

EVALUATING THE IMPACT OF COMPRESSED WORK SCHEDULES ON ACADEMIC OPERATIONAL EFFICIENCY

AVALIAÇÃO DO IMPACTO DOS HORÁRIOS DE TRABALHO COMPRIMIDOS NA EFICIÊNCIA OPERACIONAL ACADÊMICA

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Abstract

The standard weekly workload for faculty and non-academic staff at the University under study is set at forty (40) hours, typically distributed across a five-day workweek. However, varying institutional demands often require extended or flexible schedules. This study evaluates the adaptability and effectiveness of a four-day compressed workweek compared to the traditional five-day schedule in an academic setting. Key performance indicators include university cost efficiency, operating expenses, classroom utilization, and students' passing rates. Findings reveal that the four-day compressed workweek offers significant advantages. The University achieved over 10% savings in operating expenses, indicating improved cost efficiency. Additionally, both instructors and students experienced more than a 20% reduction in transportation and food-related expenses. A notable improvement in students' passing rates was also observed, suggesting positive academic outcomes under the compressed schedule. Based on these results over a one-year period, the four-day compressed workweek emerges as a viable alternative to the traditional system. Nevertheless, its successful implementation requires continuous improvement of facilities, strategic class scheduling, and enhanced support mechanisms for personnel to ensure sustainability and maximize long-term benefits.

Keywords: Classroom Utilization. Cost Efficacy. Scheduling System. Savings. Work-Schedule.

Resumo

A carga horária semanal padrão para o corpo docente e os funcionários não acadêmicos da universidade em estudo é fixada em quarenta (40) horas, normalmente distribuídas ao longo de uma semana de trabalho de cinco dias. No entanto, as diversas demandas institucionais frequentemente exigem horários prolongados ou flexíveis. Este estudo avalia a adaptabilidade e a eficácia de uma semana de trabalho compactada de quatro dias em comparação com o horário tradicional de cinco dias em um ambiente acadêmico. Os principais indicadores de desempenho incluem a eficiência de custos da universidade, despesas operacionais, utilização das salas de aula e taxas de aprovação dos alunos. Os resultados revelam que a semana de trabalho compactada de quatro dias oferece vantagens significativas. A universidade obteve uma economia de mais de 10% nas despesas operacionais, indicando uma melhoria na eficiência de custos. Além disso, tanto os professores quanto os alunos tiveram uma redução de mais de 20% nas despesas relacionadas a transporte e alimentação. Também foi observada uma melhoria notável nas taxas de aprovação dos alunos, sugerindo resultados acadêmicos positivos sob o horário compactado. Com base nesses resultados ao longo de um período de um ano, a semana de trabalho compactada de quatro dias surge como uma alternativa viável ao sistema tradicional. No entanto, sua implementação bem-sucedida requer melhoria contínua das instalações, programação estratégica das aulas e mecanismos de apoio aprimorados para o pessoal, a fim de garantir a sustentabilidade e maximizar os benefícios a longo prazo.

Palavras-chave: Utilização das Salas de Aula. Eficácia de Custos. Sistema de Programação. Economia. Horário de Trabalho.



1 INTRODUCTION

Since the beginning of its establishment as the state College, it practices a five (5)-day-work week schedule which is common to other educational institution. A five-day work week applies to both classes and office work schedule. Scheduling decisions considers the availability of classrooms, instructors, and students. Scheduling involves determining the timing and utilization of specific resources within an organization or institution. These decisions represent the final stage in the transformation process before the actual output is produced, necessitating prior analysis to ensure rationalization within the system's constraints.

The university has its proposal for the four-day workweek schedule for faculty, employees, and students. The proposed four-day workweek is expected to save the university's electricity among others. Maintain the forty (40) hours work requirement per week which all government employees have to satisfy by adjusting the normal working hours from 8:00 am to 5 pm to 7:00 am to 6:00 pm per day and limit the working days from Monday to Thursday and suspend work on a Friday and to ensure the safety of the students by limiting the class up to 7:30 pm. The following key activities were considered in the implementation of 4-day workweek: Other computer laboratory classes, nursing, tourism and HRM student's classes that require 4 to 6 hours of laboratory and by its nature require uninterrupted long laboratory schedules and cannot be accommodated in the 4-day workweek schedule were allowed to be scheduled on a Friday as exemptions. NSTP and graduate classes scheduled on Saturdays following their original schedules were retained. Other University activities such as production, research and extension were also encouraged to fit their activities into a 4-day workweek schedule with exemptions to those activities that require 24-hours monitoring or daily operation such as animal and crop production projects. The University maintenance activities were exempted from 4-day workweek schedule since some maintenance work requires a 7-day workweek. In this case offsetting or flexi-time was deemed more appropriate as already practiced by their personnel. Holding of meetings, seminars, workshops, conferences, etc. are to be limited within the 4-day workweek unless deemed or require a weekend and also trips by administrators, faculty and/or students that require university transport vehicles are to be limited to one vehicle per day. Car-pooling of passengers is encouraged. To respond to

the problem, the researcher will conduct a study to further justify the adaptability and cost efficacy of four-day work week schedule to educational institution.

2 RESEARCH METHODS

2.1 Research design

This study utilized a descriptive research design. The descriptive study consists of a set of gathered data from different offices which will be analyzed, summarized and interpreted along certain line of ideas for the pursuit of a specific purpose or study.

2.2 Data gathering procedure

The researcher will acquire or gather the necessary data to make the analysis and interpretation done more easily. The following data that is vital to the researcher to supply information about his research problem are as follows:

a. University Expenditures

The following selected university expenditures like electricity which is measured in terms of kilowatt-hours consumed by the university (that includes water expense, street lights, and the daily operations of the university), gasoline, oil, and lubricants (which is measured in terms of monthly dispatched vehicle) were selected because these are the major cost factor directly affected by the compressed workweek schedule.

b. Classroom Usage in Hours per Week

Considering eighty-two (82) lecture rooms and thirty-eight (38) laboratory rooms of the university, a request letter was made addressed to its respective college dean through its college registrar considering the seven colleges included in the study requesting for a record of their room utilization or the actual classroom usage scheduled for a particular classroom in hours per week in their respective college.

c. Students' Grades on Their Common Major/Critical Subjects

A grading sheet of the particular subjects included in the study will be obtained from different college registrar's office to determine the number of students who

passed over the total number of students enrolled in a particular subject to determine the students passing rate.

2.3 Data analysis

Classroom Utilization Rate = Actual Classroom Usage / Availability of Classroom
x 100% Passing Rate = No. of Students Passed in a Particular Subject

Total No. of Students Enrolled in a Subject x 100% Paired T-test

$$\frac{t = \mu d}{(Sd / \sqrt{n})} \quad (1)$$

3 RESULTS AND DISCUSSION

3.1 Significant difference on the university's monthly electricity consumption in kilowatt-hours

To assess whether there is a significant difference in the university's monthly electricity consumption between the five-day and four-day workweek schedules, the results of the analysis are presented in Tables 1 and 2:

Table 1

Paired Samples Statistics for Monthly Electricity Consumption

	Mean	N	Std. Deviation	Std. Error Mean
5-day Schedule	118327.77778	9	16420.14143	5473.38048
4-day Schedule	108410.00000	9	11682.00325	3894.00108

Table 2

Paired Samples Statistics for Monthly Electricity Consumption

	Paired Differences			t	df	Sig. (one-tailed)
	Mean	Std. Deviation	Std. Error Mean			
4-day Schedule - 5-day Schedule	-9917.77778	13268.47559	4422.82520	-2.242	8	0.028

Since the one-tailed probability value of a t score of -2.242 with 8 degrees of freedom is 0.028, then the University's mean monthly electricity consumption difference between the 4-day and 5-day schedule of -9917.77778 is significant at $\alpha = 0.05$ (0.028 is less than 0.05) there is a strong evidence that the implementation of the 4-day schedule decreased electricity consumption.

3.2 Significant difference on the university's monthly dispatched vehicle

To determine if there is a significant difference on the university's monthly gasoline, oil and lubricants consumption on the 5-day and 4-day workweek schedule, Table 3 and Table 4 shows the result of the analysis:

Table 3

Paired Samples Statistics for University Monthly Dispatched Vehicle

Schedule	Mean	N	Std. Deviation	Std. Error Mean
5-day Schedule	106.77778	9	19.58812	6.52937
4-day Schedule	92.88889	9	13.71536	4.57179

Table 4

Paired Samples Test for University Monthly Dispatched Vehicle

Schedule	Paired Differences			t	df	Sig. (one-tailed)
	Mean	Std. Deviation	Std. Error Mean			
4-day Schedule – 5-day Schedule	-13.88889	21.43854	7.14618	-1.944	8	0.044

Since the one-tailed probability value of a t score of -1.944 with 8 degrees of freedom is 0.044, then the University's mean monthly number of dispatched vehicles difference between the 4-day and 5-day schedule of -13.88889 is significant at $\alpha = 0.05$ (0.044 is less than 0.05) there is strong evidence that the implementation of the 4-day schedule decreased the number of vehicles dispatched.

3.3 Analysis of student passing rate

To determine if there is a significant difference on the students' passing rate considering the 14-common major / critical subjects on the 5-day and 4-day workweek schedule, Table 5 and Table 6 shows the result of the analysis:

Table 5

Paired Sample Statistics for Students' Passing Rate

Schedule	Mean	N	Std. Deviation	Std. Error Mean
5-day Schedule	82.1429	14	13.34511	3.56663
4-day Schedule	86.8714	14	10.56485	2.82357

Table 6

Paired Samples Test for Students' Passing Rate

Schedule	Paired Differences			t	df	Sig. (two-tailed)
	Mean	Std. Deviation	Std. Error Mean			
4-day Schedule - 5-day Schedule	4.7286	13.08630	3.49746	1.352	13	0.199

Since the two-tailed probability value of a t score of 1.352 with 13 degrees of freedom is 0.199, then the mean passing rate difference between the 4-day and 5-day schedule of 4.7286 is not significant at $\alpha = 0.05$ (0.199 is not less than 0.05) and this signifies that the students' passing rate is not affected by the implementation of the 4-day workweek schedule.

3.4 Percent utilization of lecture rooms

To evaluate if the classroom utilization in the 4-day workweek schedule was utilized, Tables 7 and 8 shows the result of the analysis:

Table 7

Paired Samples Statistics for Lecture Rooms Utilization

Schedule	Mean	N	Std. Deviation	Std. Error Mean
5-day Schedule	49.7846	13	12.63374	3.50397
4-day Schedule	69.9308	13	14.71736	4.08186

Table 8*Paired Samples Test for Lecture Rooms Utilization*

Schedule	Paired Differences			t	df	Sig. (1-tailed)
	Mean	Std. Deviation	Std. Error Mean			
4-day Schedule - 5-day Schedule	20.1462	5.77085	1.60055	12.587	12	0.000

Since the one-tailed probability value of a t score of 12.587 with 12 degrees of freedom is greater than 0.000, then the lecture rooms' mean percent utilization difference between the 4-day and 5-day schedule of 20.1462 is highly significant at $\alpha = 0.05$ (0.000 is less than 0.05) and there is strong evidence that the implementation of the 4-day schedule increased usage of lecture rooms.

3.5 Percent utilization of laboratory rooms

To evaluate if the laboratory room utilization in the 4-day workweek schedule was utilized, Tables 9 and 10 shows the result of the analysis:

Table 9*Paired Samples Statistics for Laboratory Rooms Utilization*

Schedule	Mean	N	Std. Deviation	Std. Error Mean
5-day Schedule	42.4800	10	18.72510	5.92140
4-day Schedule	60.1290	10	24.77444	7.83436

Table 10*Paired Samples Test for Laboratory Rooms Utilization*

Schedule	Paired Differences			t	df	Sig. (1-tailed)
	Mean	Std. Deviation	Std. Error Mean			
4-day Schedule - 5-day Schedule	17.6490	9.15037	2.89360	6.099	9	0.000

Since the one-tailed probability value of a t score of 6.099 with 9 degrees of freedom is greater than 0.000, then the laboratory rooms' mean percent utilization

difference between the 4-day and 5-day schedule of 17.6490 is significant at $\alpha = 0.05$ (0.000 is less than 0.05) and there is strong evidence that the implementation of the 4-day schedule increased usage of laboratory rooms.

4 CONCLUSION

The university's monthly electricity consumption decreased significantly having $P = 0.028$ which is less than 0.05, there is strong evidence that the implementation of four-day workweek schedule decreased electricity consumption.

The university's monthly gasoline, oil and lubricants consumption decreased significantly having $P = 0.044$ which is less than 0.05, there is strong evidence that the implementation of four-day workweek schedule decreased gasoline, oil and lubricants consumption.

Passing rate of students in a four-day workweek schedule is not significantly different with the five-day schedule having $P = 0.199$ which is not less than 0.05 in the passing rate of students, this signifies that the student's passing rate is not affected by the four-day workweek schedule.

The percent utilization for both lecture rooms and laboratory rooms increased significantly having P of greater than 0.000 which is less than 0.05, there is strong evidence that the implementation of four-day workweek schedule increased usage of lecture and laboratory rooms.

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