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To determine ways and means of facilitating horizontal and vertical mobility within New York City's Health Services Administration and selected private hospitals, a systems approach was adopted. Methodology for manpower development and training in an organizational setting related to the educational system and other accrediting institutions will be developed and demonstrated in the hospitals. As a result, 11 separate reports are expected between May and December, 1968, including (1) "Towards a Policy of Manpower Development and Training, (2) "The Existing Structure of the New York City Civil Service Jobs in Hospitals: A Technical Report," (3) "A Systems Approach to Job Design: The Job-Task Matrix Code System," (4) "A Systems Approach to Curriculum Design: The Curriculum-Task Module," (5) "An Examination of Required Curriculum for Selected New York Hospital Jobs: Patient-Related Jobs," (6) "A Proposal for a New Manpower Development System for New York City Hospitals: Patient Related Jobs," (7) "Lessons in Administering a Manpower Research Program: A Case Study," and (8) the final report. (JK)

HEALTH SERVICES MOBILITY STUDY

Research Foundation, City University of New York

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Room 628/125 Worth Street/New York City, New York 10013

PLAN OF WORK

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Health Services

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CHAPTER 1

HEALTH SERVICES MOBILITY STUDY: PLAN OF WORK

The Health Services Mobility Study is a Research and Development grant, funded by the Office of Economic Opportunity, Community Action Programs, Health Services. It is sponsored by the City University of New York. The initial grant is for one year. The purpose of the study as stated in the original proposal is to:

"....determine ways and means of facilitating both horizontal and vertical mobility within New York City's Health Services Administration and selected private hospitals."

Essentially, the grant proposal can be divided into four major objectives, as follows:

1. To study horizontal and vertical mobility in New York City health services institutions through an examination of requirements for (a) performance of jobs and (b) requirments for achieving advancement in jobs.
2. To facilitate upward mobility and relieve shortages through new approaches to upgrading. Suggestions may include:
   a. Giving credit for prior training and work experience
   b. Shortened training time
   c. Centralized, sequential upgrading-training
   d. Creation of intermediary jobs
   e. Development of appropriate proficiency tests with emphasis on performance
   f. Integrated, continuous training and development of training positions at all levels
   g. New approaches to training

3. To develop a methodology which will result in a centralized, viable system of continuous upgrading within the Department of Hospitals.

4. To link occupational mobility needs and hospital manpower needs to the educational system through the development of a cooperative City University-Health Services Administration program, permitting health service workers to progress in educational and career lines.

This general approach has taken on a more definite form since the project has been staffed and under way. As within any broad research, the thrust of direction and the specifics of design are colored by the orientation of the individuals responsible for planning and execution. Certainly in the burgeoning manpower field, underlying convictions and philosophies influence methodological design, emphasis and policy conclusions. This first chapter, therefore, makes explicit the plan of work for the project as it has evolved. The overall orientation of the project is presented in the first section, while the second describes the expected outputs (reports). The third section presents the working plan of the project in terms of work sequences and flows.

Chapter 2 presents a report on the organizational structure of the project and in-house procedures. Chapter 3 presents a progress report on project activities and a financial report covering the period October 16, 1967 through January 31, 1968.

ORIENTATION

The Health Services Mobility Study began its operations during a period when the attention of government, industry and academe was increasingly focused on the problems of manpower development and training, with emphasis on the training needs of the poor and those facing barriers to employment and upward mobility. At the same time, much attention was given to the problem of critical

shortages in the health services industry.

The results of legislative programs in manpower have thus far been characterized by a proliferation of funding agencies, training approaches and poverty-type community action groups. They also have been characterized by little coordination, duplication of efforts, a lack of continuity or exchange of information and inadequate evaluation. Much of the work is in pilot-type endeavors.

In addition, there seems to have been an emphasis on training the poor for entry-level jobs or for para-professional jobs in single sequences. There are many one-shot programs. Often they bear little relationship to actual industry shortages; usually there can be no assurance of employment at the end; and frequently the training takes place in institutional settings removed from the real world of work. The aura generated in many such programs is more reminiscent of the social service agency than of the hard realities of the labor market.

This study offers something relatively new to the field of manpower planning and development. It assumes that upgrading-training must be planned within the context of the total functioning of an enterprise and reflect its needs. This is a "systems" approach. The study also assumes that <u>it is in the employers' best interests for them to provide continuous upgrading-training to their work forces, opening channels from the lowest to the highest skill levels.</u>

Changing technology has placed a burden on the employer, requiring him to fill an increasing proportion of higher-skill, specialized jobs. On the other hand, traditional education or old fashioned on-the-job experience does not provide him with an adequate supply of workers with the higher-level skills. Nor does mass-production or ghetto education equip the labor force with the mental habits and approaches to work which are needed for transferability from one kind of job to another. As a result, the amount of formal education considered necessary for most jobs has widened the social and economic barriers between the High

School drop-out and the graduate and between the worker without a degree and the Baccalaureate degree holder.

This study proposes to develop a method of job analysis whereby the employer can build on his existing staff to fill new requirements. A system of continuous upgrading-training will be designed to minimize training time and provide efficient use of training resources. In such a setting, manpower development is in the interests of the employer. This is something of which he must be convinced -- if manpower development is to be a viable part of our economic life and not just an experimental phase of Federal efforts.

A systems approach to manpower would require identification of basic skill families and matching of training curriculum units to job tasks.[1] What is further called for is a link-up with the educational system. The training which workers receive for upward mobility can and should be of a quality which permits accumulation of course credits in formal educational institutions. Thus, the requirements for licensing and professional work can be attained during the working life of the individual, and barriers to upper-level jobs are cleared in a natural process, open to all. Formal education should be available to the labor force during its working life, in sequences linked with job requirements -- rather than be something completed before labor force entry or done while on leave from the labor force.

Given this overall approach, the research proposal has been taken to be a two-fold mandate: first, the development of a methodology for manpower development and training in an organizational setting, related to the educational system and other accrediting institutions; second, actual implementation -- or demonstration of the methodology within New York City hospitals.

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[1]The term modular will be used to refer to curriculum units and job tasks broken down beyond the course of study or job title; i.e., building blocks.

The goal is to provide the longest, broadest occupational pathways through the New York City Hospital system, and to provide for the alleviation of health manpower shortages.[2] However, it is expected that the methodology will be usable in the private sector as well as the public sector and in industries beyond the health services industry.

Actual implementation of the method and the design of training programs is expected within the first year; the project will deal with actual jobs in city hospitals, and help to train hospital employees for upgrading. It will attempt to solve the crucial problems of finding training funds and winning Administration, union, and Civil Service approval. It will have the experience of facing all the other institutional problems of the real world.

A major portion of project time will be devoted to the methodology, because of the long-run usefulness of creating a management, manpower-planning-and-training system. In the long run, only such an approach will have viable results independent of a wish to "do good" for the poor. The number of actual jobs which will be carried into training and upgrading programs in the first year cannot now be foretold, since the path is largely uncharted.

The basis of the proposed methodology is a system which looks at jobs in terms of the tasks which are associated with them. These tasks represent levels of skill, knowledge and comprehension which may or may not be related. The system (using coding) will identify the main characteristics of tasks which must be taken into account in order to group them by level and kind. The characteristics are dimensions; the levels are points on scales. Since anything can be described along any number of dimensions, it is necessary to identify

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[2]The grant proposal mentions the entire Health Services Administration, and private hospitals. However, in this first year, the plan is to focus entirely on New York City Hospitals. There will be informal contact with the private sector through the United Hospital Fund.

the salient (relevant) dimensions.[3] Then it will be possible to identify families of skill and "natural" progressions (ladders) within them. The appropriateness of job structures can be examined. Then, appropriate movement between jobs can be planned, or appropriate redesign can be achieved to reduce vacancy pressures.

Tied to this will be a matching of curriculum modules (or units) with job tasks, using a similar system of coding along dimensions which appear to be relevant. This will make it possible to identify overlaps and skill gaps between jobs on a ladder and provide training only for gaps between jobs. This will permit shorter training time and non-redundant training steps -- and also permit flexibility in the direction of movement of workers within the system -- across departments as well as upwards.

The study's proposalswill, of necessity, offer both long and short-range solutions. For example, job restructuring or suggested ways to circumvent Civil Service encumberances could be accomplished at once to solve shortages and overcome obstacles to upgrading, but the study will also propose long-run measures to upgrade the skill content of the labor force and will critically examine the structure of the Civil Service system as it relates to hospitals.

Though computer technology will be drawn on in the work and final system, its role is that of an information source and as an aid to analysis. At every step, in research or implementation, the actual planning and decision-making lies in the hands of the institutional representatives concerned. This is proper, given the complexities of the problems and the structures involved,

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[3]For example, if one wishes to build a box, the salient dimensions are height, width and depth. The scales here are expressed in inches or feet. But if one wished to select a mate, the salient dimensions might be in doubt. They could include age, education, sincerity and intelligence. The scales would or could be expressed in years for the first two; as a point along a graded set of descriptions for the third; and IQ measures for the last.

and given the rate of change in technology and organizational structures anticipated for the future.

If the project is successful, it will answer a national need. At the very least, it will come up with practical proposals for the New York City hospital system. That is, it may be found that an overall coding system cannot be designed for job tasks or curriculum units. This will be known early enough for the project to be able to refocus on a less sophisticated method of analysis. It will still be possible to develop rational job ladders and make proposals for job restructuring, training for upward mobility and to provide for accreditation of workers who are trained within the system.

EXPECTED OUTPUTS

The nature of the project objectives suggests that it makes good sense to report on the work as sections are successfully completed -- rather than wait until the final grant month for a single final report. If valuable material is produced, it should be made available to the public as soon as possible. This also will permit serious review by the project's Advisory Committees without the need for them to wade through a more voluminous single document. A final report is planned, however, which will discuss the experiences of the entire year, but will either incorporate earlier reports or summarize them.

The following section describes the plan of work. It outlines a series of separate reports which will be developed during the course of the year. The reports are presented in a roughly chronological order, although work on several will be done concurrently. Listed below are the tentative titles for the reports.

1. Towards a Policy of Manpower Development and Training.
2. The Existing Structure of New York City Civil Service Jobs in Hospitals: A Technical Report.
3. A Systems Approach to Job Design: The Job-Task Matrix Code System.
4. A Partial Job-Task Matrix in New York City Hospitals: Patient Related Jobs.
5. A Systems Approach to Curriculum Design: The Curriculum-Task Module.
6. An Examination of Required Curriculum for Selected New York City Hospital Jobs: Patient Related Jobs.
7. The Use of Tests for Entry to Selected New York City Hospital Jobs: Patient Related Jobs.
8. A Proposal for a New Manpower Development System for New York City Hospitals: Patient Related Jobs.
9. A Report on Implementation of Proposals for a New Manpower Development System for New York City Hospitals: Case Studies.
10. Lessons in Administering a Manpower Research Program: A Case Study.
11. Final Report of the Health Services Mobility Study.

1. Towards a Policy of Manpower Development and Training.

This report will establish the philosophical framework for the study. It will place the methodology and approach within the context of the general manpower field, as well as within the context of work done or discussed in health services. The material and ideas covered in the

first section of Chapter 1 of this Quarterly Report will be more fully developed, with references to the literature in the field. Some of the ideas to be discussed are as follows:

a) A systems approach to manpower development and training: task and curriculum modules.

b) Manpower development and training: the difference in approach when its purpose is to fill vacancies, reduce turnover, and improve output quality, as opposed to its use "to aid the poor" or avoid riots.

c) Upgrading as a reward for excellence and service.

d) Continuous upgrading-training and the relationship of training to the educational system:

The internal labor market and education.

Entry level training and upgrading-training vs. on-the-job training.

In-service training as a link to better performance in formal education.

Accumulation of credits in appropriate sequences.

e) The role of the government in assisting management with funds and development of continuous upgrading-training.

f) Job titles and the unions:

Job restructuring, creation of new titles and wage levels; the need for cooperative planning.

g) The Civil Service function in upgrading.

h) Transferability and training:

Fewer entry level jobs: increased rates of upgrading; training for problem-s ving; provision of maximum career options for mobility.

i) Tests and proficiency ratings; the link between training and hiring from outside the system.

j) The use of prior training credit and exemptions for work experience in cutting training time and meeting educational requirements.

k) The direction of manpower policy.

2. <u>The Existing Structure of New York City Civil Service Jobs In Hospitals: A Technical Report</u>.

This report will bring together information about the existing Civil Service system in New York City Hospitals, which will make it possible to answer such questions as:

a) What promotional ladders currently exist?

b) Which jobs require competitive examinations?

c) Which jobs require licensing or official agency registration or endorsement?

d) What formal education is required for jobs, and what prior experience; what options exist to trade experience for education?

The information on Civil Service hospital titles will be collected on code sheets and keypunched for computer use or counter-sorting tabulations. Appendix 1A presents the code books and code sheets designed thus far (without the code book supplements).

This report will also examine the following hypotheses:

a) That the level of wages for hospital jobs has a close correspondence with skill level.

Wages will be equated with the Civil Service salary grades currently applicable, or their pro-rated

equivalents. Skill level will be defined by a system of coding devised by Dr. Gilpatrick.[4] These will be subjected to regression analysis to find the adjusted coefficient of correlation and the regression line which relates the two variables (wages and skill levels).

b) That occupations which show major deviations below expected wage levels will also show the greater vacancy rates.

Wage deviations will be defined as differences from the regression line calculated in (a) above. (The dependent variable in (a) above will be the wage level.) Reported hospital vacancies by occupation, expressed as a percentage of budgeted positions by occupation will be used as a rough approximation of vacancy rates by occupation. (It must be noted that vacancies do not reflect the use of personnel not properly qualified for a given budget line. For example, nurse aides filling staff nurse positions reduce staff nurse vacancies. The data may have to be adjusted to account for this.) These two variables will also be subjected to regression analysis and to job-by-job analysis. This examination of wages and shortages, as well as the existing structure of jobs, is a necessary part of the study and lays a basis for further analysis and policy suggestions.

The existing job ladders will be graphically presented in a scheme such as that in Figure 1.1. The left-hand scale refers to current wage level codes. Jobs will be grouped into four functional divisions on the

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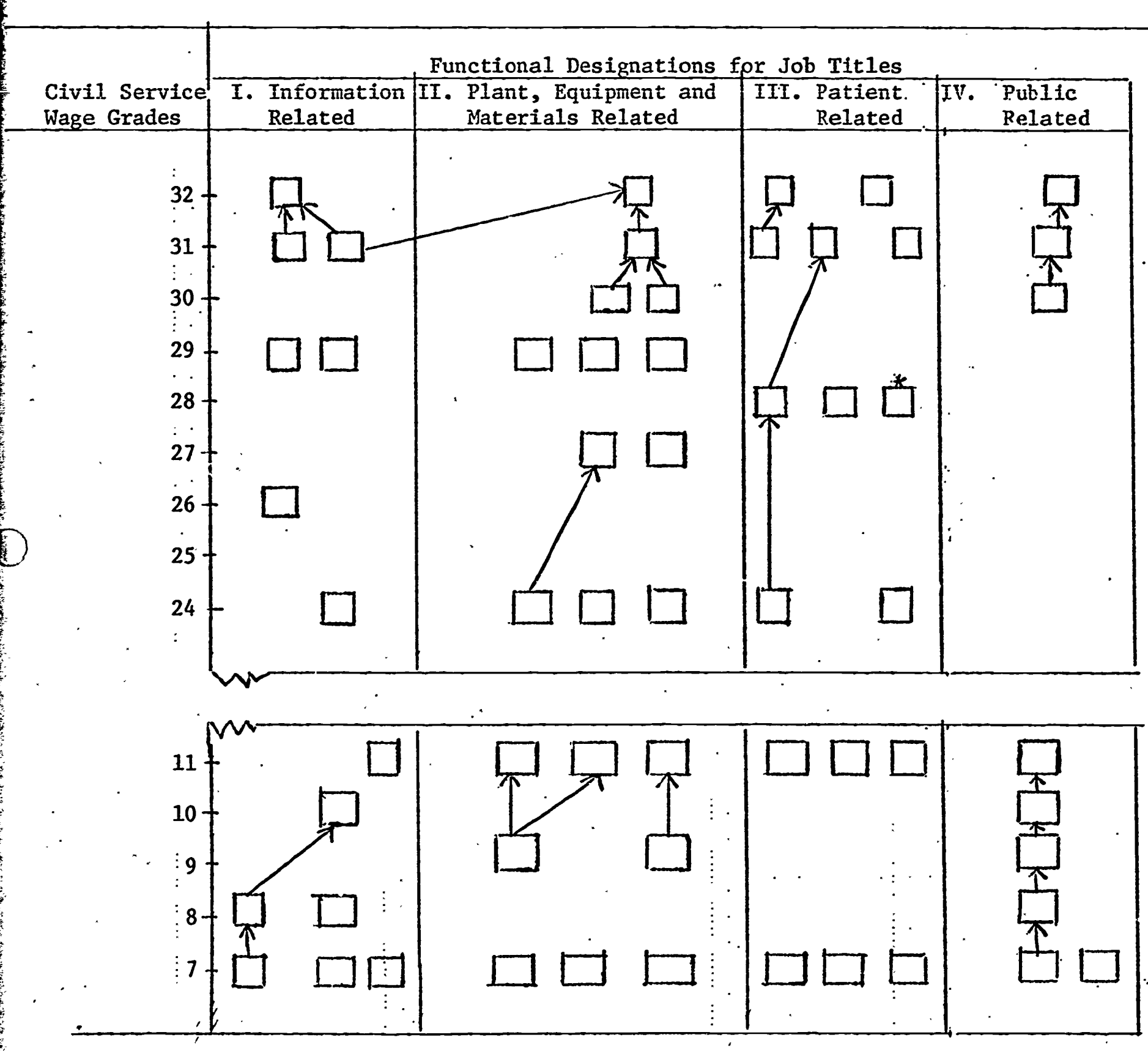
[4]Eleanor Gilpatrick, Use of Job Vacancies to Select Promising Industries for Training Programs (ADA 400), Appendix D, Skill Advancement, Inc., New York, August 17, 1967.

FIGURE 1.1

PROTOTYPE MODEL OF THE EXISTING JOB STRUCTURE IN NEW YORK CITY HOSPITALS: CIVIL SERVICE TITLES AS OF JANUARY, 1968



Note: Arrows indicate promotional lines.

*Designates that a non-specified promotional line exists below this job

basis of job descriptions now available.[5] (The functions will cut across departments.) The boxes in Figure 1.1 represent hypothetical jobs, listed at current wage levels and by function.[6] (In the actual chart the titles will be filled in). Where promotional lines now exist in the Civil Service system, arrows will be drawn. One will then be able to see the following:

a) Where promotional lines are needed in the existing structure.

b) Where intermediary positions plus promotional lines are needed.

c) The logic of existing job ladders.

This information base, coupled with later diagnosis, will make it possible to build on the existing structure wherever it is rational. The various outputs to be developed in this report should be of immediate interest to the Health Services Administration (HSA).

The report will also discuss problems and suggestions relevant to the HSA and Civil Service current information system. For example, it came to light that job specifications for some titles call for "elementary education". However, this usually is not defined in terms of years. In New York City elementary education can be interpreted as six years or eight, depending on whether a school graduates pupils at the end of the sixth grade, before Junior High School.

3. A Systems Approach to Job Design: The Job-Task Matrix and Code System.

This report is the heart of the contribution which it is hoped

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[5]Information related includes tasks involving manipulation of data, written material and managing functions where contact with patients is not involved. Plant, equipment and materials related includes tasks concerned with manipulation of tools, machines, articles, food and cleaning substances, and supplies. Patient related includes tasks which bring the worker into direct contact with the patient. Public related includes tasks whose chief functions are to serve or deal with non-patients or to serve the staff's non-professional needs.

[6]The effect of hospital affiliation agreements on payroll employment, staffing needs and job ladders is rather complicated. These are not yet represented in the study design.

the study will make to systematic manpower development. It will describe a methodology for job analysis whose purpose is to create rational job ladders and to select occupational populations from which to draw trainees for given jobs. By breaking the job titles down into tasks (or modules), job redesign for homogeneity of skill level or similarily of skill family may be achieved.

The main objective is to translate the task analysis into a coding system such that the individual enterprise can draw on its information about all its tasks to make rational decisions about how to fill vacancies by upgrading-training. The crucial objective is to select the dimensions which are most relevant for these purposes, and then to develop meaningful scales for the dimensions. It is already clear that skill, knowledge and mental or conceptual attributes must be reflected, as well as the nature of the output and the kind of activity.

The ideal system would be broad enough to apply to other industries, but specific enough to help select the sequences of jobs on a ladder which would provide upward gradations in most dimensions and minimize additional required training. It would also identify closely related levels and kinds of skills regardless of the departments. For example, the system should be able to tell that the mimeograph machine operator is akin to the metal stamper.

The system should also be able to permit changes in level within a dimension as technology requires different activities to perform the same function. For example, a task such as recording of symptoms may involve different skill levels as the stethescope is replaced by monitoring equipment.

A review of the literature will precede the construction of a trial model. Then a sample of jobs from each of the four functional areas designated in Figure 1.1 will be selected and broken down into tasks. Two tests will be performed:

1) Replicability: Do several job analysts (and specialists) come up with the same tasks and code them in the same way?

2) Independence of dimensions: Do the dimensions selected each represent non-overlapping, discrete facets?

Several analysts will be asked to study the same job and present the tasks extracted and their codes. Their agreement will be a check on replicability (1). Factor analysis will be used as a test of independence (2). After appropriate revisions these steps will be repeated until a satisfactory working model is obtained.

The methodology, when checked and made operative, will permit a matrix[7] of unlimited size, in which jobs are ranged on one axis, and tasks are ranged on the other. The result will look something like Figure 1.2.

With such a matrix it will be possible, by reading vertically, to see which job titles perform a given task; or by reading horizontally, to see which job tasks are associated with a given title. This is particularly needed when Civil Service titles do not reflect changes in job content. If the jobs and tasks are ordered by skill level, one can roughly estimate the homogeneity of skill level required by the

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[7]The word "matrix" is used here to mean simply the listing of data by row and column.

FIGURE 1.2

PROTOTYPE MODEL OF THE EXISTING JOB-TASK MATRIX IN NEW YORK CITY HOSPITALS.

Functional Area and Job Title	Tasks by Functional Area: Information Related Task						Plant, Equipment, and Materials Related Task						Patient Related Task								Public Related Task			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Information Related																								
Job Title			X	X	X	X															X	X		
Job Title		X	X	X	X											X								
Job Title	X	X	X	X										X	X									
Job Title	X	X	X	X																				
Job Title	X	X	X				X						X	X					X	X				
Plant, Equipment, and Materials Related																								
Job Title		X							X	X	X	X												
Job Title									X	X														
Job Title								X	X															
Job Title								X																
Job Title							X	X					X											
Patient Related																								
Job Title			X						X							X	X	X			X			
" "			X						X					X	X	X	X				X			
" "							X							X	X	X	X		X					
" "													X	X	X	X	X							
" "													X	X	X	X	X							
" "		X					X							X	X	X	X		X					
" "	X	X					X						X	X	X	X			X					
Public Related																								
Job Title			X																				X	X
" "																					X	X	X	
" "				X																X	X			
" "		X	X					X	X										X	X				

Note: The number of tasks is not predetermined. In actual use each task will have a title and a code number.

tasks related to a given title or the homogeneity of functions associated with it. This lay-out makes it possible to plan for job restructuring, earlier training for certain tasks, or to give credit for prior training and experience in promotional lines.

For example, from Figure 1.2 it appears that the top skill-level job in the patient-related group is also associated with lesser-level tasks in information-related, equipment-related, and public-related functions. If this is a scarce occupation, these latter functions could be cut away; they are already being done in other departments by lower-level persons. One or two of the tasks are performed by all job titles in patient care; perhaps these could also be cut away from the high-level job in short supply. An alternative is to retain these functions, but provide training for them at lower job levels of such a quality that credit would be given for that training and not have to be repeated as the individual rose in the system. Credit for experience could also be given to permit entry to the higher jobs.

If the matrix is prepared for a system of hospitals, rather than for one hospital, it can offer a cafeteria of tasks associated with titles. A rational allocation can be made by each hospital, based on its unique set of organizational and service-rendering needs.

After coding has proceeded for a number of jobs, a machine-based program will be designed to identify skill families and group tasks and jobs by skill family. This will make possible the development of rational skill ladders.

The report will also describe the means by which the methodology can be used in other industries. Also, it could conceivably be made to serve the entire Civil Service system, permitting movement across agencies.

Finally, a computer program will be designed such that, given a job shortage, a machine search can be made (based on the coding) to identify the jobs most closely akin to the shortage jobs. These would be the occupational populations from which to draw trainees. The computer program makes unnecessary the visual presentation of a total job-task matrix. (For something like hospitals, the matrix could conceivably be a 400 X 8,000 matrix!) On the other hand, the matrix can be used to explore one segment at a time.

At completion of coding for the entire system, the program will be able to detect similarities betwen jobs which do not belong to the same skill families or functional groups. However, the final decisions about the occupational sources of trainees must be made by the administrators and employee representatives, and not by the machine. This is because a number of other considerations will enter the decision-making process.

4. A Partial Job-Task Matrix In New York City Hospitals: Patient Related Jobs.

This report describes the practical application of the methodology in Report No. 3 (above) to the jobs in the functional category designated as patient related. The work will represent job-task analysis and coding for these occupations of major concern for the first project year. After the jobs are coded, further analysis will be done to design primary skill ladders and branching. Fom this will flow proposals for job redesign (where necessary) and promotional sequences. This report will be an incomplete proposal until the entire hospital system is studied, but the training and upgrading proposals in Report No. 4 will be able to be implemented at once. Additional, later work will serve to supplement rather than revise. Related jobs appearing in other functional areas,

and theretofore overlooked, will be identified within a complete system.

5. A Systems Approach to Curriculum Design: The Curriculum-Task Module.

This report represents the second basic methodological contribution of the study. It offers a system for identification of curriculum sub-units (or modules), coded to complement the task coding system. It is to be designed so that the relevant curriculum modules can be identified for each job task. Any configuration of tasks into jobs can then be translated into the course of study necessary as a pre-employment training requirement. Included will be formal education modules and in-service training modules Modular equivalents can thus be identified for crediting candidates with experience or training already covered at earlier stages, in other jobs, or in prior formal schooling.

The coding system will lend itself to three levels of analysis. The first is curriculum requirements to do a job. The second is comparison of the curriculum requirements to do the job with the curriculum requirements to get the job. (The accreditation requirements to enter professional course work is included.) The third is analysis of overlap in formal educational courses required for two or more jobs in a skill ladder as is now specified in the Civil Service system.

a) Requirements To Do: A Normative Matrix.

The first analysis can be presented in a "to-do" matrix. It would list the tasks associated with one or more jobs along the horizontal axis, and the dimensions used to identify curriculum units along the vertical axis.[8] The cells contain the relevant level, or coded scale. The vertical combination of cells represented for each task defines the level and content needed to train for that task. Summed across a job, the cells

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[8]Curriculum dimensions remain to be selected. They can represent academic disciplines such as English, Chemistry, Social Studies and also include Human Relations and Management. The scales could refer to the level of comprehension or performance involved, such as introductory, advanced, creative, and be coded to compare with formal school levels.

define the necessary curriculum training units. These may or may not be represented in formal education programs, or in-service, on-the-job training. Figure 1.3 shows the scheme. The project objective is to identify the salient dimensions and scales.

In the example in Figure 1.3, the job on the left (X) is a low-skill level job requiring training in all but one dimension. In the job at the right (Y), training is needed in all the dimensions, and of a generally high level of intensity. The scale numbers represent intensity here (from 1 to 9). At the fifth dimension, which might be English, the same level of course work will serve job X, perhaps a Licensed Practical Nurse (LPN), and job Y, perhaps an Intern.[9] The same course of study, in this case perhaps English at the High School senior level, can serve more than one task on a job as well. If task (b) is dispensing of medication, task (e) might be administering compresses according to directions, both in Job X, and task (g) could be prescribing medication, in Job Y.

A presentation such as Figure 1.3 points up the desirability of combining tasks into jobs to tap the same levels and dimensions of study. This would conserve training resources and time. It can also be seen that segments of training programs can serve more than one job. This provides a base for further upgrading and a functional sort of "core curriculum" -- a variation on the usual approach to core curriculum.

b) Curriculum To Do - To Get Matrix

The second matrix is used where prior formal training is a pre-employment requirement. The curriculum dimensions are ranged along the vertical axis as in Figure 1.3. Each job to be analyzed is listed along the horizontal axis. The highest code found in the "to-do"

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[9]The examples are not designed to be truly representative of required curricula, dimensions or job ladders; they are hypothetical.

FIGURE 1.3

PROTOTYPE PRESENTATION OF CURRICULUM REQUIREMENTS TO LEARN JOB TASKS.

Curriculum Dimensions	Job (Title) X					Job (Title) Y				
	Task a	Task b	Task c	Task d	Task e	Task f	Task g	Task h	Task i	Task j
Dimension 1	1						8	8	9	9
Dimension 2	3					9			8	
Dimension 3			4		2			6	6	
Dimension 4		3			3		7	7		
Dimension 5		4			4		4			
Dimension 6						5				6

Note: Dimensions represent identifiable subjects of study, still to be identified. Here they are given numbers.

Numbers within the cells represent codes, and refer to levels of intensity for the dimension. No entry for a dimension means it is not applicable.

matrix for a job is entered for each dimension above the vertical line in each cell. Then the formal curriculum code required for the job (by dimension) is entered in the appropriate places below the vertical line in each cell. (See Figure 1.4.) The discrepancy score indicates whether curriculum units are required at a level below (+) or above (-) that required to do the job, or are irrelevant to job performance. There are clear policy implications here. However, these can be examined from the point of view of later needs along the skill family ladder, and can suggest sequences for introduction of modules earlier, later, or at different levels. In Figure 1.4, the jobs are listed in sequence, such that the left hand job (X) of Figure 1.3 is the entry job, and the right hand job in 1.3 (Y) is at the top of the skill ladder in Figure 1.4.

Continuing the former example, dimension 4, which might be Chemistry, is not needed at as high a level as is required to do the first job (LPN), but is required later to be able to get to the next job (Sr. LPN). On the other hand, dimension 6 (which might be a foreign language), is not needed until the last step of the ladder (Intern). Since this dimension and level is required for each separate course of study related to each job, the individual moving along the ladder would have to redo this segment four times. It makes sense either to postpone this unit, or give credit for it once without later duplication.

In the case of dimension 5, this latter course of action is clearly desirable. Level 4 is needed in each job, and once learned, it is used in all the jobs. Therefore, credit exemption should be given for the courses needed for jobs 2 through 4, rather than repetition of the course work. In dimension 2, improvement of the level of training is warranted for the third job. Additional levels can then be added from job to job so that the step from job 3 to job 4 is not so great along this dimension.

FIGURE 1.4

PROTOTYPE PRESENTATION OF CURRICULUM REQUIRED TO LEARN JOB TASKS COMPARED WITH REQUIREMENTS FOR JOB ENTRY

	Job Titles and Discrepancies "To Do" Minus "To Get"							
Curriculum Dimensions	X Job 1	Discrepancy	Job 2	Discrepancy	Job 3	Discrepancy	Y Job 4	Discrepancy
1	1/2	-1	4/4	0	7/7	0	9/9	0
2	3/4	-1	4/4	0	6/4	2	9/9	0
3	4/4	0	4/5	-1	6/6	0	6/6	0
4	3/4	-1	4/4	0	5/5	0	7/7	0
5	4/4	0	4/4	0	4/4	0	4/4	0
6	0/4	Not needed -4	0/4	Not needed -4	0/4	Not needed -4	6/6	0

Note: Above the diagonal is the highest coded level on that curriculum dimension required to do the job (based on coding such as in figure 1.3 ("To Do").

Below the diagonal is the code level for curriculum units given in formal programs leading to accreditation for the occupation ("To Get").

The sequence for dimension 3 may be adequate provided that only the increments in level along the dimension are taught each time, instead of the entire body of material.

This matrix is designed for required formal course work, but can be adapted to include other training programs and clinical training modules. If only the required codes "to do" the work are represented for all the jobs in a job ladder, the result is a design for a training pathway geared to movement along a career ladder.

c) Curriculum Overlap

The third kind of analysis is geared for speeding mobility within the existing structure of jobs and requirements. The formal educational curriculum modules required for two jobs in a sequence can be examined for overlap. The policy implication is to give credit or exemption for prior study. Figure 1.5 provides such an analytical framework. The two jobs are represented by their required curriculum regardless of their "to-do" aspects, and overlaps are discovered.

In the case illustrated in Figure 1.5, the lower-level job already requires dimension 3 and 7 at as high a level as does the higher-level job. Full credit should be given. For dimensions 1, 2 and 8, either the lower-level training should be upgraded, or partial credit should be given. Training for only the necessary deepening of knowledge or skill should be required. This kind of analysis may be expanded by evaluating on-the-job training for job 1, as well as formal requirements. Such analysis may provide a basis for granting exemption from clinical aspects of the required course of study for job 2.

FIGURE 1.5

PROTOTYPE PRESENTATION OF OVERLAP IN REQUIRED COURSES OF STUDY FOR JOB ENTRY.

Curriculum Dimensions	Coded Levels of Intensity Represented In Required Course of Study		Comments
	Job 1 (Lower Skill Level)	Job 2 (Higher Skill Level)	
Dimension 1	1	2	Credit level 1; teach 1 more level
Dimension 2	3	4	Credit level 3; teach 1 more level
Dimension 3	5	5	Give full credit
Dimension 4		4	Teach
Dimension 5		5	Teach
Dimension 6	1		Redundant for job 2
Dimension 7	3	3	Give full credit
Dimension 8	4	5	Credit level 4; teach 1 more level
Dimension 9		6	Teach
Dimension 10		6	Teach
Dimension 11		6	Teach

Note: Level of intensity relates to degrees of depth to which subject matter is studied. Dimensions are still to be identified but may represent subjects of course work.

6. An Examination of Required Curriculum for Selected New York City Hospital Jobs: Patient Related Jobs.

This report discusses the application of the methodology described in Report No. 5 to jobs in the patient-related functional area. It will analyze the curriculum components required to get jobs (including existing credential requirements) as well as those necessary to do jobs, and match curriculum modules with job tasks. Job career ladders will be born in mind. Out of the cafeteria of tasks and training sequences, curricula can be designed which take into account formal entry requirements but employ the approaches discussed under Report No. 5 above. The goal is to shorten the training time it takes for an individual to move along an occupational pathway; it is also to reduce the drain on hospitals of unnecessary release-time study. This will reduce the conflict between training needs and hospital personnel staffing needs.

This report will also deal with the possible avenues open for work-study sequences, extra study time after work and in-service vs. in-school sequences in training. It will discuss entry-level core curriculum units to enhance motivation, job performance and transferability of skills, and deal with the problem of how to offer these units to people already in the system. It will discuss the general problem of combining upgrading-training for workers already employed in hospitals with those who will enter at the bottom and move up within the newly designed system.

7. The Use of Tests for Entry to Selected New York City Hospital Jobs: Patient Related Jobs.

This report will deal with various aspects of testing as they are used to screen applicants for New York City hospital jobs. The jobs discussed will be those covered in Reports 4 and 6. The tests will be

competitive Civil Service exams, although practices related to licensing exams will be explored as well.

The literature on test construction and validation will be reviewed, and empirical validation will be attempted for several relevant Civil Service exams.

The Report will pose (and hopefully answer) the following questions:

1) Are Civil Service tests an obstacle to upward mobility; how do they relate to past job performance?
2) If they are an obstacle, what can be done?
3) Are the formal educational credits required before admission to licensing and similar qualifying exams surmountable barriers?
4) If so, how?
5) Can one create exams tied to job performance and/or successful completion of training for use as entry requirements for Civil Service jobs in hospitals?
6) Can this be done so as to permit upgrading for current employees and entry to trainees and those qualified from the external labor market?

Involved in these questions will be test validation. Validation may involve testing for discriminatory powers of the exams. Comparison of test scores of those job incumbants who are rated high and rated low in performance, and comparison of these test scores with a lower-level, untrained population could be used. Reliability testing of performance ratings will also be needed.

Another part of the analysis will be a comparison of test items with the skills required to perform job tasks and curriculum units required for entry to jobs. The analysis will uncover whether there are test items which

cover material extraneous to the job or formal training courses.

The possibility of decentralized test construction and validation will be examined, with implications for policy spelled out. Policy implications for the Civil Service system will have to be discussed, with long- and short-run objectives spelled out.

8. A Proposal for a New Manpower Development System for New York City Hospitals: Patient Related Jobs.

This is the chief policy report of the project and will cover all aspects of implementation dealing with job ladder construction, Civil Service requirements, curriculum design, training agencies and trainee selection. The design for implementation will be spelled out, step by step, for each selected job, so that actual training experience can be had before the end of the project year. Steps to achieve implementation will follow the set of sequences as outlined in Figure 1.6.

If time permits, the plans call for one or more pilot training programs, with an experimental curriculum geared to enhance transferability of skills, motivation and committment to excellence. This will involve setting up an experimental design.

9. A Report on Implementation of Proposals for a New Manpower Development System for New York City Hospitals: Case Studies.

This report will deal with the project's actual experiences in implementing Report No. 8.

It will cover:

a) What was done

b) Experience with pilot training programs and the results of experimental manipulation (if any)

c) Diagnosis of problems

d) Policy proposals

FIGURE 1.6

IMPLEMENTATION CHECK SHEET FOR JOB TITLE AND TRAINING PROPOSALS
(One for Each Job)

Subject	Activities Required									
Job Title _____ (New or existing in Civil Service)	Approval by experts of tasks included.	Requirements: 1) Prior experience 2) Education and/or training 3) Form and content of tests.	Salary line cleared with agencies and union.	Relationship to other jobs.	Relationship to licensure or legal requirements (if any).		Approval by budget authorities (if needed).	Approval by HSA and Hospital Administration.	Approval by relevant union(s).	Approval by Department of Personnel.
Trainee position title for Civil Service _____	Approval by experts of curriculum units. Procedures: 1) Waiver for units already learned 2) Sequence of units.	Selection of trainees: 1) Criteria 2) Methods 3) By whom?	Salary line cleared with agencies and union.	Arrangements for work-study: 1) Release time 2) After work 3) On-the-job time in new job.	Plan for trainee evaluation: 1) Criteria 2) Methods 3) By whom?	Plan for performance appraisal follow-up: 1) Criteria 2) Methods 3) By whom?	Approval by budget authorities (if needed).	Approval by HSA and Hospital Administration.	Approval by relevant union(s).	Approval by Department of Personnel.
Training Program and Trainers	Approval of who trains: 1) Educator 2) Outside agency 3) Hospital personnel, a) Target job incumbent, b) Supervisor.	Training of Trainers: 1) Agency 2) Content 3) Location 4) Timing.	Location of training program.	Funding sources for training and/or release-time costs.	Timing: 1) Curriculum length 2) Work-study needs 3) OJT needs.	Relationship to related, existing or conflicting programs, training agencies, trainers.	Accreditation requirements for program (if needed).	Approval by HSA and Hospital Administration.	Approval by relevant union(s).	Plan for evaluation of training program: 1) Criteria 2) Methods 3) By whom?

The plan is to start pilot training in jobs at the entry level and then to move up within patient-related services. The number of jobs and number of programs to be covered will be a function of the time needed for the various steps which have to be taken prior to implementation. The steps will then be repeated for additional jobs and additional functional areas, culminating in a total system -- if the project is refunded for a sufficient period of time.

10. Lessons in Administering a Manpower Research Program: A Case Study

This report will review the lessons learned on this project, building on the material discussed in Chapter 2 of this document (the Organizational Report). It may be incorporated in the Final Report, rather than stand as a separate document.

11. Final Report of the Health Services Mobility Study

This will bring together the prior ten reports, and will present the year's work as a systems approach to Manpower Development and Training. It will cover:

a) Design & Methodology

b) Empirical Work

c) Implementation

d) Policy Proposals

e) Suggested Future Work

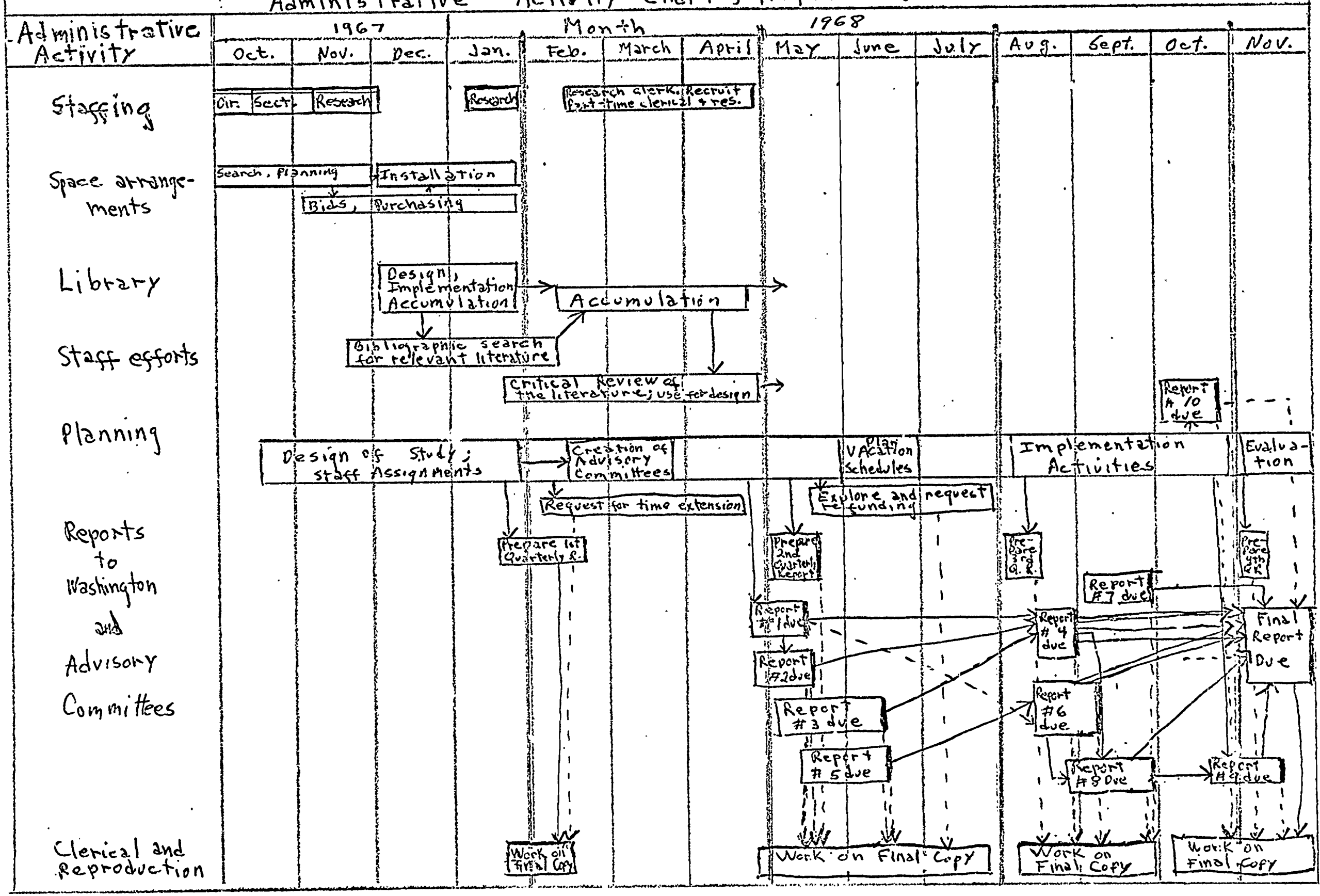
TIME SEQUENCES AND RESPONSIBILITIES

This section presents a graphic lay-out of the work flows related to each of the planned reports. The figures below show each activity, the estimated time for completion, the sequence of tasks and the interrelationships of the activities.

Figure 1.7 presents the general administrative and staff activities

Figure 1.7

Administrative Activity Chart, Proposed Grant Period: October '67 to Sept '68



which will be going on outside the specific activities related to reports. A tentative time sequence for the reports is also included, as a guide to scheduling of support services. In all cases the arrows show the direction of inputs.

Figure 1.8 is presented on several pages. There is carry-over of some items from page to page to make the sequences more readily understood. This visual presentation makes it possible to read down in any given time segment to see just what should be going on at that time. The progress reports will compare the projected sequences and dates with work actually accomplished. The major advantage of this presentation is that the consequences of time changes can be clearly visualized; thus proper planning to overcome problems will be facilitated.

The reader should note that the due dates for writing drafts of reports do not necessitate that subsequent steps await final documents. For example, planning for training programs can go on much in advance of the reports which detail the proposals for training and curriculum design.

The timing for data collection activities is designed to permit the operation of at least one or two programs before the year is over. The same data collection steps for additional job-ladder analysis and design, and curriculum planning and testing will continue during and beyond the first programs. The objective is to gather data and design programs in continual process until the entire hospital system is covered. This means that the hospitals' need for actual programs as soon as possible will not be sacrificed in favor of total-system data collection. The parts will be put together in sequence, as bricks in a wall. As in the case of a wall, the joints in the system can be smoothed out at the end.

Figure 1.8
Report-Related Activity Chart, February 1968 through November 1968.

Report and Authors	Month										Comments
	February	March	April	May	June	July	August	September	October	November	
1. Towards a Policy of Manpower Development and Training, Gilpatrick	Read and assess literature in the field		Write Draft	Advis. Comm	Revise + Reproduce						Used as general input to all other work
2. The Existing Structure of New York City Civil Service Jobs in Hospitals: A Technical Report, Gilpatrick + Williams	Code Cards 01-04	Key punch	Tabulations	Analysis	Write Draft	Advis. Comm	Revise + Reproduce				Used as input to all practical policy proposals. Basic data.
	Arrange for Computer Consultant	Debug program	Regression Analysis								
		Backup Table for chart	Job Structure Chart								
3. A Systems Approach to Job Design: The Job-Task Matrix and Code System. Gilpatrick + Miller	Hire and train part-time job analysts										Used as methodology for job task analysis and restructuring of jobs; creation of ladders and planning
	Review of Literature	Construction of job task classification system	Collect data for job-task coding on sample jobs, Sample respondents and test for replicability	Code, key-punch and machine test system	Revise and retest system	Write draft	Advis. Comm	Revise & Reproduce			
		Selection of sample Hospitals, Jobs, Coders									
		Test design									
		Prepare code sheets and programs	Check with Consultants in relevant occupations								
	Compare system with curriculum system										

Figure 1.8 (continued)

Report and Authors	Month: February	March	April	May	June	July	August	September	October	November	Comments
3. A Systems Approach to Job Design: The Job-Task Matrix and Code System. Gilpatrick & Miller		Hire and train part-time job analysts; Review of Literature; Construction of job task classification system; Selection of sample Hospitals, Jobs, Cubors; Test design; Prepare code sheets and Programs; Collect data for job-task coding on sample jobs; Sample respondents and test for replicability; Code, Key-punch and machine test system; Revise and retest system; Write draft; Advis Comm; Review & Revise; Check with Consultants in relevant occupations; Compare system with curriculum system					(repeated from prior page)				Used as methodology for job task analysis and restructuring of jobs; creation of ladders and planning
4. A Partial Job-task Matrix in New York City Hospitals: Patient Related Jobs. Gilpatrick, Miller et al.		Computer Consultant; Report no. 2 inputs; Selection of jobs for data collection, numbers, location; Collection of job-task data Collection for selected jobs only; on patient related jobs and beyond; code and Key punch Job-task data continuously; Prepare Matrix; Design and prepare programs for skill family analysis and trainee population selection; Machine Analyses: Skill families & selection system; Creation of ladders and training proposals; Hospital CONSULTANTS; selection of key short life occupations									Basis for Implementation proposals
5. A Systems Approach to Curriculum Design: The Curriculum-task Module. Gilpatrick & Von Esch		Review of Literature; Construction of Curriculum System; Select sample courses; Collect, Code data on sample courses design tests; Test System; Revise & retest system; Check with Consultants in field; compare system with task system; Write draft; Advis Comm; Revise & Reproduce; Revise & Reproduces									Used as methodology to design training and give credit for prior study

Figure 1.8 (continued)

Report and Authors	Month										Comments
	February	March	April	May	June	July	August	September	October	November	
6. An Examination of Required Curriculum for Selected New York City Hospital Jobs: Patient Related Jobs. Gilpatrick, Von Esch, et al.	Prior Outputs			Report #2 - Final code systems for tasks and curric.	Selection of jobs for analysis	Job task Matrix	Training Prop. osals	School Authorities	Continue for other Jobs		Basis for Implementation proposals
7. The Use of Tests for Entry To Selected New York City Hospital Jobs: Patient Related Jobs. Gilpatrick, Seifer.											Basis for Implementation proposals
8. A Proposal for a New Manpower Development System for New York City Hospitals; Case Studies Gilpatrick, et al.											Implementation proposals

Figure 1.8 (continued)

Report and Authors	Month: February	March	April	May	June	July	August	September	October	November	Comments
8. A Proposal for a New Manpower Development System for New York City Hospitals; Case Studies Gilpatrick, et al.	(repeated from prior page)	Study Civil Service Bill CUNY Procedures	Prepare for speedy implementation of programs in Cat. I			Negotiate Items on Implementation sheet	INPUTS FROM ALL OTHER REPORTS; Select 2 training programs; Design test of programs	Tie up reports 1-7 into overall framework; Train trainees; Select trainees	Advis Comm; Revise & Reproduce; Continue for other jobs; Program(s) under way		
9. A Report on Implementation of Proposals for a New Manpower Development System for New York City Hospitals: Case Studies Gilpatrick, et al.				Keep running log on experiences, problems and solutions in achieving implementation				Develop future plans	Write Prop; Advis Comm; Revise & Reproduce		Organizational Policy Proposals
10. Lessons in Administering A Manpower Research Program: A Case Study. Gilpatrick, et al.						Prepare Evaluation Forms	Staff Evaluations; Advisory comm. Evaluations; Budget Analysis		Write Report; Advis comm; Revise & Reproduce		Expendable
11. Final Report of the Health Services Mobility Study Gilpatrick, Staff								Review Reports	Write Draft; Advis Comm; Reproduce		Ties all Reports together

APPENDIX 1A: CODE BOOKS AND CODE SHEETS, CARDS 01-04

January 22, 1968

Health Services Mobility Study Code Book

Cards 01, 02 & 03

Refers to information as of December 18, 1967

Col. 1 — Blank

Cols. 2-3 — Card number (precoded)

Col. 4 — Blank

Cols. 5-9 — Health Services Civil Service Code

Code	Condition
As given in specifications manual	For each title

Col. 10 — Blank

Col. 11 — Sex requirements for job (if any).

Code	Condition
0	None required
1	Male only or extra physical effort needed
2	Female only

Col. 12 — Blank

Col. 13 — Does title require taking a competitive examination?

Code	Condition
1	Yes
2	Exempt
3	No

Col. 14 — Blank

Col. 15 — Does title require State or local licensing or official agency registration or endorsement?

Code	Condition
1	Yes
2	Optional
3	No

Col. 16 — Blank

Cols. 17-18 — Minimum number of years of school completed as requirements to get the job title:

Code	Condition
	Elementary School
00	None
01	First grade
02	Second grade

Cols. 17-18 (continued)

03	Third grade
04	Fourth grade
05	Fifth grade
06	Sixth grade
	Jr. High School
07	First year
08	Second year
	Jr. High or High School
09	Third year Jr. High or First year H.S.
	High School
10	Second year
11	Third year
12	Fourth year or H.S. Equivalency Diploma
	Professional, Vocational or College Beyond High School
13	One year
14	Two years (Associate Degree)
15	Three years
16	Four years (Baccalaureate)
17	Five years (Master's or Professional Degree)
	Graduate Study
18	One year beyond Master's
19	Two years beyond Master's
20	Three years beyond Master's or Ph.D.

Col. 19 Blank

Col. 20 Is formal education substitutable as a trade-off with prior work experience? Is there an "open" equivalent?

Code	Condition
0	No trade-off or equivalent
1	Open equivalent, no trade-off
2*	No open equivalent, one trade-off exists
3*	Open equivalent, one trade-off exists
4**	No open equivalent, two trade-offs exist
5**	Open equivalent, two trade-offs exist

* 2 & 3 require a second card in which the first card relates to one set of requirements and second card relates to second set.

** 4 & 5 require a second and third card in which each card relates to a separate set of requirements.

Note: For codes 0 & 1, second and third cards are coded only for cols. 1 - 9.
For codes 2 & 3, card 2 is fully coded and only cols. 1 - 9 are coded in card 03.
For codes 4 & 5, all three cards are fully coded.

Note: Differences in cards 1 - 3 can take place in cols. 15, 17-18, 22-24, 25, 26-30, 32-36, 37, 39, 41-42, 44-48; all other columns must be the same on all three cards (if they are coded).

Col. 21 Blank

Cols. 22-24 Number of years of maximum experience necessary in any required prior job whether promotional or not. Years refer to longest number of years if a two-step sequence is required.

	Code	Condition
	000	If none required
Cols. 22-23	00-99	Number of years indicated as given
Col. 24	0-9	Months indicated as given (If 10 or more months, count as one year.)

Col. 25 Sequential experience needed in two jobs.

Code	Condition
0	If no sequence is required
+	If a two-job sequence is required

Col. 26-30 Abbreviation of name of job in which prior work experience is mentioned as being required or optional. (First mention)

Code	Condition
See name as given in Supplement A	If required or mentioned, give first mention or first of sequence
00000	If not required or not mentioned

Col. 31 Blank

Cols. 32-36 Abbreviation of name of job in which prior work experience is mentioned as being required or optional. (Second mention)

Code	Condition
See name as given in Supplement A	If required or mentioned, give second mention or second of sequence
00000	If not required or not mentioned

Col. 37 Number of years in second job if sequence is required.

Code	Condition
0	If no sequence is required
1-9	Number of years as given

Col. 38 Blank

Col. 39 Number of additional mentions beyond those represented in cols. 26-30 and 32-36.

Code	Condition
0	No third mention or none required
1	Third mention given
2	Fourth mention given
3.....9	Etc.

Col. 40 Blank

Cols. 41-42 Type of special formal training required (if any).

Code	Condition
00	None required
See code as given in Supplement B	If optional or required

Col. 43 Blank

Cols. 44-48 Abbreviation of job for which only formal training or licensing is prior requirement for this job.

Code	Condition
See name as given in Supplement A	If mentioned
00000	If not mentioned

Col. 49 Blank

Cols. 50-51 Number of promotional jobs (below).

Code	Condition
00	None.
01-99	Number of titles specified

Col. 52 Blank

Col. 53 Existence of unspecified promotional titles (below).

Code	Condition
0	None mentioned
1	If mentioned without further title specification

Col. 54 Blank

Cols. 55-56 Number of promotional jobs (above).

Code	Condition
00	None
01-99	Number of titles specified

Col. 57 Blank

Col. 58 Existence of unspecified promotional titles (above).

Code	Condition
0	None mentioned
1	If mentioned without further title specification

Cols. 59-60 Blank

Cols. 61-80 Actual title of job.

Write out title, one letter to a column; one blank between words. Abbreviate if necessary to stay within space. Omit punctuation.

Health Services Mobility Study, Research Foundation, City University of New York

Col. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Content	X	Card No.	1, 2, 3	X	Civil	Service	Code			X	Sex	X	Competitive	X	Licensed	X	Minimum yrs. of school		X	Exp. as trade-off
Code	X	0	3	X						X		X		X		X			X	

Col. No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Content	X	Years of prior experience			Sequential Exp.	Job in which prior experience (first mention)					X	Job in which prior experience (second mention)					Yrs. in 2nd sequence	X	No. of add. mentions	X
Code	X										X							X		X

Col. No.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Content	Spec. School		X	Job for which only formal training or licensing is required					X	No. of promotional jobs (below)		X	Unspec. promotional titles	X	No. of promotional jobs (above)		X	Unspec. promotional titles	X	X
Code			X						X			X		X			X		X	X

Col. No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Content							Actual		Title	of	Job	(61-80)								
Code																				

Eleanor Gilpatrick, Project Director
125 Worth Street Room 628

Check when completed [ ]

[X] indicates blank

Coded by _____ _____

Checked by _____ _____

January 31, 1968

Healt Services Mobility Study Code Book

Card 04

Col. 1 — Blank

Cols. 2-3 — Card number (precoded)

Col. 4 — Blank

Cols. 5-9 — Health Services Civil Service Code

Code	Condition
As given in specifications manual	For each title

Col. 10 — Blank

Cols. 11-13 — Gilpatrick Code

	Code	Condition
Cols. 11-12	See Supplement C	Skill level
Col. 13	See Supplement C	Function

Col. 14 — Blank

Col. 15 — Functional Code

Code	Condition
1	Information related
2	Plant, equipment, and materials related
3	Patient related
4	Public related

Col. 16 — Blank

Cols. 17-18 — Salary level

Code	Condition
01-32	As given in specifications manual. If only daily or hourly rates are given, convert to yearly salary based on given or normal hours and days and code at closest midpoint value of the salary grade ranges.

Cols. 19-20 — Blank

Cols. 21-25 Budgeted full-time positions for fiscal period 1967-1968

Code	Condition
00000-99999	As given in "1967-1968 Budget by Title"

Note: Numerical values are filled in such that the extreme right-hand column is always filled and the others are used as the number of digits increases.

Col. 26 Blank

Cols. 27-31 Filled full-time positions

Code	Condition
00000-99999	Machine calculated as difference
Leave Blank	between cols. 21-25 and 33-37

Col. 32 Blank

Cols. 33-37 Unfilled full-time positions as of December 15, 1967

Code	Condition
00000-99999	As given in "Vacancy Report by Title"

(?)

Cols. 38-40 Blank

Cols. 41-45 Unfilled jobs as a percentage of budgeted positions

Code	Condition
000.0-100.0	Machine calculated as cols. 33-37
Leave Blank	as percent of cols. 21-25

Col. 46 Blank

Cols. 47-66 Actual title of job

Write out title, one letter to a column; one blank between words. Abbreviate if necessary to stay within space. Omit punctuation.

Col. 67 Blank

Cols. 68-69 Union representing job title

Code	Condition
00	Job title not represented by union as of December 1967
01-99	Union as coded in Supplement D

Col. 70 Blank

Health Services Mobility Study, Research Foundation, City University of New York

Col. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Content		Card No.			Civil Service Code						Gilpatrick Code				Functional Code		Salary Level			
Code		0	4																	

Col. No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Content	Budgeted full-time positions						Filled full-time positions						Unfilled full-time positions							
Code																				

Col. No.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Content	Unfilled as a percentage of budgeted positions						Actual title of job (47-66)													
Code																				

Col. No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Content								Union												
Code																				

Eleanor Gilpatrick, Project Director
125 Worth Street Room 628

Check when completed [ ]

[X] indicates blank

Coded by _____ _____

Checked by _____ _____