

# THE STUDY OF MANAGING THE FACTORS OF STUDENT TRANSPORTATION TO ATTEND THEIR CLASSES ON SCHEDULE

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## ABSTRACT

This research was the study of managing the factors of student transportation of Suan Sunandha Rajabhat University, Nakhon Pathom Education Center from Salaya Subdistrict to Nakhon Pathom Education Center to attend their classes on schedule. It was aimed to assess the management quality of student transportation by using the Failure Mode and Effect Analysis (FMEA) to analyze the factors for student transportation problem, and compile the data by using the questionnaire. The sample group was 400 students of Nakhon Pathom Education Center for finding their needs and reducing their class attendance problem. The findings would improve the transportation management and be a guideline for planning the transportation schedule afterwards.

**Keywords:** Transportation Management, Logistics Service Quality, Failure Mode and Effect Analysis

## INTRODUCTION

Suan Sunandha Rajabhat University, Nakhon Pathom Education Center is located on 440,000 square meters with 3,704 students (referred in year 2017). There are 2 transportation modes from Nakhon Pathom Education Center to the main campus; by van and bus. Nevertheless, the students usually take a long time for waiting due to the insufficient van and schedule [1].

Nakhon Pathom Education Center is responsible for facilitating the student transportation and there are a lot of their complaints for improving the efficient transportation, then it would have to study the factors and transportation management [2].

Due to a long waiting time of students and mis-scheduling of the van which caused their late for class, they are caused by a lack of physical and long-term worthiness planning. Even though there are some solutions from the university and private sector, they cannot manage it well enough [3].

The study of managerial factors of student transportation was aimed to create the satisfaction on student transportation in the level of 4.01 and to improve their class attendance [4].

For the purpose that, the transportation management for the highest satisfaction and class attendance, it caused by the study of internal and external factors included causes and problems for their highest benefits [5].

## METHODOLOGY

The research methodology is to analyze the factors affecting student transportation for the highest benefits was as following;

Study and compile the physical data and problems from the observation and interview the relevant people to analyze their problems and causes.

Analyze the current condition by using the questionnaire with students to specify the improvement guideline of student transportation.

## RESULTS

The findings of the study of student transportation of Pathom Education Center revealed that the transportation schedule and process from Salaya Subdistrict to Nakhon Pathom Education Center were shown in Table 1.

**Table 1**  
**Process Chart**

Process Chart	Method	Improved			
Chart Title: Student Transportation Process	Operation □	7			
Place: Salaya Subdistrict to Nakhon Pathom Education Center	Transport ⇨	2			
Undertaker: Van Services	Delays D	6			
Distance: 12.5 Kilometers	Hold □	3			
Duration: 40 Minutes	Inspection □	1			
	<b>Total</b>	<b>19</b>			
Student Transportation Process	Symbol				
	□	⇨	D	□	□
1. The students take the van at Salaya Subdistrict.	□				
2. The students have to wait for other passengers				□	
3. The driver departs from the 1st stop.		⇨			
4. Stop at the 1st T-junction traffic light.			D		
5. The driver arrives at the 1st stop.	□				
6. Pick up the students.				□	
7. The driver arrives at the 2nd stop.	□				
8. Pick up the students.				□	
9. The driver arrives at the 3rd stop.	□				
10. Stop at the 2nd traffic light.			D		
11. The driver arrives at the 4th stop.	□				
12. Pick up the students.				□	
13. The driver counts all students.					□
14. Stop at the 3 <sup>rd</sup> traffic light.			D		
15. The driver arrives at the 5th stop.	□				
16. Stop at the 4th traffic light.			D		
17. The driver arrives at the 6th stop.	□				
18. Stop at the 5th traffic light.			D		
19. The driver arrives at Nakhon Pathom Education Center.		⇨			

The findings of the study of managerial factors of student transportation by using the Failure Mode and Effect Analysis (FMEA) revealed that the process and failure mode included causes and controls were shown in Table 2.

**Table 2**  
**Failure Mode and Effect Analysis (FMEA)**

No.	Process	Failure Mode	Effect	S	Cause of Failure Mode	O	Process Control	D	RPN
1	The Public Relations	1.1 The inaccessibility of the public relations.	The students spend too much time waiting for the vehicle.	10	1.1a. The small number of vehicle.	7	Increase the number of vehicle.	5	350
			The students spend too much time waiting for the vehicle.	10	1.1b. The low frequency of transportation in the rush hour.	8	Increase the number of vehicle for the rush hour.	6	480
2	The Stops Specification	2.1 The service agent could not specify the actual stops.	The students take a long time for waiting.	10	2.1a. The service agent concerns about the information availability.	5	Compile the data yourself.	6	300
			The insufficient stops.	10	2.1b. The service agent is accustomed to the same stops.	9	Inquire the need of students.	6	540
		2.2 The insufficient stops.	The high cost of transportation fee for students.	8	2.2a. The service agent specifies the small number of stops.	9	Nakhon Pathom Education Center specifies the stops itself.	6	432
			Students are late for their classes	9	2.2b. The service agent does not concern about the need of students.	9	Nakhon Pathom Education Center specifies the stops itself.	6	486
3	The Transportation Planning	3.1 The lack of understanding of planning.	There is no transportation plan.	8	3.1a. The service agent does not concern about the transportation planning.	5	Study the information of transportation.	3	120
		3.2 The organization does not specify the transportation planning.	There is no transportation plan.	8	3.2a. The unclear policy of the organization.	4	Specify the clear policy of transportation management.	4	128

The findings of the study of cause trends of failure mode revealed that; the service agent is accustomed to the same stops with the highest RPN value (540, 19.04%), the service agent does not concern about the need of students (486, 17.14%) and the low frequency of transportation in the rush hour (480, 16.93%). Consequently, they were analyzed for finding the need of students afterwards which were shown in Table 3.

**Table 3**  
**Cause Trends of Failure Mode**

No.	Cause Trends of Failure Mode	RPN	Accumulated Percentage
1	2.1b. The service agent is accustomed to the same stops.	540	19.04
2	2.2b. The service agent does not concern about the need of students.	486	17.14
3	1.1b. The low frequency of transportation during the rush hour.	480	16.93
4	2.2a. The service agent specifies the small number of stops.	432	15.23

5	1.1b. The small number of vehicle.	350	12.34
6	2.1a. The service agent concerns about the information availability.	300	10.58
7	3.2a. The unclear policy of the organization.	128	4.51
8	3.1a. The service agent does not concern about the transportation planning.	120	4.23
<b>Total</b>		<b>2,836</b>	<b>100.00</b>

The findings of the study of need from the cause of failure mode were created the questionnaire for students by using the theory of Taro Yamane with 0.90 level of significance which were shown in Table 4.

**Table 4**  
**The Study of Need from the Cause of Failure Mode**

No.	Cause of Failure Mode	Need of Students
1	The service agent is accustomed to the same stops.	The larger number of stops.
2	The service agent does not concern about the need of students.	More service quality.
3	The low frequency of transportation during the rush hour.	The higher frequency of transportation
4	The service agent specifies the small number of stops.	Increase the stops.
5	The small number of vehicle.	Increase the number of vehicle.
6	The service agent concerns about the information availability.	Increase the number of public relations.
7	The unclear policy of the organization.	The policy of transportation management.
8	The service agent does not concern about the transportation planning.	The transportation plan.

The findings of the satisfaction of van services revealed that there were 5 factors of the service agent; the speed, the appropriate van, the students don't have to wait for the van for too long, the sufficient van and the class attendance of students, it was in the level of 4.22 which it was shown in Table 5.

**Table 5**  
**The Satisfaction of Van Services**

The Satisfaction of Van Services	Level (5)
1. The speed	4.35
2. The appropriate van	3.65
3. The students don't have to wait for the van for too long	4.55
4. The sufficient van	4.50
5. Students are able to attend their classes on time	4.05
<b>Total Average</b>	<b>4.22</b>

## CONCLUSION AND FUTURE WORK

The findings of this research were used for managing the student transportation of Nakhon Pathom Education Center which revealed where the stops should have, for improving the number of the stops for their convenience and safety, improving the speed of driving, reducing the waiting time and improving the class attendance of students.

As the data compilation of satisfaction of the students, the service agent had found more understanding and need of the students. Additionally, the findings of satisfaction of the students would be improved and developed the services afterwards.

As the improvement of transportation management; there was no remained student at any stops, the waiting time was reduced and the class attendance of students were improved.

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