

NASA TECH BRIEF



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Automatic Planning Concept—An Analysis of Optimum Scheduling

Due to the uncertainties and intangibles involved with a space project that includes a multiplicity of sophisticated scientific experiments, it would be most beneficial if an optimum schedule could be developed by the use of linear programming. To this end, a study in depth has been made, which considers resource costs, mission constraints, and experiment results as linear functions, insofar as possible. Elements not amenable to such consideration are identified and discussed. The problem of introducing time or scheduling into linear programming has, in the past, been resolved by an algorithm that generates acceptable but not optimum schedules within a specified set of resources and logical restraints.

The study is deeply involved with a mathematical approach in which a number of constraints are considered operative: constraints relating to manpower, equipment, raw material, electrical energy, etc.; others relate to exterior parameters, as geographical areas to be monitored, or meteorological phenomena to be sampled at discrete altitudes; still others relate to experiments which must be performed in a specific sequence. The principal effort in these considerations is, therefore, a realistic mathematical model.

Notes:

1. Many industrial scheduling problems may be resolved by a similar approach. For example, scheduling of the design, development, production, and sales of products; the purchase and proper installation of capital equipment, or the orderly diversification into new marketing areas.
2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B68-10127

Patent status:

No patent action is contemplated by NASA.

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Category 06

MARSA TECH BRIEF

1. The purpose of this brief is to provide a summary of the research results obtained from the study of the effects of the Marsa Tech Brief on the performance of the test subjects. The results show that the Marsa Tech Brief significantly improved the performance of the test subjects in all areas measured.

2. Scientific Planning Concepts—An Analysis of Optimum Scheduling

The study was conducted in a laboratory setting where the test subjects were given a series of tasks to perform. The tasks were designed to simulate the conditions of a real-world environment. The test subjects were divided into two groups: a control group and an experimental group. The control group was given the tasks without the Marsa Tech Brief, while the experimental group was given the tasks with the Marsa Tech Brief. The results of the study show that the experimental group performed significantly better than the control group in all areas measured. This suggests that the Marsa Tech Brief is an effective tool for improving performance in a laboratory setting. The study also found that the Marsa Tech Brief had a positive effect on the test subjects' mood and attitude. This suggests that the Marsa Tech Brief may be a useful tool for improving the overall well-being of test subjects. The study was limited to a laboratory setting and may not be applicable to real-world conditions. Further research is needed to determine the long-term effects of the Marsa Tech Brief on performance and well-being.

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