Important Variables Influencing Successful Use of Aides

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WE BELIEVE that a clear understanding of the relevant and essential variables pertaining to the use and evaluation of aides in the present and future of health services delivery is essential.

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Although the literature has grown considerably since 1965, there remains a great deal of confusion and lack of consensus on the role, if any, aides should play. This situation is succinctly described in the title of D'Onofrio's article, "Aides—Pain or Panacea?" (*1*).

Background

The special section on health aides in the September 1970 issue of Public Health Reports reveals the diversity of variables considered important in the success of auxiliaries. Carlaw (*2*) stressed the importance of "interaction development as a training model suitable for people whose skills are in cultural understanding and communication." He stated, "A training program is generally based on an organizational problem need, or purpose requiring skill or knowledge beyond that presently available." Hoff (*3*) took the strongest position on this issue when he said, "Adequate training probably contributes more than any other factor to the successful performance of auxiliary health workers."

Heath and Pelz (*4*) stressed the importance of the functions and roles of aides in their effective performance.

Hildebrand (*5*) described the major issues as ". . . establishing a sound administrative climate for developing programs using aides, the essentials of effective supervision, agency communications, training, ..." Callan (*6, 7*) called supervision "the key to success with aides." Earlier articles also designated training as the key element in the successful performance of aides.

Selection of Aides

Since the advent of the Office of Economic Opportunity legislation in the mid-1960's, there seems to be an unstated assumption in many programs using aides that persons selected more or less at random from poverty areas can, through training and supervision, be effective workers. Hoff (*3*), and Callan (*6*) placed primary stress on these variables. The

ambiguity of this position has been clearly revealed by several writers in the special section on health aides in Public Health Reports. Carlaw (*2*), for example, stated, "One cannot train people in human relations."

Heath and Pelz *(4)* observed:

> The community health aides with jobs in health agencies usually know more about the specific target groups the agency is trying to reach than anyone else in the agency since they belong to it. The aides have probably acquired their skills through life experiences, rather than in an academic setting.

Hildebrand (*5*) said:

> Each aide brings to the agency numerous community contacts and vast knowledge concerning his or her community. These combined assets are a greater resource for the social and health agencies. This knowledge and the know-how the aides possess should be used in every instance possible.

D'Onofrio (*1*) described program aide functions that

> . . . may be acquired in part through training, but also involved are understandings and skills developed over so long a period of time and through such complex processes that they cannot readily be taught. Not all professionals, then, can carry out these functions, and in so far as professional training inculcates certain patterns of thinking and acting, it may even be a handicap.

On the other hand, Hoff (*3*) wrote:

> To reach the consumer, the aide will therefore need to learn how to establish a warm, trusting relationship and how to communicate on the consumer's level. For this kind of communication, the aide will need to be trained to talk to, to listen to, and to understand the consumer on a one-to-one basis, to counsel persons in the family, ...

Training is Important

Hoff also observed about training "The group most obviously in need of training, is, of course, the health aides themselves, . . .". The experience in Tulsa reported by Stewart and Hood *(22)*, contradicts Hoff *(8)*. In this project, the persons most in need of and most resistant to training were the public health nurses. Moore *(9)* found that aides with less than 10 days of orientation and training outperformed experienced public health nurses at the same patient recruitment (outreach) task. The performance levels were reversed for patient maintenance (followup) leading him to conclude, "The important lesson here is that for any selection process it is important that the actual job task be defined in terms of the group membership variables likely to be operating (to affect performance)." In summary, this study highlighted the need for specific analysis of the tasks to be accomplished with attention to variables, that are easier to "select in or out" than to "train in or out."

Grant (*10*), Goldberg (*11*), Gray (*12*), Mayer (*13*), Martin (*14*), Glass (*15*), Reed (*16*), and Henderson (*17*) have reported on immunization programs. They all suggest that the group most in need of training in regard to reaching low socioeconomic groups is the professionals, not the aides.

Hildebrand (*5*) took a seemingly contradictory position to his statement quoted earlier when he said, "the importance of training for aides cannot be overemphasized."

D'Onofrio (*1*) gave an excellent description of the causes of the apparent ambiguities in training and supervision variables in her discussion of different "levels" of health aides.

Variables Affect Performance

However, neither D'Onofrio nor anyone else writing on the subject as far as we have been able to determine, has dealt systematically with these two variables, quantified job descriptions and careful selection. Our limited data *(10, 19, 20)* and experience indicate these variables are crucial in the successful use of aides and, although extremely difficult to deal with, they cannot be ignored. Callan (*18*) moves in this direction but his conception of selection criteria differs somewhat from ours. He suggests the use of sociograms, perceptual testing, such as modified TAT (thematic aperception test), or semantic differential.

To our knowledge, no empirical studies have been made on the validity of these instruments in predicting aide performance.

Percentage of patients keeping followup appointments, by days between home visit and appointment at clinic

Days between home visit and clinic appointment	Number patients	Appointment kept	Appointment not kept
1–2	400	55.5	44.5
3–4	471	41.0	59.0
5–6	604	33.4	66.6
7–8	612	31.9	68.1
9–10	275	28.7	71.3
11 and over	493	27.6	72.4
Total	2,855	35.9	64.1

NOTE: Data for this table were obtained during September 1967 to November 1968 in New Orleans, La.

SOURCE: Reference 9.

The selection model that Moore (*9*) developed, however, provides empirical identification of his approach. It also can have a decisive impact on the type, length, and content of training programs. The quantified job description influences the type of supervision that will be necessary. Perhaps a brief summary of our experience will more clearly reveal the importance of these variables.

The use of indigenous personnel in dealing with hard-core area problems had been attempted at least as far back as the 1930's when Shaw (*19*) and Thrasher (*21*) used area residents to combat juvenile delinquency. Although the need for indigenous personnel in public health programs seems evident, few quantitative studies are in the literature.

Stewart (*8*) and Stewart and Hood (*22*) were responsible for the selection, orientation, and supervision of aides in a research demonstration project in 1965 to determine whether persons living in low socioeconomic areas could be used effectively in raising the levels of immunization in their neighborhoods.

The aides were given an 8-day orientation that included a discussion with the health officer who outlined the rationale of the project and described some of the problems encountered in raising levels of immunization in hard-core areas, such as public relations, clinic hours, and travel to the clinic. The acting director of nursing spent several hours discussing the origin, transmission, and treatment of various communicable diseases.

The last day of orientation was spent assigning each aide a specific work area within the district selected for the experiment. Areas had relatively equal populations. An attempt was made to assign workers to familiar areas or to areas for which they had expressed a preference. The 8 days of general orientation was the extent of their training. They were told that they would be evaluated by the number of people coming to the clinic. Because the number of people coming to each clinic increased each week, no other supervision was believed necessary.

The importance of a quantifiable job description was stressed in this study. Empirical data, such as the number of persons served and immunization rates, reflected its importance through (*a*) justification of the project, (*b*) clear-cut evaluation criteria that served to make aides and professionals more comfortable with their jobs, (*c*) the reduction of charges of prejudice, real or imaginary, and (*d*) a reduced need for close supervision.

Comparing the period of intervention with the comparable months of the previous year, both the number of persons served and the number of immunizations administered increased significantly. Data were converted to rates to allow for differences in population sizes. As the method was applied in each tract, the immunization rate increased significantly compared with control tracts or with the previous year's rate in the same tract. Age-specific rates indicated an increase in the immunization of adults, who are generally considered the most difficult group to reach.

The study showed clearly that aides (*a*) can raise the immunization level in hard-core areas, (*b*) become more effective with experience, and (*c*) should be permanently employed.

In short, the data and experience of this study revealed (*a*) the importance of the selection process, (*b*) that long-term training was not necessary, and (*c*) that supervision in the traditional sense of professionals and aides was unnecessary.

Both review of the literature and the illustration from the program point up the need for more rigorous study in this area. We propose an attack on three fronts:

1. An expanded conceptualization of the manpower utilization process which would emphasize the interrelatedness of many phases in the process.

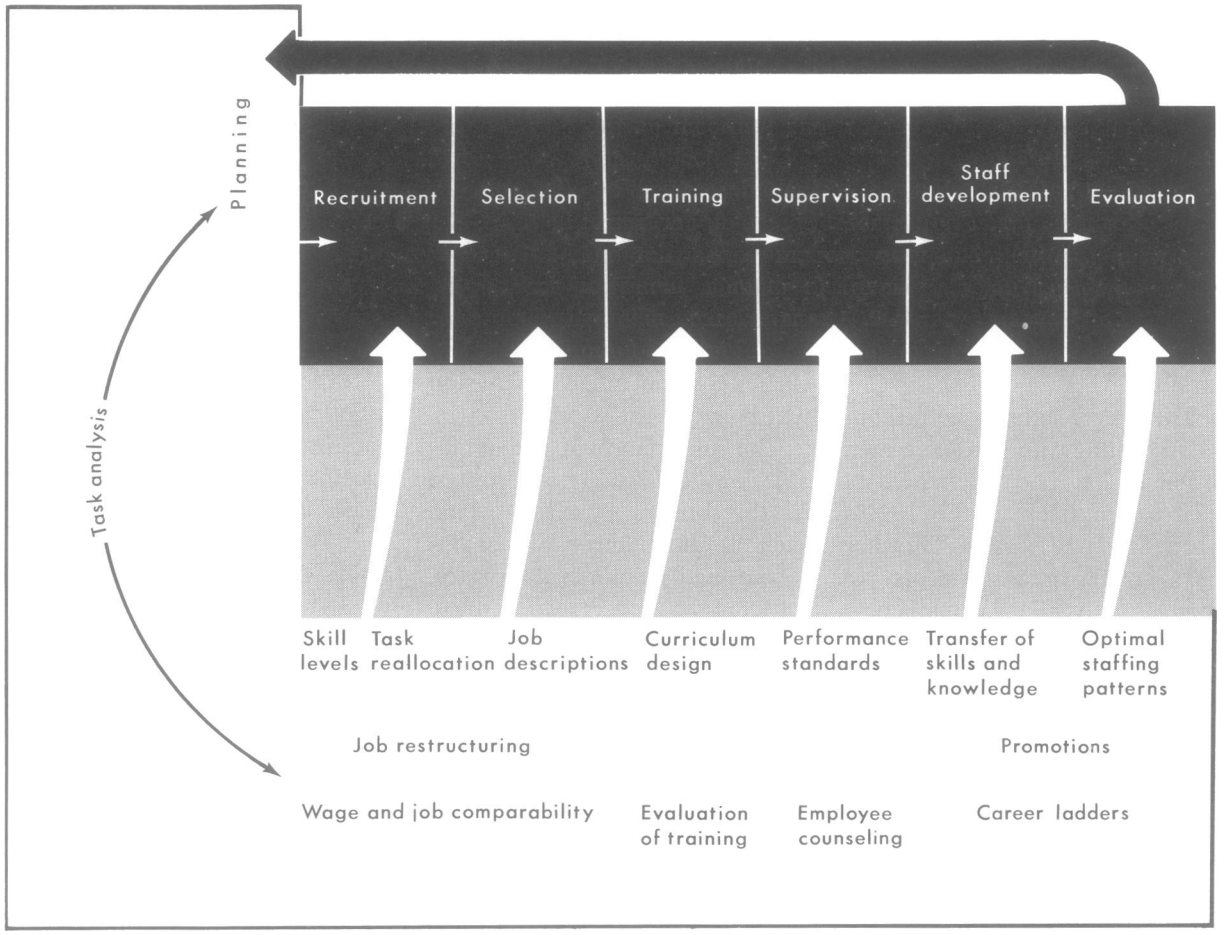
2. Building a broad data base which describes worker outputs (tasks) in specific, quantifiable terms. This task analysis data base provides the raw material from which planning, selection, and assessment instruments can be developed.

3. Building a technology of assessing what is happening at each phase, that is, new evaluation models.

Variables Interrelated

To simplify the relative importance of the many variables affecting new health employees, we have designed a conceptual model as shown by the chart. The interrelatedness of several variables is emphasized and the contributions or products that can be developed from a thorough task analysis are suggested. Most importantly, the necessity to consider individual phases in the context of the total process is highlighted through the model.

Frequently, the term "training" is used when it would seem more accurate to employ broader terms, such as manpower development or human resources development. The term training is too narrow to encompass the full range of activity necessary to



A conceptual model for manpower development

insure adequate staffing and manpower utilization. The training phase of the manpower development process is bracketed by "antecedent" and "modifier" events, as shown in the chart.

Antecedents to the training phase are as follows.

Manpower planning decisions. Manpower planning is not used here in the sense of a large-scale (aggregate data) supply and demand forecast. Rather, the level of planning referred to here is the project level where staffing patterns and individual job designs are determined.

Recruitment decisions. Recruitment strategies also impact on the subsequent phases of development. Decisions regarding geographic (or cultural) boundaries for recruitment determine the amount of attitudinal training required. Artificial barriers, such as a high school diploma, may exclude good candidates. A high school diploma, however, may be a vital factor in licensure or in upgrading activity.

Selection. Once a pool of applicants has been recruited, the screening or selection process begins. When interpersonal relationship skills determine job success, there is too often little attention given to assessing this ability. The assumption is made that these skills can be "trained in" during a later phase. Selection often affects the design and eventual outcome of training.

We see at least three major clusters of variables impacting on the training process before it is ever begun. The magnitude of their impact is so great that it is not useful to consider training without attending to these previous events. Similarly, events following the formal training process also affect the ultimate outcome of the manpower development process.

Supervision, staff development, and work performance evaluation will continue to modify the outcome of any training effort.

The relationship of the task analysis data base to the re-

mainder of the model is twofold. First, it addresses the requirement that any scientific enterprise proceed with as much rigor in its operational definitions of what is to be measured and how it will be measured as possible. Task analysis methodologies which provide adequate levels of precision are being developed and refined (*23, 24*).

Secondly, the task analysis data base contains large amounts of information (that is, skill level requirements) for the planner and designer of education and training. In short, task analysis data are a prerequisite for manpower research and evaluation activities and can also enrich the tools of the personnel managers, training directors, and supervisors.

Discussion

In brief, these phases or activities constitute the scope or domain of a manpower development function. When viewed in this context, training takes on a different meaning than usual. We believe this expanded view requires full consideration if all phases are developed into a coherent manpower development strategy.

Perhaps a key to greater understanding of this complex process lies in more refined evaluation methods. Frequently, the model for evaluating worker performance involves the selection of a single performance indicator, that is, supervisory rating, some activity index such as number of patients interviewed, or some rates such as number of patients keeping appointments issued by home health aides. The assumption in choosing the performance criteria is that it varies as a function of individual differences among workers and therefore is useful in discriminating between the good and average worker.

We suggest this is a misrepresentation of the empirical question. It strongly implies (*a*) a dichotomous outcome, either the worker is good or bad, and (*b*) the source of variance in these performance indicators is nested primarily in the worker being evaluated.

Moore's data (*9*) suggest that at least three clusters of variables may affect most worker performance measures. The three categories and examples of variables within each are as follows.

Systems variables. (The health care delivery system employing the outreach worker can affect the worker's productivity.)

- geographic accessibility of facilities
- clinic hours
- waiting time in clinic
- length of time between outreach home visit and available appointment slot

Patient variables. (The physical and emotional status of the patient plus the availability of outside resources play a role.)

- mobility of the patient
- employment status
- age of patient
- value or attitude structure about health care
- previous experience with the delivery system

Worker variables. (Several factors within the worker can affect performance.)

- job satisfaction
- physical stamina
- knowledge of and rapport with neighborhood
- attitudes toward the consumer

Two brief examples will illustrate the importance of considering these variables. Using this model, Barrentine (*25*) examined the effects of several similarities between the worker and the patient, including age, religion, and educational background on the outcome of a patient recruitment task. He concluded, ". . . auxiliaries will tend to have greater success, in terms of ratio of the number of appointments kept to the number given, when they are similar to rather than different from their patients . . . in terms of marital status, religion, age, and number of pregnancies." His conclusions illustrate the interaction of worker and patient variables that affect total performance. To omit this type of analysis in an overall performance evaluation could lead to faulty conclusions unless the variables are randomly distributed.

A second example deals with systems variables. In many instances, performance may be affected by variables outside the influence of the worker. Using the time between a home visit offering a clinic appointment and the date of the appointment itself as a variable, Moore (*9*) observed that the probability of a patient keeping an appointment was inversely proportioned to the time lapse between the home visit and the date of the new appointment. The proportion of kept appointments across six time intervals is given in the table.

These results suggest that a dramatic relationship exists between time lapse and probable attendance or interaction between a patient variable and a systems variable.

Unless the delivery system can accommodate clinic appointments made within 48 hours, the appointments system will exclude some patient participation and thus affect one performance criteria often associated with the skill of a worker. A study by Westheimer and co-workers (*26*)

did not take a systems approach. Their failure to do so forced them to conclude ". . . the procedures of this project cannot be considered a cost-effective method of increasing post partum return rates."

Their data, however, indicated different participation rates of patients in two hospitals. They reported that one hospital had a significantly higher family planning acceptance rate, but it had an evening family planning clinic. As noted earlier, a number of interrelated variables must be considered in evaluating the effectiveness of aides.

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The successful utilization of health aides is greatly dependent upon a mix of interrelated variables found in the workers, the patients being served, and the delivery system itself. A proper evaluation of these variables, with an eye toward identifying them in the planning, recruitment, and selection of health aides, is essential to the formation of a coherent manpower development strategy.

The performance of health aides can be evaluated in the context of the interplay of these variables. Research suggests, for example, that aides tend to perform better when they are similar to rather than different from their patients. An example of system variables notes that the probability of a patient keeping an appointment is inversely proportional to the time lapse between a home visit and the appointment date.

Variables can be threaded into a management tapestry by setting down quantifiable job descriptions based on task analysis and then following through with careful personnel selection. This format will in turn have a decisive impact on the type, length, and content of training programs for the aides, together with influencing the type of supervision that will be necessary.

Attention to system variables and a systematic attempt to match worker variables to factors in the job description will optimize health aide performance. In screening potential aides, recruiters can thus select into the aide profile those variables productive to the tasks and select out variables which would be counterproductive. It is far easier to select in or out variables than to train in or out variables.

To simplify handling the host of variables related to health personnel development and utilization, a conceptual manpower development model was designed. It emphasized that we were concerned with a process and not an accomplished fact and the twofold contribution which task analysis data can provide to the understanding and management of the process.