinct and easily visible components to enhance the visual aspect.

2. Auditory



The researcher will affix a QR code to the model in the auditory portion to assist people in accessing information about the fundamental cycle system of the aircraft's air conditioning.

3. Kinesthetic



The researcher will verify that the created system can be activated and display the motion of its components.

The researcher will begin the design selection process for the aircraft air conditioning basic cycle system teaching board by creating three concept sketches. This intends to assess the attributes of the three designs. Three experts in the relevant sector will evaluate the project design using a questionnaire. This questionnaire contains questions that will help identify the optimal design for creating this product. The table displays a scaled assessment chart for choosing product designs for production. The assessor has chosen the second project design sketch as the most appropriate design for developing the teaching board of the basic cycle system of the aircraft air conditioning, according to table 5.

**Table 5** *Adjusted evaluation chart for selecting project designs, customized by the researcher based on the appropriateness of design progress*

		Scale																								
		1 = Strongly Disagree					2 = Strongly Disagree					3 = Strongly Disagree					4 = Strongly Disagree					5 = Strongly Disagree				
Evaluation Criteria		First Sketch					Second Sketch					Third Sketch														
Scale		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5										
1. The design has high safety features		-	-	2	1	-	-	1	2	-	-	-	-	2	1	-										
2. The proposed design has the potential to be completed		-	-	-	2	1	-	-	-	3	-	-	-	-	3	-										
3. Attractive and easy to understand design		-	-	2	1	-	-	2	1	-	-	-	-	-	1	2										
4. Portable design		-	-	-	-	3	-	2	1	-	-	-	-	-	3	-										
5. The design has an appropriate shape and size		-	-	-	1	2	-	3	-	-	-	-	-	-	1	2										

A design for an aircraft air conditioning basic cycle system teaching board was created after considering key factors of product development. This instructional board serves as a valuable educational tool and is segmented into distinct sections, including the frame of the board, the components of the fundamental aviation air conditioning cycle, and the electrical wiring. The researcher will create similar components based on their functionalities due to cost constraints and the challenge of acquiring authentic components. Once the researcher receives the final product drawing, they must verify that the developed model aligns with the VAK learning model as specified.

### 2.3.2 Development Phase

During the development phase, the researcher elucidates the execution of the product development process in accordance with the specified phases. The researcher must translate the designs from the design phase into physical form using the design phase materials. Throughout the development phase, it is crucial to conduct multiple revisions of teaching materials. This includes collecting input from stakeholders, subject matter experts, and potential students. Feedback is essential for pinpointing necessary enhancements or modifications to guarantee the quality and efficacy of the item. Iterative updates are essential for refining and enhancing instructional content before it is put into practice.

The development of this teaching board starts with constructing the frame, with the researcher selecting a table as the foundation for the product. Subsequently, the researcher created the required components due to challenges in obtaining authentic components caused by cost constraints and limited availability. The researcher must now do electrical wiring on the produced component to enable it to function similarly to a real cycle. Here are the outcomes of creating the aircraft air conditioning basic cycle system teaching board.

### 2.3.3 Implementation Phase

In the ADDIE paradigm, the implementation phase involves the utilization and distribution of tangible educational resources to students. It is the stage where the materials created are put into action following the established plan. The product implementation process is the stage where the conceptual design is transformed into a physical and functional product. It entails the physical creation or production of a product, assembling its components, and ensuring it functions as intended. Implementation involves testing the product to guarantee functionality, performance, and quality. Testing detects flaws to enhance the final product's compliance with standards. The teaching board should cater to the VAK learning style by incorporating visual, aural, and kinesthetic elements to improve student understanding.

### 2.3.4 Evaluation Phase

The researcher will assess the usability of the teaching board for the basic cycle system of aircraft air conditioning. Three experts will complete a questionnaire evaluating the product's efficacy. Examining their answers will reveal vital insights into improving the product and achieving goals. Expert feedback will be used to enhance the product's effectiveness in educational settings.

## 3. Finding

### 3.1 Expert Demographic Analysis

Expert review involves three specialists from pertinent domains. The evaluation process includes design assessment, interaction evaluation of the teaching board, evaluation of content suitability, and feedback from experts for the aircraft air conditioning basic cycle system teaching board. Table 6 displays the demographics of professionals in relevant fields.

**Table 6** Expert demographic analysis

Details	Expert 1	Expert 2	Expert 3
Gender	Male	Female	Male
Level of education	Diploma	Master's degree	Diploma
Work experience	More than 15 years	6-10 years	6-10 years
Jobs	Senior Assistant Engineer	Lecture	Aircraft maintenance technician
Field of Specialization	HVAC	HVAC	Aircraft maintenance technician

### 3.2 Expert Evaluation Analysis

Three experts in related field evaluated the design, evaluated the interaction of the teaching board and evaluated and suitability of content. The research result on the design, evaluation of the interaction of the teaching board and evaluation and suitability of contest are shown in table 7.

**Table 7** Expert evaluation analysis for content design, interaction and content rating and relevance

No	Items	Dimension	Frequency		Percentage (%)
			Yes	No	
1	The teaching board is portable.	Analysis of Design Evaluation	3	0	100%
2	The teaching board design is safe and suitable for use as a teaching aid.		3	0	100%
3	The section on the teaching board is clearly visible.		3	0	100%
4	The dimensions of this teaching board are suitable for use as an instructional tool.		3	0	100%
5	The teaching board features an intriguing design for instructional purposes.	Analysis of Interactions Evaluation	2	1	67%
6	The teaching board is easy to operate.		3	0	100%
7	The teaching board is user-friendly.		3	0	100%
8	The teaching board facilitates users in accessing the necessary information efficiently.		3	0	100%

9	The teaching board can aid students in comprehending the fundamental process of aircraft air cooling.		3	0	100%
10	The teaching board markers help enhance student comprehension.		3	0	100%
11	The teaching board successfully accomplishes its developmental goals.	Analysis of Content Rating and Relevance	3	0	100%
12	The teaching board content aligns with the teaching course.		3	0	100%
13	The teaching board is compatible with the VAK learning approach.		3	0	100%
14	The display of material on the teaching board is easily comprehensible.		3	0	100%
15	The designed teaching board serves as a teaching assistant for teachers during the teaching process.		3	0	100%

All three experts unanimously agree that the movable teaching board's design is attributed to the presence of wheels on the table's legs. All three experts unanimously confirmed that the design of the teaching board is safe for use as a teaching tool. However, one expert mentioned potential safety enhancements that may be made to the board. All three experts unanimously agree that the third question item on the teaching board is easily visible. All three experts unanimously agree that the size of the teaching board design in question is appropriate for use as a teaching aid, as it falls within the ideal range of dimensions. The dimensions of a product are a crucial factor for an effective teaching tool. Only two experts, constituting 67%, agreed that the teaching board has an appealing design as a teaching aid. Another expert suggested enhancing the design of the instructional board to enhance its visual appeal.

Upon evaluating the teaching board interaction, all three experts unanimously agreed (100%) that the teaching board is user-friendly and straightforward to operate because it lacks complex mechanisms. The three experts unanimously concurred that users may quickly access the required information in this part due to the information available on the teaching board. The three experts unanimously concurred on the fourth inquiry item that utilizing this teaching board can aid students in comprehending the fundamental cycle of aircraft air cooling. All three experts unanimously agreed that the labels on the teaching board can enhance student comprehension, as indicated by the final question item in this section.

All three experts unanimously concluded that the teaching board successfully fulfilled its development objectives for the first question item, ensuring assessment and content suitability. All three experts unanimously agreed that the substance of the lesson is suitable for the teaching course on the second question item. All three experts unanimously agreed that the teaching board is appropriate for the VAK learning model, which incorporates visual, auditory, and kinesthetics' senses. On the fourth issue, all three experts unanimously agree that the information presented on the instructional board is easily comprehensible for users. All three experts unanimously agreed that the teaching board designed serves as a beneficial teaching aid for teachers in the teaching and learning process.

#### 4. Discussion

The researcher utilised the ADDIE development model to design an aircraft air conditioning basic cycle system teaching board, focusing on analysis, design, development, implementation, and evaluation. This methodical instructional design methodology guarantees efficient product development (Pessôa & Becker, 2020). Teaching aids like the aircraft air conditioning teaching board improve the learning process by using several senses, boosting student attention, and promoting improved comprehension (Blau, Shamir-Inbal & Avdiel, 2020). The researcher saw a need for a practical teaching tool by integrating components from module 11 Turbine Aeroplane Aerodynamics, Structure, and Systems, with a specific emphasis on Air Conditioning and Cabin Pressure. Opting for a table as the foundational structure gave the necessary stability and robustness required to maintain the components. The researcher duplicated components such as heat exchangers and air cycle machines to match genuine components in terms of operation and appearance, due to cost and availability limitations. Basic wiring made it easier to activate components, improving educational experience. An educational board was set up to demonstrate the fundamental cycle mechanism of aircraft air conditioning to help with understanding. Expert comments and design surveys were used to shape the development process, guaranteeing that the teaching board effectively conveys information and aids in learning.

Implementing a systematic design method during development helps in efficiently accomplishing research goals. The teaching board for aircraft air conditioning basic cycle system was created to mimic actual components, aiding instructors and students in understanding the system more efficiently than traditional 2D diagrams. The VAK learning strategy improves student focus and understanding by engaging several senses such as vision and hearing (Nopita, 2022). Arranging components in a coherent cyclical arrangement, guided by directional cues in the learning model, enhances comprehension (Chen, Salaomi & Nazri, 2022). The implementation phase involves a thorough inspection to identify and resolve any issues before using the teaching board. An expert assessment confirmed that the product successfully met its development objectives. Illustrating a system in a cyclical format can provide a clearer depiction of its functioning. The researcher has organised the components into a comprehensible cycle, supplemented by directional indicators for the process. This allows for a clearer and more comprehensible view of the aircraft's air conditioning system compared to the actual complex system.

The functionality of the aircraft air conditioning basic cycle system teaching board was assessed as a post-evaluation. The effectiveness of the aircraft air conditioning basic cycle system teaching board as an educational aid can be evaluated after the assessment process is finished. Assessing the effectiveness of instructional aids depends on their usability and the expertise of stakeholders who will use the material (Pan & Pee, 2020). The VAK learning paradigm enhances comprehension by optimising the learning process through engaging in many senses. The design of a teaching aid is essential for understanding concepts in the teaching and learning process (Filgona et al., 2020). This teaching board utilises the VAK learning paradigm, highlighting multiple learning modalities simultaneously. Users can scan a QR code on the instructional board to access a concise explanation of the basic aviation air cooling cycle, replete with interactive visuals. Users can observe motor motions shown on the instructional board in the kinesthetics portion, illustrating the fundamental cycle process. The level of interaction provided by a teaching aid is crucial for comprehending concepts in the teaching and learning process (Munna & Kalam, 2021).

The researcher has highlighted the importance of content suitability in creating the aircraft air conditioning basic cycle system teaching board to ensure it effectively meets its educational objectives. The content rating and relevance of a teaching aid are crucial factors in comprehending concepts during the teaching and learning process (Santos & Castro, 2021). Using the teaching board to present the lesson helps enhance students' comprehension and engages their interest in learning about the fundamental cycle system of aviation air conditioning. Teaching aids serve as tools that assist teachers during instruction and also stimulate excitement to enhance engagement in the learning process (Safaruddin et al., 2020). After analysing the findings from expert validation, it was determined that three out of three experts agreed that this instructional board successfully meets its development objectives.

## 5. Conclusion

The development of the aircraft air conditioning basic cycle system teaching board as an educational tool encountered initial problems, which were successfully resolved by the researcher through the discovery of alternate solutions. The researcher focused on crucial issues when choosing the design for a model to be used as a teaching aid. The emphasized factors include usability, user-friendliness, and students' comprehension of this instructional board. Teaching aids are tangible objects that engage the senses and have unique shapes to assist students in accurately grasping the principles they need to learn. The design process prioritized usability and student comprehension. The teaching board was created through meticulous planning, material selection, and effective manufacturing. The primary goal has been accomplished, and it is anticipated to aid teaching personnel in aircraft air conditioning instruction. Hoping for further enhancements and extensive adoption in pertinent institutions throughout Malaysia.

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## Conflict of Interest

Authors declare that there is no conflict of interest regarding the publication of the paper.

## Author Contribution

The authors confirm contribution to the paper as follows: **Suhaizal Hashim**: Literature review, methodology, data collection and project administration. **Ahmad Aizzat Arif Mohd Zamzuri**: Drafted the manuscript and provided substantial revisions formal analysis, and validation. **Khairul Anuar Abdul Rahman**: Contributed to writing the results and discussion sections, conceptualization, methodology and resources. **Nurul Nadwa Zulkifli**: Conceptualization, methodology and resources.

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