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## The Effectiveness of SPPB-PKK and SKEB in Security Control Management and Key Management in Pasir Salak Community College

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### Abstract

Pasir Salak Community College (KKPS) is an educational institution that requires security management as its large area involves many room doors and building blocks. Negligence and inattention in security management have led to the theft of light arrestors from 2013 to 2018. Two security control management and key management systems to overcome this problem have been developed, namely the Sistem Penilaian Prestasi Bulanan Perkhidmatan Kawalan Keselamatan (Security Control Service Monthly Performance Assessment System) or known as SPPB-PKK and Smart Key Box System or known as SKEB System. Hence, this study aims to evaluate the effectiveness of the implementation of SPPB-PKK and SKEB System through observation and online questionnaire surveys. The findings show that this system has advantages and can overcome problems such as zero theft cases as well as increased service performance evaluation. While the findings of the questionnaire show that the majority of KKPS staff strongly agree that this system is effective in managing security, it also shows that the respondents need more knowledge of effective security management. This study shows implications when no cases of theft are recorded as well as an increase in cost savings of payments to security companies, consequently benefiting KKPS. Further research can be carried out by creating comprehensive SPPB-PKK and SKEB System instruction manuals and wide spreading the use of these systems to other organizations beyond community colleges.

**Keywords:** Security Management, Key Management, Effectiveness, SPPB-PKK, SKEB System

### Introduction

Safety is an important aspect of an institution as it needs to be free from things that cause harm and injury and risk to others (Awang & Suyanto, 2017). The importance of effective security management of the Non-Firearms Security Control Service (PKK) and key management is in line with the 15-acre Pasir Salak Community College (KKPS) area that has 280 room door locks from 14 existing building blocks. Effective security management of the Security Control Service (PKK) and key management is a physical protection that should be

given serious and holistic attention in the aspect of surveillance, prevention, and action at all times in the event of any subversive matters, espionage, sabotage, attacks and human vulnerabilities that could jeopardize the security of assets, the public and government secrecy. Inattention in security management has led to the theft of lightning arrestors from 2013 to 2018 with a loss of RM 47,778.98 and in 2019 there was a theft case with a loss of RM 16,350,00. With the problem occurring, KKPS has set up an internal investigation team to make an analysis of the cause and recommendations to overcome cases of theft so that they will not reoccur. The results of the analysis have produced two systems, namely the Safety Control Service Monthly Achievement Assessment System (SPPB-PKK) and the Smart Key Box System (SKEB System) based on the Key Performance Indicator (KPI) 100% Perfect 0% Defect Target Plan. The implementation of these two systems has proven to be successful in overcoming theft cases from 2020 to date. A study of the effectiveness of the implementation of both systems to assess the level of awareness and understanding of KKPS staff to ensure that both systems remain continuously implemented on an ongoing basis.

**Problem Statement**

In the year 2013 to 2019, there were theft cases at Pasir Salak Community College with a loss amounting to RM 64,128.98 as shown in Table 1. The thefts have affected the image of KKPS, created disharmony in the organization, and demonstrated security management weaknesses that need to be taken seriously to overcome.

Table 1

*Theft Case Data at Pasir Salak Community College between 2013 and 2019*

<b>LIGHTNING ARRESTOR THEFT DATA</b>			
<b>No.</b>	<b>Report Date</b>	<b>Size (M)</b>	<b>Loss Value (RM)</b>
1.	19/11/2013	30	5,000.00
2.	07/01/2014	120	10,182.20
3.	24/02/2014	225	19,865.70
4.	01/12/2015	70	5,565.60
5.	07/04/2017	50	6,838.00
6.	15/10/2018	2.35	327.48
<b>Total</b>		<b>497.35</b>	<b>47,778.98</b>
<b>RAM THEFT CASES &amp; COMPUTER CPU DATA</b>			
<b>No.</b>	<b>Report Date</b>	<b>Unit</b>	<b>Loss Value (RM)</b>
1.	05/04/2019	30 RAM 1 CPU	16,350.00
<b>Total</b>			<b>16,350.00</b>
<b>Grand Total</b>			<b>64,128.98</b>

The investigation has found two main causes of theft cases such as in Figure 1, namely the weakness in contract monitoring management of the security control service without firearms and key management. The causes contributing to the theft cases have been stated in Table 2.

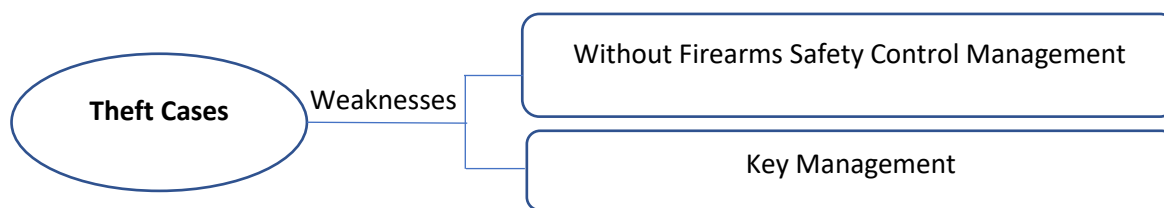


Diagram 1: Causes of Theft Cases at Pasir Salak Community College

Table 2

Causes contributed to the theft at Pasir Salak Community College

Weakness	Cause
Without Firearms Security Control Service	Hiring security guards with a criminal record of drug offenses and exiled to replace a security guard that resigned abruptly.
	Not briefing and training of security guards concerning the scope of duty at KKPS.
	Security guards show up late as opposed to the specified time of duty.
	Security guards did not attend Certified Security Guard (CSG) courses.
	Creating a duplicate <i>watchman clock key</i> for the purpose of cheating and does not patrol according to the specified time of duty.
	Unskilled in using fire suppression devices and emergency first aids.
Key Management	Key outgoings and returns are not tracked and recorded in the key book register.
	Staff make unauthorized key duplication to facilitate personal affairs.
	No secure storage space is provided for key storage for Common Use rooms.
	Staff accidentally take keys home which consequently affects PdP and other management affairs the following day
	Staff is unconcerned about the importance of key management safety procedures and instructions.

SPPB-PKK and SKEB System are created to achieve the target plan of zero theft cases, violation of contract regulations and enforcing Safety Directives, with 100% Perfect 0% Defect used as Key Performance Indicator (KPI). The implementation of these two systems has helped the management of KKPS to raise the level of security holistically towards realizing the Strategic Plan of Polytechnics and Community Colleges 2018-2025 in Strategic Thrust 2 which is to solidify responsive and sustainable governance, conducive work environment and IR4.0 Education.

However, studies related to the effectiveness of SPPB-PKK and SKEB System have not yet been conducted. These efficacy data are important so that system builders can identify room for improvement. Therefore, there is an urgent

### Objectives of the Study

- To evaluate the effectiveness of the implementation of the Security Control Service Monthly Performance Assessment System or known as SPPB-PKK and Smart Key Box System known as SKEB System.

**Literature Review**

**Importance to Institutions**

Assets are resources that need to be controlled by an institution where government assets are under government control. The Government Asset Management Policy (DPAK) was established to ensure that the implementation of asset management is implemented systematically and as per established procedures. This is to ensure that asset management in the institution is in good condition, safe, and can be used for a long period (Dasar Pengurusan Aset Kerajaan (Versi 2.0), 2021). The government has spent money on providing various facilities to improve the standard of living of the people. With well-planned asset management, the assets can be kept in perfect condition. In addition, there are School Security Control Companies that are terminated due to non-compliance with the specifications (Mstar, 2020). This indicates that poor monitoring of security contracts has threatened the security of an institution. KKPS offers a variety of courses and are equipped with complete and high-value equipment. Therefore, the college needs to implement efficient security management of the assets available in the college. Asset security management is safer if the key management and security management systems in an organization are implemented. This can help the government from losses due to cases such as loss or theft of assets.

KKPS has drafted a Key Performance Indicator (KPI) 100% Perfect 0% Zero Defect in Table 3 and it has been decided in a meeting to increase the level of security, and comply with the established safety instructions and strategic plans for the security services without firearms and key management.

Table 3  
*Key Performance Indicator (KPI) 100% Perfect 0% Defect*

<b>Key Performance Indicator (KPI) 100% Perfect 0% Defect</b>	
<b>100% Perfect</b>	Comply with all the specifications of the contract of safety control services without firearms and improve the quality of service.
	Comply with Safety Directives (Revised and Amendment 2017)
	Realizing the Polytechnic and Community College Strategic Plan 2018-2025 in Strategic Thrust 2 which is to strengthen responsive and sustainable governance, conducive working area environment, and IR4.0 Education.
<b>0% Defect</b>	No breach of the contract specifications of the security control service without firearms, no cases of theft, accidents (roads, attacks of venomous animals), invasion of the area by non-persons and animals, and any cases of fire and negligence.
	Eliminate manual management to overcome any negligence and irresponsibility among KKPS staff in key management (key not returned, not recording key movement, and not returning key after use).

**System Development**

This study was carried out through SQ Quality Tools, Plan Do Study Act (PDSA) (Taylor et al., 2013), which shows four (4) approaches i.e. *Plan* is planning the changes to be implemented, *Do* is the period of testing the changes that have been made, *Study* is

examining the effectiveness of the changes implemented, and *Act* is the level of acceptance of the changes implemented (Taylor et al., 2013). The *Plan-Do-Study-Act* (PDSA) method is also one of the methods to test for changes implemented. The four steps were set as the thought process to delegate the tasks into steps and then assess the results, correct them, and retest (Plan-Do-Study-Act (PDSA) Directions and Examples, 2020). Therefore, this method has established an analysis of the causes of weaknesses and suggestions for improvement as shown in Table 4.

Table 4

*Analysis of the causes of weakness and recommendations for improvement of security management*

Category		Weakness	Recommendation for Improvement
<b>KKPS Management</b>	The objectives of the implementation are not clear for safety contracts and key management	No target plan to be achieved causing violations of rules and specifications	Create a targeted plan with KPI 100% Perfect 0% Defect
		Poor monitoring and not according to specifications	Establish a Monitoring Committee and establish a Monthly Performance Assessment System
<b>Safety contracts without firearms</b>	Appointment of security guards	Have criminal records	Perform initial security screenings, guard personal records and health reports
		Exceeds the age limit of 60 years	
	Safety equipment	Do not comply with the specifics in the contract (number and brand)	Make periodic checks and take action according to contract specifications
		Defective equipment are not repaired	
	Task specifications and rules for security guards	Not patrolling/duplicate watchman clocking	Switch manual <i>watchman clocking</i> to <i>digital, watchman clocking thumbprint</i> and report in the security Whatsapp group application
		Late for duty	Deduction in service payment
Unskilled and not knowing the specifics of their job scope		Carry out competency tests before being appointed to duty to ensure that the security guard understands the scope of service and that the company's management has provided training and briefing before the guard goes on duty	



<b>Key Management</b>	Lockbox and storage	Unlocked lockboxes are easily claimed without supervision	Provide lockboxes and key storage room with a biometric system to detect users and install CCTV for surveillance purposes.
	Implementation	No records of key movement	Install digital thumbprints on lockbox and room doors to automatically record key tracking in the computer system.
		Difficulty to detect laboratory/room usage in case of theft	
		Keys are brought home after use and affect the smoothness of PdP	Installing a display indicator in the form of LED lights with numbers where green colour indicates that the key has been returned while red colour indicates it has not been returned.
			Appoint a support group staff and a security guard to ensure the keys are returned before the end of duty and inform the Security Officer
			Install key movement tracking tool and send it to the telegram of outgoing and return of keys.
Unauthorized key duplicate	Make periodic inspections of key movement records and on-site usage.		

### Security Control Service Monthly Performance Assessment System (SPPB-PKK)

SPPB-PKK was designed as a result of a descriptive observational study of contractual agreement documents through The Contract Document of The Agreement for Safety Control Without Firearms, 2018–2020. SPPB-PKK was developed using Microsoft Excel software which contains six (6) main sheets, namely Key Performance Indicator (KPI), Performance Graph, Current Assessment Month Performance Report, Service Specification Compliance Report, Payment Deduction Report, and Controller Biodata Record.

### Smart Key Box System (SKEB System)

Smart Key Box System (SKEB System) is a systematic and user-friendly key management system developed as an action plan for the improvement of the existing key management system in KKPS. The implementation of this system is aimed at improving safety, facilitating the compliance of key management safety directives, sustaining Lean Management, and producing a conducive work culture. SKEB System provides lockboxes that put Common Room keys which are accessible and has higher security controls. Each time the user wants to retrieve the Common Room key it will be recorded in the server system. In addition, CCTV also records every user's in and out movements. Therefore, it is the user's responsibility to ensure that the key is returned to the SKEB System lockbox.

**Methodology**

This study used an embedded mixed method approach which is a combination of qualitative (observation technique) and quantitative (questionnaire). The observation technique involves the review of payment-related documents, the reporting of theft records, and all forms of monitoring reports. The questionnaire consists of two parts, namely parts A and B. Part A contains the respondent information and part B contains questions related to the effectiveness of the management of SPPB-PKK and SKEB System in security control management and key management. A total of 40 respondents were selected using a simple sampling technique (convenience sampling) of 13 males and 27 females. All respondents are KKPS staff. The seven items in the questionnaire have been adapted from (Miskan et.al., 2018). The questionnaire was conducted online through the Google Form platform to KKPS staff to determine the effectiveness of the implementation of SPPB-PKK and SKEB System in Security Control Management and Key Management at Pasir Salak Community College. The items were measured using a 5-point Likert scale i.e. Strongly disagree (1), Disagree (2), Moderately Disagree (3), Agree (4), and Strongly Agree (5). The data is analyzed using Microsoft Excel version 2016 software to determine the overall min value, frequency, and description of each item. The mean interpretation is represented by the range of 1.00 to 2.33 (low), 2.34 – 3.68 (moderate), and 3.69 to 5.00 (high).

**Analysis and Discussion**

**Comparison Before and After the Implementation of SPPB-PKK and SKEB System**

A comparison of these systems is shown in Table 5 to see how effective this system is before and after implementation.

Table 5  
*Comparison before and after implementation*

Category	Comparison Before and After Implementation (SPPB-PKK)	
	Before	After
Theft	<ul style="list-style-type: none"> <li>7 theft cases per year from 2013 to 2019.</li> </ul>	<ul style="list-style-type: none"> <li>No theft cases from 2020 to date.</li> </ul>
Pay cuts	<ul style="list-style-type: none"> <li>Payment deduction not imposed on the company for not complying with the contract specifications. Company puts profit over quality of service.</li> </ul>	<ul style="list-style-type: none"> <li>Detected 7 late for work cases, 2 no patrol cases, malfunctioning CCTV and not patrolling according to the specified time. Deduction of service payment valued at RM 1,826.93 over a period of 2 years 8 months since implementation.</li> </ul>
Service performance	<ul style="list-style-type: none"> <li>Monitoring not carried out according to the specifics of the service contract and there are no targets to be achieved by either side.</li> </ul>	<ul style="list-style-type: none"> <li>Service performance is assessed on a monthly basis and the quality of service will be constantly improved towards the set KPI.</li> </ul>



Category	Comparison Before and After Implementation (SKEB SYSTEM)	
	Before	After
Key storage	<ul style="list-style-type: none"> <li>Keys are stored in lock boxes that do not have a surveillance system and are prone to irresponsible deeds.</li> </ul>	<ul style="list-style-type: none"> <li>Main door key is stored in a lock box and in a room that has a biometric surveillance system and CCTV.</li> </ul>
Key movement	<ul style="list-style-type: none"> <li>Outgoing and return key movements are not recorded/recorded manually.</li> </ul>	<ul style="list-style-type: none"> <li>Automatically record outgoing and returned keys are automatically recorded through the usage biometric detection system (username, pick-up date and time, and return date and time).</li> </ul>
Key detection	<ul style="list-style-type: none"> <li>The last user will take home the key and hand it over to the earliest user the next day resulting in the smoothness of PdP being affected.</li> </ul>	<ul style="list-style-type: none"> <li>The system will detect if a key is not returned and the user will be notified.</li> </ul>
Awareness	Staff lack awareness and understanding of the importance of key management governance and compliance with safety regulations. Creating disharmony in the organization.	<ul style="list-style-type: none"> <li>Increased awareness and joint accountability of the importance of safety towards a conducive working area environment.</li> </ul>

### Analysis of Questionnaire

The second finding through the questionnaire is as per Table 6. Overall, the items recorded a mean cumulative of 4.77. This shows that the effectiveness of the implementation of the use of SPPB-PKK and SKEB System is at a high level. One of the interesting findings was that for item 1, only 27.5 percent of the respondents strongly agreed that they had knowledge of effective security management. This means that there is still a lot of KKPS staff lacking knowledge in effective security management. In addition, item 3 recorded 75 percent of respondents choosing a scale of strongly agreeing which means that there is still a handful of KKPS staff who do not fully understand the role and responsibilities of security management according to the management of SPPB-PKK and SKEB System.

Table 6

*Data for Questionnaires*

Skala	SD	D	MD	A	SA
Pernyataan Item	F %	F %	F %	F %	F %
1. Knowledgeable about effective security management	0	0	2 (5.00)	27 (67.50)	11 (27.50)
2. Aware of the existence of SPPB-PKK and SKEB System	0	0	0	7 (17.50)	33 (82.50)
3. Fully understand the roles and responsibilities of security management according to the management of SPPB-PKK and SKEB System	0	0	0	10 (25.00)	30 (75.00)
4. Accountability in security management can improve the effectiveness of SPPB-PKK and SKEB System management	0	0	0	2 (5.00)	38 (95.00)
5. Organizing programs about security control management and key management can increase awareness among the organization's staff about security management issues and practices.	0	0	0	6 (15.00)	34 (85.00)
6. Organization's staff must comply with the SPPB-PKK and the SKEB System	0	0	0	3 (7.50)	37 (92.50)
7. The effectiveness of security management depends on SPPB-PKK and SKEB System	0	0	0	5 (12.50)	35 (87.5)

The findings for item 2 i.e., awareness of the existence of the use of SPPB-PKK and SKEB System recorded 82.5 percent of respondents at the very agreeable level. This shows that the KKPS staff are aware of the implementation of these systems and are fully informed about them. This consequently contributes to the cooperation between the management of the college and the PSKK staff. Item 5 i.e., organizing programs about security control management and key management can increase awareness among the organization's staff about security management issues and practices recorded 85 percent on the scale of very agreeable. This shows that a widespread effort related to the use of these systems has been informed and implemented to KKPS staff through meetings, monthly gatherings, and innovation competitions organized by the Department of Polytechnic Education and Community Colleges (JPPKK). While in item 6, Organization's staff must comply with the SPPB-PKK and the SKEB System recorded a percentage on a very agreeable scale of 92.5. This suggests that the respondents are very compliant with the implementation of this system. For item 7, The effectiveness of security management depends on SPPB-PKK and SKEB System, the findings

reported 87.5 percent on the scale strongly agreeing. This shows that the system is effective to be used in security contract monitoring and key management in KKPS.

### Summary and Suggestions

The findings of this study show that the implementation of the Security Control Service Monthly Performance Assessment System or SPPB-PKK and Smart Key Box System or known as SKEB System is at a good level. This study has several positive implications such as time-saving in key management, efficient monitoring of scoring assessments, and encouraging IR4.0-based KPIs. This indirectly gives a good reputation to KKPS, in line with zero cases of theft. In addition, these systems contribute to a conducive work environment and parallel with PSKK Lean Management activities. The limitation of this study exists in the SPPB-PKK and SKEB System which is related to the increasing confidentiality and security aspects. Further research can be carried out by creating comprehensive SPPB-PKK and SKEB System instruction manuals and wide spreading the use of these systems to other potential organizations beyond community colleges. Meanwhile, it is proposed that SPPB-PKK be developed through a special portal for service performance evaluation.

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