HAHN, Chan KI, 1939-

THE MAJOR DETERMINANTS OF HOSPITAL DECISIONS
TO PARTICIPATE IN A GROUP PURCHASING PROGRAM.

The Ohio State University, Ph.D., 1970
Business Administration

University Microfilms, A XEROX Company, Ann Arbor, Michigan
THE MAJOR DETERMINANTS OF HOSPITAL DECISIONS
TO PARTICIPATE IN A GROUP PURCHASING PROGRAM

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

by

Chan Ki Hahn, B.C., M.B.A.

The Ohio State University
1970

Approved by

Adviser
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ACKNOWLEDGMENTS

Many persons have helped to make this study possible. My parents and brother, Youngki, deserve special mention for their encouragement and financial help. My wife, Young, also deserves special mention for her patience.

Extensive assistance in the form of constructive criticism and guidance was provided by my Reading Committee from The Ohio State University: Professor Irving Abramowitz, Adviser, Professor H. Randolph Bobbitt and Professor Stanley T. Hardy.

This study would not have been possible without the encouragement and support of National and Columbus Area Association of Purchasing Management. Also special thanks should be given the Hospital Council and its members of Western Pennsylvania Area for their cooperation.

Mr. Woo Y. Chun, Department of English, The Ohio State University, provided assistance in editing the manuscript.

Mrs. Jane Ott also deserves praise for typing the materials with such care.
VITA

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FIELDS OF STUDY

Major Field: Production and Operations Management

Minor Field: Marketing, Organizational Theory, and Economics
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CHAPTER I
INTRODUCTION

As the economy expands continuously and the standard of living is improved, the field of health care becomes a more important subject in our society. In recent years, the costs of health care have been increasing much more rapidly than the economy has been. As a possible partial solution to this ever increasing cost, a group purchasing program has been suggested. This research focuses on the major determinants of behavior of hospitals participating in a group purchasing program in the Western Pennsylvania area.

Hospital Industry in the United States

The increasing size, complexity, and cost of hospital care for a growing population are matters of universal concern. Hospital care must be provided within the constraints imposed by limitations of monetary man-technological resources. Hospitals, as do all organizations, have a multiplicity of objectives. The primary objective of any hospital, however, is the provision of quality patient care at a reasonable cost. The determination of the quality of health care at a reasonable cost is most difficult. In this study it is assumed that the reasonable cost for maintaining a satisfactory quality of health care in a society is at a level that the economy of that society can support without causing too many restraints on other sectors.
The hospital industry in the United States has failed to meet this basic objective. It is generally agreed among industry and the public that the quality of hospital care has been improved greatly over the last decade. The costs of providing this level of hospital care, however, have been increasing faster than any other sector of the economy, and this trend is continuing. One recent study indicated that hospital care costs per patient day increased 200 per cent in the last decade, and in major U.S. cities this increasing rate is gaining in momentum.

Not only can the hospital industry in the United States be classified as of major importance, but as a large, complex industry as well. More than 7,000 hospitals hire over two million people with annual revenues of 20 billion dollars. However, the hospital industry has to be differentiated from most other industries in terms of its objective, organizational structure, and structure of competition.

Generally, the majority of hospitals in the United States are not profit-motivated organizations. The objective of hospitals is to provide proper health care for the sick and to upgrade the general health level of society. Because of too much emphasis on this objective, the costs of providing such level of services to society have been largely ignored or neglected.

The organizational structure of a typical hospital in the United States is different from that of most other types of organizations. In most other organizations, the chain of command is clear and is built around the objective of the organization, namely

Figure 1. Comparison of Cost of Living, Hospital Daily Service Charges, and Occupancy Ratio
maximization of profit or maximization of stockholders' wealth. The hospital organization lacks unity of the chain of command. The functional areas, such as medical staff or nursing staff, have equal or more authority than the administration in the managerial matters of hospitals. In the hospital organization, medical doctors can be compared with a production line worker in business organizations. Their duties are highly technical and actual "product or service" is manufactured or rendered at this level. Because of this complex nature of their duties, managerial staff, such as administrators or purchasing agents, cannot advise the medical doctors on the technical aspects of their duties. The managerial staff is concerned only with mediation between the various parts of the organization and the coordination of their efforts. This peculiar situation results in a problem of decision-making. Since the primary objective of a hospital is to provide a satisfactory level of patient care and the prime beneficiary is patient group or members of the community, the technical level is emphasized too heavily, and as a result the overall objective is sub-optimized.

The structure of competition in the hospital is also different from that of most other industries. Hospitals are located in such a way as to serve certain community members. Therefore, the client group is a prime beneficiary in the hospital industry, while a business organization is located to facilitate the maximization of profit for its prime beneficiary, namely owners. In addition to this fact, the hospital capacity to serve the community is known to be much less
than its demand or its capacity is misallocated throughout the country. This point can be easily evidenced by the fact that many rural small communities suffer lack of medical facilities and doctors, while utilization of such facilities in a larger urban area has been much less than desirable. As a whole, the hospital industry enjoys a case of monopoly in the sense that it does not have to compete with each other as other industries do in the United States.

**Purchasing Function**

The function of purchasing is almost as old as the history of man. It started when man first bartered or exchanged one of his possessions for a desired possession of a fellow human being. It has always been a basic function important to man's activities and welfare, whether in a personal context or in his organized activities. The responsibility of the purchasing function is frequently defined as the procuring of materials, equipment and supplies of the right quality, in the right amount, at the right price, delivered at the right time.

Purchasing used in this study includes the broad managerial activities of planning, organizing, and controlling. Westing, Fine, and Zenz (1969) define the term as:

A broader meaning of purchasing makes it a managerial activity . . . Included in such activities are the research and development required for the proper selection of materials and sources from which these materials may be bought; the followup to ensure proper delivery; and inspection of incoming shipments to ensure both quality and quantity compliance with orders; the development of proper procedures, methods, and forms to enable the purchasing department to carry out established policies; the coordination of the activities of purchasing department with such other internal divisions of the concern as traffic, receiving, storekeeping, and accounting, so as to facilitate
smooth communication with top management of the company so that a true picture of the performances of purchasing function is presented.\textsuperscript{10}

Today's industrial society can be characterized as a rapidly growing economy, tremendously expanding knowledge, and a rapidly changing social and political structure, and the purchasing organization is one element of the organization that should be one of the most sensitive to these industrial characteristics. The purchasing department in an organization can be viewed as a boundary spanning unit that requires a high degree of flexibility to adapt to external environmental changes, as well as bridge the gap between these changes and internal organizational needs. Failure of any organization to adapt itself to the changing environment may lead to the failure of the organization to compete.\textsuperscript{11} Without a knowledge of its required product specification, its supply sources and market conditions, and organizational and individual influences on the buying decision, a purchasing organization cannot effectively make its decisions and formulate plans on the basis of objective criteria. Therefore, if an organization is to adjust itself to an ever-changing environment, management has to be aware of constraints imposed by the internal and external environment.\textsuperscript{12} A hospital purchasing department is not an exception to the case. The hospital purchasing department is supposed to fill the gap between outside resources available and internal needs for the resources.
Role of Purchasing in Hospital Management

Traditionally, the hospital purchasing agent has been merely a clerk in the hospital who processes the orders and checks incoming supplies and equipment against the invoices. This concept of the purchasing function is outdated, and has been rapidly changing in the more progressive hospitals. This development, which is vital for the efficient operation of a hospital, has been much too slow. This point can be easily explained by the fact that very few hospitals are delegating enough authority and responsibility to the purchasing department to handle required materials.

Proper and efficient management of materials in the hospital is an important aspect of hospital management, and it is not limited to the field of physical movement of goods, but it also provides a basis for the man-materials system which is the core of any hospital management. If a hospital wants to manage its materials within, as well as outside resources, the purchasing department is the most logical candidate for this new task in the hospital field.

In hospital management today, high personnel costs, over which any individual hospital has little or no control, and improved services rendered by hospitals have been cited to meet the increasing pressure from public and government agencies over the rapidly increasing hospital care cost. The 1967 extension of the federal minimum wages law now includes the hospital field. The impact of a series of organized labor drives and legal requirements puts hospital payroll expenses to somewhere between 60 to 70 per cent of all hospital costs. Even non-unionized hospitals have to pay a competitive amount to
attract trained personnel, such as nurses and laboratory technicians. Dramatic advances in modern technology also create a conflict between low-cost medical service and extended special treatment. A recently published magazine article indicates that the special treatment of patients in cases such as heart transplant, leukemia, or hemodialysis costs the hospital a tremendous amount of money and human resources.  

These facts, however, do not fully justify such increases in hospital costs. This point can be easily evidenced by the fact that the utilization ratio of such costly facilities and personnel as are required in open-heart surgery in United States hospitals is less than desirable. Improved coordination between hospitals can reduce these high costs drastically. It is also possible that well coordinated efforts within hospitals can reduce high personnel costs. If a hospital had well-established specifications for their required materials, highly paid personnel such as medical doctors, dieticians, or operating room supervisors would not have to spend their valuable time interviewing salesmen or for evaluating proposed items. It is the duty of hospital purchasing managers to see that materials purchased for the hospital are fully and most efficiently utilized. Therefore, a close coordination among hospital administrators and purchasing managers can achieve meaningful cost reduction programs through the sharing of expensive equipment and hard to recruit personnel. One of the coordinated efforts among hospitals is the group purchasing program.
Group Purchasing Program in Hospital Management

Rapidly changing technology, particularly in the field of medicine, and the changing nature of competition in the industries that supply hospitals has created a problem of dealing with the complex nature of products. Any one purchasing agent or single organization is no longer able to make effective buying decisions without proper assistance from each other or an outside professional who specializes in the field. In industrial organizations, the ultimate responsibility for changing products is taken away from an individual department head or purchasing agent, and the authority for the buying decision is given to a buying committee. The complex nature of the products and services no longer allows a purchasing agent to make effective price comparisons. Improved communication and transportation facilities provide opportunities for those who could not participate before. Therefore, the increased number of product choices available and the number of participating vendors place the purchasing personnel in the informational twilight.

From these recent developments in the field of hospital purchasing, the growth of the group purchasing program becomes a natural phenomenon. Two basic objectives of group purchasing programs in the hospital field are: 1) to apply industrial purchasing principles and theory to hospital purchasing; and 2) to offer a medium through which its individual members may combine their needed quantity and purchase in a large quantity.

The basic industrial purchasing principles are:

1. Determining what intrinsic qualities are needed in a
given material or item to afford the required degree of satisfaction for the use intended.

2. Estimating what a fair market price should be and using this as a check against current market prices.

3. Checking quality offered against market price to determine respective economies.

4. Analyzing each market offering from the standpoint of what the use-cost will be where the item, when put into use, will require an additional expenditure.  

Individual hospital management or purchasing agents rarely have the time, facilities, or technical background to carry out the steps outlined above. Therefore, the group purchasing program is proposing to perform or supplement each step for member hospitals.

There are arguments for and against such a program. Most arguments against the group purchasing program are based on the following reasons:

1. Poor services rendered by the group purchasing program.

2. Local supplier relationship will be harmed.

3. Poor quality items (less known manufacturer's goods) purchased by the group program.

4. Poor contact with representatives of supplying industries (salesmen).

5. Job security of purchasing agents.

Some of the above mentioned reasons are the subject of this research.
Statement of the Problem

There seems to be a general agreement among hospital administrators and purchasing agents that there is a need for a group purchasing program. But there are many disagreements about the nature of a group purchasing program and its efficiency. The fundamental conflict between need for the program and actual support of the program arises from three major reasons, namely, organizational, personal, and professional reasons.

The organizational factor includes size, type of trusteeship, communication and coordination between purchasing department and other functional areas. The degree of coordination is a function of communication and authority-responsibility relationship within the hospital. A highly coordinated hospital could be in a better position to deal with all available sources in purchasing required products. The size of hospitals also influences the degree of activeness in supporting the group purchasing program. It has been said that small hospitals are forced to purchase in large quantity by participating in the group purchasing program.

The extensive use of a group purchasing program in a hospital purchasing department might result in substantial savings and benefits for the hospital, and release enough manpower for more urgent tasks in the hospital. On the other hand, it might cause a feeling of insecurity and loss of status for the involved party. This is more probable in cases where hospital purchasing agents see the group purchasing program as a buying agent who is performing the same duty. Some purchasing agents might have a different attitude toward their goals than other purchasing agents.
Professional activities of purchasing agents should also cause the conflict. Active participation of purchasing agents in a professional organization, such as National Association of Purchasing Management, can be viewed, in general, as a willingness and eagerness of the participants to acquire new ideas and share the common problems with their peers. It is also probable that active participation in the professional activity will broaden the perspective of their duties and functions. The net result of active participation could be an active participation in a group purchasing program. Therefore, a statement of the problem in simple form would be: What are the major determinants of a hospital actively participating in a group purchasing program?

Some Definitions

In order to develop major hypotheses, some assumptions and definitions are made to clarify the terms used in this study.

Purchasing. "Purchasing" used in this study is given in the previous section of this chapter. It is assumed that purchasing is not only an "act" of buying, but includes broad managerial activities. Some authors prefer to differentiate between the terms "purchasing" and "procurement," but they will be used interchangeably in this study.

Group Purchasing. "Group Purchasing" refers to the total action taken by more than one separate organization to acquire one or more products. Throughout this study it will be used as a form of cooperative effort among hospitals which is formally organized through the formation of separate, voluntary, non-profit, membership association seeking to supplement and strengthen the procurement capabilities of each hospital. Group purchasing organizations will include
regional (e. g., Western Penn. Council, Boston Council, or Cleveland Council), national (Hospital Bureau of New York), and religious groups (e. g., Catholic Group).

Centralized Purchasing denotes limiting all purchasing activities to one department of an organization. In this study, centralized purchasing is clearly differentiated from group purchasing. The distinction lies in the fact that centralized purchasing refers to an intra-organizational relationship, and group purchasing refers to inter-organizational relationships. 21

Hospitals. Although hospitals can be classified into several different groups according to their control, services rendered, length of patient stay, teaching affiliation, and profit or non-profit status, this study will mainly deal with short-term, voluntary, non-profit, general hospitals. 22

Short-term hospitals are distinguished from long-term hospitals in the sense that the average length of patient stay in the hospital is less than 30 days.

A general hospital is distinguished from a specialized hospital in terms of range of services rendered. General hospitals are those which offer a full range of services (dermatology, general medicine, neurology, psychiatry, surgery, urology, and dentistry). Specialized hospitals are those which concentrate on one or more of those areas such as pediatrics (Children's Hospital) or obstetrics (lying-in hospitals).

Hospitals also can be classified into voluntary and federal or state controlled. Voluntary hospitals are those sustained by
contributions voluntarily given by persons or charitable organizations or government agencies. They are not government controlled, although they may receive sizable contributions from both the federal and local governments, because it is strictly voluntary action taken by the government. This study will be limited to voluntary hospitals in view of the fact that federal and state controlled hospitals may have to follow the procedures and policies set by the government which may restrict the participation opportunity in the group program.

Another classification of hospitals would be based on size. Throughout this study, hospitals will be classified as small, medium, and large according to the number of beds. Small hospitals will include those which have fewer than 150 beds; and medium-sized hospitals will include those hospitals with 150-300 beds; and large hospitals are those which have more than 300 beds.

**Purpose of the Study**

The general purpose of this study is to provide data, and to formulate, refine, and test a number of hypotheses on the subject of group purchasing programs in the hospital. The specific purpose of the study is to determine and measure those factors which tend to influence, directly or indirectly, the degree of participation in the group purchasing program in the Western Pennsylvania area. It is partially exploratory in nature in the sense that it tries to provide pertinent information on the behavioral pattern of hospital participation in the group purchasing program.

Most existing literature is concerned with the economic aspect of the group purchasing program, a proper investigation of the economic
feasibility of the program is beyond this study. This study does not try to test or investigate the economic advantages or disadvantages of the group purchasing program in this area.

It has been suggested by many authors that the functions of purchasing in a hospital is expanding. The traditional concept of the hospital purchasing department as an order processor is rapidly fading away, and the new concept of materials management is taking its place in the hospital purchasing field. However, this change is still limited to the larger and more aggressive hospital, and a large number of hospitals have yet to see proper changes in their viewpoint. Therefore, one of the objectives of this study is to determine whether there is any relationship, and, if any, the extent of the relationship between the attitude and perception of purchasing and management personnel on the functions of hospital purchasing and hospital participation behavior in the group purchasing program.

A second objective of the study is to determine the organizational influences on the participation behavior of a hospital. Purchasing personnel are bounded by the organizational environment. They are acting under the name of the organization to which they belong, and for the benefit of the organization for which they are working. Therefore, the organizational structures have a great influence on the outcome of the decision process. Relative status of the involved department within the organization, communication systems within the organization, and conflict resolving mechanisms are in this area.

Some demographic background of purchasing and top management personnel is related to their attitudes and participation behavior.
Social-psychological literature indicates that individual attitudes and perceptions are functions of age, educational background, social life, experience, personal goals, and orientation and reference groups. Therefore, a third objective of the study is to determine whether such a relationship exists and the extent of this relationship between certain demographic factors and the attitudes and perception of hospital personnel.

In the light of these research objectives, a structured questionnaire which contains forty-two statements about the hospital purchasing and group purchasing program was used. In addition to this set of structured questions, some open-ended questions were used to generate additional information on the subject. Then some specific recommendations are made from the results of the study for the implementation of the existing group program and hospital administration.
FOOTNOTES (Chapter I)


2. For detailed information, see Fortune, January, 1970, pp. 80-90.

3. Ibid., p. 82.

4. The exact figures provided by American Hospital Association in 1970 are 7144 hospitals employing 2,426,000 persons with total annual expenses of $22,103,000.


7. Ibid., p. 43.

8. Ibid., pp. 43-44.


This figure varies according to individual hospitals, but the national average published by American Hospital Association in 1970 reveals that payroll expenses were 62.4 per cent of total expenses.

For detailed information, see *Fortune*, January, 1970, p. 98.

*Fortune*, (January, 1970), reported that the utilization ratio of these facilities throughout 750 hospitals is less than 50 per cent.


Ibid., p. 9.

Ibid., p. 10.
The subject of hospital purchasing and the group purchasing program in hospital management has received much attention in the last decade. Most of the research, however, has been limited either to a narrow aspect of the economics of group purchasing or to the methodologies involved, and for the most part the studies were not based on objective inquiries. As a result, the existing literature on hospital purchasing and group purchasing is extremely poor in quality and quantity, especially in the field of hospital group purchasing. Elia (1963) summarized the situation:

The literature on purchasing for hospital and group procurement is painfully lacking in terms of scholarly works. With the exception of a number of articles which have barely scratched the surface, there is no systematized body of knowledge or organized set of principles pertaining to this subject.

This chapter is devoted to presenting a summary of existing research findings on institutional buyer behavior, hospital purchasing and group purchasing program.

Major Determinants of Industrial Buyer Behavior

Kotler (1965) presents five models for analyzing buyer behavior in his recent work. They are: 1) the Marshallian model, stressing economic motivations; 2) the Pavlovian model, learning;
3) the Freudian model, psychoanalytic motivations; 4) the Veblenian model, social-psychological factors; and 5) the Hobesian model, organizational factors. Each of these models represents radically different approaches to the mainspring of human behavior, but they are all useful behavioral models for interpreting the transformation of buying influences into purchasing responses.

Traditionally, the subject of the behavior of hospital purchasing and group purchasing have been approached through the use of the Marshallian economic model. The Marshallian theory holds that purchasing decisions of buyers are the result of largely "rational" and conscious economic calculation, particularly in the case of industrial buyers. Hospital buyers, as a type of institutional buyer, emphasize the economics of their purchasing decisions. This is understandable because the greatest concern of modern hospital management has been cost reduction and utilization of the hospital facilities. Although economic factors alone cannot explain all the variations in purchasing decisions, economic factors operate to a greater or less extent in all markets, and therefore, must be included in any comprehensive description of buyer behavior. The most serious weakness of this model is that it ignores the fundamental question of how product, brand, and vendor preferences are formed.

The Pavlovian model stresses that all of man's behavior is learned, and his behavior can be explained through the learning process. Pavlov concluded through his series of experiments that learning was an associative process and that a large component of behavior was conditioned in this way. Knowledge, language, skills,
attitudes, value systems, and personality characteristics are a result of this learning process. 5

The model has been refined over the years, and today is based on four central concepts—those of drive, cue, response, and reinforcement. 6 Briefly stated, drives, which are also called needs or motives, mobilize an organism toward action. Environmental cues provide the setting in which drives can achieve expression in terms of a response. The types and amount of reinforcement associated with this response will, in turn, influence the extent to which this behavior is repeated. The modern version of the Pavlovian model makes no claim to provide a complete theory of behavior, but offers a substantial number of insights into some aspects of human behavior. 7

The Freudian psychoanalytic model emphasizes the subconscious aspect of human behavior. The implication of this model is that buyers are motivated by symbolic as well as economic-functional product concern. 8 Unfortunately, the usual interviewing and direct observation techniques are not feasible for establishing the case of mental states which are presumed to be deeply buried within each individual.

The Veblenian social-psychological model views man as primarily a social animal—conforming to general forms and norms of his larger culture and to the more specific standards of the subcultures and face-to-face groupings to which his life is bound. The basic view of this model is that man's attitudes and behaviors are influenced by several levels of society—culture, subcultures, social classes, reference groups, and face-to-face groups. 9
The weaknesses of this model are that social influences determine much, but not all, of the behavioral variations in people. Attitudes are really the product of social forces interacting with the individual's unique temperament and abilities. Furthermore, attitudes do not automatically guarantee certain types of behavior. Attitude is only a predisposition of the individual to evaluate some symbol or object or aspect of his world in a favorable or unfavorable manner. The buying process itself is a learning experience which can lead to a change in attitudes.

The Hobbesian model emphasizes organizational influences in the buying process. Institutional buyers are paid to make purchases on behalf of the organizations for which they work, i.e., they are operating within an organizational environment; therefore, institutional buyers are largely conditioned by rational motives in their organizational buying decisions. On the other hand, an institutional buyer is also a human being, tempered by his interest to do the best for himself. Therefore, the institutional buyer is guided by both personal and group goals.

The crucial point being made here is that none of the above models for analyzing buyer behavior can, taken individually, fully explain the true buyer decision-making process. Several research findings are reviewed in the remaining section of this chapter to substantiate the models presented by Kotler. Following are the major pieces of research on institutional purchasing and group purchasing, at which level hospital purchasing is classified.
Brennan (1954) was one of the first major authors who attempted to make a broad and objective study of hospital purchasing and group purchasing. Through an in-depth case study of 13 regional hospitals in the Eastern United States, he made an economic feasibility study of group purchasing and tried to identify problem areas of hospital purchasing.

Brennan concluded in the economic feasibility part of the study that for some selected items, a group purchasing program can result in substantial savings for participating hospitals. However, he recognized the fact that a group purchasing program is not the answer for cost reduction in hospitals. He pointed out that there are many advantages and disadvantages of group purchasing in the hospital industry, and accordingly, there are many rational and emotional attacks on group purchasing programs.

Brennan (1954) found that a group purchasing program is extremely useful for hospitals which do not have proper quality standards or specifications. The lack of specifications tends to force the purchasing agents to buy only nationally known items without proper investigation of their price and quality. Group purchasing provides useful product and price information, and in some cases it can provide information about the claimed product quality through independent laboratory testing.

Brennan also found that lack of a proper inventory and materials management system is one of the most serious problem areas of hospital management. This situation can lead individual hospitals into purchasing on a hand-to-mouth basis with an excessive number of
small rush orders, resulting in the loss of its flexibility in choosing vendors and quantity discounts. A group purchasing program is supposed to provide individual member hospitals with information on the critical areas of inventory and materials management. It can also release enough man-power by performing the routine buying function for individual member hospitals. The significance of this released time is that the purchasing manager can devote his valuable time for more important areas of inventory and materials management system.

Another problem area in hospital management is that hospital purchasing has been viewed as a relatively minor function by hospital administration and by other functional departments. This means that many hospital administrators do not take an active interest in coordinating their purchasing policies.

In some cases a hospital purchasing agent or functional staff may show a preference for a particular supplier because of gratuities or other personal favors received. This situation has dissuaded some buyers from even considering group purchasing as a possible source of information or supplies. Brennan concludes that hospital management, especially in the purchasing field, needs a sound business-like knowledge, and that the potential benefits from group purchasing should be given an objective analysis before it is refused by the purchasing agent or by top management.

Elia (1963) presents a study which attempts to analyze group purchasing for hospitals as a means toward reducing hospital costs without impairing the quality of medical services. Through a general analysis of group purchasing programs in the United States, he tried to
identify the differences among the nature of group purchasing pro-
grams, major problem areas faced by the group purchasing agencies,
and possible benefits and limitations encountered by hospitals in
participating in the group purchasing program.

Elia observed in his study that several group purchasing
agencies (national and regional) differ from each other on several
aspects, namely (1) formation and organization, (2) financing opera-
tions, (3) support, and (4) leadership. He found in his analysis
that the success of a group purchasing agency depends on the degree
of cooperation from administrators, purchasing agents and trustees.
Without their understanding and cooperation, chances are very slim
that a particular agency would be successful. Financing the opera-
tions of agencies is another factor which distinguishes the group pur-
chasing agencies. The membership dues is different and their mark-
ups on items handled are also different. Leadership of the agency and
the support from the member hospitals are very closely related. The
group purchasing agencies can be distinguished from each other by
the degree of support they are getting from member hospitals. In many
cases, the leadership of the agency is one of the most important
factors. Elia, however, pointed out in his study that the group
purchasing program is designed (1) to achieve lower purchase costs,
(2) to promote more competitive pricing by suppliers as an additional
source of supply, and (3) to provide its membership with facilities for
research analysis and keep them informed of latest developments in
the fields of their interest.
Elia identified major problem areas of a group purchasing program as (1) antagonistic attitude from suppliers and purchasing agents, (2) lack of leadership in the agency operations, (3) organizational constraint. Suppliers view the group purchasing agency as an added source of competition. Rhatigan explains the suppliers viewpoint against the program as:

Let the hospital, who is contemplating joining a buying group, give due consideration to the sacrifice they are going to be called upon to make and what they will eventually lose. They must know that the local distributor often acts as a second warehouse for the hospital and this can materially lower inventory costs. The representatives of the local distributors are consultants and counselors, eager to give advice on proper supply balances. They furnish information on the latest and best techniques and developments, simplifying returns of merchandise and assisting in proper product utilization. Last but not least, they will extend credit to the hospitals and cooperate with them when these hospitals are gravely short of operating capital.

Purchasing agents, who hold a key position in the success of any group purchasing program, will turn against the program when they feel that existence of the group program is threatening their jobs. There are also serious doubts about the real savings from the group purchasing program. Brackebush (1957) raises questions as:

In too many instances, the lower price may be only an illusionary reduction of expenses for supplies. One of the most important questions which arises is: Are we being supplied with exactly what we are asking for, or must we accept a substitute because it is not available through group sources?

Hospital organizations, as discussed in the previous chapter, lack well-defined authority and responsibility relationships. This not only brings about poor communication and coordination between the
purchasing department and functional departments such as food services or nursing staff, but also a great deal of wasted time and money. Lee (1956) reported on a hospital buyer's work-day as:

An analysis of a buyer's work-day during the summer of 1955 showed that each buyer spent an average of 2½ hours daily taking "emergency" orders over the telephone. Further analysis showed that an average of one and one half hours were spent each day relaying the same "emergency" orders to a vendor.24

Although this report is outdated, preliminary investigation by this author shows no great change in most of the hospitals.

Elia concluded in his study that despite all the weaknesses and problems faced by hospitals and agencies in carrying out a group purchasing program, the potential benefits from such a program are promising.

Fearon and Ayres (1967)25 present a study which attempts to answer questions of organization of hospital purchasing functions, relative efficiencies of centralized and decentralized purchasing organizations, and quantity-price relationships. The study was conducted in 15 general hospitals in the Phoenix, Arizona area.

Fearon and Ayres found that none of the small hospitals (under 100 beds) had a purchasing agent, while only one medium (100-199) or large (200 and over) hospital did not have a purchasing agent. The central themes of the study are that: only two-thirds of the hospitals studied have a centralized purchasing function, and smaller hospitals are less likely to have centralized purchasing than are medium to large size hospitals; the centralized purchasing arrangement secured the lowest price on 11 of 14 items studied; there is a trend for prices
to decrease with increased size of buying institution; prices paid for 14 commodities studied varied widely with an average savings of 7.71 per cent under centralized purchasing. 26

The implication of the Fearon and Ayres study is that there is strong evidence that cooperative purchasing can considerably reduce the costs for participating hospitals. Fearon and Ayres concluded their study with the recommendation to hospital administrators and purchasing agents for a thorough investigation of group purchasing possibilities.

Duncan (1965) made one of the first serious attempts to identify the forces influencing industrial buyer behavior. 27 He carried out a survey research project with purchasing executives of 44 California companies which represent a sizable sample of the area.

From his findings, Duncan classified the influencing forces into two broad categories: internal and external forces. The internal forces are those within firms, such as the purchasing agent himself, the internal environment in which he operates, specific company policies related to purchasing activities, and organizational factors. External forces are those outside of firms, such as economic condition, market structure, and social and political factors.

Duncan found that the most important personal forces influencing purchasing agents were: 1) general interest in purchasing; 2) experience; 3) desire to do a better job than competitors; 4) confidence in top management; and 5) educational backgrounds. These purchasing agents desired management approbation when their duties were well performed. As more important motivating forces, the participating purchasing agents cited recognition of accomplishment
through advancement and recommendations accepted by top management. It was not a surprising result that "increased salary" was mentioned as a more important motivating force by only 5 per cent of respondents, because the monetary reward accompanies advancement.

The purchasing executives were asked to identify activities engaged in to strengthen their position and qualify them for advancement. Duncan assumed that performance and advancement were major motivators of the purchasing agents. The survey results indicate that purchasing agents: 1) read purchasing publications regularly; 2) consult with colleagues on problems of mutual interest; 3) participate actively in purchasing association's activities; 4) attend seminars and workshops sponsored by the association; and 5) attend classes at a college or university. Duncan pointed out in his study that despite the activities carried on by most purchasing executives to strengthen their positions, some purchasing agents have neither the sense of responsibility nor the desire to strengthen the contributions of their departments to company profit.

The purchasing agents were asked to rank in order of importance the three skills or areas of knowledge which they considered necessary for satisfactory performance of their job. They placed 1) ability to be imaginative and innovative, and 2) ability to be flexible and adapt to change as the most important ones. It is quite interesting to note that activities purchasing agents engaged in and this list of areas of skill or knowledge correspond with each other quite well.

The above mentioned personal influences are largely affected by the "climate" which prevails in the organization in which the
purchasing agent works. In order to determine the degree of importance attached to various environmental influences by purchasing agents, they were asked to rank the three most significant factors affecting their personal behavior. The responses were: 1) loyal and qualified staff of employees; 2) attitude of top management toward purchasing; and 3) cooperation among interested departments.

Robinson, Faris, and Wind (1967) offer a theoretical framework of industrial and institutional buying behavior by bringing the industrial purchasing process and individual determinants together. They analyzed the internal and external environmental factors, and explained the relationship between these factors and the buying decision-making process. Their work is significant in the sense that it tries to bring the buying process and the individual determinants together.

Robinson and Faris state that the external environmental influences are those factors which are largely beyond the control of the individual buying organization, at least in the short run. They are: 1) characteristics of the supplying industry; 2) socio-politico-economic conditions; and 3) significant national, international, or political events.

The characteristics of industry are directly related to the structure of competition, the user-supplier relationship, and the number of available suppliers. The socio-politico-economic condition has a great deal to do with the economic and social outlook which are directly related to the industry. The significant events are those events which are not even directly related to the industry, such as technological
breakthroughs, Congressional investigation, or major fires or fatal accidents.\textsuperscript{30}

Internal factors are those factors existing within the organization. Robinson and Faris (1967) present Wind's work on industrial purchasing behavior. Wind added a learning mechanism and two psychologically based operational variables, namely, buyer's attitude and awareness of the various sources of supply. This learning mechanism is described by Wind as:

\textit{Beyond its biological base, human behavior is learned, i.e., behavior which originates or is changed through reacting to an encountered situation, provided that the characteristics of the change in activity cannot be explained on the basis of native response tendencies, maturation, or temporary states of the organism.}\textsuperscript{31}

The two operational characteristics are the consumer's attitude toward product characteristics, brands of products, and retail outlets, and the consumer's awareness of brands of products. Klass (1961) specified the attitude as:

\textit{Industrial purchasers buy—or don't buy—from a particular supplier for many reasons. But when it comes right down to it, the most important reasons are buyer's attitudes toward, or image of, the product quality, delivery, price, and salesman.}\textsuperscript{32}

In the previous section of this chapter, various models used in explaining the buyer behavior were discussed, and some relevant research findings were summarized and presented. The remaining portion of this chapter will be devoted to discussing the industrial purchasing process, and finally a conceptual framework which has been used throughout this study will be presented in the next chapter.
Industrial Purchasing Process

Industrial purchasing decisions are made by individuals as part of an organization. Therefore, it is necessary to understand both individual and organizational decision-making processes. A clear conceptual framework is important because it will provide a direction for research, for the analysis of current policies, and for the avoidance of duplicative efforts.

Webster (1965) pointed out in his article that the problem with the industrial purchasing process may be that too much is "known" about it. There is probably little information of a descriptive and factual nature about the details and nuances of the industrial buying process that has not been reported in one form or another. The real problem is a lack of conceptual structure to provide clear directions of research and analysis.

Webster suggested a dissection of the industrial buying process into four elements: 1) problem recognition; 2) organizational assignment of buying responsibility; 3) search procedures for identifying product offerings and for establishing selection criteria; and 4) choice procedures for evaluating and selecting among alternatives.

In a similar approach, Robinson and Faris (1967) viewed the industrial purchasing process as a problem-solving process and dissected the purchasing process into eight different phases: 1) the anticipation or recognition of a problem or need; 2) the determination of the quality and characteristics of the needed items; 3) the specific description of the item needed; 4) the search for potential sources for this needed item; 5) the evaluation of the sources; 6) the selection of the supplier; 7) the establishment of an order routine; and 8) the
evaluation of performance feedback.

These two authors are not very different from each other in describing the buying process, except that Robinson and Faris try to breakdown the process into more detail than Webster does.

The problem recognition stage can be described as a state of dissatisfaction with the present level of goal attainment. A problem can result either from a change in goals or a change in performance, and is generally defined as the perception of a difference between the desired and the actual level of performance. Therefore, most purchases are made in response to a particular need or problem which can be solved by the purchase of products or services.

The assignment of buying authority stage includes: 1) assignment of individuals responsible for the buying decision; and 2) specification of needed products. The assignment of the purchasing responsibility is determined by the existing market conditions and the nature of the product in question. This stage of the purchasing process is particularly important because unclear authority and responsibility would result in a conflict between the purchasing department and the using department.

The search process includes a collection of information about potential suppliers, setting up a set of criteria by which to evaluate the vendors, and identification of alternative products offered.

Webster reports that the information gathering process is largely routinized for the individual buyer whose selective perception plays a major role. Selective perception is simply defined as a tendency to rely upon certain sources of information and to ignore others.
The choice process involves the selection of one or more suppliers, comparing offerings with specifications, and comparing offerings with each other. This process is closely related to the search process—the order in which alternatives are identified influences the final decision.
FOOTNOTES (Chapter II)


3 Ibid., p. 39.

4 Ibid., p. 39.


6 For detailed discussion of this subject, see Neal E. Miller and John C. Dollard, Social Learning and Imitation, London, Kegan, Trench, and Co., Ltd., 1945, pp. 13-90.


8 Ibid., p. 41.

9 Ibid., p. 42.


13 Ibid., p. 93.

14 Ibid., p. 97.

15 For example, Hospital Bureau of N. Y. has its own testing laboratory, and publishes the test results to its members.


18 Ibid., p. 43.

19 Ibid., p. 53.

20 Ibid., p. 30.

21 Ibid., p. 55.


24 C. C. Lee, "Group Purchasing As I Have Known It," Southern Hospitals, August 1956, p. 52.


26 Ibid., pp. 34-35.


28 Ibid., p. 19.


30 Ibid., pp. 119-121.


A conflict will arise when a perceived need for a joint decision making and divergent goals or perceptions of outcomes exists. For detail, see Webster "Modeling the Industrial Buying Process," pp. 371-376.

Ibid., p. 373.

Ibid., p. 375.
CHAPTER III

METHODOLOGY

Development of Hypotheses

The research findings on institutional buyer behavior of any hospital purchasing agent are largely a function of his internal and external environments. Since the objective of this study was to determine the factors influencing the participation behavior of hospital purchasing agents in a group purchasing program, the hypotheses were developed in the framework of internal and external factors. Figure 2, on the following page, presents a conceptual framework of the decision-making process of hospital purchasing agents. It is designed to clarify relationships between assumed basic determinants of the purchasing decision and the hospital purchasing process.

The external environment includes social, political, and economic factors and inter-organizational factors. The economic factor of group purchasing is not the core of this study. Although definite research findings on this subject are lacking, many available research results suggest that potential savings from a group purchasing program in hospitals are substantial. Therefore, it is assumed that a successful group purchasing program should provide substantial savings for member hospitals, at least in the long run. Social and political factors also influence the behavior of purchasing agents, but
### Personal Factors

1. Perception and Attitude, Goal
2. Professional Activity
3. Reference Group
4. Psychological Make-up

### Buyer Behavior (Decision Making Process)

- Problem Recognition
- Organizational Assignment
- Search Process
- Choice Procedure

### Organizational Factors

1. Communication System and Goal
2. Structure and Size
3. Influence and Authority
4. Hospital as Group Purchasing Organization

### Decisions

- Active Support
- Inactive Support

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**Figure 2:** A Conceptual Framework of Hospital Participation Decision Making in the Group Purchasing Program.
they are beyond the scope of this study. One of the main objectives of the Hospital Council, of which a group purchasing program is a part, is lobbying for member hospitals. The group purchasing program is also a basis for social relationships among hospital purchasing agents and among hospital administrators. The inter-organizational factors include the relationship between member hospitals and the group purchasing organization between the purchasing agents or administrators and representatives of supplying industries (mainly salesmen), and the relationship between individual purchasing agents and the group purchasing personnel.

A close association among purchasing agents in several hospitals influences the behavior of individual purchasing agents. Several authors reported that friendship and social approval influence the behavior of involved individuals. Filley and Grimes (1967) found that professional employees preferred to consult with a group of peers, and personal liking or friendship plays a significant role in individual decision making. This is also the case in the relationship between purchasing agents of member hospitals and the personnel of group purchasing programs. A purchasing agent as a member of the group purchasing program would develop a certain type of relationship with the personnel of the program, and the type of relationship would influence the degree of participation of member hospitals. A close association of hospital administrators as members of the Hospital Council would influence their purchasing agents' participation decisions in the group purchasing program.
The internal factors include personal and intraorganizational factors. Hospital purchasing decisions are greatly influenced by their own organizational structure, size and degree of coordination between the purchasing department and other functional areas, such as nursing staff, food services, or medical staff. The structure of an organization is a prescribed pattern of relations between: 1) the various tasks necessary to meet the objectives of the enterprise; and 2) the individuals who perform the tasks. These relations determine to a large extent how available physical and financial resources are allocated to various phases of the work. Since the organizational structure is designed to provide a means by which many diversified tasks can be systematically allocated, the purchasing decision of a hospital is partially influenced by its organizational structure.

The degree of coordination between the functional areas and the purchasing department in a hospital is another source of influence on the hospital's purchasing decisions. Since the purchasing department is supposed to provide necessary products and services for the functional areas to achieve a given organizational goal, the purchasing department needs pertinent information on required products and services from these areas to perform its duty. Therefore, these separate departments need mutual cooperation to perform their proper functions.

Personal factors include various demographic backgrounds of purchasing and administrative personnel and their attitude and perception of such matters as the purchasing function, group purchasing function and its performance, and their personal goal. The
demographic factors include age, educational background, experience, cultural influences, and professional group membership. These factors are significant in the sense that they are major determinants in attitude formation. The effects of attitude on the perception of purchasing agents and administrators is important because their behavior is largely influenced by it. Attitude can be defined as the predisposition of an individual to evaluate some symbol or object or aspect of his world in a favorable or unfavorable manner. Attitudes are learned. Thus, the major determinants of all that an individual learns as he grows will also play a role in the formation of his attitudes.

In order to determine the behavioral pattern of participation by hospitals in the group purchasing program, the following hypotheses were developed:

1. Purchasing agents from hospitals with a high participation rate in the group purchasing program have a different perception of their primary duty than those purchasing agents from hospitals with a low participation rate in the group purchasing program.

2. The administrators from hospitals with a high participation rate in the group purchasing program have a different perception of the primary duty of the purchasing agent than those administrators from hospitals with a low participation in the group purchasing program.

3. The purchasing agents from hospitals with a high participation rate in the group purchasing program have a different perception of the share of time to be spent on management activities than those purchasing agents from hospitals with a low participation rate in the program.
4. The administrators from hospitals with a high participation rate in the group purchasing program have a different perception of the share of time the purchasing agent spends on managerial duties than those administrators from hospitals with a low participation rate in the group purchasing program.

5. The hospitals whose purchasing agents viewed the group purchasing program as a type of distributor or a buyer have a different participation rate in the program than those hospitals whose purchasing agents did not view the program as a type of distributor or buyer.

6. The purchasing agents from hospitals with a high participation rate in the group purchasing program have a different perception of the impact of the successful group purchasing program on their job than those purchasing agents from hospitals with a low participation rate in the program.

7. Purchasing agents from hospitals with a high participation rate in the group purchasing program have different perceptions toward the impact of a successful group purchasing program on their personal relationship with representatives of suppliers than those purchasing agents from hospitals with a low participation rate in the program.

8. Purchasing agents from hospitals with a high participation rate in the group purchasing program have a different attitude on the costs of participation in the program than those purchasing agents from hospitals with a low participation rate in the program.

9. The purchasing agents from hospitals with a high participation rate in the group purchasing program have a different attitude on the ability of the management of the group purchasing program than
those purchasing agents from hospitals with a low participation rate
in the program.

10. Purchasing agents from hospitals with a high participation rate in the group purchasing program feel a different degree of conflict within the hospital than those purchasing agents from hospitals with a low participation rate in the program.

11. Purchasing agents from hospitals with a high participation rate in the group purchasing program have a different degree of decision making authority in selection of suppliers than those purchasing agents from hospitals with a low participation rate in the program.

12. The hospitals with a high level of congruency between purchasing agents and administrators on the role of the purchasing agent have a different level of participation rate in the group purchasing program than those hospitals with a low level of congruency between purchasing agent and administrator.

13. Hospitals with a high level of congruency between purchasing agents and administrators on the reasons for participating in the group purchasing program have a different level of participation rate than those hospitals with a low level of congruency between purchasing agent and administrator on the subject.

14. The purchasing agents from hospitals with a high participation rate in the group purchasing program have a different level of confidence on their ability than those purchasing agents from hospitals with a low participation rate in the program.
15. Hospitals with a high participation rate in the group purchasing program have a different degree of centralization of materials handling in the hospital than those hospitals with a low participation rate.

16. Purchasing agents from hospitals with a high participation rate in the program have a different attitude on the materials handling system in the hospital from those purchasing agents from hospitals with a low participation rate in the program.

17. The large hospital groups have a different level of participation rate in the program than the small hospital groups.

18. Purchasing agents from hospitals with a high participation rate in the group purchasing program have a different degree of professional development activities from those purchasing agents at hospitals with a low participation rate in the program.

19. Purchasing agents from hospitals with a high participation rate in the group purchasing program are more active in professional group activities than those purchasing agents from hospitals with a low participation rate.

20. There is a difference in attitudes between older purchasing agents' group and younger purchasing agents' group.

21. There is a difference in attitudes toward various aspects of hospital purchasing between purchasing agents with different experience.

22. There is a difference in attitudes toward various aspects of hospital purchasing between purchasing agents with different educational backgrounds.
Population and Sample

Since the objective of this research was to determine whether any relationship exists and the extent of the influences of personal and organizational factors of hospitals on their participation behavior in the group purchasing program, all the hospitals in the Western Pennsylvania area which have a membership in the Hospital Council of Western Pennsylvania have to be included. The group purchasing program in the area is a part of the Hospital Council operations.

The Council currently has 79 hospital members, covering the Western half of the state of Pennsylvania. In our research, two hospitals were excluded from the total population of 79 hospitals because these hospitals did not have the authority to perform the actual purchasing function. The county government or the state government was responsible for purchasing the needed materials for hospitals. The remaining 77 hospitals have a total number of beds of 20,000, with a median of 215 beds per hospital.

An attempt was made to contact purchasing personnel and administrators of all 77 hospitals, but only 47 hospitals were actually included in this research. Since this study was directed toward the purchasing agents and administrators, personnel from other functional areas of the hospital were not included. In addition to the difficulty in making an appointment at a mutually agreeable time and place, some hospitals were reluctant to participate in this research project for various reasons: 1) They were too busy to be interviewed; 2) they were not convinced of the value or benefits of the study; or 3) they did not want to give out any information about their hospitals or about themselves.
Both the purchasing agents and the administrators of 35 out of 47 hospitals responded and completed the questionnaire prepared by the researcher. Either the purchasing agent or administrator in the remaining 12 hospitals did not complete the questionnaire. From each of these 47 hospitals, one purchasing agent who is in charge of the purchasing department and one administrative personnel who has direct responsibility for supervising the purchasing department operations were chosen under the assumption that their opinions are representative of the whole hospital.

These 47 hospitals included in the study represent approximately 70 per cent of the total number of beds in the Council member hospitals. The number of beds in these hospitals was 14,000, with a median of 275 per hospital.

Method of Collecting Data

Data for this study were mainly collected through the prepared questionnaire. Although slightly different questions were used for administrators in view of their positions, the nature of the questions were basically the same for both administrators and purchasing agents. Copies of the introduction letter and the questionnaire are included in the Appendix.

The questionnaire was developed after a series of intensive interviews with people connected with hospital purchasing, such as purchasing agents, administrators, group purchasing program directors, and knowledgeable persons informed about the behavioral and organizational aspects of the hospital. Many items in the questionnaire were used in previous studies of a similar nature. Each item in the
questionnaire was carefully reviewed by various hospital personnel and faculty committee members of this study.

In the initial stage of this study, a test questionnaire was prepared and administered to five hospital purchasing agents in different areas. Followup interviews with these men indicated that the specific nature of a group purchasing program prohibited a meaningful pretest of the questionnaire without exhausting the original population. Therefore, it was decided to include all the pertinent items in the first questionnaire and to eliminate those items which do not show any variation from the final tabulation and analysis.

The questionnaire was presented personally to members of each hospital included in the study. All the respondents were sent an introductory letter from the researcher and from the director of the group purchasing program. Each prospective participant was contacted by telephone at his office and an appointment was set up. The respondents were asked to complete the questionnaire in the presence of the interviewer, and a brief personal interview was made upon the completion of the questionnaire. In some cases, respondents were asked to complete the questionnaire and mail it to the interviewer when some unexpected event necessitated the postponement of the interview.

The respondents were given complete assurance that the information given on the questionnaire would be strictly confidential and would have no individual significance unless combined with information given by other respondents. The brief interview was held to provide some additional information which was not included in the study. They were also encouraged to make any comment or recommendation concerning
the study and problem areas in the hospital purchasing field.

Additional information was gathered through the Hospital Council of Western Pennsylvania and through secondary sources by library research.

Analysis of Data

Participating hospitals are classified into high and low participation groups according to the dollar amounts per month per bed they purchased through the group purchasing program and the number of projects in which they participated. The upper quartile group is classified as the high participation group and the lower quartile group is classified as the low participation group.

As mentioned in the preceding section of this chapter, the questions included in the questionnaire were not screened critically to eliminate insensitive responses. Therefore, some items which show no variation in the responses are excluded from this analysis.

Responses to the items in the second half of the questionnaire were scored by the Likert-type scale. Since this study is in a sense an exploratory one, the Likert-type approach appears to offer an adequate procedure. Responses will be on a five-point scale from "strongly agree" to "strongly disagree." It is assumed in using this type of scale that items in the questionnaire have operating characteristics of a uniformly increasing function of the attitude continuum. That is to say, the more favorable a person's attitude, the higher the expected score for that item. Since some items are stated in negative form, the scoring method would be reversed on those items. Each respondent was asked to check the proper places for his answers or was
asked to write down his answers where it was necessary. All responses for items in the questionnaire were coded from one to their given intervals and punched on the computer cards with other information. In almost every case, however, the row and/or column categories had to be combined to bring the expected value for each cell up to a minimum of five. For example, "strongly agree" and "agree" were combined as "agree" with the given statement, and "strongly disagree" and "disagree" were combined as "disagree." "Undecided" and "no response" were excluded from the analysis under the assumption that these groups do not have any preference.

The respondents were classified into four groups according to their participation rate in the group purchasing program, and typically upper and lower 25 per cent groups were compared. The Chi-Square test and Mann-Whitney U Test were used where it is appropriate to evaluate the significance of the difference between group attitudes. These tests were selected for the following reasons:

1. The Chi-Square test and Mann-Whitney U test require no assumptions about the type of response distribution. These tests are based on the relative distributions of two independent samples. In other words, the hypothesis under tests is usually that the two groups differ with respect to some characteristic and therefore with respect to the relative frequency with which group members fall in several categories. 11

2. The size of sample for each group is small and the nature of population distribution is not exactly known.
3. The data collected, in many cases, are inherently in ranks as well as data whose seemingly numerical scores have the strength of ranks. The Mann-Whitney U test is suitable for this type of data.

4. The nature of hypothesis does not call for a more complicated technique.

Where the Chi-Square test and Mann-Whitney U test results show a significant difference between groups, frequency or rank of each distribution were compared and some inferences were made.

The selection of a confidence level for hypothesis testing is largely subjective. The effect of Type I error, or the rejection of the null hypothesis when it was in fact true, is to assign a factor incorrectly as contributing to participation behavior of hospitals in the group purchasing program. The effect of Type II error, or the acceptance of the null hypothesis, when it was in fact false, is to reject a causal factor incorrectly. The Type I error is considered to be more serious both in its applied and theoretical effect and is thus to be avoided more stringently than Type II error. Therefore, a 95 per cent confidence level was chosen as a criterion. However, the probability of obtaining the Chi-squared value or the Mann-Whitney U value were also presented with each analysis of hypothesis for classification of the confidence level.

Each hypothesis will be tested by evaluating the null hypothesis that there is no significant difference between responses of different sample groups. For example, the first null hypothesis is:
The purchasing agents from hospitals with a high participation rate in the group purchasing program have the same attitude or perception of their primary duty as those purchasing agents from hospitals with low participation rates in the group purchasing program.

If there was a significant difference between these two groups, then the null hypothesis would be rejected, and the contingency table would be analyzed to decide the direction of the observed variation. The same procedure would be applied for all hypotheses.
FOOTNOTES (Chapter III)


2. For detailed information, see Brennan (1953), Elia (1963), and Fearon and Ayers (1967).


7. One hospital was controlled by Allegheny County, and the other was operated by the University of Pittsburgh.

8. These figures are obtained from 1969 records of the Hospital Council of Western Pennsylvania.

9. These figures can vary according to source of statistics. However, the numbers given by individual hospital administrators were used in this case.


CHAPTER IV

REVIEW OF FINDINGS

Attitudes and Participation

One of the primary objectives of this study was to determine whether there is any relationship between the attitudes or perceptions of purchasing and managerial personnel regarding various aspects of hospital purchasing and participation in the group purchasing program, and if any, the nature of the relationship. Individual attitudes and perceptions of purchasing agents and administrators seem to be the major determinants of the extent of hospital participation in the group purchasing program. Social learning theory indicates that the individual's behavior may be viewed as an act of choosing one among a number of alternatives. This act is based on 1) the importance to the individual of the various goals which might be achieved by choosing a given alternative, and 2) his expectations or beliefs of being able to achieve these goals if he selects a given alternative.¹

It was hypothesized, therefore, that those purchasing agents and administrators from hospitals which are relatively active (upper quartile group) in the group purchasing program have a different attitude or emphasis on the primary duty of a purchasing agent in a hospital than those from hospitals which are relatively inactive (lower quartile group) in the program. Table 1 is a summary of the responses
of purchasing agents from both relatively active and inactive hospital
groups in the program on the question regarding the primary duty of
hospital purchasing agents. The result of the analysis shows a
significant difference in attitude between these two groups (Chi
squared = 6.06, P < .05). The null hypothesis that there is no differ­
ence is therefore rejected: The purchasing agents from hospitals with
a high participation rate in the group purchasing program have a
significantly different perception of their primary duty than that of
those purchasing agents from hospitals with a low participation rate
in the group purchasing program.

Table 1: Comparison of Purchasing Agents' Perception of Their
Primary Duty in the Hospital Differentiated by Their
Participation

<table>
<thead>
<tr>
<th></th>
<th>Negotiation of Lowest Price</th>
<th>Non-Negotiation of Lowest Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group in the Program</td>
<td>1</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Relatively Inactive Group in the Program</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>16</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi-Square = 6.06
df = 1
P < .05

Source: Questionnaire Data (Question 1)
A close examination of the questionnaire responses indicates that 40 per cent of all respondents felt their primary duty was to negotiate the lowest price with suppliers; whereas less than 10 per cent of the purchasing agents from relatively active hospitals and over 60 per cent of the purchasing agents from relatively inactive hospital groups felt so.

Since hospital administrators are responsible for the performance of their purchasing agents they were asked about the primary duty of purchasing agent in the hospital. The result of analysis, shown in Table 2, indicates that there is no significant difference in the perception between administrators from hospitals with a high participation rate in the group purchasing program and administrators from hospitals with a low participation rate in the program (Chi Squared = .21, P > .05). The null hypothesis, therefore, is accepted. Approximately 35% of the respondents felt that the primary duty of the purchasing agent is the negotiation of the lowest prices with suppliers.

One of the objectives of the hospital group purchasing program is to provide relevant information on creative managerial aspects of the hospital purchasing function. The basic reasoning behind this objective is that each individual purchasing agent should put more of his time on such managerial activities as management of inventory and development of a materials distribution system.

Table 3 is a summary of responses from the purchasing agents of both relatively active and inactive hospital groups regarding the allocation of their time into routine and managerial activities. The
results indicate that there is a significant difference in attitude between two groups (Chi Squared = 4.26, P < .05: The null hypothesis is rejected). About sixty per cent of the respondents felt that they should put his time more on managerial activities than on routine duties.

<table>
<thead>
<tr>
<th>Table 2: Comparison of Administrators' Perception of the Primary Duty of Purchasing Agent Differentiated by Participation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiation of Lowest Prices</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Relatively Active Group</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Chi-Square = .21
df = 1
P < .70

Source: Questionnaire Data (Question 1)

<table>
<thead>
<tr>
<th>Table 3: Comparison of Perception of Purchasing Agents on the Share of Time to be Spent Differentiated by Participation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Time on Routine Duties</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Relatively Active Group</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Chi-Square = 4.26
df = 1
P < .05

Source: Questionnaire Data (Question 2)
The same question regarding the allocation of purchasing agents' time was given to administrators. The result of the analysis, shown in Table 4, indicates that there is no significant difference in perception between administrators from hospitals with a high participation rate and administrators from hospitals with a low participation rate in the group purchasing program (Chi Squared = 2.47, $P > .05$; The null hypothesis is accepted). Only one out of 12 (or less than 10 per cent of responding administrators from the relatively active hospital group felt that his purchasing agent should put more time on routine duties; whereas 5 out of 11 (or 45 per cent) of administrators from relatively inactive hospitals in the group purchasing program felt that the purchasing agent should put more time on routine duties than on managerial activities.

Table 4: Comparison of Perception of Administrators on Share of Time to be Spent Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>More Time on Routine Duties</th>
<th>More Time on Managerial Activities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>1</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>17</td>
<td>23</td>
</tr>
</tbody>
</table>

Chi-Square $= 2.47$  
$df = 1$  
$P < .20$

Source: Questionnaire Data (Question 3)
The nature of the group purchasing program is also an important determinant of participation behavior at individual member hospitals. As defined in this study, the group purchasing program is a cooperative effort among a group of independent hospitals to achieve such multiple objectives as lower price, better quality standards, and information on new products. However, a preliminary investigation indicates that hospital purchasing agents do not agree on the nature of the group purchasing program. Some purchasing agents view the program as a type of distributor or as a buying agent which is performing the same function as that of individual hospital purchasing agents. Those who view the group purchasing as a type of distributor is in fact putting the program in a position of direct competition with local suppliers. Those who view the program as a buying agent put the group purchasing program in position of direct competition with individual purchasing agents.

It was, therefore, hypothesized that the purchasing agent's perception of the nature of group purchasing program directly influences the participation rate of his hospital.

Table 5 is a summary of responses from both groups who view the group program as a distributor or buyer and who view the group purchasing program as none of the above. The responses are tabulated in the form of Mann-Whitney U test contingency table, with the assumption that the participation rate data are ordinal and continuously distributed. The result of analysis shows that there is a significant difference in participation rate between those hospitals whose purchasing agents viewed the group purchasing program as a distributor.
Table 5: Comparison of Participation Rate of Hospitals Differentiated
By Their Purchasing Agent's Perception on the Group Purchasing Program

<table>
<thead>
<tr>
<th>Hospitals Whose P.A. Did</th>
<th>Rating of Participants In the Group Purchasing Program *</th>
<th>R.A.N.K</th>
<th>Hospitals Whose P.A. Viewed the Group Program As A Buyer or Distributor</th>
<th>Rating of Participation in the Group Purchasing Program *</th>
<th>R.A.N.K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not View the Group Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>31</td>
<td>12.5</td>
<td>20</td>
<td>31</td>
<td>12.5</td>
</tr>
<tr>
<td>2</td>
<td>32</td>
<td>11.0</td>
<td>21</td>
<td>34</td>
<td>9.0</td>
</tr>
<tr>
<td>3</td>
<td>33</td>
<td>10.0</td>
<td>22</td>
<td>13</td>
<td>24.5</td>
</tr>
<tr>
<td>4</td>
<td>37</td>
<td>7.5</td>
<td>23</td>
<td>7</td>
<td>30.0</td>
</tr>
<tr>
<td>5</td>
<td>37</td>
<td>7.5</td>
<td>24</td>
<td>13</td>
<td>24.5</td>
</tr>
<tr>
<td>6</td>
<td>43</td>
<td>6.0</td>
<td>25</td>
<td>1</td>
<td>33.5</td>
</tr>
<tr>
<td>7</td>
<td>49</td>
<td>4.5</td>
<td>26</td>
<td>7</td>
<td>30.0</td>
</tr>
<tr>
<td>8</td>
<td>49</td>
<td>4.5</td>
<td>27</td>
<td>8</td>
<td>28.0</td>
</tr>
<tr>
<td>9</td>
<td>56</td>
<td>2.0</td>
<td>28</td>
<td>11</td>
<td>27.0</td>
</tr>
<tr>
<td>10</td>
<td>85</td>
<td>1.0</td>
<td>29</td>
<td>14</td>
<td>22.5</td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>30.0</td>
<td>30</td>
<td>14</td>
<td>22.5</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>26.0</td>
<td>31</td>
<td>24</td>
<td>17.5</td>
</tr>
<tr>
<td>13</td>
<td>30</td>
<td>14.5</td>
<td>32</td>
<td>30</td>
<td>14.5</td>
</tr>
<tr>
<td>14</td>
<td>25</td>
<td>16.0</td>
<td>33</td>
<td>4</td>
<td>32.0</td>
</tr>
<tr>
<td>15</td>
<td>24</td>
<td>17.5</td>
<td>34</td>
<td>1</td>
<td>33.5</td>
</tr>
<tr>
<td>16</td>
<td>23</td>
<td>19.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>21</td>
<td>20.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>20</td>
<td>21.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>55</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ N_1 = 19 \quad R_1 = 233.5 \quad N_2 = 15 \quad R_2 = 190.0 \]

\[ U_1 = 241.5 \quad U_2 = 43.5 \quad P < .01 \]

* Dollar Amount Purchased Per Month Per Bed

Source: Questionnaire Data
or a buyer and those hospitals whose purchasing agents did not. The null hypothesis, therefore is rejected (U = 44, P < .05). Approximately 40 per cent of all respondents viewed the program as a type of distributor or as a buying agent.

March and Simon (1958) suggested in the discussion of "subjective rationality" that individual behavior depends on the individual's personal value and his own unique modes of perceiving, learning, and thinking. Based on this assumption, purchasing agents' perception of consequences of participation in the group purchasing program were hypothesized as a possible determinant of their participation decision. Table 6 is the Chi square contingency table which summarizes the responses of purchasing agents from both relatively active and inactive (upper and lower quartile groups) hospital groups. The purchasing agents were asked about the possible consequences of a successful group purchasing program in the area on their job (hospital purchasing department).

The result shows that there is a significant difference in attitude between two groups on the possible impact of a successful group purchasing program (Chi squared = 4.96, P < .05: the null hypothesis is rejected). About 25 per cent of all respondents felt that the successful group purchasing program would replace or downgrade the importance of their function, and 45 percent of purchasing agents from relatively inactive group felt it would. One interesting fact to note here is that none of the respondents from the 13 relatively active hospitals felt that it would.
Table 6: **Comparison of Attitude of Purchasing Agents on Impact of the Group Purchasing Program Differentiated by Participation Rate**

<table>
<thead>
<tr>
<th></th>
<th>Would Replace or Downgrade</th>
<th>Would Not Replace or Downgrade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>0</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5</td>
<td>19</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi-squared = 4.96

df = 1

P < .05

Source: Questionnaire Data (Question 26)

Since the loss of an opportunity for their personal relationship with salesmen was frequently cited as an argument against the group purchasing program, the purchasing agents were asked about the possible impact of the successful group purchasing program on their personal relationships with suppliers or their representatives. The result of the analysis, shown in Table 7, reveals that there is a significant difference in attitudes between purchasing agents from relatively active and relatively inactive hospital groups (Chi squared = 4.27, P < .05: The null hypothesis is rejected). About 30 per cent of all respondents felt that the group purchasing group would deny them an opportunity for personal relationship with representatives of suppliers. Fifty five per cent of the purchasing agents from hospitals with a low participation rate and less than 10 per cent of the responding purchasing agents from hospitals with a high participation rate
felt that the successful group program would deny them an opportunity of personal contact with suppliers.

Table 7: Comparison of Attitude of Purchasing Agents on the Impact of the Group Purchasing Program on Personal Relationship Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>Would &quot;deny&quot; the Relationship</th>
<th>Would Not Deny The Relationship</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>1</td>
<td>12'</td>
<td>13</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>17</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi-Squared = 4.27
df = 1
P < .05

Source: Questionnaire data (Question 32)

As stated earlier, the primary purpose of a group purchasing program is to provide economic advantages for member hospitals. Although it is assumed that the majority of hospital purchasing agents understand this primary objective, of the program, no concrete evidence has been presented so far to substantiate this assumption. Just to be sure, the purchasing agents were asked about the overall costs associated with their participation in the program in relation to the expected benefits from the participation. Table 8 is a summary of the responses thus obtained. The result of the analysis shows that there is no significant difference in attitudes between purchasing agents
Table 8: Comparison of Attitudes of Purchasing Agents on the Costs of Participation Differentiated by Participation Rate.

<table>
<thead>
<tr>
<th></th>
<th>Too High</th>
<th>Not Too High</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active</td>
<td>0</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relatively Inactive</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>20</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi-squared = 3.36
df = 1
P < .10

Source: Questionnaire Data (Question 21)

from relatively active and inactive hospital groups in the group purchasing program (Chi-squared = 3.36, P > .05; The null hypothesis is accepted). Twenty per cent of all respondents felt that the markup and dues paid by the member hospitals were too high to justify the services rendered. Although 35 per cent of the purchasing agents from hospitals with a low participation rate in the program felt it was too high, none of responding purchasing agents from hospitals with a high participation rate felt so.

The management of the group purchasing program is another important factor which influences the participation of member hospitals in the group purchasing program. The preliminary investigation prior to this study revealed that some hospital purchasing agents were not convinced of the ability of managerial personnel in the group program.
The purchasing agents were asked about their confidence in the ability of the management of the group purchasing program. The result of analysis, shown in Table 9, indicates that there is no significant difference in attitudes between purchasing agents from both the relatively active hospital group and the relatively inactive group (Chi-squared = 0.15, P > .05: The null hypothesis is accepted). Twenty per cent of all respondents felt that the management of the group purchasing program is lacking the ability to carry out the program successfully.

Table 9: Comparison of Attitudes of Purchasing Agents on the Ability of the Management of the Group Purchasing Program Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>No Confidence on the Ability</th>
<th>Confidence on the Ability</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>16</td>
<td>21</td>
</tr>
</tbody>
</table>

Chi-squared = 0.16
df = 1
P < .90

Source: Questionnaire Data (Question 31)
Organizational Structure and Participation

Another objective of this study was to determine whether there is any relationship between organizational structure of hospitals and their participation in the group purchasing program. The organizational structure of hospitals in the United States is unique compared to its counterpart in business organization. The power structure of hospital organization is split in the sense that: the medical staff continue to share legal responsibility for the care of their patients; hence they must have the right to initiate activity for nursing personnel who actually serve the patients; the administrator is responsible for coordinating the work of all hospital personnel, whether they are on the payroll or not; Board members continue to make their convictions known, and some of them feel strongly that their job is to protect the public from "case-hardened professionals." Any given hospital employee, therefore, may find himself responsible to three sources of authority. A purchasing agent in a hospital too must serve these three different groups. He is responsible to provide all necessary materials for all functional departments such as nursing staff, operating rooms, or food service department in the hospital. He is responsible to perform such duties within the constraints of his immediate superior (administrator). He is also responsible to the Board of Trustees who represent the public. The difficulty with serving these different groups is that the exercise of their authority is based on the various sub-goals of total organizational objectives rather than the overall goal of the hospital, namely the provision of satisfactory health care for society at reasonable costs.
To be sure, then, the conflict between the purchasing department and functional areas seems to be one of the most important factors affecting the individual hospital's decision to participate in the group purchasing program. This conflict between the two departments in a hospital may arise because of its divergent sub-goals and needs for a joint decision making. With this in mind, the purchasing agents were asked to state whether there exist such conflicts within their hospitals. It was hypothesized that conflicts between the purchasing department and functional areas would lead to less active support of the group purchasing program by the hospital. The result of the analysis, shown in Table 10, indicates that there is a significant difference in their responses between purchasing agents from hospitals which are relatively active (upper quartile group) and purchasing agents from hospitals which are relatively inactive (lower quartile group) in the group purchasing program (Chi-squared = 5.19, P < .05: The null hypothesis is rejected). Forty per cent of all respondents said they do "not get along well" with other functional areas for reasons of conflicting goals. About 64 per cent of the respondents from the relatively inactive hospital group felt such conflicts, although less than 20 per cent of respondents from the relatively active hospitals identified such a conflict.

Selecting a name brand on the item to be purchased instead of specification is not an uncommon practice in the field of hospital purchasing. This author has learned from the preliminary investigation that the brand name as a measure of quality or as a product specification also often determines the supplier for a given item. The
Table 10: Comparison of Responses of Purchasing Agents on Conflict Within Hospitals Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>Conflict Exists</th>
<th>Conflict Does Not Exist</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>2</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>15</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Chi-Squared = 5.19
df = 1
P < .05

Source: Questionnaire Data (Question 4)

...consequence of this practice is, in many cases, that the functional departments who select supply items by their brand name also select the supplier.

In the light of this practice, the purchasing agents were asked to identify the actual decision maker in the selection of supply items in the hospital. Table 11 is a summary of responses to the question from purchasing agents of both relatively active and inactive hospital groups. The result of the analysis shows that there is a significant difference in the practice of selecting items between the relatively active and inactive groups (Chi-Squared = 5.83, P < .05; The null hypothesis is rejected).

Approximately 45 per cent of all respondents reported that the final selection of suppliers is made by the functional department through choices of brand name rather than product specifications.
Table 11: **Comparison of Responses of Purchasing Agents on Supplier Selection Differentiated by Participation Rate**

<table>
<thead>
<tr>
<th></th>
<th>&quot;Made&quot; by Functional Department</th>
<th>&quot;Not Made&quot; by Functional Department</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active</td>
<td>2</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relatively Inactive</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
<td>14</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi-Squared = 5.83
df = 1
P < .05

Source: Questionnaire Data (Question 2)

More than 70 per cent of purchasing agents from hospitals with a low participation rate in the group purchasing program and 20 per cent of purchasing agents from hospitals with a high participation rate reported such practices in their hospitals.

The purchasing agent and administrator should work very closely together in a hospital on purchasing matter. Therefore, it was hypothesized that the congruency between purchasing agents and administrators or various subjects related to hospital purchasing has some influence on the decision of a hospital to participate in the group purchasing program. One of these subjects is the primary duty of the purchasing agent in a hospital.

The purchasing agents and administrators were asked to identify the major duties of the purchasing agent in a hospital. The
responses of the purchasing agent and administrator from the same hospitals are compared and classified into two groups (congruent and incongruent groups). Table 12 is the Mann-Whitney U Test contingency table cross tabulated of the responses against participation ratio. The result of the analysis indicates that there is a significant difference in the participation rate between hospitals whose purchasing agents and administrators agree and whose purchasing agents and administrators do not agree on the primary duty of the purchasing agent in a hospital (U = 35.5, P < .05: The null hypothesis is rejected).

The purchasing agents and administrators were also asked to identify the primary reasons for participating in the group purchasing program. Table 13 is the Mann-Whitney U Test contingency table cross-tabulating the responses (congruent and incongruent groups) against their participation rate. Result of the analysis shows that there is a significant difference in the participation rate between hospitals whose purchasing agents and administrators agree and whose purchasing agents and administrators do not agree on the primary reason for participating in the group purchasing program (U = 70, P < .05: The null hypothesis is rejected).

From Tables 12 and 13 it is evident that incongruent hospital group had lower participation rate compared to hospitals whose purchasing agents and administrators agree on each subject.

The status of the purchasing department in a hospital depends on its ability to work with other functional areas. Therefore, the purchasing agents and administrators were asked whether their pur-
Table 12: Comparison of Participation Rate of Hospitals Differentiated By Congruency Between Purchasing Agents and Administrators On the Primary Duty of the Purchasing Agents

<table>
<thead>
<tr>
<th>Hospitals With Congruency</th>
<th>Participation Rate</th>
<th>Rank</th>
<th>Hospitals with Incongruency</th>
<th>Participation Rate</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>85</td>
<td>1</td>
<td>19</td>
<td>33</td>
<td>9</td>
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<tr>
<td>2</td>
<td>56</td>
<td>2</td>
<td>20</td>
<td>32</td>
<td>10.5</td>
</tr>
<tr>
<td>3</td>
<td>49</td>
<td>3</td>
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<td>31</td>
<td>12.5</td>
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<tr>
<td>4</td>
<td>48</td>
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<td>22</td>
<td>17</td>
<td>21</td>
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<tr>
<td>5</td>
<td>43</td>
<td>5</td>
<td>23</td>
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<tr>
<td>6</td>
<td>37</td>
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<td>14</td>
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<tr>
<td>7</td>
<td>36</td>
<td>7</td>
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<td>14</td>
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<tr>
<td>8</td>
<td>34</td>
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<td>26</td>
<td>13</td>
<td>25</td>
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<tr>
<td>9</td>
<td>32</td>
<td>10.5</td>
<td>27</td>
<td>13</td>
<td>26</td>
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<tr>
<td>10</td>
<td>31</td>
<td>12.5</td>
<td>28</td>
<td>13</td>
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<td>11</td>
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<td>28.5</td>
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<td>14</td>
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</tr>
<tr>
<td>18</td>
<td>11</td>
<td>28.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \begin{align*} N_1 &= 18 & R_1 &= 206.5 & N_2 &= 14 & R_2 &= 321.5 \\
U_1 &= 216.5 \\
U_2 &= 35.5 \\
P &< .01 \end{align*} \]

* The Participation Rate Determined by Dollar Purchasing Amount Per Month Per Bed Through the Group Purchasing Program

Source: Questionnaire Data
Table 13: Comparison of Participation Rates of Hospitals Differentiated By Congruency Between Purchasing Agents and Administrators On the Primary Reason for Participation in the Group Purchasing Program

<table>
<thead>
<tr>
<th>Congruent Group</th>
<th>Participation Rate *</th>
<th>Rank</th>
<th>Incongruent Group</th>
<th>Participation Rate *</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>85</td>
<td>1</td>
<td>20</td>
<td>31</td>
<td>11.5</td>
</tr>
<tr>
<td>2</td>
<td>56</td>
<td>2</td>
<td>21</td>
<td>31</td>
<td>11.5</td>
</tr>
<tr>
<td>3</td>
<td>49</td>
<td>3</td>
<td>22</td>
<td>30</td>
<td>13.5</td>
</tr>
<tr>
<td>4</td>
<td>49</td>
<td>4</td>
<td>23</td>
<td>30</td>
<td>13.5</td>
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<tr>
<td>5</td>
<td>43</td>
<td>5</td>
<td>24</td>
<td>25</td>
<td>15.5</td>
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<tr>
<td>6</td>
<td>37</td>
<td>6</td>
<td>25</td>
<td>17</td>
<td>19.5</td>
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<tr>
<td>7</td>
<td>36</td>
<td>7</td>
<td>26</td>
<td>14</td>
<td>22</td>
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<td>8</td>
<td>34</td>
<td>8</td>
<td>27</td>
<td>14</td>
<td>22</td>
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<tr>
<td>9</td>
<td>33</td>
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<tr>
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<td>11</td>
<td>25</td>
<td>15.5</td>
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<td>17</td>
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<tr>
<td>14</td>
<td>17</td>
<td>19.5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td>14</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>19</td>
<td>1</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ N_1 = 19 \quad R_1 = 260 \quad N_2 = 12 \quad R_2 = 236 \]

\[ U_1 = 158 \]
\[ U_2 = 70 \]
\[ p < .05 \]

* Dollar Purchasing Amounts Per Month Per Bed Through the Program

Source: Questionnaire Data
chasing departments have enough ability to help other functional areas in developing required product specifications.

Table 14 is a summary of responses of purchasing agents from hospitals with high and low participation rate in the group purchasing program. The result of the analysis shows that there is a significant difference in their perceived ability between relatively active (upper quartile group) and relatively inactive group (lower quartile group) in the group purchasing program (Chi-Squared = 4.26, P < .05: The null hypothesis is rejected). Approximately 30 per cent of all respondents said that their department is lacking ability in helping other departments. More than 50 per cent and less than 10 per cent of purchasing agents from relatively inactive and relatively active hospitals, respectively, agreed this was true.

Table 14: Comparison of Perceived Ability of Purchasing Department to Coordinate with Other Departments by Purchasing Agents Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>&quot;Lacking&quot; Its Ability</th>
<th>&quot;Not Lacking&quot; Its Ability</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>1</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>17</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi-Squared = 4.26
df = 1
P < .05

Source: Questionnaire Data
It is interesting to note that although all responding hospital administrators said the purchasing department is allowed, and in many cases encouraged, to coordinate with other functional departments, they feel the same way as purchasing agents do about the ability of the purchasing department. Table 15 is a summary of responses of administrators from both hospitals with high and low participation rates in the group purchasing program.

Table 15: Comparison of Perceived Ability of Purchasing Department to Coordinate with Other Departments by Administrators Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>&quot;Lacking&quot; its Ability</th>
<th>&quot;Not Lacking&quot; its Ability</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>0</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>4</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>19</td>
<td>23</td>
</tr>
</tbody>
</table>

Chi-Squared = 3.60  
df = 1  
P < .10

Source: Questionnaire Data

The organization of the purchasing department and its responsibility in a hospital also seems to be a factor which influences hospital participation in the group purchasing program. In decentralized hospitals, the purchasing function is performed by actual users of the products or services. A weakness of this system is that the users are not trained to perform the purchasing duty and they tend to treat the
duty as a minor responsibility.

In the light of this assumption, the purchasing agents were asked to identify the location of responsibility for handling all supplies in the hospital. The resulting analysis, shown in Table 16, indicates that there is a significant difference in handling materials between hospitals with a high participation rate and hospitals with a low participation rate (Chi-squared = 3.91, P < .05: The null hypothesis is rejected). Approximately 35 per cent of all respondents said that the purchasing department is handling all materials used in the hospital. None of the hospitals with relatively low participation rate said that they were handling all the materials used in the hospital.

Table 16: Comparison of Responses of Purchasing Agents on Location of Responsibility of Materials Handling Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>Do Handle All Materials</th>
<th>Do Not Handle All Materials</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>0</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5</strong></td>
<td><strong>14</strong></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>

Chi-Squared = 3.91
df = 1
P < .05

Source: Questionnaire Data

The purchasing agents were also asked whether the purchasing department should handle all materials used in the hospital. The result of the analysis, shown in Table 17, indicates that there is a significant
difference in perception on the responsibility of handling materials, between purchasing agents from hospitals with a high participation rate and those from hospitals with a low participation rate (Chi-Squared = 5.06, P < .05; The null hypothesis is rejected). About 65 per cent of all respondents felt that the purchasing department should handle all materials used in the hospital regardless of users, and 30 per cent of the respondents from hospitals with a low participation rate agreed. It is interesting to note that there is some difference between what purchasing agents think as a right and what they actually have.

Table 17: Comparison of Perception of Purchasing Agents on Location of Responsibility of Materials Handling Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>&quot;Should Handle All Materials&quot;</th>
<th>&quot;Should Not Handle All Materials&quot;</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>11</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>9</td>
<td>23</td>
</tr>
</tbody>
</table>

Chi-Squared = 5.06
df = 1
P < .05

Source: Questionnaire Data

In principle, a group purchasing organization is trying to provide its members with better prices, new product evaluation information, and released time for performing routine duties of individual purchasing
agents. Therefore, small hospitals where such benefits are most needed are more likely to get more benefits from the program than larger hospitals do. Many directors of group purchasing programs, however, often complained that small hospitals are not actively supporting the program. Therefore, it was hypothesized that larger hospitals tend to participate more actively in the group purchasing program than small hospitals do. Table 18 is the Mann-Whitney U Test contingency table cross-tabulated size of hospitals against their participation rate. The result of the analysis indicates that there is no significant difference in participation rate between large hospitals and small hospitals (U = 65, P > .05; The null hypothesis is therefore accepted). It is concluded that the mere size alone does not influence the individual hospital to participate in the group purchasing program.

Professional Activities and Participation

Professional activities of the purchasing agent can be viewed as efforts to increase his expertise in his field as well as an effort to meet his social needs. March and Simon (1958) reported that the capacity of the human mind is very small compared to the size of the problem which requires an objective solution, and choice is always exercised with respect to a limited, approximate, simplified "model" of the real world. This limited capacity of a purchasing agent in building the "model" can be broadened through his professional activities which provide more current and pertinent information available in the profession. Therefore, it was hypothesized that professional
Table 18: **Comparison of Participation Rate of Hospitals Differentiated By Their Size**

<table>
<thead>
<tr>
<th>Large Hospitals</th>
<th>Participation Rate *</th>
<th>Rank</th>
<th>Small Hospitals</th>
<th>Participation Rate *</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>85</td>
<td>1</td>
<td>19</td>
<td>56</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>55</td>
<td>3</td>
<td>20</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>49</td>
<td>4</td>
<td>21</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>43</td>
<td>5</td>
<td>22</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>37</td>
<td>6</td>
<td>23</td>
<td>27</td>
<td>14</td>
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<tr>
<td>6</td>
<td>37</td>
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<td>24</td>
<td>25</td>
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<td>7</td>
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<td>8</td>
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<td>10</td>
<td>26</td>
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<tr>
<td>9</td>
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<td></td>
<td></td>
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<tr>
<td>10</td>
<td>24</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>11</td>
<td>21</td>
<td>17</td>
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<td></td>
<td></td>
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<tr>
<td>12</td>
<td>17</td>
<td>18</td>
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<td></td>
<td></td>
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<tr>
<td>18</td>
<td>7</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[N_1 = 18 \quad R_1 = 236 \quad N_2 = 8 \quad R_2 = 115\]

\[U_1 = 79\]

\[U_2 = 65\]

\[P < .20\]

Source: Questionnaire Data
activities of purchasing agents and the participation rates of their hospitals are related to each other.

Then, the purchasing agents were asked to identify their current professional activities (e.g., membership in the professional group, degree of activeness in the group, and attendance records in the workshop professional development class. Table 19 is the Mann-Whitney U Test contingency table cross tabulated participation rates against scores for professional activities of purchasing agents. The result of the analysis shows that there is a significant difference in professional development activities between purchasing agents from relatively active hospitals in the group purchasing program and those from relatively inactive hospitals.

Filley and House (1969) observed that "expertise" and "collegial" are some of bases for influence. The professional association can be viewed as a group of peers that is trying to improve the "expertise" of its members. Therefore, the active membership in such a group can influence the individual purchasing agent's decision to participate in the group purchasing program. For this purpose the purchasing agents were asked to identify the professional groups (national or local) to which they belong and their activities in the group. Table 20 is a summary of responses of purchasing agents from both relatively active and inactive groups (upper and lower quartile groups). The results of analysis shows that there is a significant difference in the degree of activeness in the professional association between purchasing agents from hospitals with a high participation rate and those with a low participation rate (Chi-squared = 4.38,
Table 19: Comparison of Professional Activities of Purchasing Agents Differentiated by Participation Rate

<table>
<thead>
<tr>
<th>Relatively Active Group</th>
<th>Scores on Professional Activities*</th>
<th>Rank</th>
<th>Relatively Inactive Group</th>
<th>Scores on Professional Activities*</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>2</td>
<td>14</td>
<td>14</td>
<td>11.5</td>
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<tr>
<td>2</td>
<td>16</td>
<td>2</td>
<td>15</td>
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<td>11.5</td>
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<tr>
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<td>2</td>
<td>16</td>
<td>14</td>
<td>11.5</td>
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<td>4</td>
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<td>16</td>
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<td>5</td>
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<tr>
<td>11</td>
<td>14</td>
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</tr>
<tr>
<td>12</td>
<td>12</td>
<td>19.5</td>
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<td></td>
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<tr>
<td>13</td>
<td>12</td>
<td>19.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ N_1 = 13 \quad R_1 = 109.5 \quad N_2 = 11 \quad R_2 = 190.5 \]

\[ U_1 = 125 \]

\[ U_2 = 18 \]

\[ P < .01 \]

*The Score is Calculated By Assigning 1 Through 4 Points For Each Response of the Questionnaire (See Questionnaire "Professional Activities #2").

Source: Questionnaire Data
Table 20: Comparison of Professional Group Responsibility of Purchasing Agents Differentiated by Participation Rate

<table>
<thead>
<tr>
<th></th>
<th>Active in Professional Group Activities*</th>
<th>Less Active In Professional Group Activities*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatively Active Group</td>
<td>9</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Relatively Inactive Group</td>
<td>2</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>13</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi-Squared = 4.38
df = 1
P < .05

*Those who have held a national or local office and are active in a committee activity are classified as "active group."

Source: Questionnaire Data

Personal Background and Attitudes

Age, educational backgrounds, and experience in the hospital purchasing field are included in this section. Attitude was defined as the predisposition of an individual to evaluate some symbols, objects, or aspects of his world in a favorable or unfavorable manner. It was also assumed that attitudes are learned. Therefore, it was hypothesized that age, education, and experience are important to form an individual attitude. Tables 21 and 22 are summaries of responses of purchasing agents of different age groups concerning the primary duty of a purchasing agent and the possible impact of a successful group
purchasing program on his job. The results of the analysis show that there are no significant relationships between the older group and younger group.

Table 21: Comparison of Attitudes of Purchasing Agents Toward Their Primary Duty Differentiated By Age Groups

<table>
<thead>
<tr>
<th></th>
<th>Negotiation of Lowest Price With Suppliers</th>
<th>No Negotiation of Lowest Price With Suppliers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 50-years old</td>
<td>6</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Under 30-years old</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>12</td>
<td>22</td>
</tr>
</tbody>
</table>

Chi-Squared = .55
df = 1
P < .40
Source: Questionnaire Data

Table 22: Comparison of Attitudes of Purchasing Agents Toward the Possible Impact of a Successful Group Purchasing Program On Their Jobs Differentiated by Age Group

<table>
<thead>
<tr>
<th></th>
<th>Would Replace or Downgrade Purchasing Function</th>
<th>Would Not Replace or Downgrade Purchasing Function</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 50-years old</td>
<td>5</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Under 30-years old</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>14</td>
<td>20</td>
</tr>
</tbody>
</table>

Chi-Squared = .05
df = 1
P < .70
Source: Questionnaire Data
Tables 23 and 24 are cross tabulations of number of years of experience against the attitudes on the primary duty of a purchasing agent and the possible impact of a successful group purchasing program on purchasing agents' jobs in the hospital. The results of the analysis show that there are no significant relationships between attitudes of purchasing agents on such matters and their experience (Chi-squared = .03, .16 respectively; The null hypothesis is accepted).

Table 23: Comparison of Attitudes of Purchasing Agents on Their Primary Duty Differentiated by Experience

<table>
<thead>
<tr>
<th></th>
<th>Negotiations of Lowest Prices</th>
<th>No Negotiation of Lowest Prices</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 3 Years of Experience</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Over 10 Years of Experience</td>
<td>7</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>16</td>
<td>28</td>
</tr>
</tbody>
</table>

Chi-Squared = 0.03  
df = 1  
P < .80

Source: Questionnaire Data

Tables 25 and 26 are cross tabulations of educational backgrounds of purchasing agents against their attitudes on the primary duty of a purchasing agent and the possible impact of a successful group purchasing program on purchasing agents' jobs in the hospital. The results of the analysis show that there is no significant difference in attitudes between college graduates and those who do not have a
Table 24: Comparison of Attitudes of Purchasing Agents Toward the Possible Impact of a Successful Group Purchasing Program On Their Jobs Differentiated By Experience

<table>
<thead>
<tr>
<th></th>
<th>Would Replace or Downgrade</th>
<th>Would Not Replace or Downgrade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 3 Years of Experience</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>Over 10 Years of Experience</td>
<td>4</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>20</td>
<td>27</td>
</tr>
</tbody>
</table>

Chi-Squared = .16
df = 1
P < .70

Source: Questionnaire Data
college degree (Chi-Squared = .49, 1.97 respectively: The null hypothesis is accepted).

Table 25: Comparison of Attitudes of Purchasing Agents Toward Their Primary Duty Differentiated by Educational Background

<table>
<thead>
<tr>
<th></th>
<th>Negotiation of Lowest Prices</th>
<th>No Negotiation of Lowest Prices</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Graduates</td>
<td>5</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Non-College Graduates</td>
<td>12</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>23</td>
<td>40</td>
</tr>
</tbody>
</table>

Chi-Squared = .49
df = 1
P < .40

Source: Questionnaire Data

Table 26: Comparison of Attitudes of Purchasing Agents Toward Possible Impact of a Successful Group Purchasing Program on Their Jobs Differentiated by Educational Background

<table>
<thead>
<tr>
<th></th>
<th>Would Replace or Downgrade</th>
<th>Would Not Replace or Downgrade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Graduates</td>
<td>2</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Non-College Graduates</td>
<td>17</td>
<td>16</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>27</td>
<td>36</td>
</tr>
</tbody>
</table>

Chi-Squared = 1.97
df = 1
P < .20

Source: Questionnaire Data
FOOTNOTES (Chapter IV)


2 Under the Mann–Whitney U Test this assumption is necessary. The participation rate is measured by purchasing amount per bed per month basis. For more detailed discussion on this subject, see Sidney Siegel, Non-Parametric Statistics for the Behavioral Sciences, New York: McGraw-Hill Book Co., 1956, pp. 116-127.


4 Preliminary survey was conducted throughout several regions, and the dissatisfaction was not necessarily directed to the Western Pennsylvania program.


6 For complete treatment on the subject, see James March and Herbert A. Simon, Organization, New York: Wiley Inc., 1958, pp. 112-135.

7 For detailed discussion on the subject, see James L. Price, Organizational Effectiveness: Inventory of Propositions, Homewood, Ill.: Richard D. Irwin, Inc., 1968, pp. 185-191.


The basic objective of this study was to provide data and to formulate, refine, and test a number of hypotheses on the subject of group purchasing programs in hospitals. The hypotheses were grouped into three different categories according to their specific objectives. One of the specific objectives was to determine whether there is any relationship between the attitude or perception of purchasing and managerial personnel on various aspects of hospital purchasing and individual hospital participation in the group purchasing program, and if any, the direction of their relationship. Several factors were considered under this category: the primary duty of the purchasing agent, allocation of the purchasing agent's time into various duties, the nature of the group purchasing program, the impact of a successful group purchasing program on his job, costs of participating in the program, and the ability of the management of the group purchasing program.

It was found in the study that hospitals whose purchasing agents viewed their primary duty as more than a negotiation of lowest price with suppliers, and who thought a purchasing agent should put more of his time on the creative managerial functions, had a higher participation rate in the group purchasing programs than hospitals.
whose purchasing agents viewed them otherwise. (Hypothesis 1 and 3 are accepted.) However, the perceptions or attitudes of hospital administrators on the same subject had little to do with the hospital participation rate in the group purchasing program. (Hypotheses 2 and 4 are rejected.)

The perception or attitude of purchasing agents on the nature of the group purchasing program seems to have a significant relationship with the hospital participation rate in the program (Hypothesis 5 is accepted: \( U = 44, P < .05 \)). Those who defined the group purchasing program as a type of distributor or buyer tend to be less active in the group purchasing program than those who defined it as neither of above.

The perception or attitude of purchasing agents on the possible impact of a successful group purchasing program on their job and their relationship with salesmen had a significant relationship with the participation rate of individual hospitals (Hypotheses 6 and 7 are accepted; Chi-squared = 4.96 and 4.27 respectively, \( P < .05 \)). Those hospitals whose purchasing agents felt that a successful group purchasing program would replace or downgrade their function and that it would deny them an opportunity for their personal contact with representatives of suppliers were less active in the group purchasing program than those hospitals whose purchasing agents felt otherwise.

The economic aspect of group purchasing was thought to be a major determinant of the participation rate of individual hospitals. However, it was found that the cost of participation did not have a significant relationship with the participation rate (Hypothesis 8 is rejected; Chi-squared = 3.36, \( P > .05 \)). Although the cost factor
failed to show a significant relationship with the participation rate, it was interesting to note that about 35 per cent of the respondents from relatively inactive hospitals felt that the costs were too high.

The perception or attitude of purchasing agents toward the ability of the management of the group purchasing program was also suspected as a possible factor which influenced the participation rate of individual hospitals. The result of the analysis, however, failed to show any significant relationship between these two (Hypothesis 9 is rejected; Chi squared = .15, P > .05). The vast majority of respondents interviewed felt that they have confidence in the management of the group purchasing program. Some of those who had negative responses qualified their answers by saying (1) the director of the program is new on the job, or (2) they can do a better job than the director does.

A second specific objective of this study was to determine the organizational influences on participation rates of individual hospitals in the group purchasing program. The conflict between the purchasing department and other functional departments is one of the factors considered. It was found that a reported conflict between purchasing departments and other functional areas had a significant relationship with the participation of the hospitals involved. (Hypothesis 10 is accepted; Chi-squared = 5.19, P < .05). The lesser number of hospitals which are relatively active (upper quartile) in the group purchasing program reported more conflict between departments within the hospital than hospitals which are relatively inactive (lower quartile) in the group purchasing program.
A second organizational factor investigated was the actual location of decision making authority in selecting suppliers of required products or services in the hospital. It was found in the study that there is a significant relationship between the actual location of decision making authority and participation rate of hospitals in the group purchasing program (Hypothesis 11 is accepted; \( \chi^2 = 5.87, P < .05 \)). The fewer number of hospitals which are relatively active in the group purchasing program reported that functional departments are making the final selection of suppliers by naming brand names of required products rather than product specifications of those hospitals which are relatively inactive in the group purchasing program.

The present study also included the consideration of the congruencies between the purchasing agent and administrator within the hospital on such matters as the primary duty of the purchasing agent and the primary reasons for participating in the group purchasing program. It was found that there is a significant relationship in the congruency between purchasing agents and administrators on these subjects and the participation rate of individual hospitals (Hypotheses 12 and 13 are accepted; \( U = 35.5 \) and 70 respectively, \( P < .05 \) for both cases). Those hospitals whose purchasing agents and administrators agreed with each other on the aforementioned matters tend to participate more actively in the program than those hospitals whose purchasing agents and administrators did not agree on them.

Another organizational factor included in the study was competency of the purchasing department in coordinating with other functional areas. The result of the analysis reveals that there is a
significant relationship between the lack of competence in the purchasing department evaluated by the purchasing agent and the participation rate of individual hospitals in the group purchasing program (Hypothesis 14 is accepted; Chi-squared = 4.26, \( P < .05 \)). The same factor evaluated by administrators, however, did not show a significant relationship (Chi-squared = 3.60, \( P > .05 \)). It is interesting to note in many cases that although all responding administrators encouraged their purchasing departments to coordinate with other functional departments to develop the product specifications, a significant number of them admitted that the purchasing department is lacking in its ability to carry out such a task. The hospitals which are relatively active in the group purchasing program had higher confidence in the ability of the purchasing department than hospitals which are relatively inactive in the group purchasing program.

Degree of centralization of materials handling within the hospital seems to be another important factor which influences the participation decision of hospitals. It was found that there is a significant relationship between the centralized materials handling system and the participation rate of individual hospitals in the group purchasing program (Hypothesis 15 is accepted; Chi-squared = 3.91, \( P < .05 \)). Those hospitals whose purchasing department is handling all the materials used in the hospital tend to participate more actively than those hospitals whose purchasing department is not handling all the materials. Hypothesis 16 dealt with the feelings of purchasing agents about the responsibilities of materials handling in the hospital. Those hospitals whose purchasing agents felt that all materials should be handled by the purchasing department had a higher participation rate.
than those hospitals whose purchasing agent did not share this view. (Hypothesis 17 is accepted; Chi squared = 5.06, P < .05).

Finally, the size of the hospital was considered as a possible factor influencing the participation rate of the hospital. It was found in the study, however, that the size of a hospital has no significant relationship with the individual hospital participation rate in the group purchasing program (Hypothesis 18 is rejected; U = 65, P > .05). This finding runs counter to numerous criticisms from directors of group purchasing programs that smaller hospitals are not actively supporting their program. However, the finding of this study can be justified by considering other interacting factors such as professional activities.

A third objective of this study was to see if any relationship between professional and personal backgrounds of purchasing agents and the participation rate of the hospitals in the program. Professional activities of purchasing agents were divided into professional development activities and professional group activities. The result of this study shows that there is a significant relationship between the degree of activeness in professional development activities of purchasing agents and the participation rate of their hospitals in the group purchasing program (Hypothesis 19 is accepted; U = 18, P < .05). There is a strong tendency that purchasing agents from hospitals with a high participation are more active in their professional development activities. It was also found that purchasing agents from hospitals which are relatively active (upper quartile) in the group purchasing program have more responsibilities in professional organizations than those purchasing agents from hospitals which are relatively inactive (lower quartile) in the program.
The purchasing agents' age, educational background, and amount of experience in the hospital purchasing field were considered as personal factors influencing the attitudes of purchasing agents on various aspects of the hospital purchasing and the group purchasing program. Attitude was considered as a product of learning, and it was hypothesized that these personal factors affect the participation rate of individual hospitals through the formation of specific individual attitudes or perceptions. It was found in this study that these personal backgrounds alone did not influence the attitudes of purchasing agents as suspected. The hypothesis 20, 21, and 22 are all rejected. It is not, however, to say that those personal factors mentioned above do not affect the formation of attitudes of purchasing agents, but it only says that those factors taken as individual do not influence significantly the formation of the attitudes.

Implication of the Study

As pointed out earlier in this study, public pressure for better management of the health care industry, more specifically hospitals, is becoming increasingly greater. The outcry against high hospital costs can be heard from everywhere. Whether such high hospital costs can be justified is not the main issue. The real issue is what can be done to improve the situation, and what is being done. The higher level of services and care provided by hospitals would be of no use for general public if the costs of such services are too high for them. The non-profit status of most hospitals cannot be used as a justification for their inefficiency. Recent statistics published by the American Hospital Association reveal that hospital costs per patient day in non-
profit, short-term general hospitals are considerably higher than those of profit motivated hospitals with the same classification.2

There is a general agreement among hospitals that the group purchasing program can provide economic benefits for its member hospitals. The findings of this study also support this claim, although economic feasibility of the program was not the major purpose of the study. The major purpose of this study was to identify the major determinants of hospital decisions to participate more actively in the group purchasing program. The information gathered through this study can be very useful to generate more support for cooperative efforts of hospitals to reduce the total costs of their services. However, application of the findings of this study should be accorded with some precaution. The study is conducted exclusively in the Western Pennsylvania area, and the generalization made through this study may not be applicable in other areas. The study was further limited by lack of refined data gathering instruments and size of the sample interviewed. Never-the-less, the results do indicate some areas that may need special attention to improve the efficiency of the hospital operations.

The findings of this study have an organizational, personal and professional implications. These implications could be used for hospital management, individual purchasing agents, or the management of a group purchasing program for re-evaluation of their organizational structure, direction of their current efforts, and their individual goals.
One of the most significant findings of the study involves the organizational influences on the hospital decisions to participate in a group purchasing program. Some of the earliest research findings reveal the importance of policy, coordination, and conflict of sub-goals in achieving effectiveness and efficiency. Although this study is not trying to answer the cause and effect relationship between variables involved, following factors founded to be very important in a decision process of hospital purchasing.

1) Degree of conflict between functional groups within a hospital (mainly purchasing department versus other functional areas)

2) Degree of effectiveness in communication within a hospital

3) Location of decision-making authority and responsibility within a hospital

4) Capability of the purchasing department to work with other departments within a hospital

March and Simon (1958) stated that an intergroup conflict within an organization arises when there exists a positive felt need for joint decision-making, a difference in goals, or a difference in perceptions of reality. They further suggested that such conflict is not a stable condition for an organization and that effort is consciously directed toward resolving both individual and intergroup conflicts. The obvious results of existence of such conflict within an organization would be a difficulty of decision-making by an individual or a group.
Therefore, one of the most important implications of these study results for the hospital administrators is that active participation in a group purchasing program tends to resolve the intergroup conflict within a hospital. In this implication, it is assumed that the participation rate of a hospital in a group purchasing program is a dependent variable. An active participation in a group purchasing program could help a hospital to lower the level of intergroup conflict by forcing involved groups to compromise or to persuade each other. An active participation in a group purchasing program could also force the hospital to develop a set of product specifications rather than relying on the brand names of the products to be purchased. It will also readjust the allocation of expensive resources by utilizing them where they can be best utilized.

The findings of organizational influences also have a significant implication for the management of a group purchasing program. One of the most important reasons why a hospital is not very active in a group purchasing program might have been the organizational difficulties associated with the participation decision. Therefore, it might be useful for the management of a group purchasing program to try to find means of easing the difficulties.

The individual attitude and perception of hospital purchasing agents and administrators and professional activities of individual purchasing agents have a significant relationship with the hospital participation decision in a group purchasing program. The findings of this study reveal that following factors might have a very important impact on a decision process of hospital participation in a group purchasing program.
1) Attitudes or perceptions of purchasing agents and administrators toward the primary duty of hospital purchasing agents.

2) Attitudes of purchasing agents and administrators toward the allocation of purchasing agents' time on various duties.

3) Attitudes of purchasing agents and administrators toward the nature or concept of a group purchasing program.

4) Attitudes of purchasing agents and administrators toward the possible impact of a successful group purchasing program on the individual hospital purchasing function.

5) Attitudes of purchasing agents and administrators toward the cost of participation in a group purchasing program.

6) Professional activities of individual hospital purchasing agents.

The implication of such findings to individual purchasing agents is that an active participation in a group purchasing program would provide them more time for other important duties or professional development which was not available before. The individual hospital purchasing agents should utilize the program for their personal benefits rather than taking it as a threat for their jobs. A successful group purchasing program could be a source of competition only if a purchasing agent chose to make
it so. A hospital purchasing agent has more than enough other important
tasks to do than routine buying activities.

The findings of this study also have important implications
with respect to the group purchasing program operations. The most
important implication of these study results relates the goal of a group
purchasing program. The present nature or concept of a group purchasing
program has different meanings for different people. It is highly recom-
mended here that the management of a group purchasing program should
clearly re-define its overall and operational goals, and its efforts should
be redirected accordingly. Another implication of the findings is that a
group purchasing program tends to place a relative emphasis on a con-
tinuing education of hospital purchasing agents and efforts for a profes-
sionalization of purchasing function in a hospital. Economic benefits
through a group program are important only after the involved purchasing
agents are ready to accept the rational reasoning of such program.

The findings of this study along with other related researches
on hospital organization and purchasing should provide a partial solu-
tion to improve the efficiency of the health care industry. Upon the use
of these study results, readers should recognize the weaknesses of the
study mentioned in the previous section of this chapter.

As a concluding remark, further research needs to be carried
out to provide empirical evidences of the long-run as well as the short-
run economic and non-economic benefits of a group purchasing program.
Such research is essential for a complete treatment of the subject.
Should the evidences show that such expected benefits from the program
are large enough, the attention should be directed to other areas.
1 See James L. Price, *Organizational Effectiveness: Inventory of Propositions*, pp. 185-191.


4 Ibid., p. 129.

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Books


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42. Deeble, John S. "An Economic Analysis of Hospital Costs," *Medical Care*, No. 3 (July-Sept., 1965), pp. 133-146.


64. Perry, Parker D. "Group Gets Best Instead of Cheapest Buy," Modern Hospital, Vol. 107, No. 3 (Sept., 1966), pp. 80-82.


**Other Sources**


Dear

A research team from The Ohio State University is conducting a survey of hospital procurement activity. A part of this study deals with personal attribute and attitude profiles of the hospital administrator and the purchasing agent.

This study has the endorsement of the Hospital Council of Western Pennsylvania. However, it is being conducted solely by The Ohio State University who are completely responsible for the study's design, execution, and analysis.

We are asking for your cooperation and help in completing this research project. During the month of December, we will call you for an appointment for a personal interview. This interview will be based upon a prepared questionnaire and will take less than one half hour of your time.

As a participant in the study, your responses will be treated with strictest confidence. At no time will your name or the name of your hospital be identified. Further, we will send you a complete copy of the results of the study along with any publications resulting from the study.

Thank you for any assistance you may be able to give us in this study.

Chan Ki Hahn
Researcher
PERSONAL INFORMATION SHEET

1. Your age is
   _______ 20 to 29 years old
   _______ 30 to 39 years old
   _______ 40 to 49 years old
   _______ 50 years and over

2. Number of years you have worked in present position is
   _______ Less than one year
   _______ 1 to 3 years
   _______ 3 to 5 years
   _______ 5 to 10 years
   _______ more than 10 years

3. Number of years you have been in the hospital purchasing field is
   _______ Less than 3 years
   _______ 3 to 5 years
   _______ 5 to 10 years
   _______ over 10 years

a. Number of hours you spend in purchasing position
   _______ full time
   _______ part time
4. Educational level attained is
   _______ Some high school
   _______ Completed high school
   _______ Some college
   _______ Completed college
   _______ Graduate degree

5. If you attended college, what was your major field of study?
   Major ____________________, Degree in __________________

6. If you have any other educational background, please indicate (special training or private lessons).
   a. __________________________________________________________
   __________________________________________________________
   b. __________________________________________________________
   __________________________________________________________

7. The title of your present position in the hospital is
   __________________________________________________________
   __________________________________________________________

8. Your current annual income from present position in the hospital is
   _______ less than $7,999
   _______ $8,000 to $9,999
   _______ $10,000 to $14,999
   _______ $15,000 to $19,999
   _______ $20,000 to $29,999
   _______ over $30,000
ORGANIZATIONAL INFORMATION

1. The number of beds in the hospital in which you are working now is ____________________.

2. The hospital you are working for is mainly supported by
   ______ Religious organization
   ______ Government (Federal or local)
   ______ Private contribution
   ______ Profit-seeking corporation
   ______ Others (please specify)

   ____________________________________________________________

   ____________________________________________________________

3. The number of employees in the purchasing department is ______

4. Total amount of money the hospital purchasing department spent last year for materials and supplies for the hospital was
   ____________________________________________________________

5. Total amount of money the hospital spent last year was
   (total budget) ______________________________________________

6. Total amount of budget allocated to purchasing department operation is ________________________________

7. To whom does the purchasing manager report? (immediate superior)
   ____________________________________________________________

   (position)
8. Is the purchasing department centralized? (That is, are all the purchasing activities, regardless of the nature of supplies, handled by the purchasing department.

Yes _______________  No _______________

If no, what area of purchasing is not included?

________________________________________________________________________

________________________________________________________________________

9. What are the duties of your present position? (Please rank them in order of importance, i.e., from the most important to the least important.)

a. ________________________________________________________________

b. ________________________________________________________________

c. ________________________________________________________________

d. ________________________________________________________________

e. ________________________________________________________________

f. ________________________________________________________________

10. What are the reasons for your participation in the group purchasing program? (Please rank them in order of importance, i.e., from the most important to the least important.)

a. ________________________________________________________________

b. ________________________________________________________________

c. ________________________________________________________________

d. ________________________________________________________________
PROFESSIONAL ACTIVITIES

Please respond to the following questions as indicated. More than one response may be checked for items if it is necessary.

1. Are you a member of any professional association?
   Yes ___________ No ___________

   If yes, please indicate the name of the organizations.
   a. ______________________________________________________
   b. ______________________________________________________
   c. ______________________________________________________
   d. ______________________________________________________
   e. ______________________________________________________

   If yes, please indicate whether you have:
   ______ held an office nationally
   ______ held an office in your local branch
   ______ been active on committees
   ______ attend conferences regularly
   ______ attend conferences occasionally
   ______ been listed only as a member

   If no, please indicate:
   ______ I do not want to participate
   ______ I want to, but do not have time
   ______ I want to, but do not have enough money
   ______ Others, such as ____________________________
2. During the last two years, how often have you done any of the following:
   a. Read professional publications
      ______ Frequently ______ Occasionally _____ Seldom _____ Never
   b. Attended professional development classes sponsored by the association
      ______ Frequently ______ Occasionally _____ Seldom _____ Never
   c. Attended seminars and workshops
      ______ Frequently ______ Occasionally _____ Seldom _____ Never
   d. Attended (evening) classes of college or university
      ______ Frequently ______ Occasionally _____ Seldom _____ Never
   e. Consulted with colleagues in other hospitals on problems of mutual interest
      ______ Frequently ______ Occasionally _____ Seldom _____ Never

3. Do you have a personal subscription to any professional journals?
   Yes _______ No _______

   If yes, please list them

   ____________________________________________________
   ____________________________________________________
   ____________________________________________________
   ____________________________________________________
Instructions: Following is a list of statements about purchasing activity. The items simply describe activity and idea; they do not judge whether the activity is right or wrong. You may agree with some statements and disagree with others. For each item, indicate the degree to which actual hospital operations conform to the statement. For some items, it might be necessary to bring in your own view. Indicate the degree to which your personal view conforms to the statement.

1. Indicate how you feel about each statement by circling your response:

   SA—Strongly agree
   A—Agree
   U—Undecided
   D—Disagree
   SD—Strongly disagree

   Example: The purchasing department should always be alert for new suppliers.

   Your View

2. If you cannot answer an item because you have no information, please draw a line across the answer column, e.g.:

   SA—A—U—D—SD

3. Please answer each question as rapidly as you can.
1. The primary duty of a purchasing manager is to negotiate the lowest price with suppliers.

2. The final selection of the suppliers is made by functional department through choices of brand name rather than product specification.

3. The purchasing manager should put more of his time on routine duties than creative managerial functions such as control of inventory or the design of a materials distribution system.

4. The purchasing department and other departments do not get along because their basic interests are conflicting. For example, the medical staff may want to have the highest quality item even when its price is not acceptable by a good purchasing manager.

5. The prospect of promotability from your present job is not very good. That is, the purchasing job is not likely to be a springboard for a higher position in hospital administration.

6. A group purchasing program is nothing but another distributor from whom one can buy.

7. The primary reason for participating in a group purchasing program is not for economic benefits, but for non-economic benefits.
8. The purchasing department should have the sole authority and responsibility for deciding price, quality, quantity, and delivery schedule of required supplies provided that they meet the product specification and time limitation.

9. The purchasing department in the hospital is not as complex and difficult as other functional areas such as the surgery or nursing departments.

10. A group purchasing program does not offer anything new which an individual purchasing agent can not get or do without any special outside help.

11. The purchasing department does not help other functional areas to develop required product specifications and standards.

12. You are not convinced of what a group purchasing program can do for you, but you are in the program because your superior favors it.

13. You are not actively participating in the group program now, but if some changes can be made you intend to participate more.

14. You would like to stay on your present job, because it makes you feel comfortable.
15. If you "had it to do all over again," you would not enter the hospital purchasing field.

16. You do not see any justification for participation in a group purchasing program because you can do a better job.

17. The purchasing department or function is not highly respected by other functional areas or by top management of the hospital.

18. You are completely satisfied with your present job and duties.

19. You are convinced that the group purchasing program is good for hospital purchasing, but your superior is not enthusiastic about the program.

20. A group purchasing program is sacrificing the quality and services for cheaper price. Therefore, there is not any real savings from the program.

21. The mark-up and dues which have to be paid by the member hospitals are too high to justify the services rendered by the group purchasing program.

22. The only way you can be promoted is to go to another larger hospital for the same type of duty.
23. The purchasing personnel is allowed to accept a small gratuity from suppliers during the Christmas season provided it is only a bottle of liquor, a dinner, or the like.

24. The purchasing department should be considered merely as an auxiliary department rather than as a part of total organization which has an important role in total materials management.

25. The hospital purchasing department has the authority to change the product specification without consulting with other functional areas if such a change can be justified by the benefits for the hospital.

26. A group purchasing program, if successful, would eventually replace or downgrade the importance of individual hospital purchasing department or function.

27. You are not expecting a promotion within this hospital in a short period of time.

28. The group purchasing program is another buying agent who is doing exactly the same thing as you are doing.
29. The primary reason for participating in a group purchasing program is to obtain economic benefits. This means that economic reason plays the most important role as a participation determinant.

30. The purchasing department should manage all materials used in the hospital regardless of its ultimate user or purpose.

31. The management of the group purchasing organization is lacking his ability to carry out the program successfully.

32. A group purchasing program will deny purchasing agents an opportunity of personal relationship with suppliers or their representatives.

33. The purchasing department is lacking its ability to help other functional areas to develop the required product specification.

34. Your ability and knowledge at this hospital cannot be applied in another type of job.

35. Originally, you were not convinced about the benefits of group purchasing program, but your superior talked you into the program.
<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>Your View</th>
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<tbody>
<tr>
<td>36</td>
<td>A purchasing manager should feel free to use the price quoted by the group purchasing program in negotiation with other suppliers.</td>
<td>SA</td>
</tr>
<tr>
<td>37</td>
<td>The purchasing department is not allowed to coordinate other functional areas to develop required product specifications and standards.</td>
<td>SA</td>
</tr>
<tr>
<td>38</td>
<td>The management of the group purchasing organization (purchasing director) is not doing the best of his ability for benefits of member hospitals.</td>
<td>SA</td>
</tr>
<tr>
<td>39</td>
<td>A purchasing manager should be an active member of at least one professional association and attend most meetings of the association.</td>
<td>SA</td>
</tr>
<tr>
<td>40</td>
<td>The purchasing department is handling all the materials used in the hospital (medical supplies, foods, drug, etc.)</td>
<td>SA</td>
</tr>
<tr>
<td>41</td>
<td>You are not convinced that the economic reasons of group purchasing is as good as it is claimed.</td>
<td>SA</td>
</tr>
<tr>
<td>42</td>
<td>You feel that the group purchasing program should remain as a strictly voluntary organization. This means you do not want to see any mandatory binding clause in the charter of the group purchasing program.</td>
<td>SA</td>
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</tbody>
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