Types of industrial scheduling problems were investigated by personal visits to plants and by questionnaires mailed to scheduling departments. Information on problem sizes, job flow, optimization criteria and job similarity was obtained. Results indicate that most of the present procedures in theoretical research cannot handle average industrial problems. Also most commonly used objective criteria differ from industrial goals. There is a definite need for better communication between sequencing researchers and scheduling practitioners.

Sequencing research from 1954 to the present time has been directed toward solution of many different problems related to the order of processing jobs on machines. Variations in problem definitions arise from criteria to be minimized or maximized and restrictions on precedence, technological requirements both within jobs and among jobs.

Criteria that have been considered include minimization of total elapsed time or makespan, minimizing average time in the shop, minimizing job lateness or lateness penalties, minimizing machine set-up costs, minimizing inprocess inventory costs, and others. Concerning precedence restrictions, the common problem

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definitions are flow shop with no passing of jobs, job shops, and resource constrained networks. A special case is a shop with only one machine.

Research in job sequencing at Texas Tech University has concerned several of the above variations in problem definition. Although several algorithms have been developed and publicized, the lack of little known practical application of the research results has led to a reexamination of the scheduling problems found in industry and the sequencing research conducted at Texas Tech. One possible reason for a lack of application of sequencing research is that sequencing procedures solve problems that are rarely found in industrial scheduling environments. To gather information on the scheduling problems of industry two surveys were conducted by mail, and several plant visits were conducted.

Each survey was designed to collect data on a specific aspect of scheduling in addition to general information. The first survey was conducted in 1969 and concerned the similarity or patterns of processing times. This survey was sent to 250 companies throughout the United States; 75 replies were received.

The second survey was designed to collect data on the importance of set up times in schedule determination. This survey was conducted in 1971 and was sent to 108 companies; 40 replies were received. Since the majority of companies in the 1971 survey were the same as those surveyed in 1969, answers to the general questions were combined.