An assessment of system value structure in a mental hospital
by Mark William Beiting

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in Psychology
Montana State University

Abstract:
A survey instrument, the Warm Springs Regional Value Survey, was developed and evaluated as an initial step in the determination of the relationship of system value structure to system performance. Eight regional/ speciality treatment units were utilized to assess factor loadings, test-retest reliability, internal consistency reliability and inter-judge agreement at the administrative system level. All measures except the test-retest reliability indicate that the instrument is reliable and factorially valid. The low test-retest reliability is considered from the standpoint of function fluctuations of subjects.

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Date August 25, 1976

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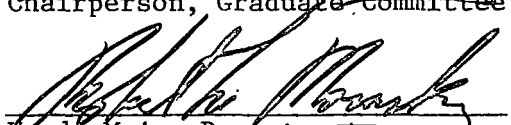

Head, Major Department

Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

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ABSTRACT

A survey instrument, the Warm Springs Regional Value Survey, was developed and evaluated as an initial step in the determination of the relationship of system value structure to system performance. Eight regional/ speciality treatment units were utilized to assess factor loadings, test-retest reliability, internal consistency reliability and inter-judge agreement at the administrative system level. All measures except the test-retest reliability indicate that the instrument is reliable and factorially valid. The low test-retest reliability is considered from the standpoint of function fluctuations of subjects.

INTRODUCTION

In recent years the topic of values has begun to occupy the interest of system theorists (Miller, 1965, Ackoff, 1971, Morasky, 1976), particularly system values and the effect that they have upon system performance. It has been suggested (Miller, 1965) that system values when arranged in a hierarchical structure may direct system behavior in certain situations. Obviously, an initial step in the determination of the effect of system value structure upon system performance is the measurement of system value structure. The present study attempts to perform this initial step. The objective of this study is to develop and evaluate an instrument capable of measuring system value structure in a limited setting, a mental hospital. Given this objective, a brief overview of General Systems Theory and systems models is in order.

General Systems Theory is an approach which has the potential for wide applicability in the modern scientific community. Since its inception, the use of General Systems Theory (GST) concepts and applications have proliferated at an accelerating rate. Engineers, biologists, psychologists, physicists, etc. have selected and utilized various system concepts both within their own areas and in interdisciplinary efforts. Yet, although GST continues to enjoy a steadily increasing popularity among the scientific community, a precise description of GST remains somewhat elusive. Von Bertalanffy, the biologist whose work is most

closely associated with GST, describes GST as a model which has a goal of "establishing principles applicable to entities (systems) not covered in conventional science" (von Bertalanffy, 1962). According to von Bertalanffy the reason that these entities were not examined in conventional scientific endeavors was that they lay beyond the conceptual framework of conventional science. He noted the tendency of all science to model itself on theoretical physics, thereby relying on a primarily mechanistic approach which regarded organization, teleolgy and directiveness as illusionary or at best irrelevant. With the advent of the newer life and social sciences, the utilization of a conceptual framework which excluded such concepts as organization and directiveness, and interpreted phenomena in a mechanistic fashion, was untenable.

It was at this junction that von Bertalanffy resorted a conceptual framework which he characterized as "organismic". It was organismic in the sense that it actually pursued information concerning the processes and interactions of the organism as well as the more traditional structure and nature of its components. Certainly this organismic viewpoint was not unique to von Bertalanffy, as he points out. However, it is within the organismic viewpoint that the antecedents of GST lie. For in the examination of processes and organizational principles of biological organisms, von Bertalanffy and others formulated principles that held not only for biological organisms, but for other "organisms" or systems as well. The derivation and establishment of principles

applicable to entities in general formed the ideological core of GST and led von Bertalanffy to advocate the establishment of a discipline which would specifically concern itself with the derivation of concepts characteristic of organized wholes from a general definition of the term "system". The benefits of such a discipline lie in the potentially wide applicability of the mathematically and empirically based models developed to describe systems. However, in order to realize the potential of GST, each General Systems Theorist must define the nature and scope of his own systems model.

Model Variability

As previously mentioned, von Bertalanffy was one of the first members of the scientific community to advocate the establishment of a specific discipline to study systems and develop system principles. Nevertheless, the actual development of systems models and their application has proceeded from the work of other theorists (Miller,1965, DeGreene, 1973, Morasky, 1975). Consequently, the "state-of-the-art" is such that numerous definitions of the term system exist. This is significant because, logically, all analysis must proceed from the theorist's definition of a system. The various models currently available for scrutiny have a tendency to reflect the background and training of their author. The models attempt to deal with certain subsets of the total set of systems with which the author is most familiar. The diversity of systems models and conceptual frameworks may be illustrated by a brief

description of the frameworks developed by J. Miller, K. DeGreene and R. Morasky. Miller's model (1965) was designed to examine system principles relevant to living systems. DeGreene's framework (1973) attempts to account for the functioning of socio-technical systems. Morasky's model (1975) is an applied model which deals with social systems.

Miller's model (1965) is essentially concerned with what Miller terms concrete systems. These are a "nonrandom accumulation of matter-energy in a region in physical space-time, which is nonrandomly organized into coacting, interrelated subsystems or components." The emphasis of Miller's (1965) definition is upon the physically discernable system. His model seeks to describe principal components and subsystem (functions) that are shared by all living systems, thereby developing a set of General System laws or principles applicable to all living entities.

DeGreene's framework (1973) defines the system in a more general sense than Miller (1965). A system to DeGreene is a "set of constituents or elements in active organized interaction as a bounded entity, such as to achieve a common whole or purpose which transcends that of the constituents in isolation." Although DeGreene's (1973) definition of a system is a general one, he limits his level of analysis to socio-technical systems. These are macrosystems comprised of a melange of society with all of its complex motivational, perceptual and attitudinal factors, and the technological realities which range from the simplest

manufactured goods to the most sophisticated computer. DeGreene (1973) presents a number of techniques for analyzing these complex systems; however, he stops short of espousing a single comprehensive systems model capable of yielding a general set of systems principles for socio-technical systems.

Morasky's model (1975) is an applied social systems model designed to aid in the analysis and synthesis of social groupings or organizations. Morasky (1975) defines a social system as a "conglomerate or structuring of animate and inanimate units which through interaction receive inputs and produce discriminable outputs." He qualifies this definition by stating that these systems are social in that "they primarily invove humans." The level of analysis of this model differs from DeGreene's (1973) framework in that it was not designed to deal with macrosystems but rather smaller systems that are predominantly social in nature.

As the previous examples illustrate, a fair amount of diversity exists in both the definition of a system and the level of analysis of the various systems models and frameworks. For this reason, some General Systems Theorists have devised system hierarchies which attempt to arrange different types of systems into approximate levels of analysis. J. Jones' hierarchy (1967, Table 1) succeeds in differentiating the three levels of analysis characterized by Miller's (1965), DeGreene's (1973), and Morasky's (1975) work. Miller's (1965) analysis is at the

Table 1

Four Levels of J. Jones' System Hierarchy

Kind of system and its mode of operation	Components	Couplings between components
	Level 6	
administrative system: goal-directed and hierarchical	human operatives with tools or aids	rules, messages, human administrators, informal contacts
	Level 7	
voluntary system: self-rewarding and collaborative	any number of persons all of which are biological systems and some of which act as administrative subsystems	affection, shared aims, laws, customs, mutal aid
	Level 8	
environmental system: permissive of a range of human activities: prohibitive of others	inhabitants and facilities within an environment, the outside world	spaces and barriers between and around the components
	Level 9	
biological system: homeostatic, adaptive, evolutionary, growing, differentiating and self-reproducing	cells, organs, subsystems, all of which are also physical systems	nerves, glands, chromosones etc., past experience and environment

level of the biological system (level 9), DeGreene's (1973) analysis is at the level of the environmental system (level 8) and Morasky's (1975) analysis is applicable to both the voluntary and administrative systems (levels 6 and 7). An approximate determination of the level of analysis is helpful, since it aids the investigator in selecting an appropriate systems model for analysis. The level of analysis undertaken in this study is that of the administrative system (Table 1, level 6) and the systems model employed in this analysis is Morasky's (1975) model of applied social systems.

Research Objective

The objective of this study is to develop and evaluate a research tool capable of measuring system value structure in a limited setting. The concept of system values has been discussed by such theorists as Miller (1965), Ackoff (1971) and Morasky (1976). These values represent a hierarchical arrangement of preferred end-states toward which a system can move. These end-states may represent outcomes either in the system itself or in other systems which are affected by inputs from that system. In a clearly defined system that has explicitly stated, quantifiable goals, the functional importance of the system value hierarchy is secondary to the system's goals. The behavior of the system and its components may be directed by the decider subsystem[1] toward the achievement of the system goals by referral to the goal statement.[2] However, when the system goals are not stated, or are improperly stated, the sys-

tem's value structure assumes a position of primary functional importance.

The importance of the system value structure arises from its effect upon the behavior of a system in the absence of goals. It has been hypothesized that when system goals are not stated or are improperly stated the decider subsystem resorts to a value structure which it utilizes to direct system functioning. Therefore, the development of an instrument that can measure the value structure of a system, even in a limited setting, would be a step toward the analysis of decider functioning and system behavior. Such an instrument would be particularly helpful in the analysis of certain social systems which lack a detailed goal statement. However, in order to develop an instrument that has the capability of measuring system value structure, a clear definition of the term value is required.

In searching for a definition of values that was both clear and functional, the work of Rokeach (1973) was examined. Rokeach provides a rather broad framework for the conceptualization of human values. Within it he describes the many-faceted nature of values and their functions. Central to his conceptualization of values is the notion of a value as a belief about the desirability or undesirability of some means or end of action. Rokeach suggests that beliefs function as standards which aid in the resolution of conflict and the directing of activities. He distinguishes between two types of values, terminal values and instrumental values. Terminal values are those preferred end-states of an individual

or cultural group. Instrumental values are those preferred means of attaining a particular end-state. The distinction between terminal and instrumental values is readily transformed into systems terminology. Terminal system values are those which are related to goal-type statements. One example of a terminal system value would be an olympic swim team that swims so that they may achieve the end-state of winning gold medals. Instrumental system values are process values illustrated by an olympic swim team that only practices the dolphin kick because they believe it to be the most efficient technique available. Rokeach also includes the notion of an organized value structure in his framework. In it, values are ordered in priority with respect to each other. He maintains that this structure is relatively stable over time, although some restructuring can occur as a result of changes in society or personal experience. In general, Rokeach's conceptualization of values is compatible with systems terminology, especially his notions of a value structure, terminal and instrumental values, and the function of values. For this reason his definition of values was utilized in this study.

Once the operational definition of system values has been selected, a methodology for measuring system value structure is required. A number of possibilities present themselves. Two of the more viable approaches are the behavioral and survey methods. The behavioral method requires monitoring system inputs, outputs, feedback and processes. It generally yields highly reliable data, however, it requires the expend-

iture of considerable amounts of time and money, as well as a great deal of control over the system, even for a moderately sized social system. Conversely, the survey method requires the expenditure of far less resources and is generally less intrusive. For these reasons, the survey method of measuring system value structure was employed in this study. In the survey method the value structure is not directly measured. The quantity measured is the system member's expressed beliefs about the system's value structure. The problem of indirect measurement is common to all survey instruments and a great deal of psychology as well. Therefore the results need not be unduly suspect. The basis for evaluation of the survey will be the results of the reliability and factorial validity measures obtained from the application of the survey to a group of administrative systems.

METHOD

Systems

The systems examined in this study were the staffs of eight regional and speciality units which are all subsystems of Warm Springs State Hospital (WSSH), Warm Springs, Mt. WSSH is a psychiatric hospital organized into nine units or subsystems. Five of these subsystems are regional units that only admit individuals from the particular geographical area in Montana assigned to them. The remaining four subsystems, geriatric, medical-surgical, forensic and children's, are speciality units which admit patients from anywhere in Montana. All regional and speciality subsystems were included in the study with the exception of the children's unit which was still in the process of organization.

The regional and speciality subsystems are staffed by social workers, psychologists, physicians, recreational therapists and nursing service personnel, which include R.N.s, L.P.N.s and psychiatric aides. There are three types of positions available. The "bid" positions, in which a person is permanently assigned to a unit after bidding for that position in competition with others. The non-bid positions, in which a person may work in different units on various days depending upon the need of the units. The third type of position is the professional position assigned to therapists, physicians, psychologists, social workers, etc.

Each subsystem is independent of the other subsystems with respect to patient housing, treatment, and release. The number of subjects that responded to the survey in each region and each administration is listed in Table 2.

Survey Instrument

The survey instrument developed in this study contained fifteen items (see Table 3). The items represent possible outcomes (terminal end-states) in the regional/speciality subsystems as well as end-states in the social and individual systems which receive inputs from the regional/speciality subsystems. The items were developed by examining the major receiving systems in the network of systems which receive inputs from the regional/speciality subsystems (see Figure 1). These receiving systems include the community mental health centers of Montana, the communities themselves, the patient's family, the state legal system, the therapists working in the subsystems, the patient, and the regional/speciality systems themselves, when they produce outputs for their exclusive benefit. From the examination of the major receiving systems, specific statements were generated which characterized some of the possible end-states of the receiving systems. The statements were submitted to members of the WSSH psychology department for modification and additions. A survey was compiled from these items and distributed to a graduate class at Montana State University for review. The final revised edition of the survey was entitled the Warm Springs Regional Value Survey

Table 2

Number of Subjects by Unit and Administration

	Medical-Surgical	Forensic
FAG	13	47
SAG	2	18

	Geriatrics	Region 1
FAG	50	19
SAG	19	6

	Region 2	Region 3
FAG	27	33
SAG	12	15

	Region 4	Region 5
FAG	37	28
SAG	9	16

Table 3

Warm Springs Regional Value Survey

____Readmission rates will be maintained at a low level.

____Patients will view Warm Springs State Hospital as a positive environment (a good place).

____Treatment plans will be reviewed as specified by law.

____Staff will have a good relationship with the patients.

____Therapists will use the therapy that is their speciality.

____Patients will display individuality and independence.

____Released patients will be able to adjust successfully in the community mental health centers.

____Staff members will have good realtionships with each other.

____Society will be relieved of the problems of dealing with the patients.

____Interruptions of the Warm Springs State Hospital schedule due to problems with the patients will be kept to a minimum.

____The community (police, courts, employers, etc.) will have no problems with released patients.

____Patients will behave in ways which they (the patients) consider desirable.

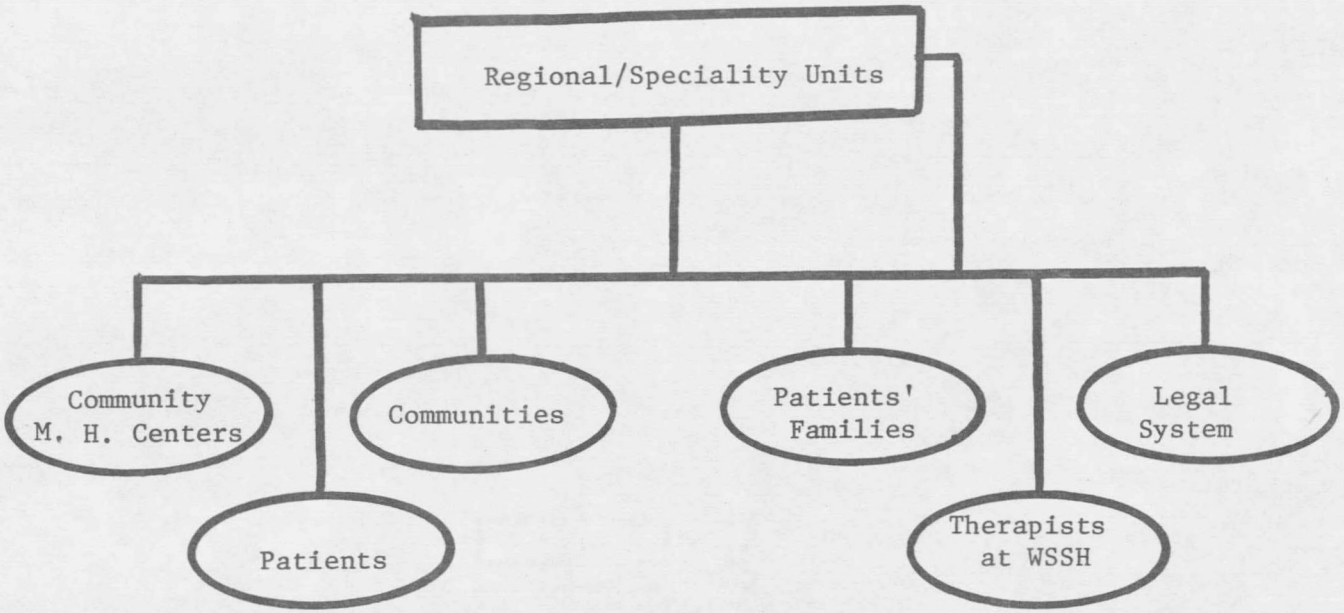
____Released patients will be able to adjust successfully in the family.

____The population of Warm Springs State Hospital will be reduced as required.

____All patients will have received some kind of therapy.

Figure 1

Receiving System Network of Regional/Speciality Units



and is presented in Table 3.

The survey was administered in two sessions seperated by approximately one month. The first administration of the survey was to the staff of each unit. It was administered by personnel from the nursing service. These individuals were briefed by the investigator concerning the background and proper procedure for completing the survey. In addition, a set of instructions and a description of the general background of the survey were included on the reverse side of the survey (Table 4). In the second session, the survey was administered by the investigator and members of the WSSH psychology department. These individuals were also briefed by the investigator and again, the survey included instructions and a general background description. Two hundred fifty-four subjects responded to the survey in the first administration, in the second administration 89 subjects responded. The group of individuals participating in the first administration constitute the first administration group (FAG), the group of individuals participating in the second administration constitute the second administration group (SAG). A group of 66 individuals participated in both the first and second administrations. Their scores obtained in the first administration constitute the test group (TG). Their scores obtained in the second administration constitute the retest group (RG). The low number of subjects participating in the second administration appears to be attributable to problems created by vacation scheduling and the inability of nursing service to provide

Table 4

Survey Instructions and Background Description

Instructions

Please rank all of the 15 items according to their importance to your regional unit. Do not use any number more than once. It is important that you rank all of the items according to their importance to you personally. Your cooperation is greatly appreciated.

Background

Regions, like individuals, have values and goals which they work toward or attempt to achieve. The purpose of this survey is to gather some information about the values and goals of the regional programs at Warm Springs State Hospital.

personnel to assist in the administration of the survey.

RESULTS

The statistical analysis of the data was arranged so as to provide information concerning the factorial validity and reliability of the survey, as well as the amount of system member agreement on system value structure. In order to apply the statistical treatments necessary for the determination of survey validity and reliability, a transformation of the ipsative rank order data obtained in the survey to normative form was performed. This was accomplished by means of the inverse tau statistic (Willis and Morasky, 1976). The inverse tau is a relatively new statistic, therefore, a brief description of it will be given. The inverse tau is based on Kendall's (1970) tau formula: tau=s/.5N(N-1). However, unlike the conventional tau, the inverse tau is calculated across items rather than across individuals. The scores obtained form the transformation may be conceptualized as the correlation of an individual, represented by his rankings, with that of a hypothetical case in which the items are ranked in natural order. The scores obtained from the inverse tau were utilized in the analyses carried out to determine survey reliability and factorial validity.

The internal structure, hence the factorial validity of the survey was determined by factor analysis. The responses of three groups were analyzed by this technique, the first administration, test, and retest groups. The results of these analyses clearly show the emergence of one strong factor in each analysis, A weaker factor also appeared in

each analysis, however, only in the retest group was the variance accounted for by the factor large enough to be reasonably attributed to non-error variance. The percentage of the common factor variance accounted for by the first factor was 86.2% (FAG), 84.6% (TG) and 75.5% (RG). The percentage of the common factor variance accounted for by the second factor was 13.8% (FAG), 15.4% (TG) and 24.5% (RG). These findings attest to the factorial validity of the survey to the extent that it predominantly assessed one entity. Presumably, this single factor was system values.

Several statistical treatments were applied to determine the reliability of the survey. The Pearson product moment correlation was employed to determine test-retest reliability. It was calculated between the test and retest groups (N=66) and the members in these groups who held bid positions (N=44). The correlation values were .22 for the test-retest groups and .19 for the bid members of these two groups.

Another means of estimating the reliability of an instrument is the calculation of the coefficient alpha. Coefficient alpha yields a measure of the internal consistency of the instrument based upon the average correlation among items within the survey. Coefficient alpha values were calculated for the TG and RG. The coefficients obtained for the TG and RG were .79 and .75, respectively. The results indicate a relatively high degree of internal consistency for the survey. These results show that the survey instrument reliably measured a single entity on each

occasion.

The factor analyses performed on the data also provide an estimate of the reliability of the survey. The estimate of reliability obtained from the factor analyses is essentially the same type as that provided by the coefficient alpha i.e., internal consistency. However, the estimate is more sophisticated in the case of the factor analysis since it is based on a more thorough analysis of the item inter-relationships. Table 5 is a listing of the factor loadings for factors one and two of the TG and RG. Note that there are seven items with factor loadings above .4 for the first factor that are shared by the groups. The results of the factor analyses performed on the TG and RG show that a single strong factor emerged from each analysis and that the factor which accounts for the majority of the variance in the TG and RG has essentially the same factor structure. These results provide additional evidence of the reliability of the survey in that it has measured the same entity in each group.

System member agreement was determined by the Kendall coefficient of concordance. The concordance coefficient was calculated for the FAG and SAG in order to provide a measure of region-wide agreement. The results of the region-wide concordance measurements are depicted in Table 6. As can be seen, only one of the eight units (region 5) failed to achieve statistical significance (.05 level) in the FAG. In the SAG only one of the eight units (med-surg) failed to achieve statistical

Table 5

Varimax Factor Loadings of the TG and RG

	Test Group		Retest Group	
	Factor 1	Factor 2	Factor 1	Factor 2
item 1	.2180	.1572	.0923	.3874
item 2	.4185	.1906	.4576	.1447
item 3	.2243	.0425	.0546	.5032
item 4	.4152	.3900	.2739	.4507
item 5	.5625	.2978	.3774	.3321
item 6	.5806	.2978	.6071	.5009
item 7	.6003	.3737	.5240	.4692
item 8	.6452	.3039	.5820	.4297
item 9	.7996	-.1717	.4292	.3972
item 10	.7263	.2209	.6686	.1001
item 11	.4977	.4106	.3318	.5681
item 12	.5739	.0144	.4521	.1952
item 13	.1222	.6039	.1765	.5327
item 14	.3522	.3900	.7264	-.5635
item 15	-.0292	.4315	.0494	.0408

significance (.05 level). This was primarily due to the small number of subjects (N=2) responding frome that unit. The results of the concordance calculations indicate that the units are distinguishable from each other on the basis of their level of agreement on the survey.

Table 6

Region-Wide Concordance Measures

Medical-Surgical

FAG	SAG
W=.16	W=.53
X2=29.8	X2=14.9
df=14	df=14
N=13	N=2
sig=.01	n.s.

Geriatrics

FAG	SAG
W=.18	W=.21
X2=129	X2=57.1
df=14	df=14
N=50	N=19
sig=.001	sig=.001

Forensic

FAG	SAG
W=.19	W=.16
X2=122	X2=39.7
df=14	df=14
N=47	N=18
sig=.001	sig=.001

Region 1

FAG	SAG
W=.31	W=.53
X2=82.4	X2=44.3
df=14	df=14
N=19	N=6
sig=.001	sig=.001

Region 2

FAG	SAG
W=.07	W=.36
X2=24.8	X2=59.9
df=14	df=14
N=27	N=12
sig=.05	sig=.001

Region 3

FAG	SAG
W=.35	W=.26
X2=163	X2=53.7
df=14	df=14
N=33	N=15
sig=.001	sig=.001

Region 4

FAG	SAG
W=.31	W=.27
X2=158	X2=33.9
df=14	df=14
N=37	N=9
sig=.001	sig=.01

Region 5

FAG	SAG
W=.03	W=.22
X2=13.3	X2=48.8
df=14	df=14
N=28	N=16
n.s.	sig=.001

DISCUSSION

As was stated earlier, the objective of this research was to develop and evaluate a research tool capable of measuring system value structure in a limited setting (WSSH). System values were defined as preferred end-states toward which a system can move. The work of Rokeach (1973) was used as a model in developing an operational definition of system values compatible with systems terminology. This operational definition was utilized in the development of a survey instrument. The survey attempted to indirectly measure system value structure by measuring the expressed beliefs of system members concerning the relative importance to the system of 15 end-states (values). Therefore any evaluation of the instrument developed in this study must begin with the basic question "Did the survey succeed in measuring beliefs regarding the relative importance of system values?".

System values are an abstract concept and as such are not directly measurable anymore than such concepts as anxiety or intelligence are directly measurable. They, like any other abstract construct, must be developed from and built upon empirical findings. The 15 end-states contained in the survey conform to the operational definition of system values utilized in this study. The results indicate the survey predominantly measured a single factor which exhibited consistent factor structure. This factor may be parsimoniously interpreted as representing the abstract construct system values, which though not directly

measurable, manifests its existence by inducing a correlation (factor) among 15 different end-states (values) on two seperate occasions. These results seem to provide evidence of the factorial validity of the survey on these two occasions.

A subsequent step in the evaluation of the survey, once the factorial validity was examined, involved further evaluation of the instrument's reliability. These results indicate that although the survey has high reliability of the internal consistency type, it apparently has relatively low test-retest reliability. This situation is indicative of what Guilford (1973) terms "function fluctuations of individuals." In such a case the instrument continues to measure the same function from the first to the second administration, however, the individuals change in status with regard to this function during the test-retest interval. In terms of the present study, the data seem to indicate that the system value structure was reliably measured in the first and second administrations of the survey; however, during the interim between administrations the individuals' beliefs about the hierarchy of the system's values apparently changed. This finding raises some serious questions concerning the nature of system value structure and the measurement of it by the survey .

As previously mentioned, Rokeach's work (1973) was utilized as a model in the formulation of an operational definition of system values. Rokeach characterized values as enduring beliefs about the modes of

conduct and end-states of existence. Value structures are organizations of these enduring beliefs and are also stable. In fact, the relative intransience of values over time is a major feature of values and value structures. Obviously, the change reflected in the results of this study is incompatible with Rokeach's conceptualization of values and value structures. If system value structure were akin to Rokeach's conceptualization of individual value structure, a relatively stable response pattern would have been recorded and test-retest reliability would have been high. Apparently, stability is a not a major feature of system value structure as measured in this study.

A number of interpretations of the fluctuations of system members' beliefs about the value structure exist. Three of the possible interpretations will be examined. The first interpretation attributes the fluctuation in beliefs to error variance. This interpretation suggests that the individuals in both administrations completed the survey in a random fashion without referring to the priorities of the system or themselves, thus producing the low test-retest correlations. The evidence provided by the relatively high internal consistency measures and the general occurance of statistically significant amounts of inter-judge agreement argues against the likelihood of random response patterns causing the observed subject fluctuations.

An alternative interpretation to the explanation mentioned above is to attribute the fluctuations in expressed beliefs to cognitive

changes occurring as a results of the initial exposure to the survey. This interpretation is far more viable than the random response interpretation. This explanation suggests that the survey stimulated the system members' thinking on the topic of their own system's values structure. Consequently, when the survey was administered a second time, the system members had changed their beliefs about the nature of their system's value structure. The data support this interpretation to a certain extent. The observed fluctuation of response coincides with this explanation and the explanation does not conflict with results obtained on the internal consistency measures. However, the results obtained on the inter-judge agreement measure, place a constraint on the interpretation. These results indicate the occurance of significant amounts of inter-judge agreement in both administrations. Therefore, if cognitive changes did occur as a result of the initial exposure to the survey, the nature of these changes had to be nearly uniform within the regions, or at least in the regions with relatively large numbers of subjects. An occurance of this sort is certainly not impossible. Nevertheless, it is difficult to conceive of a relatively uniform change in beliefs occurring in a vacuum, that is to say, in the absence of some actual changes in system value structure. The accuracy of this interpretation then becomes a matter of degree and the question arises "How much of the observed fluctuation in beliefs is due to cognitive changes and how much is due to actual changes?". Even with behavioral indices of system change, the

answer to this question would be difficult to determine.

A third interpretation of the fluctuation of beliefs about system value structure deals, not suprisingly, with actual changes in the value structure of the systems. This interpretation suggests that the fluctuation of expressed beliefs are attributable to the accurate observation of changes in the system value structures by system members. The data from the factor analyses, internal consistency , reliability and concordance measures support this interpretation without any major constraints. However, an obvious challenge to this interpretation arises from the findings of Rokeach (1973). As already stated, an important aspect of Rokeach's conceptualization of values and value structure is their relative intransience over time. Nevertheless, it should be noted that Rokeach's conceptualizations proceed from a data base primarily gathered from individual values studies. The present study is concerned with system values and the measurement of system value structure. The difference between the two types of studies may be highlighted by a comparison of the attempts of the two approaches to assess the value structure of an institution. Rokeach (1976) attempted to measure the value structure of science by administering an 18 item survey of terminal end-states such as "wisdom", "freedom", "happiness", etc., to members of the scientific community and requesting them to rank the items in order of their importance to the sciences as a social institution. However, the end-states listed in the survey are predominantly personal end-states and as

such are not directly relevant to possible end-states of the institution. Conversely, the attempt made in this study to assess the system value structure of an institution (WSSH) utilizes a survey composed of end-states relevant to the system. End-states such as "All patients will have received some sort of therapy" and "Readmission rates will be maintained at a low level" were included in the survey. System members were requested to rank the items in the order of importance to their system. Thus, the present study is limited to making statements about the expressed beliefs of system members concerning essentially non-personal, system-oriented end-states (values). It does not necessarily follow that characteristics of personal values, and therfore personal value structures, are equivalent to the characteristics of system values and system value structure. However, the entities examined in each type of study may be legitimately described as values, since both types of values fit Rokeach's (1973) definition of a value, that is, "a belief about the desirability of an end-state of existence". Perhaps, there is a difference in the characteristics of the two types of values and consequently, in the two types of value structures. Nevertheless, each entity may be legitimately described as a value.

The interpretation described above which attributes the fluctuation of beliefs about the system value structure to actual changes in the value structure, apparently has no obvious drawbacks, other than the fact that it contradicts Rokeach's findings on personal values and value

structures. However, it requires a behavioral measurement of system performance for verification. It is notable that neither the interpretation attributing fluctuations in beliefs to actual changes in value structure nor the interpretation which assumes that cognitive changes are responsible, are mutual exclusive. It is conceivable that the fluctuations are due to a combination of the two effects. However, since no behavioral measures of system performance were taken it is impossible to determine which of the two interpretations is more accurate. Perhaps, even with such behavioral measurements, the determination of the extent to which one or the other effects was responsible for a change in expressed beliefs concerning system value structure would be difficult. Since,even if changes in system performance occur, the possibility exists that the fluctuations in expressed beliefs result from cognitive changes rather than the accurate observation of changes in the system value structure. Nevertheless, a behavioral measurement of system performance would be most helpful in that it would allow system theorists to draw some inferences about the relationship of perceived system value structure to system performance.

It was stated earlier that the objective of this research was to develop and evaluate an instrument capable of measuring system value structure in a limited setting (WSSH). This objective has been met, inasmuch as a survey was developed which demonstrated factorial validity and reliability of the internal consistency type on two occasions. In

addition, its application to a group of administrative systems has provided information about the nature of perceived system value structure. It remains for those interested in determining the relationship of system value structure to system perfomance, to utilize the methodology described in this study to develop survey tools applicable to their areas of GST and apply them in conjunction with behavioral measures. In this manner, the relationship of system value structure to system performance may be more clearly understood.

FOOTNOTES

1. The decider subsystem is a concept introduced by Miller (1965). He describes it as the essential critical subsystem, which causes all of the other subsystems and components to coact. Without it there can be no system.

2. An adequate goal statement, according to Morasky (1975), includes a quantification of the end-state to be achieved, the time period within which it will be achieved and the receiving system in which the goal is to be achieved. A goal statement is also explicit.

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