Case Study 2: Work Sampling

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Executive Summary

Self observations are a standard practice in time evaluation. It allows for a specific person to take a understanding of how they are distributing their time in a specific time period. This could be how much they sleep in a given week, time spent at the gym, and so on. Observations can be done not only on a human subject but on a machine as well as the human/machine interaction. Over that allotted time period trends can be found and information about the overall process, if it is an effective use of time or if improvements can be found the process will be kept the same or changed.

Other methods can be used to find a work process and operation such as time studies but self observations are much faster ways of finding issues and are more cost effective use of resources. Self observations will be used to study how each member of the team is using their time during a 72 hour time window. The members will mark when they are doing any of the following activities: sleeping, eating, attending class, studying, walking to or from class, gym, and leisure time. Then a percentage can be found due to the time they are engaging in those activities during the entire study. This will give the members the benefit of observing their activities over that time period compared to other members. This will allow for self evaluations of their time management and possible create improvements.

When the 72 hours was completed it was shown through the self observations that the members spent most of their time between sleeping and leisure time. Garrett spent 41.66% of his time doing leisure activities and 30% of his time sleeping. Kyle Stanshine spent 35% of his time sleeping and 21.67% of his time doing leisure activities. Kyle Sardinia slept for 40% of his time and was in leisure activities 26.66% of the time. Mark Miller spent 30% of his time studying and 26.67% of his time in leisure activities Three of the four members sleep about 40% of their day while Mark only sleeps about 15% of his day. This is followed by leisure time which is about 30% overall due to Garrett's leisure time being higher than the other members.

When each member evaluated their own time over each of the three 24 hour periods they can gain an understanding of how their time is used. If they deem their grades to be too low and they see that their study time is far less than their leisure time they may want to increase their study time and decrease in their leisure activities. Mark for instances has a very low sleep time and Kyle Sa. has a very high percentage of sleep. Both could lead to either better studying habits and grades or worse. That is mostly dependent on how the individual operates on a normal basis.

The total self observation data can be of course improved upon. If the number of activities that each student is allowed to mark the time usage can be more specific in its scope of understanding the time period. The time period could also be extended from three days to possible seven days to allow for a better understanding of an entire week instead of just the weekend in this study. That will allow for a more complete understanding for each member on how they are allotting their time.

Introduction

In general learning from our past will greatly increase our chances for success in the future. In Industry learning from our work will greatly increase our chances of efficiency in the future. Work Sampling is a method of taking large numbers of observations at random times for analyzing work and was first applied in the British textile industry when Britain was industrializing.

Work sampling can be helpful in determining machine and operator utilization, determining allowances, and establishing time standards. The more observations that are recorded the work sampling will be more accurate. Great effort to have these observations remain practical, statistical, and accurate will produce an accurate sample of what work was done in the sample of time. The theory of work sampling comes from the fundamental law of probability. At a given instant, an event can be either present or absent.

Time studies procedures will generally provide the same information, but work sampling can provide the information quicker and at a cheaper cost. This is done by looking at proportions of the total time of a job or work situation. To approximate the percentage of time that a specified process might be occurring, a ratio of observations on specific processes are used.

Work sampling has a few specific advantages over conduction a conventional time study. It does not require continuous observation by an analyst over a long time as in the time study. Work sampling diminishes clerical time. The total work-hours that are expended by an analyst using work sampling are usually fewer. The operator is never subjected to long periods of stopwatch observations. With work sampling, entire crew operations can be readily studied by a single analyst.

It can be very beneficial in industry for managers and salaried workers to take part in self-observations to evaluate the effectiveness of their own workday. Quite frequently people in upper-level positions can be spending their time on less important aspects that could be handled by subordinates and clerical positions. Meanwhile, they spend less time on important aspects. When conducting work sampling through a self-observation it can be very revealing of positive action they can take in order to balance this time.

Objectives

The objectives of this study are to conduct self observations for each member of the team in a 72 hour time period. This will allow for charts to be made for each member creating statistical data of how each member spends their time due to the categories chosen. Then the data can be completely evaluated to show the distinct differences between the members lives. Then a standard can be shown on how to possibly improve upon the members lives and time management.

Methods

The following steps were taken by each group member in order to conduct the experiments:

1. Generate random times to observe self
2. Record a tally next to the category corresponding to the activity observed at each time
3. Generate data from the observations
4. Compare and contrast the results for each group member
5. Discuss results in a comprehensive report

Results

The data indicates that, within a certain tolerance, the average college student during a summer semester spends the majority of his time between sleeping and leisure. From our four samples, the average number of hours such a student sleeps per day is 7.2 and the number of hours spent on leisure per day is 7.0; combined they take nearly ⅔ of a student's day. This figure seems to be relatively consistent between each group member's data. Other than these two, the time spent in each category is very close, with studying being more commonly occurring than the others.

The categories that fluctuated the most from sample to sample are class and walking to class. Two group members had class about the same amount of time (around 4 hours per day), and two group members had no class. This is because two of the group members only take class online. They do not spend any time in class, or walking to class. Still, this is an accurate measure of the average time a student spends in class during a summer semester, because some students take classes on campus and some only take classes online.

Table 1: Self Observation – Data for all 72 hours

Categories	# of Observations	% of Day	Hours per Day
Sleeping	72	29.88	7.2
Eating	19	7.88	1.9
Class	20	8.30	2.0
Studying	44	18.26	4.4
Walking to or from class	4	1.66	0.4
Gym	12	4.98	1.2
Leisure	70	29.05	7.0

Table 2: Total Self Observations (percentage)

Total Self Observations of the past 72 hours (percent)				
Activities	**Garrett Gourley**	**Kyle Stanshine**	**Kyle Sardinia**	**Mark Miller**
Sleeping	30.00	35.00	40.00	15.00
Eating	11.66	10.00	8.33	1.67
Class	0	15.00	0	18.33
Studying	13.33	11.67	18.33	30.00
Walking to or from class	0	1.67	0	5.00
Gym	3.33	5.00	6.66	5.00
Leisure	41.66	21.67	26.66	26.67

Discussion

The results show self observations that were performed on several students to analyze the amount of time a student during a summer semester spends on the different aspects of his/her day. Mark, Kyle Sa., Kyle St. and Garrett each individually gathered 60 observations over a 72 hour period to provide multiple samples of data. **Table 1** lists the information about the time invested in each activity from the combined data. While **Table 2** gives an overview of the entire activities the members observed only in percentages side-by-side.

An important observation that can be seen is that the amount of time a student spends on leisure ties the amount of time spent on sleep to be the most time consuming activities. This is a surprising figure. While this number fluctuated between samples, it was one of the most time consuming activities in each sample. This shows that a student has a lot of free time during a summer semester; the students seem to choose to spend this free time on leisure activities.

It is important to look at the amount of time the student of a summer semester spends on the activities that apply to school, since that is what differentiates him/her from another person. Combined the amount of observations of activities that are for school (class, studying and walking to or from class) total to 68. Since there are 241 observations (Mark has 61 observations and the other three members have 60 observations), this means that the average student of a summer semester spends 28.21% or about 6.77 hours per day on school-related activities. This is close to a professional person's work day, considering with an hour lunch the student spends 7.77 hours (almost 8 hours, the typical amount of time spent at work) hours at his "work".

Taking a look at **Table 3**, Garrett's data is a bit different than the other members. It can be seen that he used 0% of his time for the three days at class or walking to or from class. This can be said due to the fact Garrett is not in State College to attend classes that automatically excludes him from those categories. His time for leisure is rather high as well at almost 50% of his time. He is only eating 11.66% of the time showing that he is possibly a fast eater or he is not eating as much. That conclusion can also be surmised due to the fact he is awake for extended hours but doesn't eat more than two meals a day. Some things to reflect on, there are possibly other activities that he is partaking in but due to the categories chosen he could not write those as activities he is doing. Sometimes like work, driving, etc. His time at the gym is also low at 3%. Maybe it is because it is the weekend he wishes to take a break. Then studying is not too bad at 13.33%. But it would be recommended that he study more and decrease his leisure time to maximize his studies.

Table 4 shows the results of Kyle Stanshine's 60 random self-observations over a 72-hour period. Kyle spends the majority of his day on sleep. He spends about 8.4 hours sleeping per day, being more time consuming than any other activity by over 3 hours. The next most time consuming activity for Kyle is leisure, spending 5.2 hours on such activities. Kyle then spreads the rest of his time relatively closely over the remaining activities (not including walking to class).

Table 5 shows Kyle's actions and inactions over a 72-hour period. The patterns of sleeping seem to be relatively high compared to the rest of the data. This might be attributed to a recent change in employment status and entering a period of vacation before beginning a new part time job. This could also contribute to the increase in available gym time and increased eating habits. Being that both summer courses Kyle is enrolled in are online there is no walking to or from class and these classes can be easily watched in 'binge segments' potentially before this study was conducted. With one class holding an exam the day after this study was completed we would expect to see a bit more studying. In observing the amount of time spent on leisure being around half of his waking hours it would prove effective to take time out of this category to maximize the more important effective studying time.

Table 6 records Mark's 3 days of studying, class work, walking to and from class, and leisure by not going to the gym and by keeping meals to 10 minutes within the hours of 8AM, 2PM and 7PM. Having the recordings of each hour generally timed on the IPhone kept on at all times. The two classes on friday at 6PM was a test that was being taken that night hence the amount of studying Wednesday, Thursday and Friday up to 6:00. Riding his bike to and from school and since biking is a bit more laborious on the heart it could be considered a Gym exercise so the overall time is split between Gym and Walking.

Conclusion and Recommendations

The work sampling allowed each member to take random samples at unknown intervals above 30 minutes in a 72 hour period over the summer. Many people not just college students are horrible at scheduling tasks and dates taking this work sample and applying it to work ethic is all but a simple task.

Sleep, leisure, and eating had the greatest variance of all the activities while gym, studying, and walking to and from class kept a nominal number of observations. Even with 2 participants taking a minimum of classes the amount of studying still does not drop. Mark also had minimal sleep tracked in observations leading to a couple inconsistencies with the other activities. All of the self observations data shocked the participants and most would not change the way they go about their life over this self observation. What really is driven home is that time is always available in leisure especially in the summer but class time is certainly not always available within leisure.

Appendix

Table 3: Garrett Gourley Self Observation

Garrett Gourley Self Observation			
Activities	**# of Observations**	**% Per Day**	**Hours Per Day**
Sleeping	18	30.00	7.2
Eating	7	11.66	2.8
Class	0	0	0
Studying	8	13.33	3.2
Walking to or from class	0	0	0
Gym	2	3.33	0.8
Leisure	25	41.66	10

Table 4: Kyle Stanshine Self Observation

Kyle Stanshine Self Observation			
Activities	**# of Observations**	**% Per Day**	**Hours Per Day**
Sleeping	21	35.00	8.4
Eating	6	10.00	2.4
Class	9	15.00	3.6
Studying	7	11.67	2.8
Walking to or from class	1	1.67	0.4
Gym	3	5.00	1.2
Leisure	13	21.67	5.2

Table 5: Kyle Sardinia Self Observation

Kyle Sardinia Self Observation			
Activities	**# of Observations**	**% Per Day**	**Hours Per Day**
Sleeping	24	40.00	9.6
Eating	5	8.33	2
Class	0	0	0
Studying	11	18.33	4.4
Walking to or from class	0	0	0
Gym	4	6.66	1.6
Leisure	16	26.66	6.4

Table 6: Mark Miller Self Observation

Mark Miller Self Observation			
Activities	**# of Observations**	**% Per Day**	**Hours Per Day**
Sleeping	9	15.00	2.6
Eating	1	1.67	0.4
Class	11	18.33	4.34
Studying	18	30.00	8
Walking to or from class	3	5.00	1.2
Gym	3	5.00	1.2
Leisure	16	26.67	6.4