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Analysis of Basic Readiness in Ground Operations and Service as Preparation for an Internship at an Airport Cargo Terminal (Case Study: Yogyakarta STTKD Cadets)

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Abstract

Since the Ministry of Education and Culture launched the Independent Campus (MBKM) program, all universities in Indonesia have been encouraged to adapt their curricula to meet the needs of strategic government industries. One such program is the Independent Internship program, which requires a more extended period (4-6 months) than the 1-2 months of internships (PKL). During the implementation of PKL at the STTKD (Education and Training College), several findings emerged regarding dissatisfaction among users (the placement companies for PKL cadets) with the basic knowledge possessed by management program cadets. Therefore, an analysis of the basic knowledge readiness of management program cadets in ground operations and service is necessary to determine whether they align with the National Competency Standards (SKKNI) for the Transportation and Warehousing Category, specifically the Warehousing and Airport Activities, Ground Operations and Service Sub-Division.

The research employed a quantitative approach with descriptive analysis techniques and simple linear regression to examine the 2018 management program curriculum achievements about SKKNI 226/2020. The research results showed that 23 Competency Indicators were needed for PKL Ground Operation and Service Air Logistic participants at the Airport Cargo Terminal before entering the field. Following the implementation of the 2018 curriculum, the CPMK Curriculum of the D4 MTU (Air Transport Management) and D3 MT (Transport Management) Study Programs had a 59.4% influence on the Competency Knowledge of SKKNI 226/2020 Ground Operation and Service Air Logistics. The remaining 40.6% of knowledge topics from the CPMK Curriculum needed adjustments to 10 D4 MTU and D3 MT Study Program courses to achieve the SKKNI 226/2020 competency.

Keywords: *Ground Operation, Internship, PKL, Service Air Logistic, SKKNI*

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INTRODUCTION

In connection with the establishment of the National Logistics System (Sislogas) as outlined in Presidential Decree No. 26 of 2012, which concerns the Blueprint for the Development of the National Logistics System, the government has been gradually building various infrastructure solely to support the implementation of Sislogas. Sislognas is prepared to face the surge in logistics competition, starting with the ASEAN Economic Community (AEC) and Industry 4.0, as well as unexpected events such as clothing and food security during the COVID-19 pandemic.

This encourages the development of competent and professional human resources (HR) in the logistics sector, as per Ministerial Decree No. 94 of 2019, which concerns the Establishment of Work Competency Standards for the Transportation and Warehousing Category, as well as the Main Groups of Warehousing and Supporting Activities in the Logistics Sector. This Ministerial Decree was issued and ratified to support improvements in supply chain mechanisms for necessities and export-oriented goods.

These sigficant improvements have had a substantial impact on the logistics business system and procedures, making them more effective and efficient. Several logistics business activities, such as warehousing, shipping, security, and taxation, are expected to synergise effectively and efficiently using information technology. This forces logistics players to improve their competencies in information technology and other professional fields.

The presence of new international-standard airports as air transportation hubs throughout the country certainly requires a comparable level of service, both in terms of facilities and infrastructure, as well as adequate human resources. This is particularly true in the air cargo sector, such as YIA, whose cargo terminal is built using the Cargo Village concept, I Gusti Ngurah Rai International Airport in Denpasar with its Air Cargo Transhipment development, and other airport development programs implemented by AP1 and AP2, such as the establishment of APLog and APKargo, to improve air cargo services.

STTKD Yogyakarta has generally captured this opportunity in improving the Hard Skills of Cadets, with the development of a logistics curriculum for the D3 Transportation Management and D4 Air Transportation Management study programs in 2020. However, in previous relevant research related to the potential for field studies to improve the Soft Skills of Cadets who have an interest in the field of air logistics, STTKD was considered to still be lagging in the development of air logistics which has been required to follow ICAO and FIATA standards, to compete in domestic and international business with other modes of transportation.

Therefore, in response to the demands for aerospace personnel, STTKD, through the Air Logistic Management Research Group Roadmap, is expected to facilitate a learning model oriented towards the development of air logistics soft skills in each practical course within the Logistics concentration. This development can be directed based on KM Ketenagakerjaan No. 226 of 2020 concerning the Determination of Indonesian National Work Competency Standards for the Transportation and Warehousing Category, Main Group of Warehousing and Transportation Support Activities in the Field of Airport Activities, Sub-Field of Ground Operation and Service at the Airport (Ground Operation and Service), especially for the development of the CPMK Curriculum in the field of air logistics in 2020, as provisions for Cadets in carrying out field studies in strategic units of companies/managers of air logistics activities.

Table 1. Potential Placement of STTKD Cadets by the Air Logistics Occupation Mapping at Yogyakarta International Airport

Major	Job Position	Job Sub-Field	Company	Unit/ Divition
D4 MTU	*Manager*	*Freight Manager*	APLOG/ EMPU	*Logistic & Supply Chain*
	Assistant Manager	*Export-Import Expert*		*Cargo Business (International)*
		Freight Expert/ Freight Forwarder		*Cargo Business (Domestic)*
D3 MT	*Supervisor*	*Custom Expert*	Dirjen Bea Cukai/ APLOG	*Logistic system*
		Freight Handler/ Transport Management/ Shipment Planner	Gapura Angkasa/ JAS	*Operation Services - Baggage & Cargo Services*
D1 GH	*Coordinator*	*Warehouse Operation officer*	APLOG/ EMPU	*Logistic infrastructure*
		Warehouse Administrative Officer		

Source: Fauziah S, 2021

To achieve this, efforts from various parties within the STTKD are needed to minimise the possibility of rejection or diversion of targets during field studies. One way to accomplish this is by analysing the readiness of basic ground operations and service knowledge as a prerequisite for STTKD cadet internships at airport cargo terminals. This research is needed to determine "how much basic understanding of ground operation and service knowledge has been obtained by cadets in preparation for internship acceptance according to the National Competency Standards (SKKNI). Generally, this is based on SKKNI No. 94 of 2019 and No. 170 of 2020, concerning the Establishment of Indonesian National Work Standards for the Transportation and Warehousing Category, which is the Main Classification of Warehousing and Transportation Support Activities in the logistics sector. Specifically, it is by SKKNI No. 226 of 2020, concerning the Establishment of Indonesian National Work Competency Standards for the Transportation and Warehousing Category, the Main Classification of Warehousing and Airport Activities, and the Subdivision of Ground Operations and Services at Airports (Ground Operations and Services). However, based on the development of cadet interest and the current internship placements, neither the internship units nor the cadets have yet achieved their target placements according to the Air Logistics Occupational Map. Currently, cadet placements in all study programs still rely heavily on front-end operations, such as check-in counters, boarding gates, Avsec, Lost and Found, AMC, and the Warehouse, among others. The activities carried out are also the same each year, limited to following directions without being given work responsibilities similar to those of an internship.

Furthermore, these internship placements sometimes differ from the cadets' chosen areas of concentration. The ground handling concentration, part of air logistics, has received no interest, and classes have never been offered for either the D3 MT or D4 MTU programs in the 2018 Curriculum intake. However, cadets in the Aviation Company Management (MPP) and Flight Attendant (FA) concentrations, which are ideally placed in airline companies and Airport Operations (AO) in airport management companies, are not in line. Even ground handling companies like Gapura are offering internship placements, ideally for cadets concentrating on ground handling, who have a linear curriculum. The following are the courses for the fifth semester of the Ground Handling concentration in the Diploma 3 MT study program and the seventh semester of the Ground Service concentration in the Diploma 4 MTU study program.

Table 2. Ground Service Concentration Course, D4 MTU Study Program

No.	**Course Name**	**Number of Credits**	
		Theory	**Practice**
1	Research methods	1	1
2	*Ground Handling*	2	1
3	*Weight and Balance*	1	1
4	*Cargo and Warehousing*	2	1
5	*Marshalling and Pushback Aircraft*	1	1
6	*Ground Support Equipment*	1	1
7	*Catering Service*	1	1
8	*Total Quality Management*	2	
Total		11	7

Source: 2018 Air Transportation Management Diploma IV Curriculum

Tabel 3. Ground Handling Concentration Course, D3 MT Study Program

No.	**Course Name**	**Number of Credits**	
		Theory	**Practice**
1	Research methods	1	1
2	English V		2
3	Airline marketing	2	
4	Flight plan	1	1
5	Airfare management	1	1
6	Flight operation management	2	
7	Air Cargo	2	
8	*Documentation in flight*	2	
9	*Ramp handling & ground support equipment*		2
Total		11	7

Source: 2018 Transportation Management Diploma III Curriculum

Therefore, to support the development of the 2020 air logistics concentration curriculum, it is necessary to transform PKL into an internship.

According to Sumardiono (2014: 116), an internship is a process of learning from an expert through real-world activities. Furthermore, an internship is a process of applying knowledge and skills to solve real-world problems. This transformation cannot be achieved simply by changing the curriculum by adding related concentrations/courses; study programs and universities are also expected to actively change habits and behaviours from upstream to downstream. The upstream changes referred to are the material/CPMK taught by lecturers to cadets. Based on the CPMK Curriculum for the 2020 D4 MTU and D3 MT study programs, the formulation is deemed to lack synergy between courses in realising CPL in the air logistics field, by the Occupational Map and SKKNI (National Standards for National Skills). Therefore, proof is needed that the CPMK, Curriculum, and PKL scheme for 2018 must be immediately transformed to ensure the success of the logistics curriculum for the next five years.

The purpose of this study is to determine what competency indicators influence the understanding of cadets on the practice of Ground Operation and Service air Logistics at the Airport Cargo Terminal, and to determine how much influence the competency indicators obtained by cadets during the lecture period have on the understanding of the practice of Ground Operation and Service air Logistics. The benefits of this study are that it can clarify the direction of preparation and recommendations for competency indicators/materials that need to be addressed or improved in the following CPMK Curriculum, as per SKKNI, in preparation for the placement of STTKD cadets' PKL in strategic units of the airport cargo terminal. This research method can also be modified according to case studies of other campuses and study programs that aim to align their curricula related to air logistics, allowing them to directly collaborate with the National Professional Certification Agency (BNSP) to organise certification exams without incurring additional training costs.

RESEARCH METHOD

The research object is limited to the scope of the Air Cargo Terminal Freight Handler/Transport Management/Shipment Planner occupation for research subjects from the 2017-2019 intake of D3 MT and D4 MTU cadets. The research instrument design is also limited by the 2018 D3 MT and D4 MTU Curriculum, SKKNI No. 226 of 2020, SKKNI No. 94 of 2019, and SKKNI No. 170 of 2020.

This research employs a quantitative approach to investigate the behavioural characteristics of the research subjects, the relationship between variables, and to test hypotheses about theoretical variables and skills using samples drawn from a specific population. The type of quantitative research used is the experimental method, which is a method used to determine the effect of independent variables (treatment) on dependent variables under controlled conditions. To obtain representative analysis results, the research population selected was D4 MTU cadets from the 2017-2019 intake and D3 MT from the 2018-2020 intake. These cadets were chosen because they had completed internships in various companies targeted by the STTKD internship unit, as shown in Table 4 below.

Table 4. Recapitulation of predicted placement of PKL cadets for D4 MTU and D3 MT study programs at the Airport Cargo Terminal

Study Program/Intake	Year of Internship	Number of Internship Placements at the Airport Cargo Terminal
D4 MTU 2017	2020	0
D4 MTU 2018	2021	7
D4 MTU 2019	2022	24
D3 MT 2018	2020	36
D3 MT 2019	2021	13
D3 MT 2020	2022	13
Total		**93 Cadets**

Source: STTKD PKL Unit, 2022.

According to Roscoe (Sugiyono, 2015: 131), an appropriate sample size for research is between 30 and 500 participants. Therefore, the minimum number of respondents is 30 from the total number of cadets placed in internships at the Air Cargo Terminal, or those meeting the following respondent criteria:

a. Cadets from the Diploma 4 MTU Program, Class of 2017-2019

b. Cadets from the Diploma 3 MT Program, Class of 2018-2020

c. Previously placed in internships at companies or ground operations and service units at airport cargo terminals

According to the data above on cadet placements at AP Logistics/Cargo Companies and Ground Handling Companies affiliated with the internship units, not all of them had the opportunity to perform ground services at the air cargo terminal. Therefore, a probability random sampling technique was used to obtain field supervisor respondents.

The data collection technique employed was a survey using a questionnaire with a Likert-type positive-point statement to ensure the ease and accuracy of respondents' responses.

The research instrument used was a series of structured and directed questions, as outlined in SKKNI No. 226 of 2020, concerning the Establishment of Indonesian National Work Competency Standards for the Transportation and Warehousing Category, specifically the Warehousing and Transportation Support Activities Main Group, Airport Activities Sector, Ground Operations and Services Sub-Sector.

The research instrument design focused on Supervisor positions and freight handler, transport management, and shipment planner sub-sectors in ground handling companies, up to EMPU (Equivalent to EMPU), such as Gapura Company, AP Logistik, and similar companies. Each competency unit in Table 3.4 will serve as a variable and indicator in the questionnaire, the format of which is attached in the appendix.

Meanwhile, courses related to air logistics in the 2018 curriculum for each study program were used as independent variables. The related courses are all groups of courses taken by D4 MTU cadets from the 2017-2018 intake and D3 MTU cadets from the 2018-2019 intake. They are assessed as providing learning material on logistics, Ground Operation, and Service.

Table 5. Courses related to Logistics/ Ground Operation and Service, D4 MTU Study Program

No.	Course Name (MK)	Semester	Group of MK	Number of Credit	
				Theory	Practice
1	Custom	3	Required	1	1
2	Logistic Management	3	Required	1	1
3	Aviation security and dangerous goods	3	Required	2	
4	Passenger and baggage handling	4	Required	1	1
5	*Civil Aviation Safety Regulation* (CASR)	3	Required	2	
6	Immigration and Quarantine	4	Required	1	1
7	Flight document	5	Required	1	1
8	Safety management system	6	Required	2	
9	Air Law and Regulation	6	Required	2	
10	*Airport Management*	7	Kons. AO		2
11	*Weight and Balance*	7	Kons. AO	1	1
12	*Flight operation management*	7	Kons. AO	2	1
Total				16	9

Source: D-IV Air Transportation Management Curriculum 2018-2020

Table 6. Courses related to Logistics/ Ground Operation and Service D3 MT Study Program

No.	Course Name (MK)	Semester	Group of MK	Number of Credit	
				Theory	Practice
1	Logistic Management	3	Required	2	
2	Custom	3	Required	2	
3	Aviation security	3	Required	1	1
4	Ground handling	3	Required	1	1
5	*Civil Aviation Safety Regulation* (CASR)	3	Required	2	
6	Passenger and baggage handling	4	Required	1	1
7	Weight and ballance	4	Required	1	1
8	Air transportation operating system	4	Required	2	
9	Air Cargo	5	Kons. MPP	2	
10	Document in flight	5	Kons. MPP	2	
Total				16	4

Source: 2018-2020 Transportation Management Diploma III Curriculum

However, when developing a research questionnaire, several reference sources must be reviewed before creating a sound research instrument. This

includes reviewing the content, accuracy, and considerations of respondents when completing the questionnaire. Reference sources for developing indicators for each variable must also be ensured to be interconnected. To ensure this, researchers created Table 3.5, which compares the basic knowledge from the D4 MTU/D3 MT Curriculum with the SKKNI 226/2020 Competency Units. The process of comparing each knowledge topic (over 100 pages) was carried out manually and with great care. It turned out that there were three courses whose CPMK (Competency Standards) did not directly relate to the knowledge of each competency in SKKNI 226/2020: Multimodal and Freight Forwarding (D4 MTU & D3 MT), Database Management Systems (D4 MTU), and Operations and Production Management (D4 MTU). Therefore, these three courses were eliminated, and the remaining courses were used as indicators for each variable in the research instrument.

The data analysis technique used SPSS with instrument testing (validity, reliability, normality, and linearity), descriptive analysis to determine trends in knowledge topic needs according to the National Competency Standards (SKKNI), and simple linear regression analysis to determine the extent of influence between variables through partial tests and coefficients of determination.

In the descriptive analysis, the data trends for each research variable were categorized using the average ideal score and ideal standard deviation. According to Sudjono (2008) in Suryatman (2019), the variable trend test utilizes the Norm Reference Assessment (NRA), which is categorized into four levels: Highly Needed, Needed, Less Needed, and Not Needed. The following table categorizes the four norm reference limits.

Table 7. Value Categorization Limit Norms

No.	Interval	Klasifikasi
1.	$X > Mi + 1{,}5\ SDi$	Sangat Dibutuhkan
2.	$Mi \leq X \leq Mi + 1{,}5\ SDi$	Dibutuhkan
3.	$Mi - 1{,}5\ SDi < X \leq Mi$	Kurang Dibutuhkan
4.	$X \leq Mi - 1{,}5\ SDi$	Tidak Dibutuhkan

Source: Sudijono, 2014

Description:

X = Total respondent responses

Mi = Ideal Mean = 1/2 x (Ideal highest score + Ideal lowest score)

SDi = Ideal Standard Deviation = 1/6 x (Ideal highest score - Ideal lowest score)

Percentage values are calculated from the collected data. The formula used to convert the ideal score to a scale score of 100 is as follows:

$P = F/N \times 100$

Description:

P = percentage of suitability/need level

F = frequency of occurrence (number of respondents' responses)

N = total frequency (number of respondents)

RESEARCH RESULTS AND DISCUSSION

Respondent Profile

During data collection, a total of 55 respondents were obtained during the 2020-2022 period of the D4 MTU and D3 MT study program internships. However, after reconfirmation, 23 respondents had never handled or seen air cargo activities during their internship placements. Therefore, there were 32 respondents from cadets who met the research respondent criteria. The largest number of internship participants were from the 2019 D3 MT class, with 41% participating in the 2021 internship program.

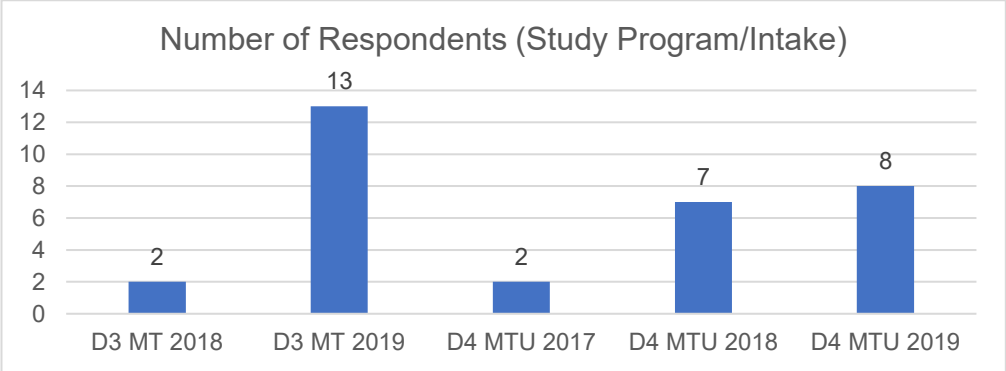

Figure 1. Number of respondents for PKL Ground Operation and Service Air Logistic placement in 2020 - 2022
(Source: Data processing results)

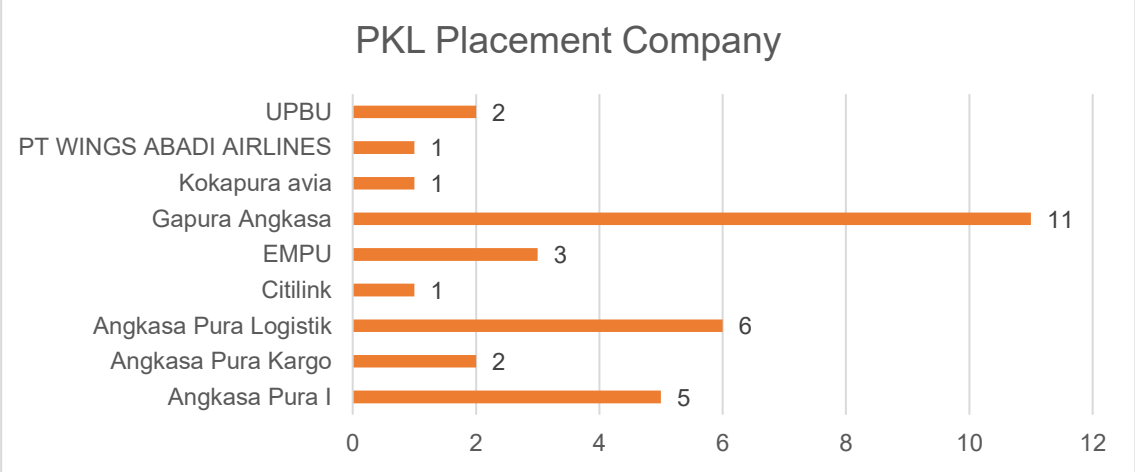

Figure 2. Name of the company placing PKL Ground Operation and Service Air Logistics 2020 - 2022
(Source: Data processing results)

From the placement of PKL in Ground Operation and Service Air Logistic companies in Figure 4.2, it can be seen that the primary target respondents are from Ground Handling companies such as Gapura Angkasa and Kokapura at 37%, followed by Cargo service companies such as Angkasa Pura Logistik, Angkasa Pura Kargo, and EMPU at 34%. The rest are Angkasa Pura I/UPBU as managers of air cargo terminal infrastructure, and Airlines as checkers and handlers at the beginning when receiving goods or at the end when handing over goods.

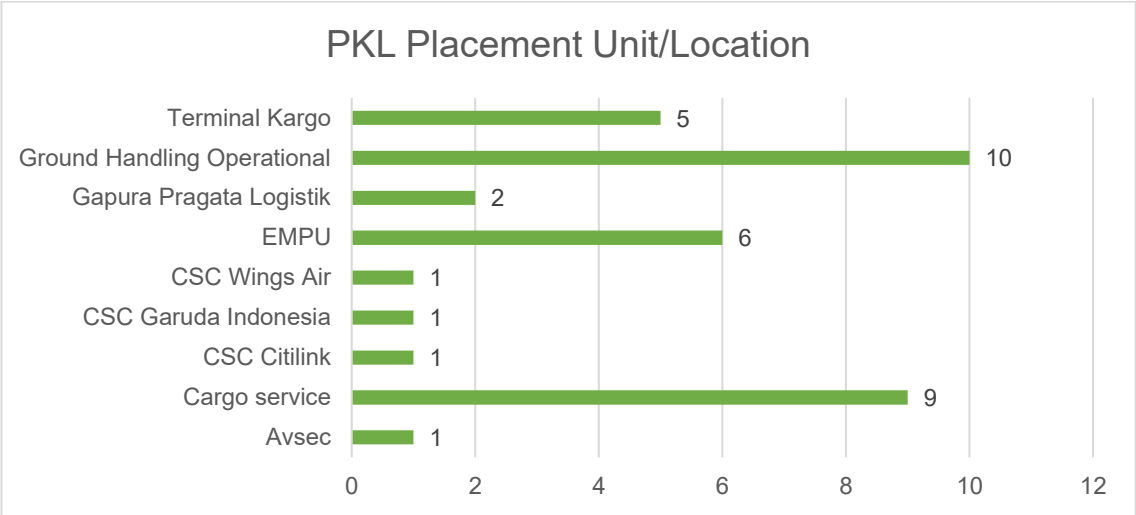

Figure 3. Name of unit/location of PKL Ground Operation and Service Air Logistic placement for 2020 - 2022

(Source: Data processing results)

Regarding the placement of street vendor units/locations in Figure 4.3, Ground Handling Operations Units account for 28%, Cargo Service for 25%, EMPU for 16%, and Cargo Terminal for 14%. The remainder is accounted for by Airlines' Cargo Service Centers (CSCs) at 9%, and the Avsec Unit, which plays a role in securing cargo handling activities, accounts for the least (3%).

However, it's important to note that the classification of unit/location names in Figure 4.3 was made as general as possible. In reality, within a company's organizational structure, each unit with the same name may not have the same job description across companies of the same type.

Data Analysis Results

Based on the descriptive analysis of the X variable indicator, the Custom course was interpreted as highly studied. This means the course has a CPMK topic that significantly influences the fulfillment of the Ground Operation and Service Competency Knowledge (SKKNI 226/2020). However, two classes were perceived as less studied by respondents. This could be because the Air Cargo course has a CPMK that focuses more on theory for the MPP (Airline Company Management) concentration, which is only available in the D3 MT study program. Conversely, the FOM (Flight Operation Management) course is only available in the D4 MTU study program, which focuses on two credits of theory and one credit of practice for the AO (Airport Operation) concentration.

Furthermore, other courses are still generally considered necessary to fulfill the Ground Operation and Service Competency Knowledge (SKKNI 226/2020). Therefore, the background of each of these courses may explain why STTKD cadets are not widely recruited for internships or work experience at airport cargo terminals.

Unlike the X variable indicator, the Y variable averages all Ground Operation and Service Competency Unit Knowledge from SKKNI 226/2020, which is recognized as necessary during the internship/PKL process for cadets. Therefore, this knowledge indicator can serve as a basis for formulating or revising the CPMK

for the Air Logistics Management/Logistics Operations Concentration course in the latest D4 MTU and D3 MT curricula.

Meanwhile, the results of validity, reliability, normality, and linearity tests were all valid, reliable, regular, and linear.

Table 8. The results of the validity test of Variable X of the 2018 Curriculum for the D4 MTU and D3 MT Study Programs

X Variable Indicator (Related course)	Corrected Item-Total Correlation	R tabel (5%)	Validation
Custom	,383	0,3494	Valid
Logistic Management	,583	0,3494	Valid
Aviation Security & Dangerous Goods	,715	0,3494	Valid
Passanger & Baggage Handling	,752	0,3494	Valid
Immigration and Quarantine	,765	0,3494	Valid
Flight Document	,659	0,3494	Valid
Sistem Manajemen Keselamatan	,575	0,3494	Valid
Air Law and Regulation	,616	0,3494	Valid
Airport Operation Management	,604	0,3494	Valid
Weight and Balance	,817	0,3494	Valid
Ground Handling	,746	0,3494	Valid
Flight operation management	,735	0,3494	Valid
Air Cargo	,529	0,3494	Valid
Civil Aviation Safety Regulation	,663	0,3494	Valid

(Source: SPSS data processing results)

Table 9. Validity test results of Variable Y Competency Knowledge SKKNI 226/2020

Y Variable Indicator (Related course)	Corrected Item-Total Correlation	R tabel (5%)	Validati
Moving cargo	,697	0,3494	Valid
Implementing aircraft safety procedures	,565	0,3494	Valid
Implementing Occupational Health and Safety (K3) procedures at airports	,524	0,3494	Valid
Implementing regulations and policies during flight service and safety operations	,685	0,3494	Valid
Managing human factors and situational awareness in the aviation operational environment	,663	0,3494	Valid
Implementing work effectiveness in the aviation industry	,723	0,3494	Valid
Contributing to the timely achievement of work standards	,724	0,3494	Valid

Y Variable Indicator (Related course)	Corrected Item-Total Correlation	R tabel (5%)	Validati
Maintaining safety awareness and vigilance in the aviation workplace	,819	0,3494	Valid
Processing Documents in the Workplace	,864	0,3494	Valid
Implementing Dangerous Goods Awareness and Hazardous Materials Requirements	,400	0,3494	Valid
Implementing a Quality System	,775	0,3494	Valid
Conducting Emergency Response Measures to Security Threats	,816	0,3494	Valid
Providing First Aid in Accidents	,754	0,3494	Valid
Securing cargo	,787	0,3494	Valid
Implementing Aviation Security Procedures	,620	0,3494	Valid
Receiving dangerous goods for air transportation	,593	0,3494	Valid
Labeling Explosives and Dangerous Goods	,749	0,3494	Valid
Completing Receipt/Shipping Documentation	,850	0,3494	Valid
Maintaining Domestic Cargo Records and International	,748	0,3494	Valid
Documenting Manifests (Flight Cargo)	,841	0,3494	Valid
Calculating the Mass, Area, and Dimensions of Cargo	,761	0,3494	Valid
Managing Aircraft Performance and Load	,754	0,3494	Valid
Packaging Dangerous Goods for Air Transport	,441	0,3494	Valid

(Source: SPSS data processing results)

Table 10. Reliability test results of Variable X of the 2018 Curriculum for the D4 MTU and D3 MT Study Programs

X Variable Indicator (Related course)	Cronbach's Alpha if Item Deleted	Reliability
Custom	,759	Reliable
Logistic Management	,749	Reliable
Aviation Security & Dangerous Goods	,747	Reliable
Passanger & Baggage Handling	,743	Reliable
Immigration and Quarantine	,740	Reliable
Flight Document	,745	Reliable
Sistem Manajemen Keselamatan	,750	Reliable
Air Law and Regulation	,748	Reliable
Airport Operation Management	,752	Reliable

Weight and Balance	,737	Reliable
Ground Handling	,740	Reliable
Flight operation management	,743	Reliable
Air Cargo	,750	Reliable
Civil Aviation Safety Regulation	,750	Reliable
Total	**,913**	**Very Reliable**

(Source: SPSS data processing results)

Table 11. Validity test results of Variable Y Competency Knowledge SKKNI 226/2020

Y Variable Indicator (Related course)	**Cronbach's Alpha if Item Deleted**	**Reliability**
Moving cargo	,750	Reliable
Implementing aircraft safety procedures	,753	Reliable
Implementing Occupational Health and Safety (K3) procedures at airports	,753	Reliable
Implementing regulations and policies during flight service and safety operations	,752	Reliable
Managing human factors and situational awareness in the aviation operational environment	,751	Reliable
Implementing work effectiveness in the aviation industry	,750	Reliable
Contributing to the timely achievement of work standards	,750	Reliable
Maintaining safety awareness and vigilance in the aviation workplace	,747	Reliable
Processing Documents in the Workplace	,750	Reliable
Implementing Dangerous Goods Awareness and Hazardous Materials Requirements	,756	Reliable
Implementing a Quality System	,747	Reliable
Conducting Emergency Response Measures to Security Threats	,748	Reliable
Providing First Aid in Accidents	,749	Reliable
Securing cargo	,750	Reliable
Implementing Aviation Security Procedures	,753	Reliable
Receiving dangerous goods for air transportation	,753	Reliable
Labeling Explosives and Dangerous Goods	,751	Reliable
Completing Receipt/Shipping Documentation	,746	Reliable

Y Variable Indicator (Related course)	Cronbach's Alpha if Item Deleted	Reliability
Maintaining Domestic Cargo Records and International	,750	Reliable
Documenting Manifests (Flight Cargo)	,746	Reliable
Calculating the Mass, Area, and Dimensions of Cargo	,749	Reliable
Managing Aircraft Performance and Load	,748	Reliable
Packaging Dangerous Goods for Air Transport	,755	Reliable
Total	**,957**	**Very Reliable**

(Source: SPSS data processing results)

Table 12. Results of the normality test for variables X and Y

One-Sample Kolmogorov-Smirnov Test

		Total_X	Total_Y
N		32	32
Normal Parameters[a,b]	Mean	49.2813	82.5313
	Std. Deviation	9.90026	17.00471
Most Extreme Differences	Absolute	.077	.144
	Positive	.052	.112
	Negative	-.077	-.144
Kolmogorov-Smirnov Z		.435	.813
Asymp. Sig. (2-tailed)		.991	.523

a. Test distribution is Normal.

b. Calculated from data.

(Source: SPSS data processing results)

Table 13. Results of the linearity test of variables X and Y

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Total_Y * Total_X	Between Groups	(Combined)	8518.969	23	370.390	6.659	.005
		Linearity	5327.120	1	5327.120	95.768	.000
		Deviation from Linearity	3191.848	22	145.084	2.608	.082
	Within Groups		445.000	8	55.625		
	Total		8963.969	31			

(Source: SPSS data processing results)

Table 14. Results of the linearity test of variables X and Y

Coefficients[a]

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
1	(Constant)	17.278	10.034		1.722	.095
	Total_X	1.324	.200	.771	6.629	.000

a. Dependent Variable: Total_Y

(Source: SPSS data processing results)

Based on the results of the analysis above, the calculated t value is 6.629 > t table 2.042, and the significance value is 0.000 < 0.05. Ha is accepted, and the Variable X CPMK Curriculum 2018 D4 MTU and D3 MT Study Programs affect Variable Y, specifically Knowledge of SKKNI 226/2020 Competencies.

Table 15. Results of the linearity test of variables X and Y

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.771[a]	.594	.581	11.01037

a. Predictors: (Constant), Total_X

(Source: SPSS data processing results)

Based on the R Square value obtained, 0.594, it states that Variable X CPMK Curriculum 2018 D4 MTU and D3 MT Study Programs can explain their influence on Variable Y Knowledge of SKKNI 226/2020 Competencies by 59.4% and variables outside this study influence the rest.

Discussion

Competency indicators influencing cadets' understanding of Ground Operation and Air Logistics Service practices at Airport Cargo Terminals are evident from the results of data processing, which compares basic knowledge from the D4 MTU/D3 MT Curriculum with the SKKNI 226/2020 Competency Unit, the indicator for variable Y in Table 4.4. The regression analysis reveals that all indicators/courses in the 2018 Curriculum CPMK are influenced and represent the Knowledge Indicators of 23 Competencies in SKKNI 226/2020. However, this representation is only 59.4%. Therefore, efforts are needed to align the remaining CPMK courses with the required SKKNI to meet the professional needs of Ground Operation and Service in the field. This effort involves revising the 2020 Curriculum CPMK for the 2023/2024 period. Because the 2018 Curriculum for the Diploma 4 (D4) and Diploma 3 (D3) programs in MT did not have a definitive CPMK formulation, the 2020 Curriculum developed a CPMK for each course based on RPS archive documents collected independently by academic lecturers and practitioners without any Team Teaching Focus Group Discussions (FGDs). If any existed, they were not well documented.

Based on research (Fauziah S, et al., 2022) conducted by different respondents, specifically companies, the 23 Units of Competence (UUs) are generally required by internship (PKL) participants before entering the field. However, several knowledge topics were considered less necessary (<50%) according to respondents, such as:

a. Unit of Competence "Moving Cargo," with the topic "Requirements for High-Risk Licensed Lifting Equipment"

b. Unit of Competence "Implementing Occupational Safety and Health (K3) Procedures at Airports," with the topics:

i. Designated Personnel
ii. Reasons and Process for Data Collection through K3 Documentation
iii. Regulatory Reporting Requirements and Process
iv. Workplace reporting requirements and protocols
v. Roles and functions of the OHS Committee, Consultative Committee, and Planning and Procurement Committee
vi. Roles and functions of each individual on the OHS Committee
vii. Layout and obstacles
viii. Types of ground-based aviation hazards

c. Competency Unit "Implementing work effectiveness in the aviation industry," with the topic "Occupational Safety and Health (OHS) Signs and Signals."
d. Competency Unit "Implementing Aviation Security Procedures," with the topic "Customs, immigration, quarantine, or other legislative requirements."
e. Competency Unit "Managing Aircraft Performance and Load," with the topics:

i. Other terminology relevant to aircraft performance calculations not otherwise defined
ii. Principles of balance control
iii. Ramp weight or taxi weight

The results of this survey may not fully represent the knowledge needs for internships among cadets in various companies that support ground operations and air logistics services. Due to the small number of respondents and their uneven distribution across all ground operations and air logistics service providers throughout Indonesia, the survey results were only reliable using the probability random sampling method. Furthermore, the 23 selected competency units from the National Competency Standards (SKKNI) 226/2020 on ground operations and air logistics services at airport cargo terminals were not fully managed by ground handling companies. Therefore, all eliminated knowledge topics need to be reformulated, particularly by lecturers in the air logistics/logistics operations concentration and the managers of the D4 MTU and D3 MT study programs, for use in curriculum development during the next curriculum revision.

Competency indicators that need to be improved/developed for internship placement in strategic units of companies providing ground operations and air logistics services at airport cargo terminals can be divided into two categories. The differences in categories can be seen in the curriculum structures of the D4 MTU Study Program and the D3 MT Study Program in 2020. Where the D4 MTU curriculum focuses more on adjusting theoretical teaching topics according to SKKNI 226/2020 for the courses Aviation security and Dangerous Goods, Civil Aviation Safety Regulation (CASR), Immigration and Quarantine, Flight documents, Safety management systems, Air Law and Regulation, Cargo Security Awareness, Cargo Knowledge, Production and Packaging, and Air Logistic Management. Meanwhile, for the D3 MT Study Program, adjustments to practical teaching topics are aimed at the Logistics Operational Concentration in the Customs courses, Cargo Handling Practice, Goods Transportation Management, Introduction to Transportation Safety, Introduction to Law in Business, Quarantine, Quality Management, Dangerous Goods Management, Dangerous Goods Practice,

and K3 Practice. Indicators in the form of detailed competency units and topics cannot be published in this journal due to limitations in the journal page template and the confidentiality of implementation and results from the campus.

CONCLUSION

The Competency Indicators required by PKL Ground Operation and Service Air Logistic participants at the Airport Cargo Terminal include all 23 Competency Units, which are necessary for PKL participants before entering the field. Following the implementation of the 2018 curriculum, there is a 59.4% influence of the CPMK Curriculum of the D4 MTU and D3 MT Study Programs on the Competency Knowledge of SKKNI 226/2020 Ground Operation and Service Air Logistics. The remaining 40.6% of knowledge topics from the CPMK Curriculum need adjustments to achieve the SKKNI 226/2020 competency. Therefore, lecturers in the Air Logistics/Logistics Operations concentration, as well as managers of the D4 MTU (Education and Training) and D3 MT (Education and Training) study programs, need to develop their curriculum for the following curriculum revision.

The basis for this development was derived from a research discussion that sought to compare the "Knowledge Topics" from the SKKNI 226/2020 Competency Unit (SKKNI 226/2020) with the "Course Learning Outcomes" from the 2020 Curriculum for the D4 MTU and D3 MT study programs. The results revealed adjustments to the Elective Competency Units (SKKNI 226/2020) for 10 CPMK courses in the D4 MTU and D3 MT study programs, each with different course names and levels.

Based on the ongoing research process, researchers recognised the need for thorough planning and intensive implementation from various directly involved parties, given that the post-pandemic era has opened up numerous opportunities for air logistics. Therefore, STTKD from Lecturers, Study Programs, PKL Units, and cooperation units will synergise to prepare human resources in accordance with SKKNI 226/2020. And can support the realisation of the upgrade of the D3 Transportation Management study program to D4 Air Logistics Management, to minimise all Weakness and Threat factors in the SWOT analysis of the application of Selected Competency Indicators to the needs of PKL Ground Operation and Service Air Logistics at the Airport Cargo Terminal.

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Kementerian Koordinator Bidang Perekonomian Republik Indonesia. Peta Okupasi Nasional Bidang Logistik dan Supply Chain 2021

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