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Job Design Variables as Change Measures in a Correctional Facility[1]

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The importance of working conditions is stressed as a neglected area of concern in human service organizations. The present investigation attempts to demonstrate the utility of the concept of job design dimensions as evaluative measures of change in a correctional facility for delinquent youth. Staff were administered a modified version of the Hackman/Lawler Job Design Inventory at two time periods separated by an interval of 14 months. Staff who were participants in an innovative institutional change program at both times were compared with staff who were not participants at Time I but were at Time II. The results provide support for the notion that examination of the perceptions of working conditions by employees may be an important method for assessing institutional change.

The field of community psychology tends to be long on description of action projects, but short on empirical evaluation (for comprehensive reviews see Zax & Specter, 1974; Cowen, 1973). Recently, Emory Cowen (1973) stressed the need for evaluative research in conjunction with two of the major action goals of a

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community psychology, i.e., (1) social and community intervention to facilitate positive institutional change and (2) education and training of nonprofessionals to provide therapeutic services for the many. Although these goals are central, there are relatively few empirical investigations of institutional change and, of these, most are of small, time-limited, well-financed demonstration programs rather than of total change projects in natural environments (Reppucci, 1973).

The necessity for developing measures of institutional and caretaker change seems obvious. Yet, little has been done along these lines by either community or clinical psychologists. One area which seems to offer much potential in this regard is that of job satisfaction. Industrial psychologists have long recognized the importance of this variable, but psychologists working with human service organizations have seldom acknowledged it. Although there have been thousands of studies and numerous books written on the importance of job satisfaction in industrial and business organizations, there were fewer than 25 published studies in all areas of human service (excluding education) as of 1971 (Sarata, 1972). Of these, most were in mental hospitals. There were no studies of worker satisfaction in the fields of corrections or mental retardation and none of the studies were of change over time following program innovations. Moreover, even though the significance of staff morale on life in human service organizations has been discussed (Goldenberg, 1971; Sarason, Zitnay, & Grossman, 1971; Stanton & Schwartz, 1954; Stotland & Kobler, 1965) and empirically demonstrated in at least one instance (Sarata & Reppucci, 1975), there is little indication that more than lip service is paid to the importance of job satisfaction. Yet, it is precisely in the area of human services that the morale and motivation of the workers is most important. As Stotland and Kobler (1965) have noted in their discussion of the mental hospital:

> A relationship exists . . . between the therapeutic excellence of a hospital and the effectiveness of its ideology and social structure in supporting hopefulness in the staff; for hope is an important therapeutic agent and patients "catch" hope from the staff (p. 11).

Industrial psychologists have discussed the concept of *job enlargement* as a remedy for worker apathy and inefficient production in automated companies with extremely specialized jobs. Increasingly, attention has been focused on the way jobs are designed as an important determinant of the satisfaction, motivation, and performance of employees at work. This trend has increased since "it has been shown that simple, routine nonchallenging jobs often lead to high employee dissatisfaction, to increased absenteeism and turnover, and to substantial difficulties in effectively managing employees who work on simplified jobs" (Hackman & Lawler, 1971, p. 259). As a result, researchers have begun to investigate whether worker satisfaction and productivity would increase if jobs were

designed so as to be generally more meaningful and challenging to employees. Generally the results of these experiments have been considered successful (e.g., Biganne & Stewart, 1963; Davis & Valfer, 1965; Ford, 1969; Kilbridge, 1960), but most of these investigations have been case studies and often lacked appropriate experimental controls.

Recently, in an attempt to rectify this situation, Hackman and Lawler (1971) introduced the idea of operationally defining individual components of job enlargement. These investigators defined specific aspects of work that can be manipulated to achieve enlargement and developed a job design inventory to measure them. The variables measured by this inventory (autonomy, variety, feedback, task identity, contact, and informal contact) specified the conditions under which jobs would facilitate the development of internal motivation. They then demonstrated a positive relationship between these variables and motivation, satisfaction, and performance of telephone company workers who showed a desire for the satisfaction of higher order needs, e.g., for personal growth and development or for feelings of worthwhile accomplishment.

In 1972, Sarata adapted Hackman and Lawler's inventory for use with staff in human service institutions and added three new dimensions: participation, information, and learning. He then used this modified version to study satisfaction and performance among workers in three different types of centers for the retarded. He concluded that expanded responsibilities and activities encouraged hope and performance among institution staff and that the job design inventory accurately differentiated the various institutions.

The present investigation is an attempt to demonstrate the utility of these job design variables as evaluative measures of change in another type of human service organization, i.e., a state training school for adjudicated male delinquents. As part of a project focused on changing this school from an internally oriented custodial facility to a community-oriented rehabilitative one based on a social learning theoretical framework and an innovative organizational and administrative structure (for details see Dean & Reppucci, 1974; Reppucci, 1973; Reppucci & Saunders, 1974; Reppucci & Saunders, 1976; and Sarason, 1974), the job requirements of all staff working directly with boys were modified. Each staff member was expected to take more responsibility, to receive more direct feedback on the quality of his/her work, to participate in developing the rehabilitation program (both generally for the institution and specifically for individual boys), and to share information with their fellows. The change program also required all staff to learn systematic methods of behavior change and to participate actively in all aspects of the milieu treatment. These indigenous staff were twice administered Sarata's modified version of the Hackman/Lawler Job Design Inventory. At Time I, two experimental social learning (SL) cottages had been ongoing for 8 months, while four other cottages were operating as

benevolent custody (BC) units.[3] Fourteen months later at Time II, after BC staff had been trained and the BC cottages converted to SL ones, the inventory was readministered.

Four hypotheses were investigated:

1. At Time I, staff members in the two SL cottages would score significantly more positively on the dimensions of the job design inventory than staff members of the four BC cottages.
2. There would be no difference between ratings of staff members of the SL cottages over time, although there might be some regression to the mean.
3. Once converted to the community-oriented social learning system, the staff members of the BC cottages would significantly increase their ratings on the job design inventory.
4. At Time II, there would be no difference between the two groups.

METHOD

Subjects

The Ss were staff members of a state training school for delinquent boys, who worked directly with the boys in one of six residential living units or cottages. Each of the cottages housed 15 to 25 boys who were assigned to the cottage at admission to the institution on a rotating basis, with cottage population taken into account. While this was not a truly random procedure, no systematic bias in type of boy assigned to each cottage could be detected. Staff were comparable in the SL and BC groups. Although they were not assigned to these cottages randomly, no particular type of staff member was chosen from the institutional pool or specially hired for the SL units.

Thirty-nine staff — 15 who were in SL cottages at both times and 24 who were in BC cottages at Time I and in SL cottages at Time II — completed the job design inventory at both times and were included in the present analysis.

[3] The SL and BC cottages were similar in staff composition and in type and number of residents, but differed in that no systematic theory guided the BC staff's attempts to rehabilitate their charges. Both groups used rewards — such as snacks and weekends home — and punishments — such as isolation and withdrawal of rewards — for influencing boys' behavior. However, the SL group applied these contingently according to a token accounting system (see Wilkinson, Saunders, & Reppucci, 1974), while the BC group applied them as staff deemed appropriate in individual judgments.

Instrument

Sarata's modified version of the Hackman/Lawler Job Design Inventory was used. The nine dimensions tapped are defined as follows.

> *Variety.* The degree to which a job requires employees to perform a wide range of operations and/or to use a variety of procedures.
>
> *Autonomy.* The opportunity for employees to have a "say" in scheduling their own work and in selecting the procedures they will use.
>
> *Task-identity.* The extent to which employees are involved in most aspects of the programs provided for clients and/or are involved in projects from inception through completion. and therefore have the opportunity to see the results of their efforts.
>
> *Feedback.* The degree to which employees receive information concerning the adequacy of their performance.
>
> *Contact.* The extent to which the job requires employees to interact with other people.
>
> *Informal contact.* The opportunities for the employees to meet and/or interact informally with other people, i.e., to have non-work-related interactions while on the job.
>
> *Participation.* The extent to which employees take part in the planning of programs and in making decisions.
>
> *Information.* The extent to which the agency's policies, procedures and decisions are explained and communicated to employees.
>
> *Learning.* The opportunity for employees to acquire added expertise and/or to become more informed about [youth corrections][4] (Sarata, 1972, pp. 12–13).

Each dimension was derived from a combination of two to four positively phrased descriptive sentences. Table I provides the items included within each. Staff were instructed to answer "yes," "no," or "?," according to the accuracy of the phrase when applied to their own jobs. Positive answers were coded as 2, negative as 0, and "?" as 1, and totaled to obtain the variable's score. Since each variable is composed of a different number of items, absolute scores are not comparable.

Procedure

A research assistant unknown to any of the staff administered the job design inventory as part of a larger questionnaire on job satisfaction to all employees of the training school, so there was no reason for anyone to suspect that a comparison between SL and BC cottages was the focus of investigation. All staff were provided time to complete the questionnaires during working hours. Names were requested but confidentiality of individual response was assured.

The first administration occurred 8 months after two cottages had been converted to the social learning system; the second administration occurred 14 months later when all cottages had been converted to the new program for at least 3 months.

[4] The term *youth corrections* was substituted for *mental retardation* because of the type of institution being investigated.

Table I. Job Design Variables and Items Included Within Each[a]

Variable	Items
Variety	1. Allows me to do a number of different things (be involved in different kinds of work or projects). 2. Involves a variety of responsibilities or procedures. 3. Is always changing.
Autonomy	1. Provides the freedom to do pretty much what I want on the job. 2. Includes planning and scheduling my own work. 3. Permits independent thinking and acting. 4. My supervisor gives me a say concerning what I am assigned to do.
Task identity	1. Involves doing a job from beginning to end (e.g., to work on a project from its planning until its completion; or to work with a case or client from referral through termination). 2. Lets me finish what I start.
Feedback	1. Yields results I can see. 2. My supervisor tells me whether I am doing a good job or not.
Participation	1. Involves helping to plan future programs for the school. 2. Involves taking part in decisions about residents. 3. The supervisor asks for my ideas and opinions before making decisions. 4. My supervisor gives me a say in making plans and decisions.
Information	1. My supervisor tells me in advance of decisions which affect my work. 2. My supervisor keeps the staff informed about all the different parts or programs at the school. 3. My supervisor explains the reasons for the decisions and changes which are made.
Learning	1. Allows me to learn new techniques and approaches. 2. Provides me the opportunity to learn and grow. 3. Provides me the opportunity to learn more about youth corrections and about what other agencies are doing.
Contact	1. Involves working with people. 2. Includes working with other staff members on teams or in group projects.
Informal contact	1. Provides a chance to get to know many people. 2. Gives me a change to meet and talk with most staff members. 3. Workers talk together informally.

[a] Adapted from Sarata, 1972.

Table II. Means and Standard Deviations for Social Learning (SL) and Benevolent Custody (BC) Staff on 9 Job Design Variables Over Time

	SL						BC					
	Time I			Time II			Time I			Time II		
Variable	$\bar{X}$	*SD*	*N*	$\bar{X}$	*SD*	*N*	$\bar{X}$	*SD*	*N*	$\bar{X}$	*SD*	*N*
Autonomy	6.00	2.04	12	6.33	1.63	15	4.50	2.22	24	6.22	2.05	23
Task identity	3.43	.82	14	3.64	.61	14	2.28	1.16	21	3.21	.99	24
Feedback	3.60	.88	15	3.60	.80	15	2.54	1.45	24	3.62	.70	24
Participation	7.00	1.96	13	6.64	1.54	14	4.50	2.41	24	6.95	1.51	21
Information	5.20	1.17	12	4.80	2.07	15	3.04	1.13	23	4.68	1.68	22
Learning	5.13	1.59	15	5.53	.89	15	4.30	1.44	23	5.48	.92	23
Informal contact	2.87	1.31	15	3.67	.69	15	3.04	1.13	23	3.79	.59	24
Variety	5.31	.91	13	5.20	1.64	15	5.52	1.02	23	5.59	.66	22
Contact	4.00	.00	15	4.00	.00	15	3.75	.66	24	4.00	.00	24

RESULTS

All data were first analyzed by means of a repeated measures ANOVA using the Data Text Repeated Measures with the estimate option for estimating missing data[5] (Armor & Couch, 1972). Group by time interaction effects for four dimensions, autonomy ($F_{[1,33]} = 7.92$), feedback ($F_{[1,37]} = 7.45$), participation ($F_{[1,31]} = 11.10$), and information ($F_{[1,34]} = 7.16$), were highly significant ($p \leqslant .01$); while a fifth variable, task identity ($F_{[1,32]} = 3.09$, $p = .09$), demonstrated a tendency toward significance. A significant main effect for time ($p \leqslant .01$) was demonstrated for six of the variables — autonomy ($F_{[1,33]} = 13.61$), task identity ($F_{[1,32]} = 9.22$), feedback ($F_{[1,37]} = 7.45$), participation ($F_{[1,31]} = 8.68$), informal contact ($F_{[1,36]} = 16.51$, and learning ($F_{[1,35]} = 7.03$). Only information displayed a significant main effect for group ($F_{[1,37]} = 4.11, p = .05$).

Following this analysis, the five variables which demonstrated a significant interaction effect were examined by means of an independent *t* test for the between-groups comparisons and a dependent *t* test for the across-time comparisons. Since all *t* tests involved directional hypotheses, one-tailed tests of significance were used. At Time I, the SL group scored significantly higher on all five variables than the BC groups (autonomy, $t = 1.90, df = 34, p < .05$; task identity, $t = 3.09, df = 33, p < .005$; feedback, $t = 2.52, df = 37, p < .01$; participation, $t = 3.12, df = 35, p < .005$; information, $t = 3.13, df = 36, p < .005$). These differences disappeared at Time II. Further, there were no differences over time for the SL group. However, there were significant increases on all five variables

[5] No individual was given a score for any variable on which all items were not answered. Therefore, there were some instances of missing data. Exact *N*s for each variable are presented in Table II.

for the BC group (autonomy, $t = 4.82$, $df = 22$, $p < .0005$; task identity, $t = 3.45$, $df = 20$, $p < .005$; feedback, $t = 3.66$, $df = 23$, $p < .005$; participation, $t = 4.49$, $df = 20$, $p < .0005$; information, $t = 3.47$, $df = 20$, $p < .005$). Table II provides means and standard deviations for these variables as well as for the other four variables — contact, variety, informal contact, and learning — which were not analyzed by means of t tests because of the nonsignificant ANOVA interaction effect.

DISCUSSION

The results of this investigation are striking. All four hypotheses were confirmed to a remarkable degree for five job design variables — autonomy, task identity, information, participation, and feedback. The staff working in the innovative rehabilitation program (SL) were clearly differentiated from staff working in the more traditional program (BC) within the same institution. Moreover, the inventory was sensitive to change over time so that BC staff who scored low at Time I demonstrated significant increases at Time II when they were working in a similar environment to SL staff. It is equally important to note that the staff who remained within the SL program over the 14-month period did not regress. This fact tends to mitigate an explanation based on a *Hawthorne effect,* since the time period between measurements was considerable and the amount of attention given to each cottage staff by consultants decreased significantly as the programs became more established. Finally, there were no differences between the two staff groups at Time II when all staff were participants in the SL program. These results clearly lend support to the notion that the comprehensive program innovation was responsible for institutional change as measured by staff perception of their own jobs.

The four dimensions which did not show a significant interaction effect – variety, contact, informal contact, and learning – deserve further attention. Learning and informal contact demonstrated a significant main effect for time, i.e., both groups increased over time on both of these dimensions. This is an extremely positive result, even though it negated differentiation of the groups. In settings with a positive social climate, it is reasonable to expect that participants will want to spend time with each other on non-task-related endeavors. This is often a process that takes time, however, as a climate must be developed that encourages such interaction. That it happened in both groups may be interpreted as indicative that positive changes were continuing to occur in the innovative, as well as the changing, environments even after they had been established for relatively long periods of time. Similarly, for learning to continue to increase in a changed environment (SL group) is as positive a factor as in an environment (BC group) that has undergone substantial change over the period of time being examined. Moreover, it should be noted that at Time II both

groups had identical scores on this variable and that, although not statistically significant, the amount of change was greater for the BC group than for the SL group (see Table II).

There were no differences on variety and contact; scores at both times for both groups were extremely high. This result becomes understandable upon examination of the items that make up these two scales (see Table I). Employees in human service organizations who work directly with clients in almost every case must have contact with people and must do a number of different things. In the institution under study, this was certainly the case. Only the item labeled *Is always changing* on the variety scale had much chance to change, and this item, in fact, did account for what little difference existed. It should be recalled that both contact and variety were variables developed by Hackman and Lawler (1971) in their work with industrial organizations where contact with people is often not an intrinsic part of many jobs.

One criticism with the present study is that the Ss were aware of which group they were in at both times. It could be argued that demand characteristics of the situation were such that staff in the SL cottages felt pressured to respond positively while staff in the BC cottages did not. This does not seem to be a likely explanation of the results, however, given the following facts.

(1) The job design inventory was embedded within the context of a much larger questionnaire, and it was given to all staff in the institution, not only the staff working in the cottages. Thus, differences between SL and BC groups were not an obvious focus of investigation.

(2) A study of social climate on SL and BC cottage staff completed at a different time period demonstrated distinct differences between the two groups (for details, see Wilkinson & Reppucci, 1973).

(3) An independent interview study of 25 staff members completed 20 months after the second administration of the job design inventory lends support to the changes demonstrated in the present study.

(4) Clinical observations by the present authors over a four-year period tend to confirm these results.

In conclusion, the purpose of the present paper was to demonstrate the utility of employing job design variables as evaluative measures of change in a human service institution. The results, taken in conjunction with those of Sarata (1972) from the staff of three institutions for the retarded, suggest that examination of the working conditions under which employees in human service organizations toil may offer an important method for assessing institutional change. If one accepts the proposition that staff perception and attitude are important determinants of the type of service that can be rendered in human service organizations, then programs that change these perceptions in a positive direction, thereby increasing worker satisfaction, should have beneficial effects for clients. The fact that no data have been presented to support this assumption does not

negate the value of the present results. This is not to suggest that client change is unimportant and should not be evaluated,[6] but rather that positive staff change is a significant event, in and of itself. It is a known fact that many, if not most, human service institutions have become inhumane shelters for society's deviants. This situation demands change. These institutions must provide positive working conditions for staff if they are to be rehabilitative, at best, or humane, at the very least. Zimbardo's recent experiment (Zimbardo, Haney, Banks, & Jaffe, 1971) on a simulated prison provides evidence that "normal" individuals placed in the role of prison guard can be affected negatively by environmental conditions. We must not make the mistake of blaming the staff of an institution for the conditions that exist therein. Positive environments can be created (e.g., Goldenberg, 1971; Sarason, 1972; Sarason, et al., 1971) and, one hopes, maintained. Developing techniques for bringing these about should be a priority for all those engaged in the provision of human services.

Future research on job design and other job satisfaction variables in human service institutions is obviously a necessity. We view this project as an initial step in that direction.

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[6] The fact is that evaluation of client change in the institution under study has been a major concomitant focus of investigation. Preliminary results support the hypothesis of beneficial effects. Residents, as well as staff, in SL and BC cottages demonstrated significant differences on ratings of social climate (see Wilkinson & Reppucci, 1973) and preliminary analysis of two year follow-up data for residents tends to confirm the validity of this notion.

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