

EFFECTIVE TRANSPORTATION USE: A COMPARATIVE STUDY ON THE USE OF SCHOOL SERVICE AND PUBLIC TRANSPORT IN TERMS OF COST AND TIME EFFICIENCY AMONG GRADE 12 STUDENTS OF COLEGIO DE SAN JUAN DE LETRAN - BATAAN

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ABSTRACT

This study shows the exploration of the perception of Grade 12 students on the use of public transport and school service in terms of cost and time efficiency. It endeavors to achieve credible results on which mode of transport will be most efficient for the daily time and expense ingested by the students. A set of demographic and matrix questionnaires were distributed to a total number of 40 students who have experienced riding both transportations. The mean values were statistically analyzed using Wilcoxon signed-rank tests. The results show that school service is more preferable in terms of monthly cost efficiency only. Public transport, on the other hand, is far better in terms of time efficiency. However, the total computed mean score of public transport is higher than of school service. In conclusion, public transport is more acceptable in terms of cost and time efficiency.

Keywords: *school service, public transport, time-cost efficiency, grade 12 students*

INTRODUCTION

One of the society's significant matters is the student transportation to and from the school, as indicated by Kotoula et. al. (2017). Consistently, many students need to travel from home to school. This can be made through various modes: private vehicles, school transport, public transportation and walking (Carvalho & Macário, 2004). Aside from private vehicles, other mode of transport such as jeepneys, tricycles and school bus services are usually the top form of transportation of the students of Colegio de San Juan de Letran - Bataan, especially the Grade 12 students due to their weekly early dismissal time for the first term of the school year 2019-2020.

In the Philippines, many depend on public transportation to be able to get to their schools and workplaces, yet are exposed to the revulsions of unbearably moderate traffic, crowded

vehicles and failing trains (Maramba, 2019). A statement from Angara (2019), indicated that a sustainable public transportation network remains insufficient for many Filipinos, most especially for many students who commute to school. These claims imply the public transportation crisis in the Philippines.

Public transportations and school services share distinctive significances that can be useful in the preferential utilization of vehicle among the students. As indicated in an article by Track Bus Services (2018), the most typical and widely promoted mode of transportation for students has always been the school services. It can be said that it is already an accustomed practice or a necessity when it comes to student transportation. These vehicles have an array of benefits that can be considered. One of it is its strict and definite schedule as it follows a specific time for pick up and drop off. As stated by Murray (2014), this

teaches the students to have proper time management owing to the fact that they have to follow a daily routine. Transync (2017) mentioned that the services hold a strong responsibility on their passengers. This will hold the worries with the welfare of the students going to and from their homes to their schools.

Public transport can also be beneficial in many ways such as promoting productivity among students. As mentioned by Wilkie (2010), this mode of transportation plays a significant job in encouraging profitability and opportunity by moving aptitudes, work and learning. Therefore, it can be remarked that the use of public transport is of great use, chiefly in time management as it promotes a constant spirit for work. For people who do not or cannot drive, public vehicles can take them to wherever they place they desire (National Express Transit, 2017). It can be said that this promotes in increasing mobility. Public vehicles can also contribute in an individual's health habits. It is also mentioned by National Transit Express that the motion going to the transit and to the destination triples the amount of physical activity.

Every single student ought to have time management capacity which incorporates defining objectives and needs and utilizing and organizing time properly (Shazia & Muhammad, 2015). As graduating students, time is a big factor that is mostly considered in their daily lives due to the workload given to them as they are preparing and planning for college. Due to that, it is significant to manage their hours in home and school. As for Grade 12 graduating students of CSJL-Bataan, time is a big factor that is mostly considered in their daily lives due to the workload given as they are planning and preparing for college. Given the common 2:45 PM dismissal, the students choose to commute rather than to wait for their school bus services that usually go home at 5 o' clock. Some Grade 12 students find this issue as something that demands solution for they think they are stuck to wait for their services which also consider their budget inefficiency because commuting is an extra expense in their daily income.

It is on these propositions that lead the researchers to conduct a research that will give them further knowledge with regards to the effective transportation use in CSJL-Bataan. With the help of journals, articles, and other references, the researchers will be guided throughout their study. The data collected shall give them more information and ideas regarding their research topic.

Transportation in the Philippines

Compared to other countries, Philippines is not as immense with regards to transportation. The researchers believe that

riding and driving cars and other transport systems has already become a social phenomenon among the citizens. Transportation plays a significant role to the life of every Filipino, starting from its primary impacts such as adjustability and flexibility, to counterfeited impacts like its effect on nourishment costs (Limkin, 2015).

Francisco (2016) indicated in her article that Philippines, as the second most crammed country in Southeast Asia, is fighting over a very undeniable transportation issue. It only takes a glance of the situation in Metro Manila to discover the horrible traffic in the Philippines' national capital area (Francisco, 2016). In this case, the researchers could vision the possible effect of the local traffic to the time to be consumed by the student passengers.

According to Atty. Delgra III (2018), Chairman of the Land Transportation Franchising Regulatory Board, unpleasant, irresponsible, and unsatisfactory are the words often used to describe the transportation in the Philippines. The researchers believe that these might be a factor on the perception of the students when it comes to commuting.

Public Transportation

Public transportation is a mode of transport offered locally that allows more people to travel together along assigned routes. As stated by the County Health Rankings (2017), community-wide transportation systems are most frequent in urban districts and are often reinforced by municipal funds.

Advantages

Public transportation and fixed-route transit services remain to be much more efficient and advantageous systems of bringing people from one place to another (National Express Transit, 2017). According to the American Public Transportation Association (2019) public transportation develops communities and lives of the people Through the use of public transportation, not only does it encourage an individual to learn developing their lifestyle, but also supports the promotion of upgrading the state of a society's economy. Public transportation provides personal mobility and freedom for people from every walk of life. In can there be stated that public transportation can bring people opportunities to choose whether to change destinations and itinerary.

Disadvantages

Routing. In taking the public transportation, people may experience a benefit when it comes to the trains' or buses' routes. This is due to the fact that these types of public vehicles follow certain routes and designated areas on where to let the

passengers ride the vehicle and where to drop them off. As indicated by Barton (2017), several travellers often need a secondary source of transportation to arrive at their appointed place or will still have to walk to their home or office.

Convenience. Most free public transport runs on a fixed time and schedule. These schedules may sometimes not coordinate with a commuter's travel demands and cause conflict in convenience (Take the Bus To Midnight Madness, 2018). This can result in a major loss of time for travels of the passengers for the time schedules of the public vehicles may not mesh with the travel demands.

Privacy. According to Barton (2017), there is no privacy in public transportation. Travelers are stuffed in and don't have much personal space. This affects a person's privacy for there is not enough space to distance oneself from others.

School Service

School does not only involve learning, in fact, it has several aspects that a student must keep in mind while studying. One of this is considering their transportation going to their respective schools and going home from school. However, for many, public transportation and school bus service are the only main options into which type of transportation they would want to take for their travel. School buses have always been one of the most favoured modes of transportation for students (Track School Bus, 2018).

Advantages

Time. According to Track School Bus (2018), one of the most important benefits of school buses is that they arrive on time. Transync (2017) stated that a school bus can make parents of younger students more time-efficient and organized as a family. This clearly explains that better time management will give the students a better academic fluidity.

Security. As mentioned in an article written by Murray (2014), there has been a lot of cases about teenagers dying from car accidents. With that, having to take the school service will ensure everyone's safety and reduce the risk of teenagers dying from car crashes and injuring from accidents.

Convenience. School service gives convenience to students (Murray, 2014). This is due to the fact that not everyone owns a car and school buses are the only most accessible way of transport to and from the school.

Disadvantages

Time Travel. Davis (2017) stated that school bus services take time to pick-up and drop-off students to and from their

homes. This is mainly caused by the entire designated route of the school buses wherein the buses have to run through several roadways to pick up students which take a lot more time than just driving from point to another point.

Over speeding of the school buses. The existence of high-speeding operation of school buses has occurred in several streets, highways, and road areas (Davis, 2017). This just shows the lack of apprehension of the bus drivers. Also, the target of the bus drivers to arrive at school in the right time results to their hurrying and over speeding of the vehicle.

After-School Activities. Students attend school and extra-curricular activities which sometimes are scheduled beyond their usual dismissal time. Because of this, students who need to be at school early or stay after school for academic matters cannot take their school services (Davis, 2017). With this, some students, specifically those who are not able to be picked up by parents, choose not to join any other activities that exceeds to the time schedule of the school service.

Time Management

Most students find that the most challenging part of their lives as students is about managing their time successfully (Bucks, 2017). Therefore, it can be said that time can be very crucial to a student's day-to-day life. The researchers consider this as a factor that provides students a distinct list of differences into which transport system will be best used for their time schedule in line with its management.

Time management is a primary component of effective work performance (IvyPanda, 2019). For several students, time is a necessary block through a productive academic adaptation. This just means that every student's performance in school highly depends on the time they have and how they properly manage their time along with the loads of tasks they were given to work with. It can therefore be concluded that time management is of great importance to increase the possibility of one's success.

Relevant Theories

Pareto Principle

As stated by Chappelow (2019), the Pareto Principle, named after esteemed economist Vilfredo Pareto, indicates that 80% of results originate from 20% of the causes, declaring an inconsistent connection among sources of inputs and outputs. This proves that the relationship between the inputs and outputs are not even wherein 80% of the consequences come

from 20% of the causes. It is used to illustrate the notion that not things are equal, and the minority owns the majority.

The Pareto Principle becomes a guide on how to administer resources effectively. It's the most popular used theory in time management, as most people tend to thinly distribute out their time instead of focusing on the most important tasks. This theory is considered as one of the most related theory for this study, considering that the Grade 12 students face twice the workload they had during their junior high school years or when they were Grade 11. Understanding the principle is essential to learning how to prioritize one's tasks, days, weeks, and months (Tracy, 2018).

Practical Psychology (2018) explained that concentrating in on 20% of the day by day undertakings and exercises does not really conclude that one needs to yield 20% of what they need to complete for a day. It can therefore be concluded that the 20% of the Pareto's Principle serves as the decision of the Grade 12 students of CJSJL-Bataan to leave school, choose not to wait for their school service and take public transportation after their dismissal. This is due to the fact that some students highly consider the time could spend when they arrive home early to accomplish several tasks and activities.

The 80/20 Rule will make you think more efficiently. This time management trick maximizes productivity (Tracy, 2018). Therefore, when a student decides to go home early, there will be a high possibility of him/her accomplishing the 80% of their goals or to-do lists. In this sense, the 20% of their prioritized activities will account for 80% of their results.

Correspondent Interfere Theory

Correspondent Inference Theory refers to the narrative of person's intrusions about individual's actions or behaviour. According to Praveen Shrestha (2017) the main goal of this theory is to try and explain why humans make internal and external attributions. With that, a judgment of a person's correlate with his/her behavioural manners. When we are making attributions about other people, we compare their actions with alternative actions, evaluating the choices they have made (Changing Minds, 2019).

This theory harmonizes with the study in terms of decision-making of the Grade 12 students of CSJL-Bataan. The researchers can foresee the students making consideration of the budget that they have allotted for school transportation as well as their monthly payment for the school service. The relation of the study to this theory is that it is easier for the students to make internal attributions when there fewer non-common effects between these choices. Due to that concept, the

students feel obliged to properly manage their time as well as their monthly allowance for both are clearly limited.

With these evidences, the behaviour of a student towards a certain school matter highly depends on their mind set. For some students, it is important to manage their time, so they can also accomplish several tasks on time, but this is possible if and only if they decide to commute to arrive home early and start working.

On the contrary, some students believe that taking the public transportation discourage them to save money due to the transportation fee. They also consider the monthly fee for their school service; therefore, they choose to wait for at school until 5 o'clock. This kind of students prioritize the expenses when they will take public transport, although there is a law for student fare discount in any public transport signed by President Rodrigo Duterte (Pia Ranada, 2019).

The Correspondent Inference Theory proves the differences between people's behaviours towards the topic. While some students prioritize time for the goal achieving a good habit of time management, some also consider the expenses they would waste for using public transport.

With the theories mentioned above, the researchers aimed to explore and compare the time and money consumed by the students in their daily transportation, using either public transport or school service. It endeavored to achieve credible results on which mode of transport is most efficient for the students' daily time and expense ingested.

The study no longer comprised any other factors that might affect the preference of the students in choosing a better transportation system such as safety and comfort. Students who own and use private cars are not also within the scope of this study. The data collected are used to seek differences between the two subjects: the cost and time efficiency among the population. For cost efficiency, the researchers compared the daily, weekly, and monthly budget allocated for the school service and for public transport as well. For time efficiency, the researchers aimed to illuminate the hours spent by the students in completing their school works and how this may affect their reason on what mode of transport will they use.

For the respondents, the students are selected by a criterion that implies those who have experienced the use of both type of transport. The findings of this research are of great importance not only for the Grade 12 students of CSJL-Bataan but also for the teachers and drivers within the institution to suggest for possible solutions in terms of the students' transportation coming home from school.

Research Framework

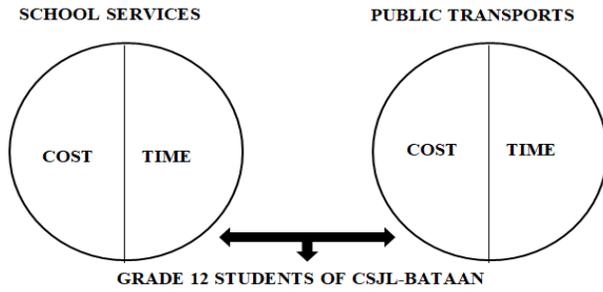


Figure 1. Research Framework

The model above shows the difference of both transports in terms of cost and time efficiency for the Grade 12 students of the Colegio. Both factors are being considered to provide the population reliable data that differentiates the two transport systems.

It is on those propositions that lead the researchers to gather necessary information to seek the perception of students through the data gathered from the following questions:

1. How may the transportation cost using public transport and school service be described in terms of average monthly cost?
2. How may the perception of the students towards public transport and school service be described in terms of:
 - 2.1 Cost; and
 - 2.2 Time efficiency
3. Is there any significant difference between the perception of the students on using public transport and school service?

METHODOLOGY

Research Design

A quantitative research design was applied in this study as it used techniques that depended on estimating factors utilizing a numerical framework, examining these estimations utilizing any of an assortment of factual models, and revealing connections and affiliations and relationship among the considered factors. Survey questionnaire were the methods used to gather data from the respondents.

Research Participants

Respondents of the data gathering procedure will be composed of Senior High School students only. For the selection of the population, the researchers decided to use the following criterion to retain a brief comparison among both transports due to the fact that they had experiences on the two means of transportation: students who have experienced riding both public transport and school service.

Research Instrument

The researchers used survey questionnaires to gather the data needed from the respondents. A set of questionnaires containing demographic and matrix type questions were provided. Demographic questions are used to know about a respondent's experience or pay level. Matrix questions are used when the researchers need to pose a couple of inquiries in succession that have a similar reaction alternative. Each demographic test consisted of questions on the monthly budget of the students for both transportations. The first matrix test consisted of 4-point Likert scale choices (1 - Strongly Disagree, 2 - Disagree, 3 - Agree, 4 - Strongly Agree). The second matrix test, on the other hand had choices (1 - Very Unlikely, 2 - Unlikely, 3 - Likely, 4 - Very Unlikely).

Data Gathering Analysis

The researchers made sure that the respondents were fit for the criterion. Therefore, a pre-survey was first performed to gather a concrete number of respondents. There was a total of 40 students who were able to confirm their experience on both transportations. After, the survey questionnaires were then distributed to the definite list of students.

The results of the questionnaires were first encoded before it was computed by the provided statistician. A reliability test was first performed to determine whether the data gathered were either reliable or not. It is a measure of reliability got by directing a similar test twice over some undefined time frame to a group of people.

Shapiro-Wilk test for normality is a test for normal distribution showing high power, prompting great outcomes even with few perceptions. As opposed to other correlation tests, the Shapiro-Wilk test is just appropriate to check for normality. It was done to modify whether the data will deviate from a normal distribution or not. Results lower than 0.05 tell that the data significantly deviate from a normal distribution. This ensured what type of test was needed to be used to determine the significant differences of the two samples.

Having no normal distribution means it shall use a non-parametric statistic.

A Wilcoxon signed-rank test, a non-parametric factual theory test used to equate about two related examples, coordinated examples, or rehashed estimations on a solitary example to evaluate whether their population mean ranks contrast. This was used to determine the comparison of the two samples on a single sample. This was used in order to find out how the average monthly cost of both transportations can be described by the students, their perception in terms of each cost and time efficiency, and the significant difference between the perception of the students among both transportations.

RESULTS

Result of the reliability test was at 0.823, having it considered as acceptable in the general rule. The amount of the Sig value for all the data for the Shapiro-Wilk Test are all 0.000 which are below 0.05, the data significantly deviate from the normal distribution which is not normal in distribution. This led to the use of the Wilcoxon signed-rank test.

Findings from the statistics indicate that school service is better in terms of cost efficiency. In terms of the monthly budget, it shows that the use of school service is better than public transport. Students are able to save more money when they ride their school services to their respective homes. On the other hand, results show that students find public transport more time efficient than school service. However, the total mean value 2.8713 of public transport time and cost efficiency is higher than the mean value 2.7163 of school service. Overall, this shows that the findings of the study indicate that public transport is better in terms of cost and time efficiency for the students compared to school service.

Table 1. Descriptive Statistics

COST EFFICIENCY	N	Mean	Std. Deviation
Public Transport	40	2.7250	.81610
School Service	40	3.0000	.81650
TIME EFFICIENCY			
Public Transport	40	3.2000	.82275
School Service	40	2.4250	.95776
TOTAL DIFFERENCE			
Public Transport	20	2.8713	.30134
School Service	20	2.7163	.19911

Table 2. Wilcoxon Signed-Rank Test - Cost Efficiency

Cost Efficiency		N		Mean Rank	Sum of Ranks
Q4.2 - Q4.1	Negative Ranks	12 ^a	P.T	14.88	178.50
	Positive Ranks	18 ^b	S.S	15.92	286.50
	Ties	10 ^c			
	Total	40			

a. Q4.2 < Q4.1 b. Q4.2 > Q4.1 c. Q4.2 = Q4.1

Table 3. Test Statistics

Q4.2 - Q4.1	
Z	-1.167b
Asymp. Sig. (2-tailed)	.243

a - Wilcoxon Signed-Rank Tes b - Based on negative ranks

The cost comparison of public transport and school service using Wilcoxon show that they are of significant difference. The sig value is 0.243 greater than p value of 0.05. In conclusion, school service is far better in terms of cost or *monthly* fare payment having a mean value of 3.00 compared to 2.725 of public transport.

Table 4. Wilcoxon Signed-Rank Test - Time Efficiency

Time Efficiency		N		Mean Rank	Sum of Ranks
Q5.2 - Q5.1	Negative Ranks	23 ^a	P.T	20.48	471.00
	Positive Ranks	11 ^b	S.S	11.27	124.00
	Ties	6 ^c			
	Total	40			

a. Q5.2 < Q5.1 b. Q5.2 > Q5.1 c. Q5.2 = Q5.1

Table 5. Test Statistics

Q5.2 - Q5.1	
Z	-3.039b
Asymp. Sig. (2-tailed)	.002

a - Wilcoxon Signed-Rank Tes b - Based on negative ranks

The sig value is 0.002 less than p-value of 0.05 which must reject the null hypothesis. This means that there is a significant difference in public transport and school service. In conclusion, public transport is far better in terms of efficiency in time of travel, having a mean value of 3.2 compared to 2.425 of school service.

Table 6. Wilcoxon Signed-Rank Test – Significant Difference of Both Transport in terms of Cost and Time Efficiency

		N	Mean Rank	Sum of Ranks
school service – public transportation	Negative Ranks	15 ^a	9.17	137.50
	Positive Ranks	4 ^b	13.13	52.50
	Ties	1 ^c		
	Total	20		

- a. School service < public transportation
- b. School service > public transportation
- c. School service = public transportation

Table 7. Test Statistics

	School service - public transportation
Z	-1.712 ^b
Asymp. Sig. (2-tailed)	.087

a - Wilcoxon Signed-Rank Test b - Based on negative ranks

Time efficiency and cost comparison of public transport and school service using Wilcoxon signed-rank test show that they are of significant difference. The sig value is 0.087 greater than the p-value of 0.05. In conclusion, public transportation is far much better in terms of efficiency, with the time and cost having a mean value of 2.8713 compared to 2.7163 of school service.

DISCUSSION

Findings of the study indicated that students are able to save more when they use school service instead of public transport in terms of monthly fair. However, they find the use of public transport as more time efficient than the use of school service. But with the total computed mean score, the overall results show that public transport is still more convenient for the students in terms of both cost and time efficiency. These findings are of great significance not only to the students, but the government, school administrators, parents and guardians also, to provide knowledge on the state of student transportation locally and nationally, and so, will formulate ideas on how other occurring similar issues can be solved.

The study discussed was a simple yet a practical choice for the students, especially for the Philippines wherein transportation is a crucial issue. Evidences show that there is a public transportation crisis in the country. Similar consequences apply to various countries such as the United Republic of Tanzania, and to European principalities. In Greece, public transportation is the most common mode of student transport. School buses, however, are also on the top

list of the alternative modes of transports as indicated in a study by Kotoula et. al. (2017). Those who come from low-income families and those from remote areas, fail to attend school due to transportation problems. It is significant for them to consider the cost of transport. On the other hand, a study by Johanes (2014) discussed the student transportation in Tanzania and focused on the distance of the students traveling to school and how much this costs them. The findings from the study show that many fail to attend school due to lack of time and bus fare. The pointers mentioned show the relevance of this paper to other countries who experience different transportation crisis in terms of cost and time efficiency. However, findings of this study indicated that students of CSJL-Bataan who take both transports find public vehicles more convenient in terms of cost and time efficiency compared to school services. This contrasts to the evident issues of the country’s existing public transportation crisis.

CONCLUSION

Public transportations and school services share distinctive significances that can be useful in the preferential utilization of vehicle among the students that is why school transportation plays a vital role in every student’s life, considering the cost and time consumed by these individuals. Though public transportation can be described and can be experienced unfairly due to the lack of sustainability, students still find this as something more convenient as their mode of transportation compared to school services that provide a maintaining safety. It can also be concluded that time plays a significant part in a student’s life, having it considered that even if they save more money monthly on the use of school services, they still choose to use public vehicles to manage their time more efficiently.

RECOMMENDATIONS

This paper suggests that future researchers may consider conducting the study on all the Senior high school students since Grade 11 also have early dismissal time. Moreover, it is also compulsive to examine the other factors that consider the efficiency of the students among both transportations such as safety and comfort to further find out the convenience of the students. It may also be worthy of investigation to determine how this study will benefit the parents or guardians of the students in terms of the same factors: time and cost efficiency. This is due to the fact that parents and guardians are also involved on the student’s everyday time and income.

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