THE RELATIONSHIP BETWEEN GROUP SIZE AND OUTCOMES IN JUVENILE CORRECTIONS: A PARTIAL REVIEW OF THE LITERATURE

by David W. Roush, PhD*
NJDA Center for Professional Development
School of Criminal Justice
Michigan State University
1407 South Harrison Road, 350 Nisbet
East Lansing, Michigan 48823

ABSTRACT

The Ohio Department of Youth Services (ODYS) proposed changes to the American Correctional Association's (ACA) *Standards for Juvenile Training Schools* to eliminate the limits on living unit and institutional sizes, relying instead on "rated" capacity. The ODYS argument has several points; one is that the standard's requirement for smaller populations is not based on research but more on anecdotal assumption. A brief, non-comprehensive review of the literature finds sufficient evidence to support the ACA standard and to reject the ODYS "lack-of-research" argument. Several of the studies are discussed in detail. A more comprehensive and thorough search is recommended, along with recommendations for the support of additional research on the effects of institutional size on juvenile correctional outcomes.

INTRODUCTION

In the fall of 2000, the Ohio Department of Youth Services (ODYS) proposed changes to the American Correctional Association's *Standards for Juvenile Training Schools* (ACA, 1991), specifically standard 3-JTS-2B-03, which read, "The training school operates with living units of no more than 25 juveniles each. The training school does not exceed a capacity of 150 juveniles." The ODYS revision called for the elimination of the limits on living unit and institutional sizes, relying instead on "rated" capacity. Consistent with standards revision procedures, ACA mailed the proposed changes to over 200 professionals and interested parties in the juvenile *and* adult corrections fields, asking for their review and comments. ACA maintained that "some of the most experienced juvenile justice professionals in the country received this mailing" (Kehoe, 2001), yet many in positions of responsibility in the juvenile detention and corrections profession received no notification of the proposed changes until the standard had been changed.

The text of the ODYS Proposal for Standard Revision (ACA file # 01-20) mentioned three important concepts: (a) larger facilities represent the switch to a more "correctional" approach to juvenile training schools, (b) the ACA standard's requirement for smaller populations "is not based on research but more on anecdotal assumption," and (c) large institutions save money. While all three are topics in need of additional analysis and discussion, the focus of this paper is the ODYS assertion that standard 3-JTS-2B-03 "is not based on research but more on anecdotal assumption." An ACA official, directly involved in the process, commented that this was the key factor in the Standards Committee's decision-making. He described the evolution of the ODYS assertion within the Standards Committee to be "there is no credible research" to

*The author appreciates the helpful comments and suggestions of Barbara Dooley, Michael Jones, Larry Miesner, and Anne Nelsen on earlier versions of this manuscript.

support a relationship between living unit and institutional sizes and outcomes in juvenile corrections.

Given (a) this background, (b) the implications for the similar size limitations in the juvenile detention and small juvenile detention facility standards, and (c) the absence of any research evidence offered by ODYS in the text of the Proposal for Standard Revision that would either support its claim or refute the conventional wisdom of many juvenile-serving professions that there is a link between group size and outcomes, the question for moment asks, "Is there research evidence for a relationship between group size and outcomes in juvenile corrections and elsewhere?" The following text represents the findings of brief, non-comprehensive, even superficial reviews of the published and "fugitive" literature.

Support for an Environmental Effect on Behavior

The theoretical underpinning is the field theory of Kurt Lewin (1951). His statement that human behavior is a function of the state of the person and the state of the environment is accepted as conventional wisdom. Thus, the juvenile institution represents the totality of coexisting factors with particular importance paid to the interaction between the individual and the situation (Yinger, 1965). Therefore, any definition of a social ecology must address the individual and the social-physical environment plus the relationship between them. Lewin's boundaries between the individual and the psychological environment or between life space and the physical world have been described as permeable (Mischel, 1971). The capability for mutual influence makes prediction of individual behavior extremely difficult. Therefore, Lewin advocated research, which would describe and explain the life space. Coutu (1949) suggested that the constant reciprocity between the individual and the physical environment should best be understood as a tendency-in-situation.

Murray (1938) noted that a stimulus situation represents that part of the environment to which the individual reacts. Murray classified these stimulus situations according to the effect that they have on the individual's ability to satisfy needs and/or expectations. Thus, stimulus situations may either facilitate or obstruct, and this is what Murray called the environmental press. Due to multiple needs on the part of the individual and variations of environmental press, behavior shows both a degree of predictability and substantial complexity. Moos (1975) and Toch (1977) both used the environmental press as a means of explaining behavior in correctional settings.

Raush (Raush, Dittman & Taylor, 1959; Raush, Farbman & Llewellyn, 1960) conducted several tests of the field theory. Working with preadolescent males in a residential treatment setting, Raush observed that different types of behavior settings elicit various types of behavior. He concluded:

> In general, there is individual consistency in social behavior across different settings and there is setting consistency across different individuals. But the interactive effects between the child and setting contributed far more information about behavior than did the sum of independent components. (p. 375)

Conrad's (1972) research extended these principles by developing a classification of disruptive behavior, which is situationally specific. Conrad addressed hyperactivity in school age children, many of whom were described as situationally hyperactive. That is, hyperactive behavior was reported in one or more, but not all environments in which the child operated. Situational hyperactivity was seen as a response to a specific environment that was not determined by the situation but rather a response that was elicited within the situation. In other words, since the behavior may be a meaningful response to the child-environment interaction, its etiology can be found in the situation to which the child responds.

Lewis (1984) introduced the concept of ecological management as a necessary condition for the residential treatment of children. Lewis maintained that particular

problems, such as behavior disorders and emotional disturbances, can be traced to a history of negative transactions between youth and members of their ecology. These negative transactions lead to an incongruence between the demands of the social ecology and the youth's ability or willingness to respond to these demands. When individual tolerance for such ecological incongruence is exceeded, emotional disturbance or behavioral disorders result.

Barker (1968) conducted important research in ecological psychology, specifically his concepts and methods for studying the behavior setting. As part of his comprehensive research, Barker established the following relationships: (a) as institutional size increased, the tendency to under staff also increased; (b) students in smaller institutions were more tolerant of their peers; and (c) students in smaller institutions had more responsibility. His related research indicated that students in smaller schools were absent less often, quit jobs and positions less often, were more punctual, participated voluntarily more frequently, functioned in positions of responsibility and importance more frequently, were more productive, demonstrate more leadership behavior, demonstrated greater social interaction, engaged in more greetings and social transactions per person, exhibited easier communications, had greater group cohesiveness, received more satisfaction, and found their work more meaningful.

In a related study regarding the developmentally disabled, Mathison's (1998) dissertation research evaluated the effects of group size on member outcomes. The results extended previous research in developmental disabilities, child care, education, and organizational behavior that smaller groups provided better member outcomes. Specifically, the effect of size of residence on quality of life was assessed for persons with developmental disabilities. Multiple methods and sources measured consumer profiles, supports, diagnoses, placement histories, and quality of life in the domains of decision making, community inclusion, progress in life, permanence, and consumer satisfaction.

The results showed that quality of life was higher for residents of individualized supported living arrangements (serving 1-3 persons) than for residents in group homes (serving 4-9) or centers (10 or more). The results were also the same after controlling for age, gender, placement history, and actual supports. However, three consumer profile variables—adaptive living skills, maladaptive behaviors, and diagnosis—interacted with or negated the effects of model size. Therefore, these variables could not be ruled out as rival causes of differences in quality of life. In summary, the overall relationship between quality of life and size of residence was complex. Because factors other than size of residence affected a person's quality of life, the residential decision must be made on an individual basis.

Architectural Perspectives

Architecture includes the careful study of the relationship between space and person. Two recent publications expressed this perspective for architecture in juvenile facilities. First, McMillen, a leading architect in juvenile facility design, outlined the importance of small living units in a U.S. Department of Justice publication on the design and construction of new juvenile facilities (Roush & McMillen, 2000). Second, the architecture firm of RNL Design described the importance of small living units for institutions serving special needs juvenile offenders (Walicki et al., 2002). Ironically, this thoughtful article was published by ACA in the midst of the debate about living unit and institutional sizes. Other articles offer additional perspectives on the relationship between space and behavior.

Spivack's (1984) environmental design approach analyzed a wide range of institutional effects related to such physical environmental units as architectural design, furnishings, space, lighting, olfaction and noise. Beyond the rigorous evaluation, Spivack used the physical environment as a means of defining certain minimal expectations of the institution. In this regard, Spivack endorses the rationale for

benchmarks of acceptability that underlie professional mandatory standards and the court's perspectives on conditions of confinement. By quantifying the environment, he provides a baseline or referent for judging between adequate and inadequate institutions. He comments on the advantage of smaller institutional spaces. Srivastava (1980) completed a similar task with similar findings for juvenile residential treatment facilities.

Sommer (1972) makes a distinction between hard and soft institutional designs. The application to correctional institutions is fairly straightforward. Hard designs emphasize security hardware, electronic surveillance devices, bars, security glass, metal doors, and institutional furniture. Soft designs incorporate more natural furnishings and non-institutional hardware. Visibility works against antisocial behavior and compliments a soft design. In addition, ownership of space works against antisocial behaviors. Sommer concluded that the soft design was a stimulus for more socially appropriate interaction. While conducted in adult institutions, Sommer's findings supported Foster et al. (1981) cited below.

Wener and Olson (1980) identified three factors in the assessment of physical environments of correctional facilities. Successful adaptation to a jail environment appears to be associated with decentralized units. In other words, activity areas and space for socialization were within easy access to inmate living units. Second, the percentage of private rooms was inversely related to behavioral disturbances. Finally, the authors noted that the soft environment described by Sommer produced the predicted results in a jail setting. In the examples cited by Wener and Olson, the symbols of incarceration associated with hard designs were substituted with an increase in the variety of colors, comfortable furniture, and carpeting.

The social and psychological effects of residing in overcrowded institutional environments were discussed. Data were presented suggesting that the interior architecture of the corridor-design dormitories required residents to interact with too many others, leading residents to experience stress and to develop potentially stress-inducing behaviors. The study supported the movement to a pod-design for living units, which is the current approach to juvenile facility design. Welch (1991, 2002) and Zupan (1991) discussed the new generation philosophy of jail architecture, which also included small living groups.

Research with Children and Adolescents
Evidence from Related Settings

An entire publication could be devoted to the research literature regarding group size and outcomes in education. A computer search produced over one thousand "hits" for the key words of "group size" and""outcomes." Parenthetically, general discussions with education faculty yielded no support for the ODYS thesis. The following is an unscientific selection of credible research regarding a link between group size and outcomes for certain classes of behavior.

Kostelnik et al. (1999) outlined the essential components of high quality early childhood programs. The importance of their work is that developmentally appropriate, early childhood programs address the types of issues that prevent delinquent behavior and recidivism. The impact of the Perry Pre-School project is well documented, and it established Kostelnik's approach both as credible research and as an effective strategy for intervening with troubled and at-risk youth (Barrueta-Clement, Schweinhart, Barnett, Epstein, & Weikert, 1984).

Kostelnik summarized the research in effective early childhood programs (Doherty-Derkowski, 1995; Shimoni, Baxter, & Kugelmass, 1992; Smith et al, 1995; Whitebook, Sakai, & Howes, 1997) and highlighted small group sizes and few children for each staff member. The group size and the adult-child ratio were small enough that each child can engaged in first-hand interactions with adults, receiving individualized instruction and personal feedback about their learning experiences. At least two adults

were present with each group. As applied to juvenile corrections, Parent et al. (1994) set 1:8 as an appropriate staffing ratio. Increments of eight (8) would lead to group sizes of 8, 16, 24, 32, etc. Using Kostelnik's principle of two staff members, the minimum group size would be 16. Given the economic contingencies, a three staff member group would yield a group size of 24.

Benenson et al. (2001) tested the hypothesis that children would compete more in tetrads (groups of four) than in dyads (pairs). Twenty-two (22) pairs of male and 14 pairs of female target children (n = 72) played a competitive game in both tetrads and dyads. Consistent with the hypothesis, male target children competed more in tetrads than in dyads. This hypothesis is not supported for females, however. Analyses of the dynamics of tetrads and dyads further demonstrated that, based on a global measure of smiling, the emotional atmosphere was less positive in tetrads than in dyads. That is, as the group size increased, the emotional atmosphere became more negative. The causes and consequences of interaction in different sized social groups were discussed.

Nolin, Davies, and Chandler (1995) noted differences in victimization by school size. Students at larger schools were more likely than students at the smaller schools to be exposed to bullying, physical attack, or robbery. A greater percentage of students at schools containing 600 or more students than those attending schools of fewer than 300 students reported knowledge of crime or threats at school and witnessing crime. However, there was no difference in worry about crime or in actual victimization for students at larger schools.

Foster et al. (1981) examined environmental factors on the behavior of children and youth. Their research indicated that for children and youth, the largeness of an institutional environment often led to confusion and anxiety; and a poor arrangement of the facility due to a hard design or due to a stark and drab interior frequently produced discouragement.

Evidence from Juvenile Correctional Settings regarding Living Unit Size

Carbone (1990) and White (2002) represent an ideal combination of expert perspectives on the role of education in the rehabilitation of delinquent youth. Both have academic backgrounds and direct research experience, and both provided and supervised educational services to institutionalized youth. Their assessments were similar in that the value of educational services was dependent on the ability of the institutional staff to provide individualized instruction. As in other institutional situations, group size and staff ratios affected the ability to provide an effective educational intervention. Group size had an inverse relationship on educational outcomes. Both cited research that supported their conclusions (c.f., Herr & Linn, 1990; LeBlanc & Pfannenstiel, 1991).

Regarding direct research on effects of size and staffing, Stanford University Professor Rudolph Moos (1968, 1970, 1975) is the leading authority on environmental influences in juvenile institutions, and he assembled the best review of the subject as it applies to juvenile confinement. He stated unequivocally that researchers studying the effects of institutional programs for juvenile offenders have long been aware of the importance of the size and staffing of correctional units. Studies primarily concerned with comparing program-oriented institutions with more custodial institutions have concluded that small size of the living unit is an indispensable prerequisite to success (Moos, 1975).

Weeks (1958) compared matched groups of male juvenile offenders in a large custodial training school to a small residential treatment program. The small program used group sessions and housed youth in an informal, homelike atmosphere. Weeks noted that the small size of the smaller institution was essential to the effectiveness of the institution's strategy

Rabow and Elias (1969) found that youth at the smaller institutions engage in community relevant behavior patterns, whereas residents in large training schools had

to conform to standards of behavior that were irrelevant to life outside the institution. Does the failure of custodial programs to address community relevant behavior contribute to unsuccessful reentry?

McCord and McCord (1959) compared two correctional programs that housed male juvenile offenders who had relatively similar criminal backgrounds and personal characteristics. Study of closely matched samples of offenders from the two institutions revealed that those who were organized into smaller living units showed greater affection toward and identification with counselors; there was a greater decrease in insecurity and prejudice. Adjustment to society, defined as recidivism on a criminal conviction during a 3-year period after release, was 29% for the smaller living units (12 youth) and 47% for the large living units (35 youth).

Jones (1964) compared a private institution housing about 300 residents in cottages of 16 to 20 boys with a public institution having a total population of about 500 residents, housed in cottages of 16 to 32 boys. The private institution emphasized individual therapy, whereas the larger public institution emphasized behavioral conformity to a daily routine. Again, size and program effects were confounded, but Jones recognized that the smaller cottage size at the private institution was essential to the use of individual therapy. Close personal relationships between residents and staff were necessary for success, and such relationships would have been difficult to achieve in larger cottages.

Vorrath and Brendtro (1974) used Clark's (1972) reference group theory as the theoretical basis for setting the positive peer culture group size at nine (9). A group of nine (9) has 36 two-person relationships, but a group of 20 has 190. This number made it impractical to run a cohesive and consistently positive group; inevitably the large group splintered into subgroups or developed an elaborate status hierarchy. Polsky (1962) identified 15-20 as an appropriate group living size for juvenile offenders in residential treatment and documented how a group as large as 20 initiates the process of subgroup formation in a program with adequate staffing and a treatment orientation (Mullen, 1999). Vorrath and Brendtro predicted significant subgroup formation and increased deviant activities where living unit groups larger than 20 existed in situations with inadequate staffing and no positive program intervention, i.e., custodial or command-and-control institutions.

The California Research. Professor Moos rated Dr. Carl Jesness' (1965, 1972) research as the most carefully designed studies of the effects of size on institutional climate and outcome. The studies, conducted at a correctional ranch operated by the California Youth Authority (CYA), included male juvenile offenders housed in 50-bed cottages and a single 20-bed unit. The 50-bed cottages were staffed by a supervisor and a small number of juvenile careworkers, including one social worker. A junior high school level academic program was supplemented by an extensive outdoor recreational program, including camping trips. The 20-bed unit was constructed at Fricot for especially disturbed offenders. Jesness used this special 20-bed unit and one of the ranch's 50-bed units in his study.

Juveniles were randomly assigned to the 20- and 50-bed units from a pool of subjects eligible for assignment to the 20-bed unit. Every effort was made to keep the program of the two units comparable, although the smaller size of the 20-bed unit was expected to result in a somewhat more intensive program.

Environmental differences between the small and large units were readily apparent to all observers. The decreased number of management problems posed by the smaller unit was felt to be the primary reason for the differences. Staff in the 20-bed unit had an opportunity to develop supportive individual relationships with residents, whereas the 50-bed unit staff were almost entirely concerned with orderly management of the immature and often violent boys. This management consisted largely of military-style regimentation, frequent use of group and individual punishments, and reliance on

peer-group leaders among the residents for help in controlling other residents. In contrast, the 20-bed unit was described as a friendlier and much less regimented place in which to live. Strict group discipline was almost nonexistent, and reason and rewards were used to positively motivate residents wherever possible. Staff showed greater willingness to become involved with the residents' personal problems and to interact informally with them. On the basis of sociometric tests, Jesness concluded that youth in the small unit made friends more easily and were more aware of the residents they disliked than were youth in the large unit.

These differences were accompanied by a more favorable parole outcome for the residents in the small unit. Jesness (1972) found that 42% of the experimental subjects in a matched random group violated parole during the first 15 months of exposure to parole, as compared with 68% of the controls. In an intriguing additional finding, Jesness noted that youth classified with mental health problems in the experimental program showed a parole violation rate of only 30% as compared with 61% for those mental health classified youth assigned to the large living unit.

Knight (1971) discussed, even predicted, the mechanisms by which size and/or decreased staffing created a more rigid organizational structure, increased staff's need to control and manage, decreased the degree of resident independence and responsibility and the amount of support and involvement that staff were able to give residents, and so forth. He pointed out that:

a) Large living units reduced the proportion of intimate or close relationships. Group cohesion tended to decrease as group size increased.
b) Large living units limited the time available per event and per group member. These time limitations increased the need for control and reduce the opportunity for personal interactions.
c) The social distance between residents and staff, which was wider in larger living units, facilitated the development of separate resident and staff subcultures.
d) Shared misunderstandings occurred among residents as a result of reduced intimacy, decreased group cohesion, and distance between residents and staff. People in large groups were especially likely to lack adequate information about, thus to misinterpret, one another's real feelings and intentions.
e) Increasing regimentation led to a restriction of the personal satisfactions and social rewards of residents, i.e., the foundations for positive behavior management strategies.

Knight concluded that these conditions resulted in "high interference with treatment involvement" and that "big group delinquent contagion" was the inevitable resulting problem. Residents were "freed" from positive staff influence precisely when situational pressures toward deviance were the greatest. Under such conditions, a staff member not only had little influence to guide or support but woulld probably be seen as "the man""– an indifferent (some call this indifference–"professionalism") representative of a controlling but relatively unconcerned authority.

The CYA research division summarized evidence derived from reviews of the literature on the effects of living-unit size in youth correctional institutions and psychiatric institutions (California Youth Authority, 1971). In general, the data indicated that small living size was crucial to the implementation of effective and humanitarian treatment in these institutions. The size of the living unit was influential in several ways: (a) large units sharply reduced the proportion of total mutual relationships that could, in any sense, be construed as intimate or close; (b) large units limited the time available per event and per group member, even though they had more need for almost everything, i. e., communications, surveillance, housekeeping, personal relationships, etc; (c) where groups were large, the need to manage and control was intensified not only by the heavier demands of institutional routine but also by the more specific problems delinquents *en masse* were likely to produce; (d) the need for control led to more rigid operating methods; (e) the social distance between inmates and staff was

widened; (f) a kind of "pluralistic ignorance" (or shared misunderstanding) occurred among delinquents partly as a result of reduced intimacy and weakened ties between inmates and staff; and (g) increasing regimentation led to restriction of personal satisfactions and social rewards of the inmates, which interfered with treatment.

The CYA Institutional Violence Reduction Project (California Youth Authority, 1980) was an experimental study conducted in two 50-bed dormitories (Evergreen and Fir) at the Preston School from January 1976 to September 1978 to determine the relative effects on juvenile offenders of changes in living unit size and staffing. The average monthly population of one dormitory was maintained at 47, and an additional staff position was added (which allowed for 6-post[1] coverage). The average population in the other dormitory was reduced to 38, and no staff person was added (which allowed for 5-post coverage). After 15 months, these conditions were reversed: The larger living unit was reduced to 38 beds and 5-post coverage, while the smaller unit was increased to 47 beds and 6-post coverage. With these changes in living unit size, the 1:10 staff-to-resident ratio was held approximately constant.

The effects of these changes on both staff and residents were based on measures of (a) the frequency and types of disciplinary incidents; (b) the frequency of time adds (additional time to be served in the institution, indicating serious disciplinary incidents) and time cuts (reduction in time to be served in the institution, indicating improved performance) earned by residents; (c) implications of time adds/time cuts with respect to program bed space and cost; (d) the incidence of staff sick leave and turnover; (e) residents' perceptions of tension and related factors of social climate, as reflected in questionnaires; and (f) staff accounts of significant living unit events and program developments during the study period. The reduced living unit size produced more positive and less violent behavior among the residents, fewer escapes, fewer time adds, more time cuts, and an improvement in resident-staff relationships. Reduced living unit size was also accompanied by an improvement in social climate, including more clearly defined program expectations, less need for staff controls, and more emphasis on post-release problems. The benefits of such a reduction in living unit size included savings in bed space and program costs. By converting to the smaller unit, 9 beds were lost, but approximately 17 beds were saved because of a reduction in net time added during a one-year period. The net gain of 8 beds represented an estimated savings of $68,923 per year.

Knight's Distinction. Knight (1971) pointed out that the research findings emanating from the California Youth Authority could not necessarily be attributed to living unit size alone. However, he indicated that other factors, e.g., the relationship with staff, may well have been facilitated by small size. In other words, smaller living units seemed to increase the influence of positive environmental factors for youth. Such programs provided the opportunity to ventilate troublesome feelings verbally, to observe similar problems in others, to alter stereotyped perceptions of authority as cold and hostile, to develop feelings of self-esteem, and many other corrective experiences.

Knight simply stated the "given" for every researcher. Most outcomes in social science are influenced by multiple variables versus a single cause, and this holds true for outcomes in juvenile corrections (Jenkins, Heidemann & Caputo, 1985). There are a host of variables that affect juvenile correctional outcomes, so the social scientist builds and tests a model to explain these outcomes, i.e., assembles and tests a set of independent variables to explain the variance or change in the dependent variable or outcome. One test of the model measures the effect that change in one independent variable has on the outcome while holding all other independent variables constant. Additional statistical tests determine significance. In other words, what is the likelihood that the influence on the outcome can be explained by something other than chance or random fluctuation? Because there are multiple variables in the model, the amount of change explained by the model shifts as different independent variables are added or deleted.

If this sounds confusing to the juvenile corrections practitioner, it should. This is why competent social science research and public policy development (a) occurs in special settings, such as colleges and universities, privately-funded "think tanks," and special divisions of government, and (b) expresses itself through reasoned, thoughtful, and critically refereed position papers, publications, and professional presentations. It is also the reason why competent social science and public policy research is not solely a function of a public opinion poll, the tirades of TV and radio pundits, or a consensus within a correctional membership association.

Evidence Regarding Institutional Size

The research evidence about the relationship of institutional size and correctional outcomes supports several plausible hypotheses and inferences, but it is not as compelling as that regarding living unit size. Much of the institutional size literature comes from studies in the adult system. Despite the paucity of juvenile-specific research, the general inferences are very similar, institutional size seems directly related to negative outcomes (Loughran, n.d.; Van Vleet et al., n.d.).

Sylvester, Reed and Nelson (1977) used the concept of prison size as a measure of space. As the physical size of a prison increased, the number of homicides also increased. Wener and Olson observed that decreases in space through crowding lead to an increased rate of sick calls. Even in view of these findings, the more relevant distinctions were those responses to the physical environment which varied according to age.

Contrary to the belief about the undesirability of relatively large prisons, Farrington and Nuttall's (1980) review of the criminological literature yielded no empirical evidence that prison size influences offenders' behavior inside or after release. Analyses of English prison statistics showed that prison offenses, and more specifically assaults, were less likely to occur in larger prisons. However, it was impossible in these analyses to control for the kinds of inmates in each prison. In a more controlled analysis of correctional effectiveness (defined as the difference between predicted and actual reconviction rates), there was a strong tendency for the more overcrowded prisons to be less effective. Size was only weakly related to effectiveness, and this association was reduced further with controls for overcrowding. Thus, an important priority for governmental agencies should be to reduce overcrowding in prisons.

Taken on face value, this research, along with some of the findings by Gilbert Gaes, argued that living unit size could be increased in certain situations without a negative effect. However, there were several unexplained variables that reduced the reliability of the research. For example, studies in adult prisons do not always predict outcomes in juvenile correctional facilities. Additionally, the study was conducted in England where assumptions about criminal justice are similar, but not identical. Next, the report did not specify operational philosophy, including staffing ratios and staff training. The authors further mitigated their findings by adding the correctional effectiveness analysis, which confirmed the inverse relationship between crowded conditions and correctional outcomes (in this case, reconviction rates). Finally, the study did not address living unit size, only prison size.

Finlay-Jones and Nielssen (1993) addressed the concern that maximum-security hospitals for the mentally disordered in the U.K. were too big. Alternatively, there was concern that there was a size below which maximum-security containment could become financially inefficient, inhumane, or even dangerous. They considered the optimum size of a place for the treatment, and eventual rehabilitation to the community, of mentally disordered offenders. While the generalizibility of their conclusions to juvenile confinement facilities was questionable, they argued against the establishment of an optimum absolute institutional size but did not address living unit size. However, they clearly articulated the intervening variables that must be controlled before size can be considered accurately. These included the principles of rehabilitation, quality of care,

cost-effectiveness, probable length of stay, architecture of secure units, and the psychology of dangerous people.

Henningsen, Johnson and Wells (1999) raised serious doubts about the movement toward the extreme in largeness and control in prison settings. Focusing primarily on control of inmates, the authors identified the increased costs of control, specifically the accusations of human rights violations and the creation of a "psychologically assaultive" environment. Conventional wisdom in juvenile corrections links increases in behavior problems with increases in institutional size, and there are no studies that contradict the conventional wisdom. Hence, an increase in institutional size, with its concomitant increase in control issues, causes a more careful consideration of the possible replication of the problems described by Henningsen et al.

Setting Optimum Sizes

Living unit size can be viewed as a continuum, much like temperature. There are large and small living units depending on a variety of variables. An optimum living unit size could be defined as the point where the ability to maintain normal, healthy or optimum functioning breaks down. The good news is that, for incarcerated youth, the substantial majority of the research indicates that living unit size elicits predictable reactions from juvenile offenders. The not-so-good news is that although these reactions are predictable, it is not as easy to predict exactly when they will occur.

Parallels can be drawn to another reaction individuals have to their environment. Take, for example, change in temperature. When exposed to a drop in temperature over an extended period, individuals "get cold." Predictably, the extremities (hands, fingers, feet, toes, noses, and ears) become cold. Hands go into pockets for warmth; sniffles occur; the muscles shiver; and movement increases either to secure an external source of warmth or to raise body temperature. Everyone has experienced this phenomenon. Yet, when looking at a thermometer, not everyone "gets cold" at the same temperature or the same time.

Just like getting cold, the negative responses do not occur at a specific living unit size for every incarcerated juvenile. However, much like getting cold, there is a narrow range of tolerance for homogenous groups (see Wener & Keys, 1988). Some juveniles tolerate large groups for longer periods than others. There are several factors that influence how juveniles cope. This also explains why some experiences do not confirm a clear and immediate relationship between living unit size and certain types of negative behaviors, i.e., increased assaults and injuries.

Intervening Factors

Age. The age of the juvenile influences certain outcomes in juvenile corrections. Nacci, Prather and Teitelbaum (1977) noted that the effects of density are aggravated with juvenile and young adult offenders. In other words, the frequency and intensity of negative effects increased as the age of the offender population gets younger.

Release. Time of release from the institution mediates negative outcomes. Megargee (1977) found future time perspective to be a factor. In situations where release from incarceration was in the near future, fewer negative behaviors were reported regardless of the density factor.

Programming. The quality of institutional programs or the specific skills of individual staff members may exert a stronger influence on outcomes. The quality of the environment affects a child's development (Dimidjian, 1983; Lewis, 1984), and the combination of a good physical environment with a good program and good staff is the best option since a good physical environment will increase the effectiveness of both programs and staff (Provence, Naylor & Patterson, 1978). In the most compelling study, Humphrey (1984) revealed that children's views of their environment predicted their own ratings and their teachers' ratings of self-control. Key environmental variables were order, organization, rule clarity, activity, and involvement.

Hallinan and Sorensen (1985) discussed the effects of group size, staff-child ratios, and staff training and qualifications on the quality of child care. They also looked at the effects of class size on student achievement in classrooms in which teachers used whole class instruction and those in which students were in ability groups. Results suggested that classroom pedagogical practices mediated the effect of class size on learning.

Cassidy and Vukelich (1977) divided approximately 120 children by sex and randomly assigned each to one of four groups, which varied from one another only in size. They found that group size significantly affected the children's performance, with one-to-one instruction resulting in the greatest gains. Locke and Gaushell (1974) examined the effectiveness of interpersonal skills training as a function of group size and training duration. Results indicated that group size has a significant effect on the dimension of empathic understanding.

In the face of severe crowding and its subsequent chaos, Oklahoma County (Oklahoma) Juvenile Bureau chief Ray Bitsche reaffirmed his belief that "the best security is built on programs and more programs, people and more people" (quoted in Previte, 1997:77). As part of OJJDP-funded technical assistance provided to the Oklahoma County Juvenile Detention Center, project staff from the NJDA-Youth Law Center Overcrowding Project conducted a quality of life assessment following two and a half years of operating over capacity, often at 200% capacity. The findings revealed the predicted crowding profile; but the intensity of the negative effects was far less than expected. Even the depressed subscale scores were still within normal ranges (Burrell, Roush & Sanniti, 1997).

Project staff asked detention administrators to describe the measures taken to safeguard resident and staff safety during periods of intense crowding. Programs and more programs, people and more people were the responses. Using staffing and daily programming as the primary defense against the negative effects of crowding is a way to manipulate thresholds. Once the Oklahoma County facility had established an acceptable staffing threshold, maintaining that staffing level became a primary strategy to moderate the negative effects of crowding. The same concept applied to the level of daily programming. In crowded institutions, programs beat lock downs (Previte, 1997:79). Safeguarding both staffing and program levels appeared to lessen the negative effects of crowding.

Staffing. There is an inevitable link between institutional and living unit sizes and the number of direct care and supervisory staff deployed within each. This is not anecdotal; it is mathematical. As number of youth increase in a living unit or an institution, the staffing ratio also changes without a simultaneously increase in staff. Because personnel costs represent at least 85% of an institution's operational costs, there is a tendency to experiment with other, less costly options before adding staff. Some options include improved security technology, additional surveillance systems, and changes in operational philosophies toward a more custodial model. Changing living unit size and institutional size is like dropping a stone into a pool of water. There are inevitable ripple effects.

Child care licensing is a consumer protection responsibility of each state (Center for Career Development in Early Care and Education, 1996). Each set of licensing standards establishes a right that children and parents in private early care and education programs have in that state. Because each state sets its licensing standards at a level its citizens agree to support, child care differs dramatically among states. This report compared state child-staff ratio and group size requirements in child care licensing and examined changes from 1989 to 1996. The 1979 National Day Care Study (reported in the Center for Career Development in Early Care and Education, 1996) found that good child-staff ratios have positive effects on children's test scores, child behavior, and staff behavior and influence child care costs directly. In fact-staff ratios

also affect quality strongly. Ratios may vary widely among states because of differences in measurement techniques. Group size also influenced child and staff behavior.

Barker (1968) and Wicker (1973) developed the concept of undermanning, a situation in a behavior setting (e.g., a juvenile confinement facility) where there are insufficient participants (i.e., staff) to achieve the goal or task associated with the setting. Wicker maintained that undermanning has an unsettling effect on normal coping behavior and that these behaviors are carried into other behavior settings. Applied to juvenile institutions, understaffing is a situation where there is an insufficient number of staff to achieve the goals of the facility for that shift, or the inability to provide safety, security, order and programs. Most institutions experiment with different staffing patterns and ratios until an acceptable threshold is found. This staffing threshold is the point where the goals of the institution are achieved in the most cost-effective manner.

Crowding affects the staffing threshold in several ways. First, crowding alters the normal staffing pattern by increasing the number of residents under one staff member's supervision. Second, some staff react to the negative elements of crowding by taking time off work. This takes the forms of absenteeism, reporting to work late, health problems, worker's comp claims, leaves of absence or quitting. In most instances, these staff members do not provide adequate notice, and the institution has to juggle existing staff to cover the shift while a replacement is sought. Finding a replacement also means overtime, additional inconvenience, and stress to the staff member who gives up regularly scheduled time off to cover the shift.

Given these situations, how much deviation from the staffing threshold can occur before problems begin? Carbone and Lynch (1981, 1983) studied staffing patterns and staff disciplinary strategies at the Polk County (Iowa) Juvenile Detention Center. They found that once the staffing ratio increased (as the number of residents under one staff member's supervision increased) above the established threshold, problems occurred immediately in the form of increased uses of threats and harsher disciplinary actions by staff. Carbone and Lynch documented these behaviors with each deviation from the accepted staffing threshold. Understaffing created an environment where staff became more punitive in their interactions with residents.

Contrast Effect. Once inmates adjust to a given level of density, increases in population can substantially increase perceptions of crowding (Wener & Keys, 1988). This "contrast" between the adjustment level of density and the increased level of density can occur even when both levels are below the point where the negative effects of crowding should occur. Moos (1975) believes that small increases in population (as little as 11%) can initiate the contrast effect. The contrast effect explains why some institutions experience the effects of crowding before reaching or exceeding capacity.

Social and Spatial Density. Dr. Darrel Ray (1978; Ray et al., 1978, 1982; Ray & Wandersman, 1981) examined changes in density on the social climate, interpersonal relations, and the psychological responses of 115 institutionalized male juvenile offenders at Spencer Youth Center, currently Woodland Hills, as part of his dissertation research at Vanderbilt University. His findings revealed significant effects on social climate. Ray also documented the following relationships: (a) increased crowding was tied to increased negative feelings about peers, staff, and counselors; and (b) increased crowding preceded reductions in classroom cooperation, reductions in involvement with peers, and poor grades in the school programs.

Ray systematically studied the effects of social density (a comparison of different-size groups in same-size spaces) and spatial density (a comparison of same-size groups in different-size spaces). During the study, dorm populations moved from a low-density to a high-density and then again to a low-density condition. While the number of residents varied, the physical size of the living area remained constant. In the low-density conditions, residents generally reported more involvement, staff support, autonomy, practical and personal problem orientation, order, and organization.

Increased social density made fewer differences in the larger dorm (about 4,000 square feet). However, the same was not true for the smaller dorm (about 2,000 square feet). As social density increased, involvement, support, order, organization, and staff control declined, but expressiveness increased. That is, juveniles behaved in a manner more characteristic of disturbed behavior or a mental health program. The number of juveniles per square feet of living space appeared to be an important variable in setting the threshold for the onset of negative effects. In general, social disorganization increased with crowding in the smaller dorms. This finding supports an increase in the size (square footage per youth) of the living unit.

Ray tied many findings from the adult correctional research to juvenile corrections. His research supported previous studies and confirmed the belief that crowding generates predictable, negative effects on institutionalized juveniles. More importantly, Ray empirically validated the primacy of relationships. As social density increased, staff-to-juvenile relationships suffered. For example, residents reported a reduction in staff support and, subsequently, a reduction in the order and organization on the unit. Reduced order and organization meant that greater amounts of minor misbehaviors were tolerated and resident expressiveness increased. Staff used more threats and coercion to maintain control. Moreover, as relationships deteriorated during high social density, residents reported increased negative feelings about other residents, staff, and counselors.

Most of This Is Old Stuff

There is not an abundance of recent research in this review, and this warrants two comments. First, the absence of new research does not, in and of itself, negate or undo the concepts, principles, laws or causal relationships articulated by past research. Likewise, warships are not suddenly sinking because the Navy stopped doing research on the fundamental principles of buoyancy.

Second, other fields of social science have similar experiences when reviewing the research literature. Researchers from the University of Florida conducted a comprehensive review of the literature regarding the physical environment and counseling (Pressley & Heesacker, 2001). While this is only partially relevant to juvenile detention and corrections, the outcomes are particularly instructive. The authors identified 108 research studies that were relevant to their topic. Only 26% of the studies were less than 10 years old. In other words, 3 out of 4 studies that inform counseling about the relationship between the physical environment and counseling outcomes were conducted a decade or more ago. It is interesting to note that the majority of the citations are from the 1970s, a period when ecological and environmental psychology research was at its peak.

SUMMARY

A perfunctory review of the social science literature reveals a sufficient number of credible research projects to warrant the conclusion that there is an indirect relationship between living unit size and positive outcomes in juvenile corrections. The preponderance of the evidence supports the influence of group size on a variety of outcomes. While the research does not reach an agreement on the optimum size for groups in juvenile confinement facilities, the findings are clear that an increase in group size is associated with a reduction or decrease in positive correctional effects.

The literature is not as clear regarding total institutional size. However, the few studies that look at institutional size for juvenile institutions support a similar, indirect relationship between size and positive outcomes (Loughran, n.d.; Van Vleet et al., n.d.). Even though this relationship warrants additional study and investigation, there is neither a preponderance of the findings nor a compelling argument in the literature to embrace juvenile institutions of unlimited size.

In both instances, there is sufficient evidence in the social science literature to reject the contentions of the Ohio Department of Youth Services that the ACA training school standard's requirement for smaller populations (i.e., 3-JTS-2B-03, which limits living unit size to no more than 25 juveniles each and limits total institutional capacity to 150 juveniles) "is not based on research but more on anecdotal assumption." To the contrary, the evidence supports the ACA standard and does not contribute to a plausible argument for its revision. However, these conclusions derive from a limited search of the literature. A more comprehensive and thorough search is recommended, along with a recommendation for the support of additional research on the effects of institutional size on juvenile correctional outcomes.

REFERENCES

American Correctional Association. (1991). *Standards for juvenile detention facilities*. Laurel, MD: Author.

Barker, R. G. (1968). *Ecological psychology: Concepts and methods for studying the environment of human behavior*. Stanford, CA: Stanford University Press.

Barrueta-Clement, J. R., Schweinhart, L. J., Barnett, W. S., Epstein, A. S., & Weikert, D. P. (1984). *Changed lives: The effects of the Perry preschool program on youths through age 19*. Ypsilanti, MI: High/Scope Educational Research Foundation.

Benenson, J. F., Nicholson, C., Waite, A, Roy, R. & Simpson, A. (2001, May-June). The influence of group size on children's competitive behavior. '*Child Development, 72*, 921-928.

Blemberg, D. (2002, March). Standards committee update. *Standards and Accreditation Newsletter*, pp. 5-8.

Burrell, S., Roush, D., & Sanniti, C. (1997). *Quality of life: An assessment of the social climate and conditions of confinement at the Oklahoma County Juvenile Detention Center*. Richmond, KY: National Juvenile Detention Association.

California Youth Authority. (1971). *Impact of living unit size in youth training schools: A review of selected evidence*. Sacramento: California Youth Authority.

California Youth Authority. (1980). *Institutional violence reduction project: The impact of changes in living unit size and staffing (Final report)*. Sacramento: California Youth Authority.

Carbone, V. J. (1990, Spring). Education is rehabilitation. *Journal for Juvenile Justice and Detention Services, 5*, 32-37.

Carbone, V. J. & Lynch, R. (1981). *The effects of altering the numbers of staff-to-residents ratio in a juvenile detention facility*. Unpublished manuscript, Polk County Juvenile Home, Des Moines, Iowa.

Carbone, V. J. & Lynch, R. (1983). Functional analysis of behavior in a juvenile detention facility. *Journal of Offender Counseling, Services, & Rehabilitation, 6* (3), 21-41.

Cassidy, A.M. & Vukelich, C. (1977, October). The effects on group size on kindergarten children's listening comprehension performance. *Psychology in the Schools, 14*, 449-54.

Center for Career Development in Early Care and Education. (1996). *Child: Staff ratios and group size requirements in child care licensing: A Comparison of 1989 and 1996*. Boston: Wheelock College.

Conrad, P. (1972, May). Situational hyperactivity: A social system approach. *The Journal of School Health*, pp. 31-41.

Coutu, W. (1949). *Emergent human nature: A symbolic field interpretation*. New York: Alfred A. Knopf.

Dimidjian, V. J. (1983). Questions and answers about improving physical environments for young children. *Child Care Quarterly, 12*, 210-221.

Doherty-Derkowski, G. (1995). *Quality matters: Excellence in early childhood programs*. Reading, MA: Addison-Wesley.

Farrington, D. P. & Nuttall, C. P. (1980). Prison size, overcrowding, prison violence, and recidivism. *Journal of Criminal Justice, 8*, 221-231.

Finlay-Jones, R. & Nielssen, O. (1993). The optimum size of a high-security unit for mentally disordered offenders. *Criminal Behavior and Mental Health*, 3, (4), 472-483.

Foster, G.W., VanderVen, K., Kroner, E.R., Carbonara, N.T., & Cohen, G.M. (1981). *Child care work with emotionally disturbed children*. Pittsburgh: University of Pittsburgh Press.

Gaes, G. G., & McGuire, W. J. (1985). Prison violence: The contribution of crowding versus other determinants of prison assault rates. *Journal of Research in Crime and Delinquency, 22*, 41-65.

Hallinan, T. & Sorensen, A.B. (1985, November). Class size, ability group size, and student achievement. *American Journal of Education, 94*, 71-89.

Henningsen, R. J., Johnson, W. W, & Wells, T. (1999). Supermax prisons: Panacea or desperation? *Corrections Management Quarterly, 3 (2)*, 53-59.

Herr, D. E. & Linn, R. J. (1990). *Transitional services for troubled youth*. Richmond: Eastern Kentucky University.

Humphrey, L. L. (1984). Children's self-control in relation to perceived social environment. *Journal of Personality and Social Psychology, 46*, 178-188.

Jenkins, R. L., Heidemann, P. H., & Caputo, J. A. (1985). *No single cause: Juvenile delinquency and the search for effective treatment*. College Park, MD: American Correctional Association.

Jesness, C. (1965). *The Fricot Ranch study (Research Report No. 47)*. Sacramento: California Youth Authority.

Jesness, C. (1972). Comparative effectiveness of two institutional treatment programs for delinquents. *Child Care Quarterly, 1*, 119-130.

Jones, J. (1964). The nature of compliance in correctional institutions for juvenile offenders. *Journal of Research in Crime and Delinquency, 1*, 83-95.

Kehoe, C. J. (2001, Winter-Spring). Just the facts, Mam. *NAJCA Newsletter*, pp. 1-2.

Knight, D. (1971). *The impact of living-unit size in youth training schools*. Sacramento: California Youth Authority, Division of Research and Development.

Kostelnik, M. J., Soderman, A. K., & Whiren, A. P. (1999). *Developmentally appropriate curriculum: Best practices in early childhood education*. Upper Saddle River, NJ: Merrill.

LeBlanc, L. A., & Pfannenstiel, J. C. (1991). *Unlocking learning: Chapter 1 in correctional facilities (Final report)*. Washington, DC: US Department of Education, National Study of the Chapter 1 Neglected and Delinquent Program.

Lewin, K. (1951). *Field theory in social science*. New York: Harper & Row.

Lewis, W. W. (1984). Ecological change: A necessary condition for residential treatment. *Child Care Quarterly, 13*, 21-29.

Locke, D. W. & Gaushell, W. (1974, September). The effects of group size and training duration on the development of interpersonal communication skills. *Journal of the Student Personnel Association for Teacher Education, 13*, 18-21.

Loughran, E. J. (n.d.). Juvenile corrections: The Massachusetts experience. In L. Eddison (Ed.), *Reinvesting youth corrections resources: A tale of three states*. Minneapolis: University of Minnesota Center for the Study of Youth Policy, Hubert H. Humphrey Institute of Public Affairs.

Mathison, G. L. (1998, February). Effects of group size on quality of life for persons with developmental disabilities living in community-based residential models. *Dissertation Abstracts International, 58 (8-A)*, 3303.

McCord, W. & McCord, J. (1959) Two approaches to the cure of delinquents. In S. Glueck (Ed.), *The problem of delinquency*. Boston: Houghton Mifflin.

Megargee, E. I., (1977). The association of population density, reduced space and uncomfortable temperatures with misconduct in a prison community. *American Journal of Community Psychology, 5*, 289-298.

Mischel, W. (1971). *Introduction to personality*. New York: Hold, Rinehart and Winston.

Moos, R. H. (1968). The assessment of the social climates of correctional institutions. *Journal of Research in Crime and Delinquency, 5*, 174-188.

Moos, R. H. (1970). Differential effects of the social climates of correctional institutions. *Journal of Research in Crime and Delinquency, 7*, 71-82.

Moos, R. H. (1975). *Evaluating correctional and community settings*. New York: John Wiley & Sons.

Mullen, J. (1999, Fall). Working in a diamond mine: Polsky's insights on youth subcultures. *Reclaiming Children and Youth: Journal of Emotional and Behavioral Problems, 8*, 169-173.

Murray, H. (1938). *Explorations in personality*. New York: Oxford University Press.

Nacci, P. L., Prather, J., & Teitelbaum, H. E. (1977). Population density and inmate misconduct rates in the federal prison system. *Federal Probation, 41*, (2), 26-31.

Nolin, M. J., Davies, E., & Chandler, K. (1995, October). Student victimization at school. *National Center for Education Statistics: Statistics in Brief*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Parent, D., Leiter, V., Kennedy, S., Livens, L., Wentworth, D., & Wilcox, S. (1994, August). *Conditions of confinement: Juvenile detention and correctional facilities (Research report*). Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Polsky, H.W. (1962). *Cottage six: The social system of delinquent boys in residential treatment*. Huntington, NY: Robert E. Krieger.

Pressley, P.K. & Heesacker, M. (2001, Spring). The physical environment and counseling: A review of theory and research. *Journal of Counseling and Development*, 79, 148-160.

Previte, M. T. (1997, February). Preventing security crises at youth centers. *Corrections Today*, pp. 76-79.

Provence, S., Naylor, A., & Patterson, J. (1977). *The challenge of day care*. New Haven, CT: Yale University Press.

Rabow, J. & Elias, A. (1969). Organizational boundaries, inmate roles, and rehabilitation. *Journal of Research in Crime and Delinquency, 6*, 8-16.

Raush, H. L., Dittman, A. T., & Taylor, T. J. (1959). Person, setting, and change in social interaction. *Human Relations, 12*, 361-377.

Raush, H. L., Farbman, I., & Llewellyn, L. G. (1960). Person, setting, and change in social interaction II: A normal-control study. *Human Relations, 13*, 305-333.

Ray, D. W. (1978, August). The effects of high density in a juvenile correctional institution. *Dissertation Abstracts International, 38*. (Doctoral dissertation, Peabody College of Vanderbilt University.)

Ray, D. W., & Wandersman, A. (1981). The impact of density in a juvenile correctional institution: Research, recommendations, and policy implications. *Evaluation and Program Planning, 4*, 185-193.

Ray, D. W., Huntington, D., Ellisor, J., & Prytulla, R. (1978). The effects of population density upon juvenile inmate perceptions. *Journal of Humanics, 6*, 122-129.

Ray, D. W., Wandersman, A., Ellisor, J., & Huntington, D. (1982). The effects of high density in a juvenile correctional institutions. *Basic and Applied Social Psychology, 3*, 95-108.

Roush, D. W., & McMillen, M. (2000, January). *Construction, operations, and staff training for juvenile confinement facilities (JAIBG Bulletin)*. Washington, D.C.: U. S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Shimoni, R., Baxter, J., & Klugelmass, J. (1992). *Every child is special: Quality group care for infants and toddlers*. Don Mills, Ontario: Addison-Wesley.

Sommer, R. (1972). *Tight spaces*. Englewood Cliffs, NJ: Prentice-Hall.

Spivack, M. (1984). *Institutional settings: An environmental design approach* (J. Tamer, Ed.). New York: Human Sciences Press.

Srivastava, R.K. (1982). *Ecological approach to environmental evaluation of residential treatment*. Washington, DC: National Criminal Justice Reference Service.

Sylvester, S.F., Reed, J.H., & Nelson, D.R. (1977). *Prison homicide*. New York: Spectrum.

Toch, H. (1977). *Living in prison: The ecology of survival.* New York: The Free Press.

Valins, S. & Baum, A. (1973, December). Residential group size, social interaction, and crowding. *Environment and Behavior, 5*, 421-439.

Van Vleet, R., Rutherford, A. & Schwartz, I (n.d.). Reinvesting youth corrections resources in Utah. In L. Eddison (Ed.), *Reinvesting youth corrections resources: A tale of three states*. Minneapolis: University of Minnesota Center for the Study of Youth Policy, Hubert H. Humphrey Institute of Public Affairs.

Vorrath, H., & Brendtro, L. K. (1974). *Positive peer culture*. Chicago: Aldine.

Walicki, F., Hole, C., Chavez-Navarro, J., & Drewnicky, I. (2002, April). Planning and designing comprehensive special juvenile facilities. *Corrections Today*, pp. 114-117, 179, 191.

Weeks, H. (1958). *Youthful offenders at Highfields: An evaluation of the effects of the short-term treatment of delinquent boys*. Ann Arbor: University of Michigan Press.

Welch, M. (1991, March-April). A review of jails: Reform and the new generation philosophy. *American Jails*, pp. 132-135.

Welch, M. (2002). The reproduction of violence in U.S. prisons. In L. F. Alarid & P. F. Cromwell, (Eds.), *Correctional perspectives: Views from academics, practitioners, and prisoners*. Los Angeles: Roxbury Publishing Company.

Wener, R. D., & Keys, C. (1988). The effects of changes in jail population densities on crowding, sick call, and spatial behavior. *Journal of Applied Social Psychology, 18*, 852-866.

Wener, R., & Olsen, R. (1980). Innovative correctional environments: A user assessment. *Environment and Behavior, 12*, 478-493.

White, C. (2002, April). Reclaiming incarcerated youths through education. *Corrections Today*, pp. 174-178, 188.

Whitebook, M., Sakai, L., & Howes, C. (1997). *NAEYC accreditation as a strategy for improving child care quality*. Washington, DC: National Center for the Early Childhood Work Force.

Wicker, A. W. (1973). Undermanning theory and research: Implications for the study of psychological and behavioral effects of excess human population. *Representative Research in Social Psychology, 4*, 185-206.

Williams, V. L. & Fish, M. (1972). Optimum prison size cost behavior vs. rehabilitation goals. *American Journal of Correction, 35*, 14-16, 18-19.

Wolfe, M. (1975, June). Room size, group size, and density: Behavior patterns in a children's psychiatric facility. '*Environment and Behavior, 7*, 199-224.

Yinger, J.M. (1965). *Toward a field theory of delinquency*. New York: McGraw-Hill.

Zupan, L. L. (1991). *Jails: Reform and the new generation philosophy*. Cincinnati, OH: Anderson Publishing.

David W. Roush, PhD, is the director of the National Juvenile Detention Association's Center for Research & Development, a division of the Outreach programs in the School of Criminal Justice at Michigan State University. His address is 350 Nisbet Building, 1407 South Harrison Road, East Lansing, MI 48823.