

## Optimization of duration of working span and break span

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**Abstract:** *The objective of this research project was to observe the impact of different combination of tea and lunch breaks on productivity during working of eight-hour shift in manufacturing organization. In this study, researcher selected four categories of break schedules titled A1, A2, A3 & B1; and four different set of workers who were working on different working lines titled L1, L2, L3 and L4. Each line was comprises of almost 10 workers. Care was taken to get a uniform blend of workers in terms of age and gender. Category A1 contained one fifteen-minute and one forty-five minute lunch break and location was first-half of shift. Category A2 had one sixty-minute lunch break. Category A3 contained two-fifteen minute tea break at 60 minutes' distance from both boundaries of shift and one thirty-minute lunch break at mid. B1 had two fifteen-minute tea breaks and one forty five-minute lunch break. Results showed that all four working lines were given high productivity while working at the category A3. Therefore, it could easily be concluded from this research that Category A3 has found to be best among all and this could be taken as an optimization schedule for worker's break timings during an eight-hour shift.*

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### I. Introduction

#### 1. Basic Assumptions

The aim of this study is to examine the productivity impact of different combinations of lunch and tea breaks on various locations among the whole shift and also different combinations for their durations. It is therefore assumed that changed conditions must have an impact on workers' ease and subsequently the output.

#### 2. Justification

On the basis of observed results, researcher could justify the statement that during the working span equals to eight hours' shift, two fifteen-minute tea breaks and one thirty-minute lunch break are most favorable in view of productivity and efficiency because when workers got exposed to different break conditions, as specified above, the said condition produced more output as compared to other break conditions which proves that this condition (i.e. two fifteen-minute tea breaks and one thirty-minute lunch break) is the optimized condition of working.

#### 3. Scope

This research is applicable to all those work stations where manufacturing is taken place and total working is equal to eight hours per day.

#### 4. Purpose

Productivity and Efficiency are vital needs of any industry, both for survival and growth. Latest world has emphasized too much for taking the most from work-force. However all such studies have been conducted in advance world or more privileged regions. This is a fact that differences among habitats are the real barriers for adaptation of any practice in a region, that have been validated somewhere else.

Therefore researcher traced a gap for similar analysis exclusively for his region. People of this region (Pakistan) are living in a world that has its unique characteristics including merits and demerits. And those distinguished features provide a firm base to conduct an exclusive research rather simple adaptation.

#### 5. Limitation

Researcher conducted this study to optimize the break schedule to get maximum output during working of eight hours by considering age and gender of workers while there are some other factors which may positively or negatively affect the productivity. These factors are

- Nature of Job
- Environment in which the job is being performed
- Level of physical activity involved
- Experience of the worker in that particular role

So, there is a margin to conduct the study by considering all above mentioned conditions.

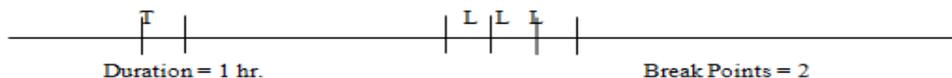
## II. Methodology

Researcher has conducted this study by selecting four different breaks conditions namely Categories A1, A2, A3 & B1.

Following is the brief about each category:

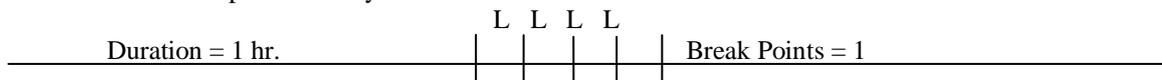
### Category A1

This is Researcher existing condition in which workers are provided with two breaks: One 15 minute Tea break and one 45 minute Lunch break.



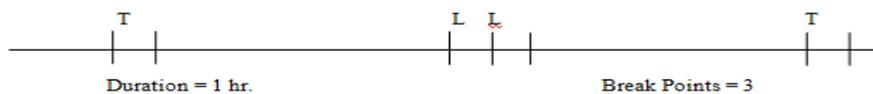
### Category A2

In this condition workers are provided only one Break: Lunch break of 60 minutes.



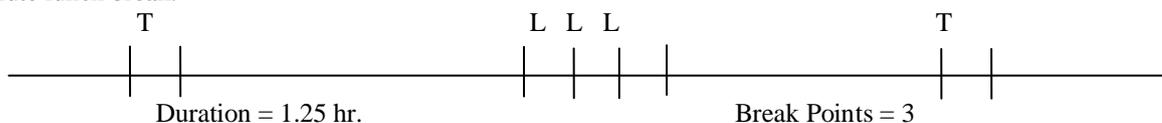
### Category A3

In this condition workers are provided with three breaks comprises of two 15 minute tea breaks and one 30 minute lunch break.



### Category B1

In this condition workers are provided with three breaks comprises of two 15 minute tea breaks and one 45 minute lunch break.



Researcher selected a set of ten workers from four different packing lines who were passed through all above four categories. Productivity was calculated in term of number of packs.

## III. Results

After passing each line from all above mentioned categories, Researcher found different rate of productivity which were calculated in terms of number of packs. Following is the graphical representation of productivity from all four different packing lines:

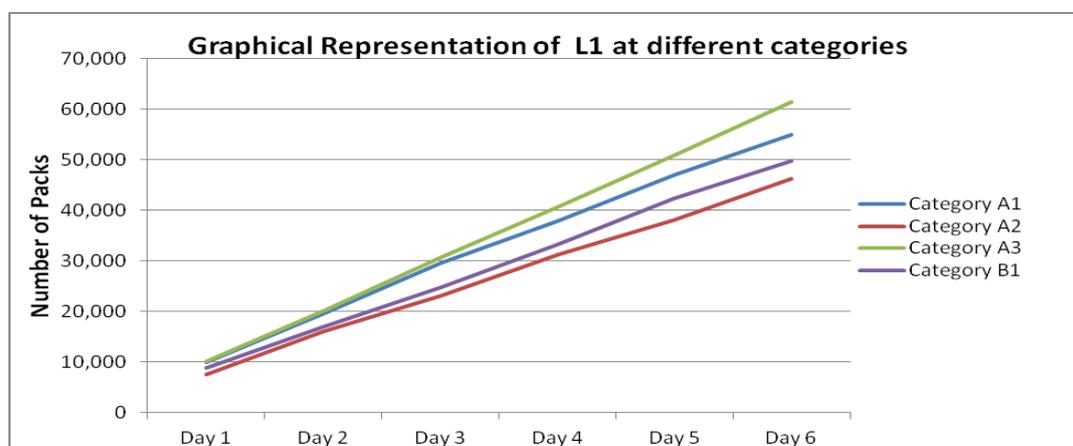


Figure No. 1

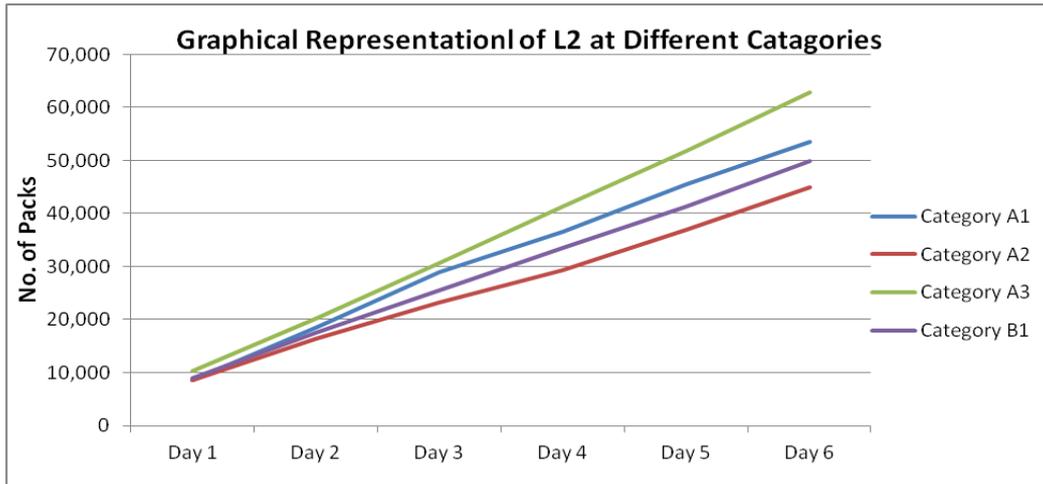


Figure No. 2

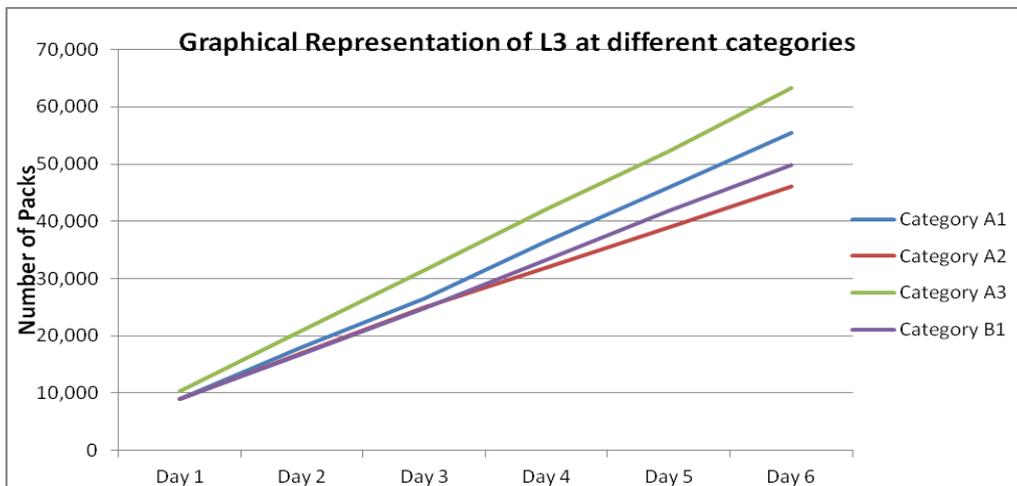


Figure No. 3

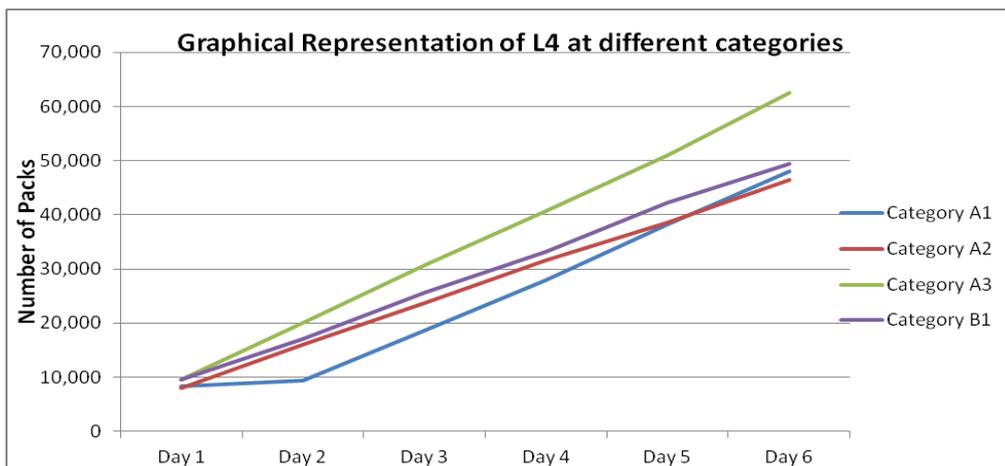


Figure No. 4

#### IV. Findings

All groups showed different performance levels among different sets of breaks however all of them were on the optimum altitude while working with the condition A3. There were four sets of conditions all together and some confusing results have been observed among two of them but there was no any doubt to the statement that A3 stands alone among all sets of conditions, for all four sets of workers went under observation.

Both numeric value and quality of production of each line under condition A3 was found best as compared to the other conditions.

It has also been observed that there is an optimal point for the total length of break and going beyond this point will again result in less productivity either because of less productive time available, or because of the changed tendency of humans from work towards rest. How this factor actually relates! Could be the topic for some onward research work.

## V. Recommendation

Therefore, for getting optimal results, while working within same or similar habitat, Researcher suggests even recommend to adopt a 3-stage one-hour break per eight-hour shift, with due care of location and size of each portion, as close to A3 as possible, along with justified adjustments up to some extent. Further to this, a homogenous blend of workforce is also mandatory, Researcher believe.

## VI. Conclusion

It could easily be concluded from the findings that workers feel easy to work if they get frequent breaks on reasonable distances as compared to the consolidated one of the same total length. This is because of the natural human tendency to acquire a drift in state after every few time. Idea could also be supported with the facts related to the natural requirements of visiting rest room and / or flushing eyes with fresh water. Or only have one glass of water slowly with deep breath, at least. Providing one consolidated break or the break with less break-ups will ultimately result in either the undue movement of workers for natural requirements or to the forced stoppage of them even if necessary. Both conditions will lead towards declined productivity.

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