

## 8.4: Motion Study

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re and motion studies and the criticisms associated with this approach. Time motion studies have been used and continue to be used in application for application of time motion studies within an operations context.

of the text. You can watch it online here: <http://pb.libretexts.org/b/?p=136>

a business efficiency technique combining the Time Study work of Frederick Winslow Taylor with the Motion Study work of Frank Gilbreth through the biographical 1950 film and book *Cheaper by the Dozen*. It is a major part of scientific management (Taylorism). After the action of establishing standard times, while motion study evolved into a technique for improving work methods. The two techniques combined method applicable to the improvement and upgrading of work systems. This integrated approach to work system improvement is applicable to industrial as well as service organizations, including banks, schools and hospitals.

a task, using a timekeeping device (e.g., decimal minute stopwatch, computer-assisted electronic stopwatch, and videotape camera) to be used when:

irration,

ycle.

defines time study as “a work measurement technique consisting of careful time measurement of the task with a time measuring device to determine normal effort or pace and to allow adequate time for such items as foreign elements, unavoidable or machine delays, rest to overcome

tly assumed to be interchangeable terms, descriptive of equivalent theories. However, the underlying principles and the rationale for the terms are similar, despite originating within the same school of thought.

l the use of **time-study methods** in standard setting and the planning of work, was pioneered by Frederick Winslow Taylor. Taylor, through these discussions wrote several papers proposing the use of wage-contingent performance standards based on scientific time study. Taylor broke down each job into component parts, timing each part and rearranging the parts into the most efficient method of working. By applying scientific management, which was essentially an oral tradition, into a set of calculated and written techniques.

ment of a **fair day's work**, and sought to maximize productivity irrespective of the physiological cost to the worker. For example, Taylor's goal was to be the deliberate attempt of workers to promote their best interests and to keep employers ignorant of how fast work could be done. Taylor or by Taylor prepared the path for human relations to supersede scientific management in terms of literary success and managerial

human nature, many strong criticisms and reactions were recorded. Unions, for example, regarded time study as a disguised tool of control to speed up the pace of production. Similarly, individuals such as Gilbreth (1909), Cadbury and Marshall heavily criticized Taylor and pervaded his work. L. J. Thompson stated that under scientific management employee skills and initiatives are passed from the individual to management, and critics condemned the lack of scientific substance in his time studies, in the sense that they relied heavily on individual interpretations of standardizing production is indisputable and supported by academics such as Gantt, Ford and Munsterberg, and Taylor society members. Proper time studies are based on repeated observation, so that motions performed on the same part differently by one or many workers are truly repetitive and measureable. Good studies are never studied just once.

y methods, the Gilbreths proposed a technical language, allowing for the analysis of the labor process in a scientific context. The time study method based upon the analysis of **work motions**, *consisting in part of filming the details of a worker's* activities and their timing, served two main purposes. One was the visual record of how work had been done, emphasising areas for improvement. Secondly, the

out the best way to perform their work. This method allowed the Gilbreths to build on the best elements of these work flows and to

linate to time studies, the attention he paid to the motion study technique demonstrated the seriousness with which he considered the  
n the basis of attitudes to workers, meant the Gilbreths had to argue contrary to the trade unionists, government commissions and  
was unstoppable. The Gilbreths were charged with the task of proving that motion study particularly, and scientific management  
improved and did not detract from workers' mental and physical strength. This was no simple task given the propaganda fuelling the  
scientific management. In addition, the Gilbreths credibility and academic success continued to be hampered by Taylor who held the  
ntinuation of his work.

criticized for their respective work, it should be remembered that they were writing at a time of industrial reorganization and the  
v forms of technology. Furthermore, to equate scientific management merely with time and motion study and consequently labor  
management, but also misinterprets Taylor's incentives for proposing a different style of managerial thought.

over for a direct time study:

: actual timing. They familiarize the analyst with the task and allow the analyst to attempt to improve the work procedure before

re for the task.

rformance (performance rating), to determine the normal time.

ltaneously. During these steps, several different work cycles are timed, and each cycle performance is rated independently. Finally,  
l to get the normalized time.

e the standard time. The allowance factors that are needed in the work are then added to compute the standard time for the task.

studies a comprehensive time study consists of:

ways, depending on study goal and environmental conditions. Time and motion data can be captured with a common stopwatch, a  
umber of dedicated software packages used to turn a palmtop or a handheld PC into a time study device. As an alternative, time and  
emory of computer-control machines (i.e. automated time studies).

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