1983

A project plan for development of a behavior modification plan for Hispanic alcoholics in East San Jose, California

Lucy Quintania
San Jose State University

A PROJECT PLAN FOR DEVELOPMENT OF A BEHAVIOR MODIFICATION PLAN FOR HISPANIC ALCOHOLICS IN EAST SAN JOSE, CALIFORNIA

A Project

Presented to the Department of

Mexican American Graduate Studies

San Jose State University

and the Institute for Spanish-

Speakers in Public Affairs

(ISSPA)

Prepared in Partial Fulfillment

of the Requirements for the Degree of

Master of Arts

Prepared by

Lucy Quintania

April 21, 1983

FOR SUBMISSION AND APPROVAL FROM THE MEXICAN AMERICAN GRADUATE STUDIES DEPARTMENT.

John Garcia

Y A Cabrera

5-16-83

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INTRODUCTION

Efficient supervised implementation of alcoholic prevention and treatment programs may be carried into effect by various methods. One of these methods is a behavior modification plan for Hispanic alcoholics at the East Valley Alcohol Clinic (EVAC) in East San Jose, California.

In the implementation of the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) was established to administer all alcoholism programs. Moreover, the institute designated federal funds for research, training, planning, development, and staffing of community based services to treat alcoholism and organize national information and education programs. Lastly, prior to 1968 laws were concerned with the issue of alcoholism only within the broader context of mental health. Attitudinally, alcoholism was regarded as a social and moral disgrace. The legitimization of the disease concept of alcoholism enacted by President L.B. Johnson in 1968 through the passing of an Alcohol Rehabilitation Act made limited funds available to the states for treatment programs. With this act, alcoholism legally became a <u>disease</u>, a public health problem.

Nationally, twelve alcoholism centers were established throughout the United States. By 1971, six of these centers were started

in the County of Santa Clara with a grant of $1 million dollars. These centers located in East San Jose, South San Jose, downtown San Jose, Sunnyvale, and Mt. View were:

1. to include rehabilitating public inebriates;
2. to reduce alcoholism among American Indians;
3. to deliver comprehensive services to all alcoholics;
4. to treat individuals identified through traffic safety programs; and
5. to prevent alcohol abuse and alcoholism through education.

Traditionally, many alcoholism programs have only offered one treatment approach. The East Valley Alcohol Clinic provided important elements for comprehensive treatment but mainly offered the abstinence treatment approach for alcoholics, as observed by the project planner during her employment at EVAC. The project planner, however, discovered that the "total abstinence" approach was less effective with the Hispanic clients than the learning of self-control skills through behavior modification for responsible controlled drinking behavior.

Conflict

In defining the problem, an analysis was conducted between the benefits and detriments of the existing condition. The interplay between benefits and detriments was analyzed as follows:

1. Why (DETRIMENT) are there alternatives for alcoholics that are more controlled oriented and acceptable than the treatment outcome of total abstinence?

2. Why (BENEFIT) is there a treatment outcome of total abstinence for alcoholics at East Valley Alcohol Clinic when a behavior modification approach for Hispanics would maximize potential for success?

3. Why (CONFLICT) is there a total abstinence treatment outcome at East Valley Alcohol Clinic when there are other alternative outcomes for Hispanic alcoholics that are more acceptable and realistic for the Hispanic alcoholic?

By use of a dialectic model, the analysis can be further demonstrated below:

VALUE	BENEFIT	CONSTRAINT	DETRIMENT	DIS-VALUE
Maximizing Potential For Behavior Modification Success	Behavior Modification Skills	Behavior Modification For Hispanic Alcoholics at EVAC	No Behavior Modification Skills	Minimizing Potential For Behavior Modification Success

The constraint focused on behavior modification for alcoholics to learn self-control skills and responsible controlled drinking. The benefit of learning self-control skills was to avoid "total abstinence", a more realistic method that met the personal needs of the Hispanic alcoholic. By learning the skills of controlled drinking progressively, a client profited as he simultaneously learned controlled drinking behavior, thereby attaining the program goal. On the other hand, the client harmed himself with total abstinence but with no self-control learned skills,thereby resulting in frequent drinking binges.

Essential Variables

From the dialectic analytical model, the following essential variables and exclusive attributes were extracted. NOTE: The

project planner judged the following attributes as beneficial or detrimental to the target group.

BENEFICIAL ATTRIBUTES	VARIABLES	DETRIMENTAL ATTRIBUTES
Modification of Behavior	Behavior Modification Alcohol Program	Non-modification of Behavior
Skilled	Behavior Modification Skills	Non-skilled
Behavior Modification	Blood Alcohol Content Test	Non-modification of Behavior
Maximize Potential for Success	Behavior Modification Success	Minimize Potential for Success

In the preceding analysis, the essential elements of the dialectical model were converted into variables and accompanying detrimental and beneficial attributes to generate the following organizing principles:

1. Non-modification of behavior is a means for non-skills.
2. Non-skills is a means for minimizing potential for behavior modification success.
3. Modification of behavior is a means for learning skills.
4. Skills is a means for maximizing potential for behavior modification success.
5. Maximizing potential for behavior modification success is a means for behavior modification.
6. Behavior modification of behavior modification alcohol program is a means for completion of blood alcohol content testing.

Problem

Statement of the Problem

The problem was to formulate a project plan to modify the behavior of Hispanic alcoholics at East Valley Alcohol Clinic to maximize the target group's potential for behavior modification success at San Jose, California.

The major step in the solution of the problem was to design a planning subsystem consisting of the following components:

1. Workbreakdown Structure;
2. Workflow;
3. Time Estimation;
4. Schedule and Resource Allocation;
5. Cost and Budget Estimation.

Purpose of the Project

The purpose of the project was to formulate a plan to modify the behavior of Hispanic alcoholics at East Valley Alcohol Clinic to maximize the target's group potential for behavior modification success. Furthermore, in this treatment plan, the alcoholic could progressively learn those behavioral skills that would enable him to continue drinking while simultaneously attaining the goal of responsible controlled drinking.

Importance of the Project

The importance of this project plan was to maximize the potential for behavior modification success for Hispanic alcoholics by using behavior modification to teach the client self-control skills.

Cook's Project Management Model was used to prepare the planning subsystem for this project and was based on a conditional hypothesis: If the client learns skills for responsible controlled drinking, he will progressively be able to drink while he simultaneously learns modified behavior skills. The intended result will be to maximize the potential for behavior modification success by increasing both non-drinking behavior and behavior modification skills.

DELIMITATIONS OF THE PROJECT

1. The target group of the project are Hispanic alcoholics residing in East San Jose, California. Although the project plan addressed the needs of the alcoholic in general, the content would be geared to the needs of any target group; i.e., women, teenagers, Blacks.

2. The project was limited to the formulation of a plan for developing a behavior modification program for Hispanic alcoholics between the ages of 21 through 31 who consume one case of beer daily or 288 ounces of alcoholic beverages.

3. An alcoholic will be identified by these criteria:
   a. Any individual who by his own personal definition or by the definition of his immediate society has been intoxicated more than four times within one calendar year.
   b. Any individual who goes to work intoxicated.
   c. Any individual who must drink to perform his work.
   d. Any individual who is intoxicated and drives a car.
   e. Any individual who comes in contact with the law as a consequence of being intoxicated.
   f. Any individual who under the influence of alcohol does something he contends he would never do without alcohol.

4. The project dealt with the development of a behavior modification program for alcholics but did not specify the type of materials or literature to be used in the program.

5. This project was limited to the development for a planning subsystem, based on Cook's model for education project management, and did not include the controlled subsystem for project implementation. Additional sources resulting from "editing" processes were synthesized to develop stronger control of the project.

6. It has been determined by the project planner that the development of the plan for a behavior modification program will require at its critical path a time estimation of twelve consecutive months, commencing with the Fall of 1981 through the Fall of 1982.

7. It has been determined by the project planner that the Staff Criterion for the project development will total four full-time staff and two part-time staff; Project Director, Psychiatric Social Worker, Counselor, Clerk Typist/Receptionist, Psychiatrist and Nurse.

8. The client's behavior modification success potential progress will be analyzed every three months through Blood Alcohol Content tests, data comparison, daily record diary, and staff collaboration.

9. The client must attend all behavior modification training sessions or makeup lost session within five working days in the presence of the Psychiatric Social Worker or Counselor.

10. The total cost of this project for a twelve month period is $4213.74.

DEFINITION OF TERMS

Behavior Modification

Behavior modification attempts to alter the behavior that surrounds the drinking habit by seeking the antecedents (before) and the consequences (after) involved in that drinking habit. Behavior modification is based on the theory that bad habits are caused by faulty learning patterns; therefore, what has been learned can be unlearned (Jhan Robbins and Dave Fisher, 1973, p. 3). Behavior modification is also referred to as learning theory, operant conditioning or behaviorial psychology. Behaviorism assumes

simply that it is the consequences of behavior that shapes and determines behavior. These consequences are called reinforcers. (David R. Hampton, 1978, p. 147).

Operationally speaking, behavior modification denoted the learning of self-control skills to assist the alcoholic in adopting new behavior to maximize non-drinking behavior and minimizing bad habits caused by faulty learning patterns. These behavior modification techniques for the reduction of drinking were used:

1. aversion conditioning - reducing drinking by decreasing desire for alcohol and increasing desire to avoid unpleasant experiences;
2. operant conditioning method - controlling an alcoholic's behavior by controlling the consequences of each act;
3. self-monitoring - involving the alcoholic in keeping record of drinking behavior.

Alcoholism

Alcoholism denoted a mental obsession with alcohol, coupled with a physical allergy. Because of a possible genetic difference in the enzyme action located in the liver, the alcoholic has a different physiological response to alcohol, not unlike to a diabetic's response to sugar. Alcohol as a sedative hypnotic tranquilizing agent impairs:

1. by putting your brain to sleep;
2. by working from the outside in;
3. by beginning with the components of thinking, reasoning and inhibition and;
4. by moving toward the vital centers of balance, coordination and physical maintenance.

Therefore, even one drink affects the ability to think, to reason and to perform. Slurred speech is a sign of impairment well on

its way (Dr. Conway Hunter, St. Simon Hospital).

Operationally speaking, an alcoholic will be identified by these criteria:

1. Any individual who by his own personal definition or by the definition of his immediate society has been intoxicated four times within one calendar year.
2. Any individual who goes to work intoxicated.
3. Any individual who must drink in order to perform his work.
4. Any individual who is intoxicated and drives a car.
5. Any individual who comes in contact with the law as a consequence of being intoxicated.
6. Any individual who under the influence of alcohol does something he contends he would never do without alcohol.

(Dr. Morris E. Chafetz, Director of the National Institute of Mental Health, Division of Alcoholism, p. 89).

Aversion Conditioning

Aversion denotes an intense dislike, a feeling of extreme repugnance. To be averse to something indicates opposition. In other words, that which is adverse to a person or thing reflects opposition contrary to the subject's will.

Behavioral psychology defines aversion conditioning as a method of behavior modification in which the unwanted habit is repeatedly paired with an unpleasant unconditioned stimulus.

Operationally speaking, the goal of this procedure is to produce avoidance of alcohol by introducing the use of the drug Antabuse. The client will avoid the consumption of alcohol to avoid the unpleasant side effects of this adversive drug.

Operant Conditioning

Operant is an element of operant behavior characterizing a response or behavior elicited by an environment rather than by a specific stimulus and identified by its consequences in the environment.

Operationally speaking, operant conditioning will be one of the methods used to control the client's behavior and the consequences of each act. Depending on the consequences, a behavior can be reinforced, stablized or disappear. In this plan, the unwanted behavior (alcohol) is to eventually be eliminated. Total abstinence is the goal. Controlled drinking, however, is allowed during the first twelve months of treatment. To provide the client with identified elements in his surroundings elicited by drinking behavior, a record dialy will be mandatory for each client to keep. This self-monitoring process represents a first step in the modification of behavior. It provides a detailed record which can serve several therapeutic functions:

1. frequency of drinking behavior;
2. drink-by-drink record;
3. location of drinking behavior;
4. companions;
5. activities while drinking; and
6. feelings during and after drinking.

Blood Alcohol Content (BAC) Training

In 1970 Lovibond and Caddy introduced a procedure for training clients to discriminate their own blood alcohol content (Lovibond and Caddy, Discriminated Aversive Control in the Moderation of Alcoholics, Behavior Therapy, 1970, p. 437).

The procedure required the use of an instrument capable of giving accurate estimates of BAC. A variety of such instruments is available covering a considerable range of accuracy and cost through the American Medical Association. The goal of this training is for the individual to be able to discriminate his own BAC without the use of the instrument. Research by Lovibond and Caddy reported that clients were able to discriminate their BAC level after one or two training sessions, and within an accuracy of ±10mg%.

Operationally speaking, blood alcohol content measurement will be assessed by the nurse once a week for the initial first three months, bi-monthly for the next three months, and monthly for the remaining six months of the program plan. Simultaneously the client will be able to discriminate his own blood alcohol content providing data for comparison and collaboration. BAC will also be compared to the daily record diary of the client for further evaluation of behavior modification progress.

Hispanic

For purposes of this project, the project planner will use the term Hispanic to reflect the multiple heritage experience of Mexicans in the United States. Moreover, various other labels are used to identify this particular group, i.e., Mexicano, Mexican-American, Spanish, Chicano and American of Mexican descent. Hispanic denoted a Mexican residing in or having been born in the United States.

Operationally speaking for this program plan Hispanic alcoholics are identified between the ages of 21 and 31, male, residing in East San Jose, California, and meeting these criteria:

1. Any individual who by his own personal definition or by the definition of his immediate society has been intoxicated more than four times within one calendar year.
2. Any individual who goes to work intoxicated.
3. Any individual who must drink to perform his work.
4. Any individual who is intoxicated and drives a car.
5. Any individual who comes in contact with the law as a consequence of being intoxicated.
6. Any individual who under the influence of alcohol does something he contends he would never do without alcohol.
7. Any individual who drinks one case of beer daily or 288 ounces of alcoholic beverages.

Success, Potential

Success denoted the attainment of a desired end through the direct observation or participation in an activity (Good, 1973, p. 227). Potential denoted an assumed promise of future successful performance in a client (Black's Dictionary of Law, 1977, p. 268).

Operationally speaking, potential for success denoted the future expectation of the alcoholic for behavior modification skills as a means for obtaining total abstinence.

ANALYTICAL DEFINITIONS

The following functional propositions were used to symbolize the relationship associated with the functions of the project terms.

The key for translating analytical statements into symbols was:

1. F = Function
2. R = Related
3. BMAP = Behavior Modification Alcohol Program
4. BMS = Behavior Modification Skills
5. MXPBMS = Maximizing Potential for Behavior Modification Success
6. BAC = Blood Alcohol Content
7. NBMS = Non-Behavior Modification Skills
8. NBM = Non-Behavior Modification
9. MNPBMS = Minimizing Potential for Behavior Modification Success

Analytical Statement

The function of behavior modification alcohol program is related to the function of behavior modification skills.

Analytical formula:

F (BMAP) R F (BMS) or BMAP F R BMS F

Analytical Statement

The function of behavior modification skills is related to the function of maximizing potential for behavior modification success.

Analytical formula:

F (BMS) R F (MPBMS) or BMS F R MPBMS F

Analytical Statement

The function of maximizing potential for behavior modification success is related to the function of blood alcohol content.

Analytical formula:

F (MPBMS) R (BAC) or MPBMS F R BAC F

Analytical Statement

The function of non-behavior modification skills is related to the function of non-behavior modification.

Analytical formula:

F (NBMS) R F (NBM) or NBMS F R NBM F

Analytical Statement

The function of non-behavior modification is related to the function of minimizing potential for behavior modification success.

Analytical formula:

F (NBM) R F (MPBMS) or NBM F R MPBMS F

Analytical Statement

The function of behavior modification skills is related to the function of blood alcohol concent.

Analytical formula:

F (BMS) R (BAC) or BMS F R BAC F

RESEARCH QUESTIONS

From the analytical statement, the following research questions were formulated:

1. What is the relationship between the behavior modification alcohol program and behavior modification skills for Hispanic alcoholics at EVAC?
2. What is the relationship between behavior modification skills and maximizing the potential for behavior modification success for Hispanics alcoholics at EVAC?

3. What is the relationship between maximizing potential for behavior modification success and blood alcohol content of Hispanic alcoholics at EVAC?

4. What is the relationship between non-behavior modification skills and non-behavior modification for Hispanic alcoholics at EVAC?

5. What is the relationship between non-behavior modification and minimizing potential for behavior modification success for Hispanic alcoholics at EVAC?

6. What is the relationship between behavior modification skills and blood alcohol content for Hispanic alcoholics at EVAC?

HYPOTHESIS

1. There is a significant functional relational difference between the grouped beneficial and detrimental milestone events, task events and their accompanying activities as represented by the attributes of the following variables: behavior modification alcohol program and behavior modification skills and their mutually exclusive attributes which are non-behavior modification and non-skilled versus behavior modification and skilled as measured by the present non-skill, non-behavior modification rate to be increased by 90% by the Fall of 1982 for an increased total behavior modification rate of 90% among Hispanic alcoholics at EVAC.

2. There is a significant functional relational difference between the grouped beneficial and detrimental milestone events, task events and their accompanying activities as represented by the attributes of the following variables: blood alcohol content and minimizing potential for behavior modification success versus maximizing potential for behavior modification success as measured by a minimum of four intoxicated events per year, a decrease of eight intoxicated events per year among Hispanic alcoholics at EVAC.

3. There is a significant functional relational difference between the grouped beneficial and detrimental milestone events, task events and their accompanying activities as represented by the attributes of the following variables: behavior modification skills and blood alcohol content and their mutually exclusive attributes which are non-skilled and non-behavior modification versus skilled and behavior modification as measured by client completion of twelve consecutive months of behavior modification alcohol

program for Hispanic alcoholics at EVAC plus attendance of all behavior modification training sessions and a decrease from one case of beer daily or 288 ounces of alcoholic beverages to six beers daily or 72 ounces of alcoholic beverages a total decrease of 18 beers or 216 ounces daily.

CHAPTER II

REVIEW OF LITERATURE

In reviewing the literature concerning the project plan, the planner emphasized the essential variables and attributes that composed the hypotheses.

Alcoholism

Many definitions of alcoholism exist today. Perhaps the most useful and inclusive is that which suggests a diagnosis of alcoholism whenever the use of alcohol involves a continuing problem in any area of an individual's life, whether it be in his economic, marital or social adjustment, in his physical or mental health, or with his feelings about himself (Dr. Morris E. Chafetz, Director of the National Institute of Mental Health, Division of Alcoholism, p. 89).

Alcohol is often thought of as a stimulant since it appears to make people more lively and uninhibited, but is actually classified as a depressant because it primarily depresses functions of the control nervous system. Alcoholism is a physiological dependence on alcohol....when alcohol is not sufficiently available to body tissue (O'Neill, 1978, p. 34).

The treatment of alcoholism has for the past thirty years been dominated by an abstinence-oriented ideology. The traditional disease model of alcoholism holds that loss of control over drinking

is inevitable and irreversible, and that the resumption of normal drinking is impossible for the alcoholic (Alcholics Anonymous, 1955; Gitlow, 1973; Jellinek, 1960).

Numerous studies, however, have demonstrated that diagnosed alcoholics are able to exercise self-control over drinking within a laboratory setting. In the typical study, alcoholics have been given a priming dose of alcohol and have then been offered incentives contingent upon further control or abstinence. Several incentives have been found to be effective, including money (Cohen, Liebson, Faillace and Speers, 1971, p. 28), social contact (Cohen, Liebson and Faillace, 1973, p. 33) and the availability of alcohol at a later time (Cutter, Schwaab and Nathan, 1970, p. 31). Similar studies have demonstrated that drinking can be controlled by aversive contingencies including brief social isolation (Bigelow, Liebson and Griffiths, 1974, p. 10). The importance of these studies lies in their demonstration that alcoholics' drinking can be controlled by operant contingencies, at least within a laboratory setting; however, the review of the literature does not deny the existence of some individuals for whom abstinence is necessary and that controlled drinking is a reasonable goal for at least some alcoholics.

To take a beginning step toward understanding problem drinking as behavior, Schafer, Sobell, and Mills (1971, p. 2) studied the alcohol consumption patterns of sixteen alcoholics and fifteen social drinkers. The results were not surprising. Alcoholics were found to order and consume more concentrated "straight" drinks, and to take larger sips regardless of drink type than did social drinkers.

A more extensive study followed (Sobell and Sobell, 1973, p. 11). Seventy admissions to Patton State Hospital were assigned by a joint patient-staff decision to either abstinence or controlled drinking as a goal. Half of each group were than assigned at random to either a treatment or a control group. Treated clients received seventeen sessions of behavior therapy in addition to the hospital regimen. Clients with abstinence as a goal were shocked for ordering drinks and for any attempt to consume them. Clients with controlled drinking as a goal were treated as in the previous study, (Mills, et al., 1971, p. 2).

The sessions included avoidance conditioning, videotaped feedback, behavior rehearsal in skills for coping with failure, stress, and social pressure to drink; training in stimulus control; and the construction of a personalized list of "do's and don'ts." The importance of avoidance learning within this multimodal program is not known. However, whatever the effective components, the Sobells' program proved to be quite successful for clients desiring controlled drinking. Clients with a controlled drinking goal spent approximately 92 percent of their days free and with moderate or no alcohol consumption. The comparable control sample, on the other hand, had spent approximately 53 percent of their days drunk or incarcerated in a hospital or jail during the months 19 through 24 following treatment. Just how much contribution rate reduction training made to the success of the overall program is unclear. The concept of supervised practice at controlled drinking is novel and will certaintly be studied further.

Behavior Modification

There are a variety of available behavior modification techniques for the reduction of drinking alcohol. Major approaches have included:

1. Aversion Conditioning - decreasing desire for alcohol and increasing desire to avoid unpleasant experiences associated with drinking alcohol.

2. Operant Conditioning method - controlling the behavior of an alcoholic by controlling the consequences of each act.

3. Blood Alcohol Content Discrimination Training - training clients to discriminate their own BAC level and set a limit for drinking alcohol.

4. Self-Monitoring Training - training clients to keep daily records of their drinking behavior by monitoring the antecedents (before) leading to their drinking.

Aversion Conditioning

Aversion conditioning is a procedure whereby a conditioning stimulus is repeatedly paired with an unpleasant unconditioned stimulus. The goal of this procedure is to produce avoidance of alcohol. The intended results of the original applications was total abstinence (Kantorovich, 1930, p. 4; Lemere and Voegtlin, 1950, p. 11).

Aversion conditioning has been conducted with a range of unconditioned stimuli including nausea producing drugs (Voegtlin, 1940, p. 199); electric shock (Hsu, 1965, p. 26); and aversive tases and smells (Gordon, 1971, p. 25). Although chemical aversion methods seem to have the advantage with regard to the production of total abstinence (Lemere and Voegtlin, 1950, p. 11; Wilson and Davidson, 1969, p. 33), electric shock appears to be more likely

to reduce drinking without abolishing it.

Operant Conditioning

The antecedents of behavior which exert stimulus control, and the consequences of behavior which represent the domain of operant control (Bandura, 1969) are two major theories of environmental factors that affect behavior.

Certain authorities feel that alcoholics' drinking can be controlled by manipulating its consequences within a laboratory setting (Coehn, et al, 1971, p. 28; Bigelow, et al., 1974, p. 12; Mills, et al., 1971, p. 2). Encouraged by these findings, several therapists have attempted to alter the natural environment to control their clients' drinking. Operant methods, like aversive conditioning techniques, have been demonstrated to bring about at least the short-term control of drinking. The challenge now is to bring about environmental changes that will maintain reduced drinking. This suggests the involvement and training of significant others who will continue to influence the client long after his direct involvement in treatment is finished (Miller, Stanford, and Hemphill, 1974, p. 279). Significant others may be a wife, a parent, a friend, a son or daughter, or anyone close to the client.

Behavior is influenced by its antecedents as well as its consequences. Environmental stimuli may exert control over behavior in several ways:

1. A stimulus may elicit behavior, or "set it off unconsciously" as a result of past associations. Thus the presence of certain surroundings or companions may induce or increase drinking. Drinking becomes associated with specific stimuli.

2. Certain stimulus situations or cues may become discriminative stimuli for drinking. The person learns in this situation, drinking is likely to lead to rewarding consequences.

3. A stimulus may elicit mediating reactions which in turn result in drinking. To use a classic example, a certain situation may create anxiety. The person who has learned to consume alcohol when stressed then drinks or overdrinks.

These stimulus functions are not distinct from or independent of each other. The point is that certain stimuli may come to affect the probability of alcohol intake. When this is true, the stimulus in a sense controls drinking. This viewpoint also extends to the concept of craving. A feeling of craving for alcohol may be intensified by environmental stimuli. Locations, companions, climatic conditions, activities, or mood states that have been associated with drinking in the past may increase the desire for a drink (Bandura, 1969; Goldiamond, 1966).

A first step in using stimulus control for the reduction of drinking is to determine those situations that are associated with overdrinking. A detailed interview may accomplish this. More accurate information may be obtained through a simple self-monitoring procedure. This has the additional advantage of giving the client greater control over and awareness of the method (Caddy, 1972, p. 230)

Further evaluation of stimulus control training in the reduction of drinking is needed. The successful application of these procedures to the control of other behavioral excesses is encouraging (Bandura, 1969).

Blood Alcohol Content Discrimination Training

In 1970 Lovibond and Caddy introduced a procedure for training clients to discriminate their own blood alcohol content (BAC). The procedure requires the use of an instrument capable of giving accurate estimates of BAC. A variety of such instruments is available through the American Medical Association covering a considerable range of accuracy and cost. The goal of this training is for the individual to be able to discriminate his own BAC without the use of the instrument. Lovibond and Caddy reported that their clients were able to discriminate their BAC level after one or two training sessions and within an accuracy of ±10mg% (Lovibond and Caddy, 1970, p. 437).

The outcome data from this study is quite positive, indicating complete success for 21 out of 28 cases, and with three others considerably improved. This success cannot be attributed solely to BAC training because this treatment also included an aversion conditioning component - shock. Clients were required to drink beyond 65mg% BAC, and were shocked for each sip thereafter. A control group that did receive BAC training but was shocked randomly for three sessions did not improve. The treatment group also included education regarding the effects of alcohol, self-control training in the principles of stimulus control and self-reinforcement. The role of BAC discrimination training within this complex treatment method is unclear at present.

Self-Monitoring

Self-monitoring, the systematic observation of one's own behavior, represents a first step in the modification of behavior. It provides a detailed record which can serve several therapeutic functions (McFall and Hamman, 1971, p. 80):

1. Direct modification of behavior. The process of observation can influence the frequency of behavior. Self-monitoring of a behavior such as drinking may in itself have a moderating influence.

2. Accurate assessment of progress. The actual recording of a frequent behavior is generally acknowledged to produce more accurate information than retrospective self-report. The presence of a drink-by-drink record permits the assessment of progress toward a behaviorally defined goal of controlled drinking.

3. Stimulus control. The ongoing record of drinking may be supplemented by information about situational factors accompanying drinking (e.g., location, companions, activities, feelings, and mode).

The diary method has been used in research on societal drinking patters (Fuller, et al, 1972, p. 33) but its clinical use for the control of drinking has been limited. One factor that has probably discouraged the use of the self-monitoring technique is skepticism regarding the honesty and accuracy of the self-report of alcoholics (Summers, 1970, p. 31). However, this problem may be at least partially overcome by the periodic verification of records with significant others who are aware of the client's drinking. The client who is motivated to control drinking has "everything to lose and nothing to gain" by keeping less than accurate records (Miller, et al., 1974, p. 279-284).

CHAPTER III

PLANNING THE PROJECT

In the preceding chapters, the problem was stated; hypotheses were formulated; the literature was reviewed. The succeeding section employed Desmond Cook's project management model as well as the synthesis of related sources by "editing" processes to develop a planning subsystem for conducting the project. In this manner, an effort was made to convert the hypothetical beneficial objective of the project in Chapter I into a technical planning component in Chapter III to test the potential solution to the problem/conflict defined by the project planner.

PROJECT MODEL

The major steps used to develop the planning subsystem included the following component parts:

1. Project definition or work breakdown structure;
2. Project work plan with graphical representation procedures;
3. Project time frame for work tasks;
4. Project schedule and resource allocation;
5. Project cost estimation and budget preparation for proposed work.

The planning subsystem served to develop the project data/information base needed to implement the project plan into the operational phase of the project.

PROJECT DEFINITIONS

The function of this subsystem was to establish the boundaries of the project by developing an ordered structure of major and minor objectives and the intended result that reflected the work to be accomplished by the Project Director.

Mission Statement

The overall mission of the project was to generate a project plan for the implementation of a behavior modification program for Hispanic alcoholics at the East Valley Alcohol Clinic (EVAC) with the intended result being to maximize the potential for behavior modification success. This project planner determined to increase the responsible drinking skills of Hispanic alcoholics at EVAC from 10% to 90% and decrease the intoxicated events during one calendar year from twelve (12) or more to four (4) or less.

Purpose

The purpose of the project was to develop a planning subsystem for a behavior modification program requiring the "non-abstinence" approach for Hispanic alcoholics. The plan was designed to fulfill the Hispanic need to avoid the "abstinence" approach.

Limits and Constraints

The limits and constraints of the project were described by defining the form of project representation and limitations of the project plan.

In addition, the project representation was probabilistic in form. This probabilistic system was useful when the functioning of the system was at a level that prohibited strong predictions according to given output. Since the associated time and cost of the project was uncertain, the project was best planned and controlled by using this technique.

The project was limited in that the behavior modification program is emphasizing treatment for Hispanic alcoholics at EVAC ranging from 21 to 31 years of age who drink one case of beer daily or 288 ounces of alcoholic beverages.

DEFINITION OF SYSTEM CONCEPTS

Breakdown Structure

In Cook's project model, work breakdown structure denoted the process of defining project tasks or work to be performed, and establishment of relationships between the tasks and the major project objectives. As such, this process establishes a framework for the scheduling and control of the project, which in turn serves as a summary of the schedule and cost status of the project at higher levels of management. In this subsystem, the most common terms used were:

1. Major end-item denoted the major objectives within the project. Completion of each of these objectives would complete the project.

2. Workpackages denoted the list of specific tasks which contributed to the development of one end-item in the work breakdown structure. NOTE: In the workflow, the concept milestone events was utilized synonymously with workpackages.

3. Tasks denoted those series of lesser jobs combined to produce the objectives represented by the workpackages.

4. Actities denoted the very specific jobs used to achieve an objective termed task event or milestone event.

Workflow

In Cook's project model, workflow denoted a workplan which graphically portrayed the interrelationship and interdependency of tasks done to accomplish the objectives in the project definition. In this subsystem, the most common terms used were:

1. Flowgraph denoted a diagrammatic representation in which flow through the system was portrayed by a sequence of unidirected arrows.

2. Network denoted a graphical representation of all the interrelated tasks or jobs that must be accomplished to reach the intermediate and final objectives of the project.

3. Milestone events denoted the accomplishment of a series of tasks in the form of a workpackage, which in turn completed a major end-item.

4. Activities denoted those specific individual jobs, which led to the completion of tasks, which must be accomplished to reach the project objectives.

Time Estimation

In Cook's project model, time estimation denoted the development of a time frame for the total project and the individual

activities and events within the project. In this subsystem, the most common terms were:

1. Probabilistic estimates denoted time estimate procedures based on the idea that uncertainty existed about a particular activity.

2. Optimistic time estimates denoted the minimum time estimation based on the assumption that "everything will go well" in completing an activity and was designed by the symbol (Ot) in mathematical calculations.

3. Realistic time estimates denoted the actual or most likely time the activity may be accomplished and was designated by the symbol (Rt) in mathematical calculations.

4. Pessimistic time estimates denoted the maximum length of time the activity would take under the most adverse conditions and was designated by the symbol (Pt) in mathematical calculations.

5. Expected elapse time denoted the activity time estimation for the project and was designated by the symbol (Te) in mathematical calculations. The formula utilized for (Te) equaled $\frac{Ot + 4Rt + Pt}{6}$.

6. Critical Path denoted the most time consuming pathway in the network and was obtained by moving forward while adding the longest activity time estimates along the various pathways in the network. Critical path was designated by the symbol (Cp) in mathematical calculations.

Scheduling

In Cook's project model, scheduling denoted the translation of a developed plan into a timetable by recording the time periods and frameworks of all tasks in the project. Several constraints, however, made this process very difficult because of the development of less than an ideal or optimum schedule. These constraints were as follows:

1. Difficulties inherent in scheduling far in advance.
2. The varying number of work days in a month and their translation into calendar dates.
3. Desire to avoid a peak load for particular skills.
4. Desire to minimize overtime and idle time.
5. The manager's judgment of a reasonable time for performing activities of an uncertain nature.
6. Technical constraints such as uncertainties which may require extra time.
7. The availability of particular resources during specific calendar periods.
8. Resource requirements of other present or future projects.
9. Conflicting demands on the same resource.
10. Limitations and requirements imposed by funding agencies.
11. Integration with other plans or projects using the same resources.
12. Sequence of work in project plan.
13. The available local capacity to do a particular task.
14. Local personnel policies concerning work practices, i.e., vacations, sick leave, etc.
15. National, state and local laws governing work practices.

In a practical situation, however, ideal schedules are uncommon. Specific criteria should then be considered by the project planner in developing a useful schedule. These criteria are:

a) to complete the project in a minimum amount of time;

b) to complete the project with a minimum amount of cost; and

c) to maximize performance in the project.

Resource Allocation

In Cook's project model, resource allocation denoted the translation of the accepted work flow into a schedule. In this process resources were assigned manpower periods to accomplish the planned activities.

Cost Estimation and Budget Preparation

In Cook's project model, cost estimation and budget preparation denoted the management plan for operating and financing the project during specific time periods. Moreover, this detailed plan of action was developed as a guide for control operations and as a standard for evaluating performances. In this subsystem, the most common terms used were:

1. Direct costs denoted those costs that were directly traced to or associated with a particular activity or task in the project.

2. Indirect costs denoted those costs that cannot be traced to a particular activity, task, or costing unit. These costs are incurred jointly by more than one activity or the costs are too small to be economically assigned to any one particular closting unit. NOTE: Indirect costs are also referred to an "overhead."

3. Fixed costs denoted costs that do not vary in proportion to the rate of activities or operations of an organization. These costs incurred only once and provided the supplies for an activity. NOTE: Fixed costs can be either direct or indireft costs.

4. Costing units denoted the work package or a segment of a work package for which the costs of operation are accumulated. NOTE: A costing unit is also referred to as a "cost center." A "cost center" is merely an accounting unit for which costs are accumulated.

5. Variable costs denoted those costs which when totaled depended upon the level of activity during the work period. Variable cost fluctuation depended on the degree of usage of materials for a given activity. NOTE: Variable costs can be either direct costs or indirect costs.

Project Objectives

For the purpose of this project plan, the term project objectives was synonymous with the terms major end-items, workpackages, and milestone events. The objectives were short-ranged and consisted of the following four major objectives:

1. To implement a behavior modification alcohol program.
2. To formulate behavior modification skills.
3. To complete behavior modification.
4. To maximize potential for behavior modification success.

Criteria for Accomplishing Objectives.

The primary criterion established by the Project Director that activities for a major objective could not begin until the previous objective was totally accomplished.

Major End Items

The major end items served to accomplish the overall goal objective of the project. The goal was to generate a project plan for the implementation of a behavior modification alcohol program for Hispanic alcoholics at EVAC. The four major end items are listed above under Project Objectives.

End Item: The first major end item in the project was the development of a behavior modification alcohol program. The work package for the project end item consisted of two tasks:

1. Administration of Program;
2. Organizational Equipment Assessment.

End Item: The second major end item in the project was the development of behavior modification skills. The workpackage for the project end item consisted of four tasks:

1. Blood Alcohol Content Discrimination Training;
2. Environment/Stimulus Control Training;
3. Rate Reduction Training;
4. Self Monitoring Training.

End Item: The third major end item in the project was completion of behavior modification. The work package for the project end item consisted of six tasks:

1. Blood Alcohol Content Analysis
2. BAC Evaluation Criteria
3. Rate Reduction Analysis
4. Rate Reduction Evaluation Criteria
5. Client Progress Analysis
6. Client Progress Evaluation Criteria

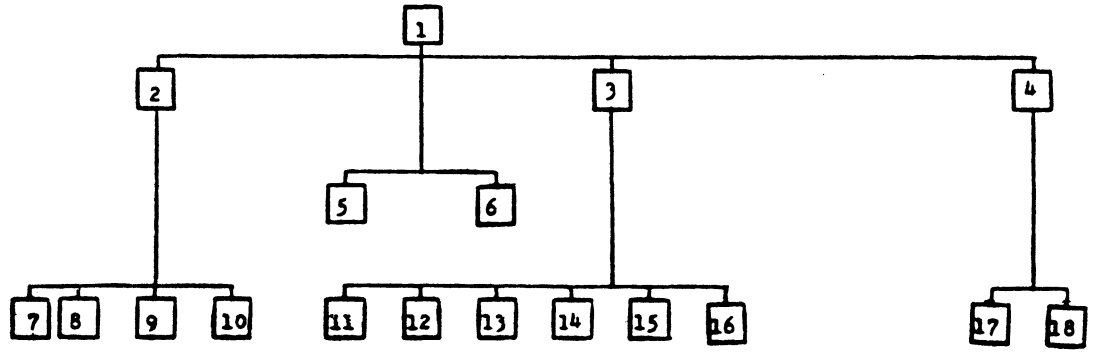
End Item: The fourth end item of the project was the development of maximum potential for behavior modification success. The work package (dependent variable) for the project end item consisted of two tasks:

1. Program Evaluation Report,
2. Staff Evaluation.

NOTE: The major end items, the workpackages and tasks are illustrated in a work breakdown structure in Figure 1, page 34.

FIGURE 1

WORKBREAKDOWN STRUCTURE



MILESTONE EVENTS/WORKPACKAGES

1. BEHAVIOR MODIFICATION PROGRAM
2. BEHAVIOR MODIFICATION SKILLS
3. COMPLETION OF BEHAVIOR MODIFICATION
4. MAXIMUM POTENTIAL FOR BEHAVIOR MODIFICATION SUCCESS

TASK EVENTS

5. Administration of Program
6. Organizational Equipment Assessment
7. BAC Discrimination Training
8. Environment Stimulus Control Training
9. Rate Reduction Training
10. Self Monitoring Training
11. BAC Analysis
12. BAC Evaluation Criteria
13. Rate Reduction Analysis
14. Rate Reduction Evaluation Criteria
15. Client Progress Analysis
16. Client Progress Evaluation Criteria
17. Program Evaluation Report
18. Staff Evaluation

Responsibility for Work Package Development

The three full-time staff members and two part-time members of tl program will be responsible for work package development.

WORK FLOW

The function of the work flow subsystem was to develop a graphical representation of the sequence of activities, tasks and milestone events necessary to accomplish the objectives identified in the project definition subsystem.

Rules for Work Flow Plan

The project definition was used as the primary basis for network construction by using a deductive approach to move from a general to a specific case. This approach involved the identification of major end items and working backwards to reach the eventual starting point.

The type of network used in the project was the event-oriented network. In the event-oriented network, the primary concern was the occurrence of events. Moreover, the identification of events and the order of their occurrence made use of the PERT (Program Evaluation and Review Technique) method.

Milestone Events

The milestone events included the following objectives:

1. To implement a behavior modification alcohol program;

2. To formulate behavior modification skills;

3. To complete behavior modification;

4. To maximize potential for behavior modification success.

Task and Event Numbering Decisions

In order to reach the milestone events, the tasks and activities included a set of preceding and succeeding event numbers. NOTE: See Figure 2, page 38. Moreover, numbers ranging from 1-18, were utilize to indicate milestone events and task events.

In this particular project, milestone events numbered 1, 9, 15 and 18 represented the independent variables of the dialectical model. These milestone events are a means for the milestone event numbered 18, and is represented by the dependent variable of the dialectical model. Milestone events numbered 1and 18 were identified and served to represent the start and completion of the project. Moreover, fourteen task events were identified and represented the points of accomplishment in the network, such as the start or completion of activities in the network.

The activities were those jobs which were accomplished so as to reach the task and milestone events in the workflow. For this specific project, attention was given to describing the specific nature of the activities. Moreover, the activity numbers in the network were designated by giving the preceding and succeeding event numbers for each activity letter. The letters ranged from (a) to (u), accounting for eighteen specific activities.

Event Coding System

In order to construct the network for the work plan, some basic symbols were used to represent the milestone events, task events and activities. For example:

1. Milestone events were distinguished from task events by a geometric figure such as a square (□).
2. Task events were represented on the network by a geometric figure such as a circle (○), which is referred to as a node.
3. An activity, on the other hand, was represented by a solid arrow (➡), which is referred to as an arc.

TIME ESTIMATION

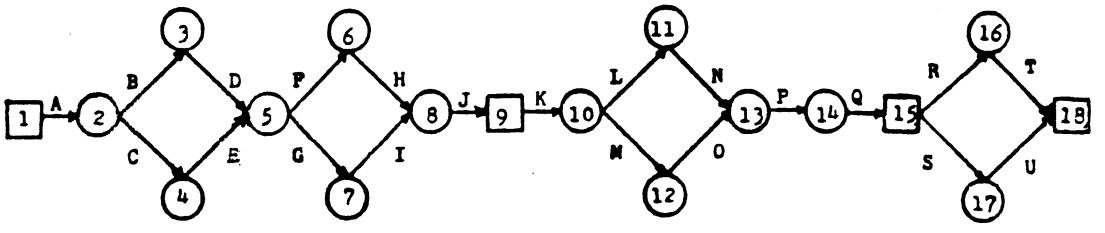
The primary purpose of this subsystem was to develop a time frame for the individual activities and events within the project. This was done by providing information regarding the estimated individual activity time, total project completion time and the critical path in the work flow.

Probabilistic Estimating Procedures

This project used probabilistic estimating procedures to generate planning data and information to construct reasonably certain and consistent time, cost and performance estimates. "Probabilistic estimates are based upon the fact that uncertainty... exists about a particular activity" (Cook, 1971, p. 108). Since this project was being conducted for the first time, a reasonable

FIGURE 2

PROJECT WORK FLOW



EVENT CODE	ACTIVITY CODE	ACTIVITY
1-2	A	Locate Behavior Modification Program Office
2-3	B	Administer Behavior Modification Program Office
2-4	C	Assess Needed Equipment
3-5	D	Submit Order for Equipment
4-5	E	Furnish Behavior Modification Program Office
5-6	F	Assess Client Alcohol Problem
5-7	G	Determine Client Success in Program
6-8	H	Begin BAC Discrimination Training
7-8	I	Begin Environment Stimulus Control Training
8-9	J	Select Clients to Continue Program Training
9-10	K	Develop Client Rate Reduction Time Schedule
10-11	L	Analyze Client Self Monitoring
10-12	M	Assign Client to Counselor or Psychiatrist
11-13	N	Consider Counselor's Recommendation of Client
12-13	O	Develop BAC Evaluation Criteria
13-14	P	Analyze Client's BAC Success
14-15	Q	Develop Rate Reduction Criteria
15-16	R	Analyze Clients Rate Reduction Success
15-17	S	Determine Client Behavior Modification Completion
16-18	T	Evaluate Program Objectives and Completion
17-18	U	Assess Staff Performance, Objectives and Recommendations

approximate time estimate was made from the present knowledge of individual activities in the network. In addition, it was necessary to obtain better time estimates.

Pre-Planning Rules and Procedures

One of the principle rules in the starting point for time estimation involved the accessibility of work packages and activities in the project. Furthermore, a well-defined and logically arranged work flow plan served as a prerequisite for calculating the time estimates. In this project, the time estimates were calculated within the workflow primarily on a random basis. According to Cook (1971, pp. 109-110), this procedure presents "individuals from adjusting their estimates for activities which come later in the project because of estimates made for tasks that come earlier."

Probabilistic Procedures

In this project, the PERT method was used to determine the activity time estimates. In the PERT method, three estimates of time were identified as optimistic, realistic, and pessimistic. The optimistic time estimate was designed by the symbol (Ot) and was based on the assumption that an activity could be accomplished or completed in a minimum length of time if everything went extremely well (Cook, 1971, pp. 110-111). The realistic time estimate was designated by the symbol (Rt) and was the actual or most likely estimate of time an activity would take. The pessimistic time estimate, designated by the symbol (Pt), was the maximum length of

time an activity would require under the most adverse conditions. When these three individual time estimates were obtained, an expected elapse time estimation (Te) was established for each activity in the work flow. The following formula was used to calculate the time estimates for each activity in the project:

$$Te = \frac{Ot + 4Rt + Pt}{6}$$

Moreover, the distribution of time estimates in PERT was obtained through the use of probabilistic procedures referred to as the Beta distribution. For example, the calculation of activity time estimates can be illustrated using the procedural model illustrated in Figure 3, p.41 . Values of Ot, Rt and Pt were assigned for each of the eighteen(18) activities. Moreover, for the purpose of this project plan, the time estimates for the activities in the network were calculated in terms of one-hour periods at eight periods per working day.

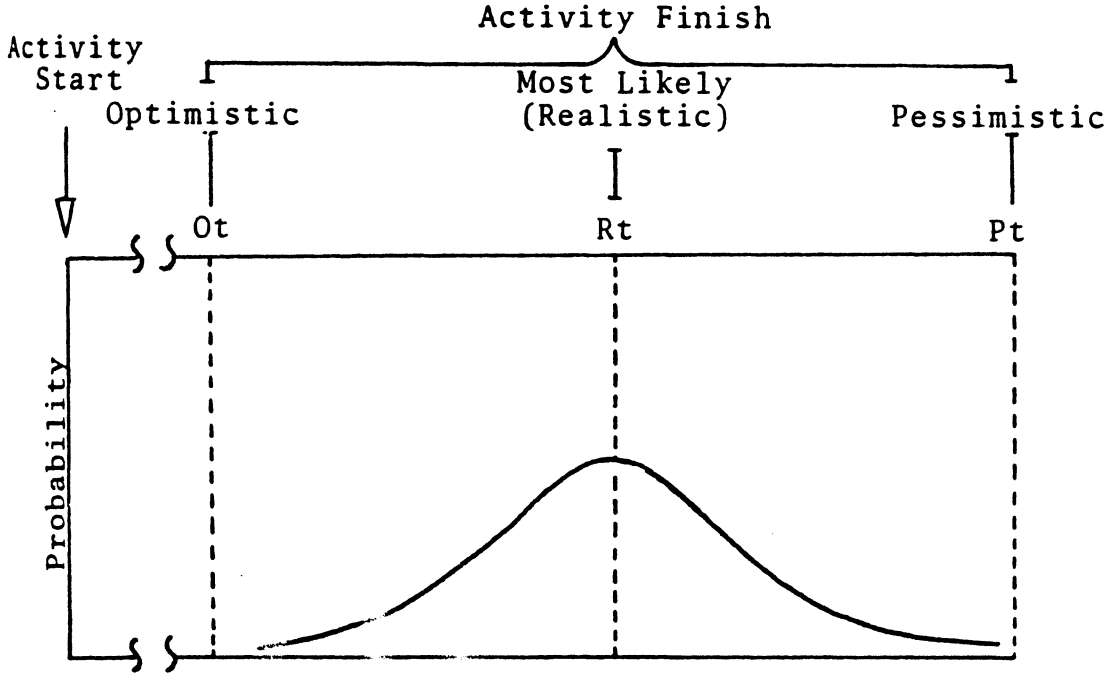
The expected elapse time was further illustrated by describing the activities in the network and their predecessor and successor events. These activities, events and expected elapse time are listed in Table 1, p. 42 and illustrated in Figure 4, p. 43. NOTE: See Appendix I, p. 63 for a key to Table 1.

Critical Path

The critical pathway was the most time consuming pathway in network. The critical path was identified in the flow graph by a double line. NOTE: See Figure 4, p. 43.

FIGURE 3

BETA DISTRIBUTION



$$Te = \frac{Ot + 4Rt + Pt}{6}$$

NOTE: The Beta Distribution Chart is a graphical representation of the probabilistic time calculations, displaying that Realistic time is four times greater than Optimistic or Pessimistic time calculations.

TABLE 1

TABULAR DESCRIPTION OF ACTIVITIES, ACTIVITY TIME ESTIMATION, MANPOWER AND MANPOWER PERIODS

EVENT CODE	ACTIVITY CODE	PRE	SUC	OT	RT	PT	TE	MP	MPP
1-2	A	---	B,C	6	8	10	8	1	8
2-3	B	A	D	12	16	20	16	1	16
2-4	C	A	E	4	6	10	6	1	6
3-5	D	B	F,G	1	2	4	2	1	2
4-5	E	C	F,G	4	5	8	5	1	5
5-6	F	D,E	H	1	2	4	2	1	2
5-7	G	D,E	I	3	4	6	4	2	8
6-8	H	F	J	1	2	4	2	1**	2
7-8	I	G	J	1	2	4	2	1**	2
8-9	J	H,I	K	3	4	6	4	2	8
9-10	K	J	L,M	1	2	4	2	1**	2
10-11	L	K	N	1	2	4	2	1	2
10-12	M	K	O	1	2	4	2	1	2
11-13	N	L	P	1	2	4	2	1	2
12-13	O	M	P	8	12	16	12	2**	24
13-14	P	N,O	Q	2	3	6	3	1**	3
14-15	Q	P	R	8	12	16	12	2**	24
15-16	R	Q	S	2	3	6	3	2**	6
15-17	S	Q	U	2	3	6	3	2**	6
16-18	T	R	--	12	16	20	16	2	32
17-18	U	S	--	4	6	10	6	1	6
TOTALS				78	114	172	114		168

KEY:

* Full-time staff only.
** Full-time and part-time staff only.

NOTE: See Appendix I for a key explaining symbols and formulas.

FIGURE 4

CRITICAL PATH AND EXPECTED TIME OF

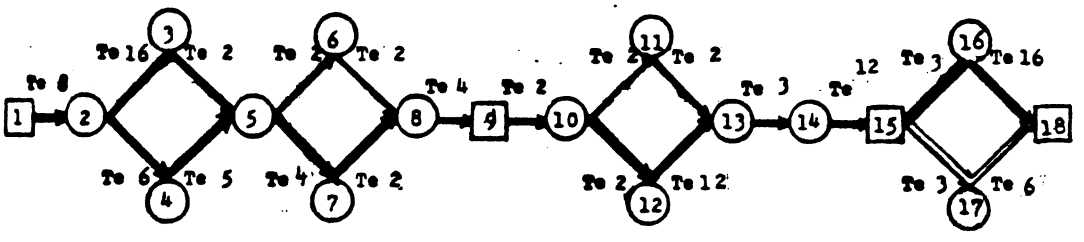
A FORMULATED PLAN

FOR

BEHAVIOR MODIFICATION PLAN

FOR

HISPANIC ALCOHOLICS



CRITICAL PATH = 86 Periods (Hours)

TOTAL Te = 114 Periods (Hours)

SCHEDULING AND RESOURCE ALLOCATION

The function of this subsystem was to establish a project schedule by translating the planned schedule derived from activity time estimates into specific periods. Furthermore, the start and completion of the project was dependent upon resources available, cost estimations and other known constraints.

Survey of Resources

The concept of resource allocation was related to the concept of scheduling (Cook, 1971, p. 126). For example, the project plan was translated into a schedule by assigning resources to accomplish planned activities. Moreover, both full-time and part-time staff members were assigned to perform the work activities.

Schedule Criterion

In order for the project manager to generate a workable schedule, three criteria were considered:

1. To conduct the project with the minimum amount of time allowed.
2. To conduct the project with the minimum of cost entered on the network.
3. To maximize performance in terms of the number of manpower hours required to complete the project.

Manpower Needs

Completion of the project required four full-time staff members in addition to two part-time staff. The Psychiatric Social Worker 4 would take on the responsibility as Program Director and the Psychiatri Social Worker I as Assistant Director.

Loading

Loading was defined as "the assignment of work to an operator, machine or department." Loading was designated as manpower (Mp) and served as the most important feature used to produce a timetable. The loading function required, from the start, a statement of work required; this was done in terms of manpower (or machine) periods (MpP) called "resource-time."

Load as a Histogram

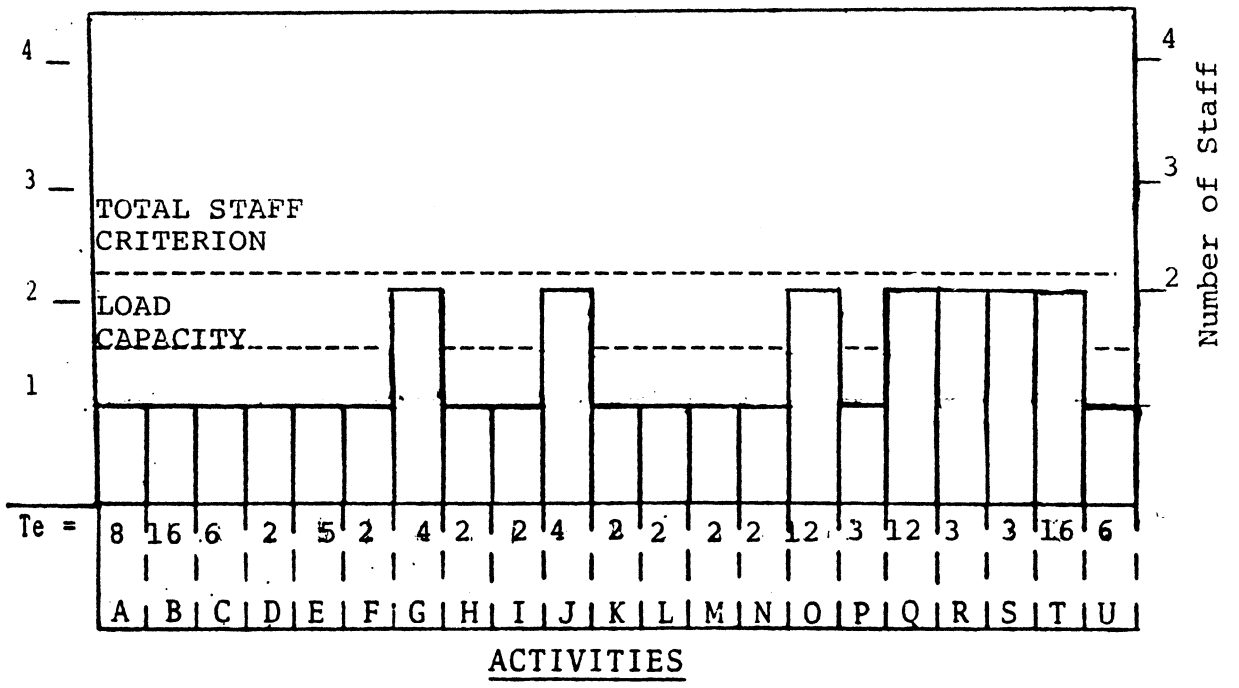
In this project, it was convenient to represent the load as a histogram, a vertical bar graph, the length of which was proportional to the load (i.e., number of staff). The simplest way of drawing a histogram was by following the various paths of the network and adding the manpower requirements. These requirements were plotted on a histogram as illustrated in Table 2, page 46.

Load Capacity

The load capacity was a leveling concept used in the histogram. NOTE: See Table 2, page 46. It determined how much manpower would

TABLE 2

HISTOGRAM ILLUSTRATION OF RESOURCE PROFILE



KEY:

Total Te = 114

Critical Path = 86

Total MpP = 168

FORMULAE:

$$\text{Load Capacity} = \frac{\text{Total Te}}{\text{Critical Path}} = 1.54$$

$$\text{Total Staff Criterion} = \frac{\text{Total MpP}}{\text{Critical Path}} = 2.27$$

be required to complete the project relative to time estimation. The load capacity was determined by dividing the total expected elapse time (Te) by the critical path time.

Staff Criterion

The staff criterion was a leveling concept used in the histogram. NOTE: See Table 2, page 46. It determined how much manpower would be required to complete the entire project within the critical path time. The staff criterion level was determined by dividing the total manpower periods (MpP) by the critical path time.

Scheduling Development

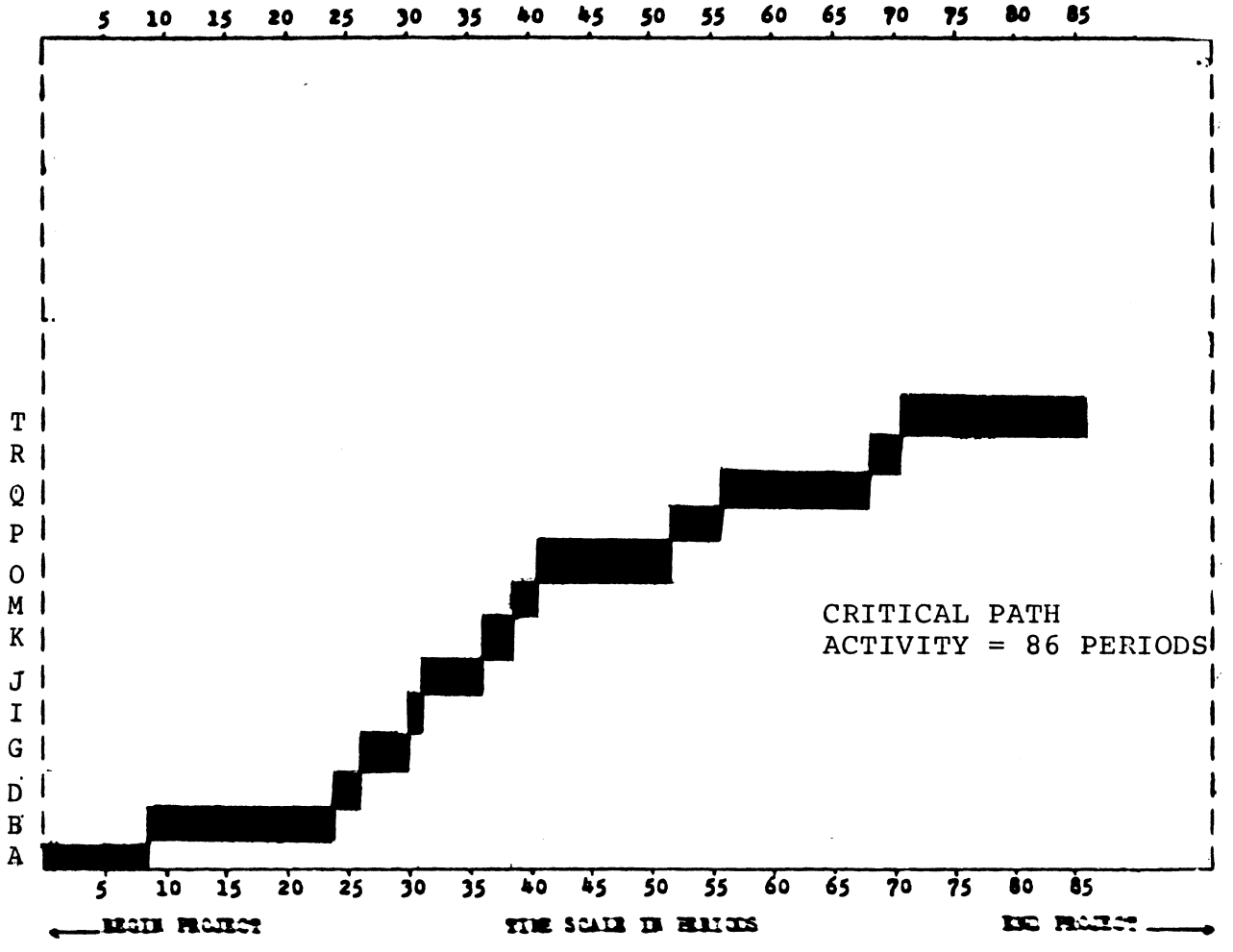
Scheduling development illustrated the progress of the project, relative to hours. NOTE: See Figure 5, page 48. The most time consuming pathway in the network is known as the critical path and is illustrated by the solid rectangles in Figure 5. In contrast, all other activities, outside the critical path, but essential in completing the project were illustrated by the blank rectangles, representing the non-critical path. NOTE: The slack time between the two paths is illustrated by the broken lines. Calculation of the critical path indicated eighty-six (86)hours were needed to begin and complete the project.

COST AND BUDGET ESTIMATION

The function of this subsystem was to generate cost estimates and budget expenditures needed to accomplish the project as outlined

FIGURE 5

ILLUSTRATION OF SCHEDULE DEVELOPMENT
BY BAR CHART



CRITICAL PATH
ACTIVITY

in the established time network. In this project, the basic objectives of PERT/Cost were twofold:

1. To achieve a significantly more realistic and original program cost estimation.
2. To achieve a marked improvement in control against the original estimate.

Budget Categories

The budget categories represented the cost items needed to complete the project as illustrated in Table 3, page 50. The following five budget categories were used in the project:

1. Personnel Cost: This included the combined average salaries and fringe benefits of three full-time staff at various pay scales, and salaries of part-time staff.
2. Supplies: This included supplies and materials to be utilized within the project.
3. Equipment: This included telephone, typewriters and duplicating equipment.
4. Communication: This included, largely, the utilization of the telephone.
5. Indirect Costs: This included such costs as office space and utilities excluding communication.

Cost Calculation

Calculation of cost was done on an activity per activity basis. The following formula illustrates how activity cost was calculated per category. NOTE: A detailed breakdown of how each categorical formula was derived is presented in Appendix A, page. 65.

TABLE 3

TABULAR DESCRIPTION OF TOTAL ACTIVITY COST ESTIMATION AND TOTAL PROJECT RESOURCE ALLOCATION

EVENT & ACTIVITY CODE		MPP	PER	SUP	EQU	COM	I/C	TOTAL
1-2	A	8	160.32	11.12	17.12	6.08	6.00	200.64
2-3	B	16	320.64	22.24	34.24	12.16	12.00	401.29
2-4	C	6	120.24	8.34	12.84	4.56	4.50	150.48
3-5	D	2	40.08	2.78	4.28	1.52	1.50	50.16
4-5	E	5	100.20	6.95	10.70	3.80	3.75	125.69
5-6	F	2	40.08	2.78	4.28	1.52	1.50	50.16
5-7	G	8	160.32	11.12	17.12	6.08	6.00	200.64
6-8	H	2	40.08	2.78	4.28	1.52	1.50	50.16
7-8	I	2	40.08	2.78	4.28	1.52	1.50	50.16
8-9	J	8	160.32	11.12	17.12	6.08	6.00	200.64
9-10	K	2	40.08	2.78	4.28	1.52	1.50	50.16
10-11	L	2	40.08	2.78	4.28	1.52	1.50	50.16
10-12	M	2	40.08	2.78	4.28	1.52	1.50	50.16
11-13	N	2	40.08	2.78	4.28	1.52	1.50	50.16
12-13	O	24	480.96	33.36	51.36	18.24	18.00	601.92
13-14	P	3	60.12	4.17	6.42	2.28	2.25	75.24
14-15	Q	24	480.96	33.36	51.36	18.24	18.00	601.92
15-16	R	6	120.24	8.34	12.84	4.56	4.50	150.48
15-17	S	6	120.24	8.34	12.84	4.56	4.50	150.48
16-18	T	32	641.28	44.48	68.48	24.32	24.00	801.56
17-18	U	6	120.24	8.34	12.84	4.56	4.50	150.48
TOTALS		168	3,366.82	233.62	359.62	127.68	126.00	$4,213.74

KEY:

PER = PERSONNEL EQU = EQUIPMENT I/C = INDIRECT COST

SUP = SUPPLIES COM = COMMUNICATION

NOTE: Each activity is presented by activity letter and by event numbers. Thus, activity code "**A**" is represented as the activity events "1" and "2" or (1-2).

Personnel Cost (PER)

Formula: PER cost per activity = $\bar{X}$ PER x MpP per activity

or

PER cost per activity = $20.04 x MpP per activity

Supplies (SUP)

Formula: SUP cost per activity = $\bar{X}$ SUP cost per MpP x MpP per activity

or

SUP cost per activity = $ 1.39 x MpP per activity

Equipment (EQU)

Formula: EQU cost per activity = $\bar{X}$ EQU cost per MpP x MpP per activity

or

EQU cost per activity = $ 2.14 x MpP per activity

Communication (COM)

Formula: COM cost per activity = $\bar{X}$ COM cost per MpP x MpP per activity

or

COM cost per activity = $ .76 x MpP per activity

Indirect Cost (I/C)

Formula: I/C cost per activity = $\bar{X}$ I/C cost per MpP x MpP per activity

or

I/C cost per activity = $ .75 x MpP per activity

Individual Work Tasks of Work Packages

The list of activities shown in Figure 2, page 38 of this proposal plan, comprised the work tasks for workpackages in the project. Each activity was allocated resources as shown in Table 3, page 52.

Illustration of Account Numbers

An illustration of account numbers charged to workpackages and end items is presented in Table 4, page 53.

Summarization of Work Packages Costs

Summarization of workpackages costs are determined by estimating costs needed to accomplish the workpackage. This estimation can be done at the workpackage level by determining the costs associated with each activity in the workpackage and totalling the individual costs. The summary of costs upward through the project definition is presented in Table 5, page 54.

Budget Summary

The budget categories for project activities are outlined in Figure 6, page 55.

TABLE 4

ILLUSTRATION OF ACCOUNT NUMBERS CHARGED TO WORKPACKAGES AND END ITEMS

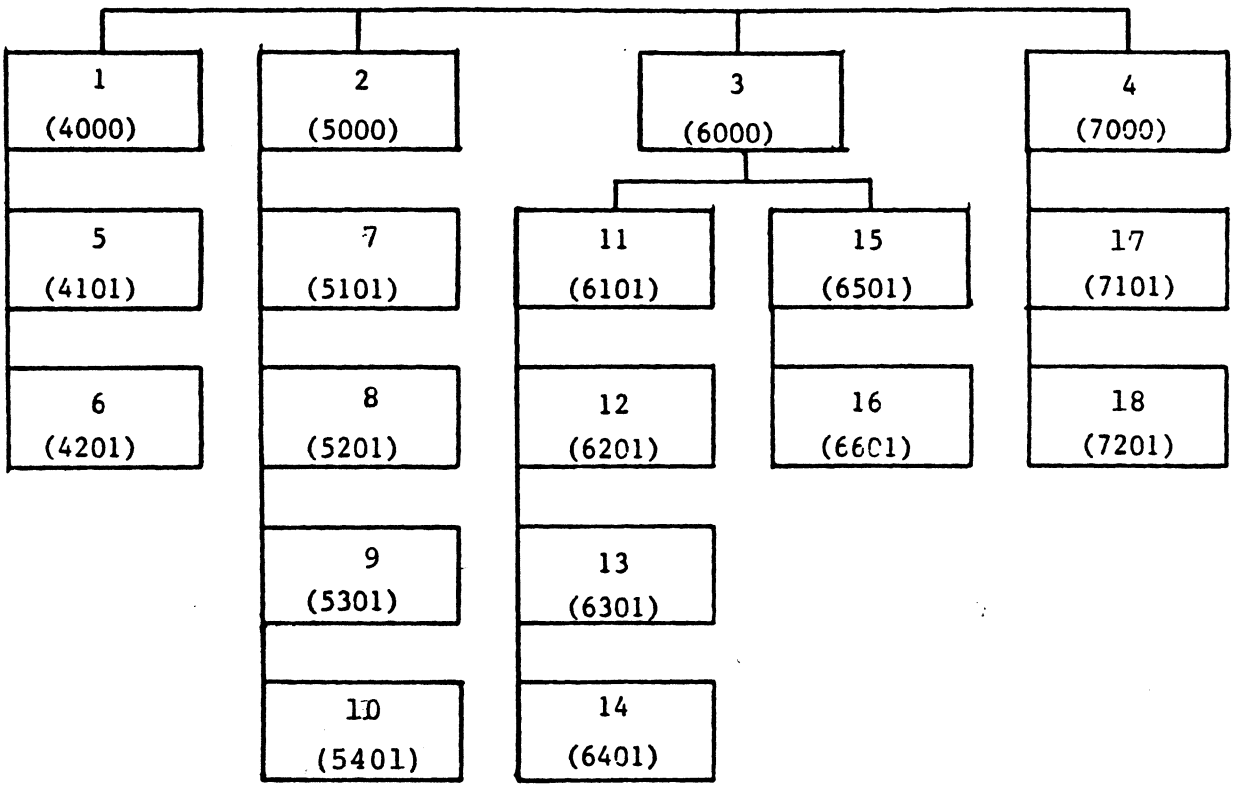


TABLE 5

SUMMARIZATION OF WORK PACKAGE COST
ESTIMATES FOR TOTAL PROJECT COST

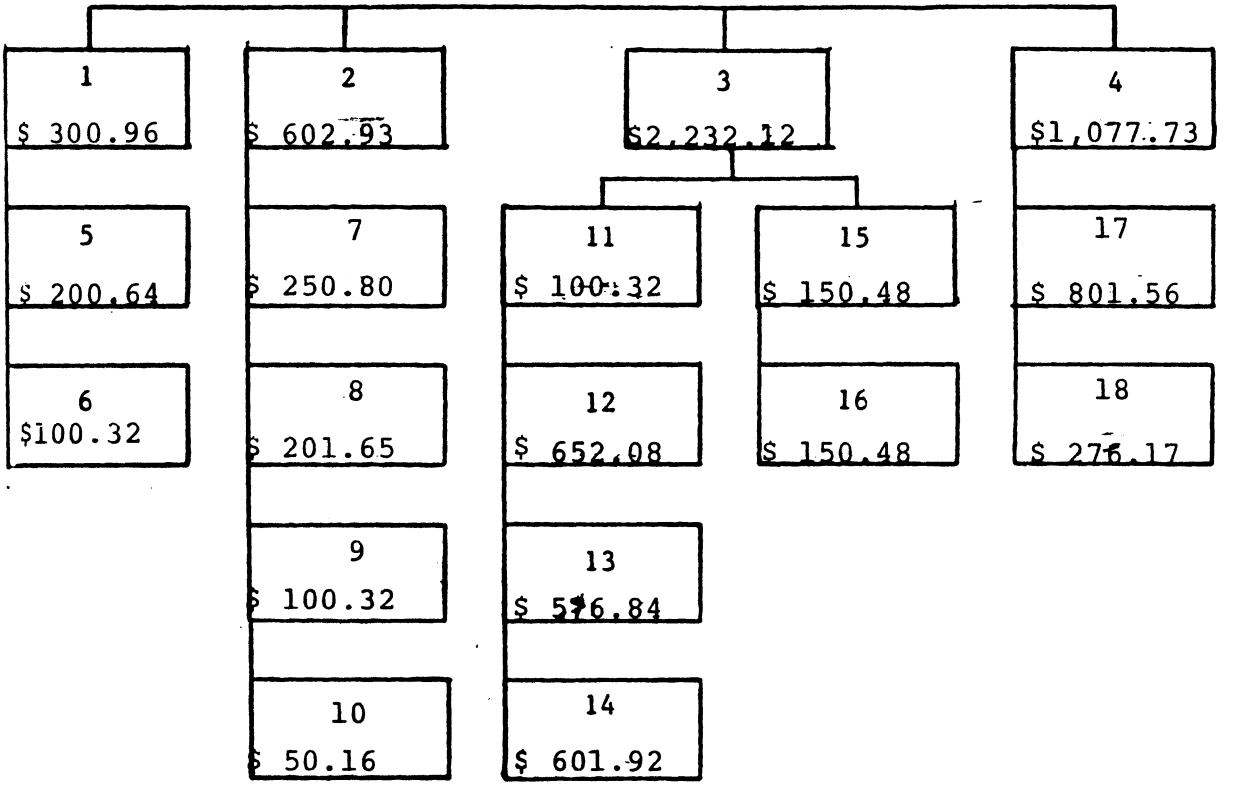


FIGURE 6

BEHAVIOR MODIFICATION PROGRAM

East Valley Alcohol Clinic (EVAC)
1660 McKee Road
San Jose, California 95112

1. Project Title: Behavior Modification Program for Hispanic Alcoholics

2. Funding Agency: National Institute on Alcohol Abuse and Alcoholism (NIAAA)

3. Total Time: 86 Periods (Hours)

4. Dates: September 15, 1981 to September 15, 1982

CATEGORY

1)	Personnel (Full-time and Part-time Staff)	
	a) Salaries and Wages	
	1. Fringe Benefits (18%) included	$ 3,366.82
2)	Supplies	
	a) Organizational Supplies	$ 233.62
3)	Equipment	
	a) Organizational Equipment	$ 359.62
4)	Communication	
	a) Telephone	$ 127.68
	Direct Cost, SUBTOTAL	$ 4,087.74
5)	Indirect Costs	
	a) Utilities	
	b) Miscellaneous	$ 126.00
	TOTAL COSTS	$ 4,213.74

CHAPTER IV

SUMMARY AND RECOMMENDATIONS

This summary reviews the principle point in the preceding chapters and also presents the project planner's recommendations together with suggestions for future implementation and evaluation of the project plan while in actual operation.

The purpose of the project plan was to design, develop, and conduct a research study of operating principles relative to the development of a Behavior Modification Program for Alcoholics of Hispanic origin in Santa Clara County, San Jose, California.

The major steps employed were Cook's Project Management Model to develop a planning subsystem of:

1. Project Definition;
2. Work Flow;
3. Project Time Estimation;
4. Schedule and Resource Allocation Plan; and
5. Project Cost Estimate.

These components served to function in the planning subsystem as follows:

1. The project definition developed an ordered structure of major subordinate objectives which provided the work to be accomplished by the project administration;
2. The work flow developed a graphical representation of the sequence of activities and events necessary to accomplish the objectives established in the project definition;

3. The time estimation subsystem provided a time frame for the individual activities and events in the project;

4. The scheduling and resource allocation plan served to establish the project schedule. Furthermore, an estimate of resource availability was made as well as the resource time required to complete each activity of the project; and

5. The specific total cost estimate for each work package was established as well as the total cost estimate for the total project.

PERT procedures were employed to plan major activities and events in the project plan.

In conclusion, the planning system described in the project plan served as the data and information base for operations in the control subsystem.

RECOMMENDATIONS

The implementation of the project will maximize the potential for behavior modification success of alcoholics of Hispanic origin by utilizing a behavior modification program with a bicultural approach at East Valley Alcohol Clinic in San Jose, California.

Moreover, such an implementation is not exclusive to Hispanics but is applicable to alcoholics in general.

Moreover, the project administrator must monitor the completion of each workpackage to insure standardization of meaning. Specifically, this monitoring of the project plan could identify any deviation from the plan, thus enabling the project administrator to take corrective action.

Lastly, the project planner emphasized the formulation of an operational controlled subsystem for the efficient supervised implementation of the project plan.

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APPENDIX I

TABULAR DESCRIPTION OF ACTIVITIES, ACTIVITY TIME ESTIMATION, MANPOWER AND MANPOWER PERIODS

KEY:

CODE = Activity Letter

PRE = Preceeding Activity (ies)

SUC = Succeeding Activity (ies)

OT = Optimistic Time

RT = Realistic Time

PT = Pessimistic Time

Te = Expected Elapsed Time

MP = Manpower

MpP = Manpower Periods

KEY:

1 = 1 Period (Hour)

8 Periods = 1 Working Day

40 Periods = 1 Five-day Week

FORMULAE:

$$Te = \frac{OT + 4(RT) + PT}{6}$$

Critical Path = 86

MpP = Te x MP

Total Te = 114

$$\text{Total Load Capacity} = 1.54 = \frac{\text{Total Te}}{\text{Critical Path}}$$

$$\text{Total Staff Criterion} = 2.27 = \frac{\text{Total MpP}}{\text{Critical Path}}$$

APPENDIX A

COST AND BUDGET ESTIMATION DETAIL

The following represents a detailed breakdown of how cost formulae were derived per budget category:

KEY:

WP = Work Periods (hours) per year = 2080
NOTE: 40 hours per week x 52 weeks per year, for full-time staff only.

WP = Work Periods (hours) per year = 1040
NOTE: 20 hours per week x 52 per year, for part-time staff only.

PR = Period Rate

$\overline{X}$PR = Mean Period Rate

Personnel (PER)

YR = Yearly Rate

AS = Annual Salary

FB = Fringe Benefits

(1) Project Director (Psychiatric Social Worker 4)

AS + FB = YR = $21,852 + $3,933 = $25,785 per PSW 4

$$PR = \frac{YR}{WP} = \frac{\$25,785}{2080} = \$12.40 \text{ per PSW 4}$$

(1) Behavior Modification Group Counselor (PSW 1)

AS + FB = YR = $16,295 + $3,797 = $20,092 per PSW 1

$$PR = \frac{YR}{WP} = \frac{\$20,092}{2080} = \$9.66 \text{ per PSW 1}$$

(1) Intake Counselor (Community Worker 1)

AS + FB = YR = $12,852 + $1,292 = $14,144 per CW 1

$$PR = \frac{YR}{WP} = \frac{\$14,144}{2080} = \$6.80 \text{ per CW 1}$$

(1) Clerk Typist/Receptionist (Clerk Typist 1)

AS + FB = YR = $12,852 + $1,292 = $14,144 per CT 1)

$$PR = \frac{YR}{WP} = \frac{\$14,144}{2080} = \$6.80 \text{ per CT 1}$$

(1) Psychiatrist

AS + FB = YR = $32,500 + $5,850 = $38,350 per Psychiatrist

$$PR = \frac{YR}{WP} = \frac{\$38,350}{1040} = \$36.88 \text{ per Psychiatrist}$$

(1) Nurse

AS + FB = YR = $24,400 + $4,392 = $28,792 per Nurse

$$PR = \frac{YR}{WP} = \frac{\$28,792}{1040} = \$27.68 \text{ per Nurse}$$

NOTE: Fringe Benefits (FB) = 18% of Annual Salary (AS).

$$\bar{X}PR = \frac{1(\text{PSW 4}) + 1\ (\text{PSW 1}) + 1\ (\text{CW 1}) + 1\ (\text{Typist}) + \text{Psych.} + \text{Nurse}}{12.40 + 9.66 + 6.80 + 6.80 + 36.88 + 27.68} =$$

$$\frac{\$100.22}{5} = \$20.04 \text{ per MpP}$$

NOTE: For the purpose of activity cost estimation, it was assumed that each activity would utilize an average misture of staff available. Thus, mean period rate ($\bar{X}$PR) per manpower periods (MpP) was tabulated by dividing the sum of period rates (PR's) for all staff by the total number of staff.

Formula: PER cost per activity = $\bar{X}$PR x MpP per activity

or

PER cost per activity = $20.04 per MpP per activity.

SUPPLIES (SUP)

			Each	Total
1.	Pens	(20)	.25	5.00
2.	Markers	(3)	.30	.90
3.	Notepads	(20)	.80	16.00
4.	Stencils	(2 boxes)	2.71	5.42
5.	Dittos	(2 boxes)	3.75	7.50
6.	Staples	(2 boxes)	2.00	6.00
7.	Typewriter Paper	(20 reams)	2.79	55.80
8.	Stapler	(1)	6.00	6.00
9.	File Folders	(5 boxes)	11.00	55.50
10.	Identification Labels	(2 boxes	.81	1.62
11.	Pendaflex Folders	(4 boxes)	11.95	47.80
12.	Desk pads	(2)	13.00	26.00
			Cost SUP Total:	$233.54

$$\bar{X} \text{ PR} = \frac{\text{Total SUP}}{\text{Total MpP}} = \frac{\$233.54}{168} = \$1.39 \text{ per MpP}$$

Formula: SUP cost per activity = $\bar{X}$ SUP cost per MpP x MpP per activity

or

SUP cost per activity = \$1.39 x MpP per activity.

EQUIPMENT (EQU)

	Each	Total
1. Typewriter (1) lease for 12 months	\$30 per month	\$360.00

Cost EQU Total \$360.00

$$\bar{X} \text{ PR} = \frac{\text{Total EQU}}{\text{Total MpP}} = \frac{\$360.00}{168} = \$2.14 \text{ per MpP}$$

Formula: EQU cost per activity = $\bar{X}$ EQU cost per MpP x MpP per activity

or

EQU cost per activity = \$2.14 x MpP per activity.

NOTE: For purposes of activity cost estimation, it was assumed that each activity would utilize an average portion of equipment available. Thus, mean EQU cost per MpP was computed by dividing the total EQU cost by the total MpP in the project. Moreover, it was decided by the project planner that the County of Santa Clara Department of Health may already have the accessed equipment available, but if the Behavior Modification Alcohol Program is located apart from the leased building of the County of Santa Clara Department of Health, then equipment purchase is necessary.

COMMUNICATION (COM)

Telephone service per year + $127.70

$$\bar{X} \text{ PR} = \frac{\text{Total COM}}{\text{Total MpP}} = \frac{\$127.70}{168} = \$ .76 \text{ per MpP}$$

Formula: COM cost per activity = $\bar{X}$ COM cost per MpP x MpP per activity

or

COM cost per activity = $ .76 x MpP per activity.

NOTE: For the purpose of activity cost estimation, it was assumed that each activity would utilize an average portion of the communication available. Thus, mean period of rate of communication cost per staff was computed by dividing total communication cost per year by the total of manpower periods.

INDIRECT COST (IC)

Indirect Cost = 3% of Total Budget = 3% x $4210.00 = $126.30

Indirect Cost Total = $126.30

$$\bar{X} \text{ PR} = \frac{\text{Total IC}}{\text{Total MpP}} = \frac{\$126.30}{168} = \$ .75 \text{ per MpP}$$

Formula: IC cost per activity = $\bar{X}$ IC cost per MpP x MpP per activity

or

IC cost per activity = $.75 x MpP per activity.

NOTE: For the purpose of activity cost estimation, it was determined by the project planner that each activity would utilize an average portion of indirect cost available. Indirect cost included such items as office space, utilities, excluding communication.