THE ACTIVITY OF STAFF AND OF SEVERELY AND PROFOUNDLY MENTALLY HANDICAPPED ADULTS IN RESIDENTIAL SETTINGS OF DIFFERENT SIZES

MAIR THOMAS[1], DAVID FELCE[1], URSULA DE KOCK[1],
HELEN SAXBY[1] and ALAN REPP[2]

One of the most important directions in recent policy concerning care of mentally handicapped people has been the call for community provision as opposed to institutional residential care (e.g. Grunewald, 1977; Kushlick, 1970). Initial development and research was concerned with relatively large community units often built especially for the purpose. Evaluation suggested limited gains when such facilities were compared to existing institutions: in extent of meaningful activity (e.g. Felce et al, 1980), in average progress of the group (e.g. Smith et al, 1980), and in a number of indices of quality of life (e.g. Hemming et al, 1981). However, the demonstration of advantage was not as substantial as perhaps was hoped for and the latter research did indicate that gains could be transitory.

More recently interest in residential provision has shifted toward smaller residential settings and in particular ordinary housing. Few research studies though have reported data on the activities of severely and profoundly mentally handicapped people in such facilities. One (Close, 1977) demonstrated positive changes in self help and social skills in 8 severely and profoundly mentally handicapped adults compared to a similar number who stayed in an institution. However, Landesman Dwyer et al, (1980) did not find significant differences between facilities that ranged in size from 6 to 20 and Bjaanes and Butler, (1974), have commented adversely on the restrictiveness of some small group homes.

The research reported here arises from the provision of two small homes in the community to serve comprehensively severely and profoundly mentally handicapped adults who need residential care. It follows a well controlled comparison of staff and client activity in these small homes with that in institutions (Felce et al, in press a; Felce et al, 1985). The purpose of the current study was to repeat the institutional and small home comparison using new institutional settings and to add to it a comparison with larger 25-place local community units. The behavioural functioning of matched groups of ten severely and profoundly mentally handicapped adults and their staff were observed in two institutional wards, two large community units and the two small homes combined.

METHOD

Subjects and settings

Fifty severely or profoundly mentally handicapped adults were the subjects of the study, taken in five groups of ten matched for age and behavioural functioning (Table1). Except for the two groups of five subjects in small community homes, *each group of ten was drawn from a single service setting.*

1) Health Care Evaluation Research Team, University of Southampton.
2) Northern Illinois University.

TABLE 1

Age and behavioural characteristics of each matched group of ten subjects in institutions, large community units and small community houses

		Average age	Age range	Number Ambulant	Number Continent	Number with speech	Number with self-help skills *	Number with severe behaviour disorders
Institutions	1	44.1	23 - 66	10	9	4	3	4
	2	35.7	19 - 50	10	9	1	0	4
	Group Mean	39.9	19 - 66	10	9	2.5	1.5	4
Large Community Units	1	37.5	24 - 59	10	8	2	2	3
	2	40.1	24 - 69	10	10	2	3	4
	Group Mean	38.8	24 - 69	10	9	2	2.5	3.5
Small Community Homes	1	35.4	23 - 53	5	3	2	1	3
	2	45.4	28 - 58	5	5	0	2	1
	Group Total	40.4	23 - 58	10	8	2	3	4

* Rated as being competent in two of feeding, washing and dressing without help.

A brief description of each of the settings follows:

a. **Institutions 1 and 2** were wards for 35 female and 24 male adults respectively in rurally located institutions of 350 and 500 places. Each had a single day room, dining room and a toilet/bathing area. Dormitory accommodation in the latter was arranged in three separate areas of eight beds each, while the large dormitory in Institution 1 had been partitioned into bays of three beds. Apart from basic furniture and a television in each dayroom there were few materials for client activity. Meals were centrally supplied. Combined domestic and nursing staff:client ratios on duty *(i.e. observed as present) during the data collection averaged 6.6:27 and 7:15, with* average client figures lower than total ward size due to attendance of residents at a vocational setting.

b. **Large Community Units 1 and 2** were recent, purpose-built 25-place units provided both within and to serve local urban communities. Designed to be "small", "home-like" decentralised and relatively autonomous, they had a large and small living room, an activity room, dining room, kitchen and bedrooms for one, two or three people. Furnishings were comfortable and well provided and compared to the institutions there was a greater, although still inadequate, selection of recreational materials. Combined domestic and nursing staff:client ratios present during data collection averaged 6.1:16 and 11.7:21 respectively with again some residents attending a vocational facility on a sessional basis.

c. **The Small Community Homes** were two houses near the centre of a small town each with five residents and provided as part of a research project (Mansell, et al 1983). In using ordinary community housing, each had a number of domestic-sized rooms covering the normal functions: lounge, dining room, kitchen, bedrooms, bathroom and toilets. The houses were furnished and equipped to a high material standard. During data collection, staff:client ratios were approximately 1:2.

Dependent Variables

Six staff and 19 client behaviours were measured according to the following definitions:

Staff Behaviours - Antecedents

a. **Instruction** - implicit or explicit instruction to the client to perform some activity (e.g. says "pick up spoon", "would you get me a large plate?", hands client material).

b. **Physical Guidance** - staff physically assists client through part or all of a task (e.g. staff guides client through pouring a cup of tea).

Staff Behaviours - Consequences

a. **Positive Verbal** - verbally or through sign language, staff expresses approval of client's behaviour (e.g. "Good", or signs "That's right.")

b. **Neutral Verbal** - verbally or through sign language, staff communicates with client in neither a praising nor an admonishing manner (e.g. says "How are you today?").

c. **Negative Verbal** - verbally or through sign language, staff expresses disapproval of client's behaviour (e.g. staff signs "no, don't do that.").

d. **Positive Physical** - staff physically expresses approval of client's behaviour (e.g. smiles, hugs client).

e. **Neutral Physical** - staff physically contacts client in a neutral manner expressing neither approval nor disapproval (e.g. holds client's hand).

f. **Negative Physical** - staff physically expresses disapproval of client's behaviour (e.g. frowns, restrains client).

Client Behaviours - Appropriate Engagement

a. **Leisure** - getting ready for, doing or clearing away recreational or leisure materials purposefully as demonstrated by some motor activity (e.g. looking at books, playing games).

b. **Personal** - getting ready for, doing or clearing away a self-help or personal activity as demonstrated by some motor activity (e.g. brushing teeth, eating).

c. **Domestic** - getting ready for, doing or clearing away housework as demonstrated by some motor activity (e.g. washing clothes, setting the table).

d. **Gardening/Outside** - getting ready for or engaging in gardening or other outdoor activities as demonstrated by some motor activity (e.g. cutting the grass).

e. **Formal Programme** - getting ready for or engaging in a formal educational programme, the content of which cannot be coded under (a) - (d) above (e.g. matching colours).

An appropriate engagement activity was considered to have ceased when the task was clearly completed or when the client became passive for five seconds.

Client behaviours - Social interaction

a. **Interacts With Client** - client speaks to, gestures at, listens to, looks at or touches another client who is reciprocally interacting.

b. **Interacts With Staff** - client speaks to, gestures at, listens to, looks at or touches a staff member who is reciprocally interacting.

c. **Interacts With Other** - client speaks to, gestures at, listens to, looks at or touches a person other than a staff member or client who is reciprocally interacting.

If staff gave a client an instruction or physically guided engaged behaviour and the client attended or complied, the relevant engagement code was recorded: **Leisure, Personal, Domestic, Garden/Outdoor, Formal Programme. Interacts staff** was not recorded as some limitation on the complexity of coding needed to be made. However, when staff conversed with or gave physical consequences to clients **Interacts Staff** was coded for the duration that staff and clients attended to each other.

Client Behaviours - Inappropriate

a. **Self-stimulation** - client engages in a solitary, repetitive, asocial behaviour (e.g. body rocking, hand weaving, pacing, continuous groaning).

b. **Aggression to Self** - any behaviour which directly harms the person exhibiting the behaviour (e.g. headbanging).

c. **Aggression to Other** - any physical act which harms or could potentially harm another person (e.g. hitting someone).

d. **Aggression to Property** - any behaviour which damages or could potentially damage (e.g. throwing but not breaking a dish) property, or which overturns or disarranges property.

e. **Inappropriate Communication** - inappropriate verbal acts such as crying when asked to do something, laughing hysterically, giggling out of context, verbal threats,

swearing, tugging annoyingly at someone, pestering, pushing/pulling a person against their will.

f. **Other Inappropriate** - inappropriate behaviours other than those listed in this section, (e.g. the act of incontinence, public masturbation, stripping, spitting, pica, touching faeces).

Client Behaviours - Neutral

a. **Passive** - *sitting, lying or standing without purposeful gross motor activity;* includes sleep, eyes closed but awake, looking that does not constitute an interaction, just holding materials.

b. **Ambulation** - walking/wandering to no known purpose, i.e. it is not clearly in context of an engagement category.

c. **Smoking** - moving cigarette or pipe to or from mouth, lighting cigarette or pipe, having cigarette or pipe in mouth.

d. **Unpurposeful** - manipulating materials to no apparent purpose; minor self-manipulation, talking quietly to self, e.g. fiddling with buttons, picking at clothing, nail-biting, doing puzzle without making progress.

e. **Watching Television** - eyes directed at television when on.

Observation and Analysis Procedures

Subjects were observed in groups of 10 in the larger settings and groups of five in the small homes. Each subject was observed in turn according to a random schedule for a period of 5 minutes and the cycle of observations in each setting was repeated 12 times spread over two days. Observations were scheduled between 8.30 a.m. and 6.00 p.m. omitting mealtimes. One main and one reliability observer were employed. The observations were recorded into an Epson HX-20, a portable computer with a typewriter keyboard which we (Repp et al, Note1) have programmed for this purpose. One key on the keyboard is designated for each observational code and successive key depressions signal the onset and offset of a response. At the end of the observation session, the sequence of behaviours and a table giving behavioural code, total duration (in seconds) and percent of time is printed.

Observers were trained to make multiple response changes simultaneously and the computer was programmed to accept multiple entries; that is, the keys operated independently. However, some limitation in the number of simultaneous key presses had to be imposed. When staff gave a client an antecedent stimulus, observers were instructed not to record the client's attention to staff as interacting with staff but to concentrate on recording the client's response to the antecedent under the other appropriate engagement codes. Attention to staff antecedents was included subsequently in the client behaviour category **Interacts with staff** by inspection of the computer record of the duration and sequence of events. If the client was recorded as appropriately engaged immediately following the staff antecedent, the client was considered to have attended to that antecedent and was therefore coded as interacting with staff for the duration of the staff antecedent.

Reliability of observation

Agreement on the coding of staff and client behaviours was established prior to the study by observation of video tapes, was checked during the study by re-observation of the video tapes and was checked in vivo in each type of setting other than the small homes where reliability checks were considered too intrusive. A method of reliability assessment was devised specially for the form of real-time

data collection used. An agreement was defined as an occasion when two observers coded the same behavioural event (onset or termination of a staff or client response) within 5 seconds of each other. A disagreement therefore constituted an occasion when one observer coded a behavioural event as occurring and the second observer did not do so within 5 seconds irrespective of the duration of the overlap in the two records of the continuing occurence of the behaviour. According to this conservative method, inter-observer agreement prior to the study, was established at 82%. Intra-observer agreements from film prior to the study, at the end of the first week of observations and at the end of the second week were 91%, 87% and 87% respectively. Inter-observer agreement in vivo during the first week of observations was 93% and during week 2 was 90%.

RESULTS

a. Staff behaviour

Levels of staff interaction with clients in the institutions (I1, I2), large community units (LCU1, LCU2) and small community homes (SCH1, SCH2) are shown in Figure 1. On average, each client was contacted by staff for 2.6% and 3% of time in the institutions, 3.4% and 1.9% in the large community units and 17.4% and 10.5% in the small homes. Contact received was thus at least three times greater in the small community homes than either the institutions or large community units which were largely similar.

The largest single category of interaction in the institutions and large community units was neutral (2.2% and 2.3% on average respectively). Clients received little positive or negative consequation of behaviours (less than 0.2% in each of the four settings) and only slightly more instruction or guidance. In contrast positive consequences were received by each client for 1.1% and 0.5% of time in the small community homes, while antecedents were considerably greater (7.5% and 4.4% of time respectively). Negative consequences were received in the first small home for 1.5% of time, the only setting where this category was observed to any great extent. The level of neutral interaction was also greater in the small homes; 7.0% and 5.5% respectively. However, this form comprised only 46% of all staff contact in the small homes compared to over 80% in the institutions and large community units.

b. Client behaviour

Client activity in the six settings is given in Figure 2. Engagement in appropriate activity was found to be lowest in the institutions (1.8% and 4.6%), higher in the large community units (6% and 16.1%) and greatest in the small community homes (53.1% and 26.8%). Client interaction with staff was also higher in the small community homes (7.2% and 5.9%) but in this respect the large community units (1.6% and 0.8%) and institutions (1.1% and 1.6%) were similar. Although not shown in Figure 1, interaction between clients was insignificant in all settings. Engagement in inappropriate activity, mainly self-stimulatory behaviour, was greatest in the institutions (22.3% and 32.2%), less in the large community units (14.3% and 11.6%) and lowest in the small community homes (10.9% and 1.5%).

FIGURE 1 Staff interactions (% total time) received by severely and profoundly mentally handicapped adults in institutions, large community units and small community homes.

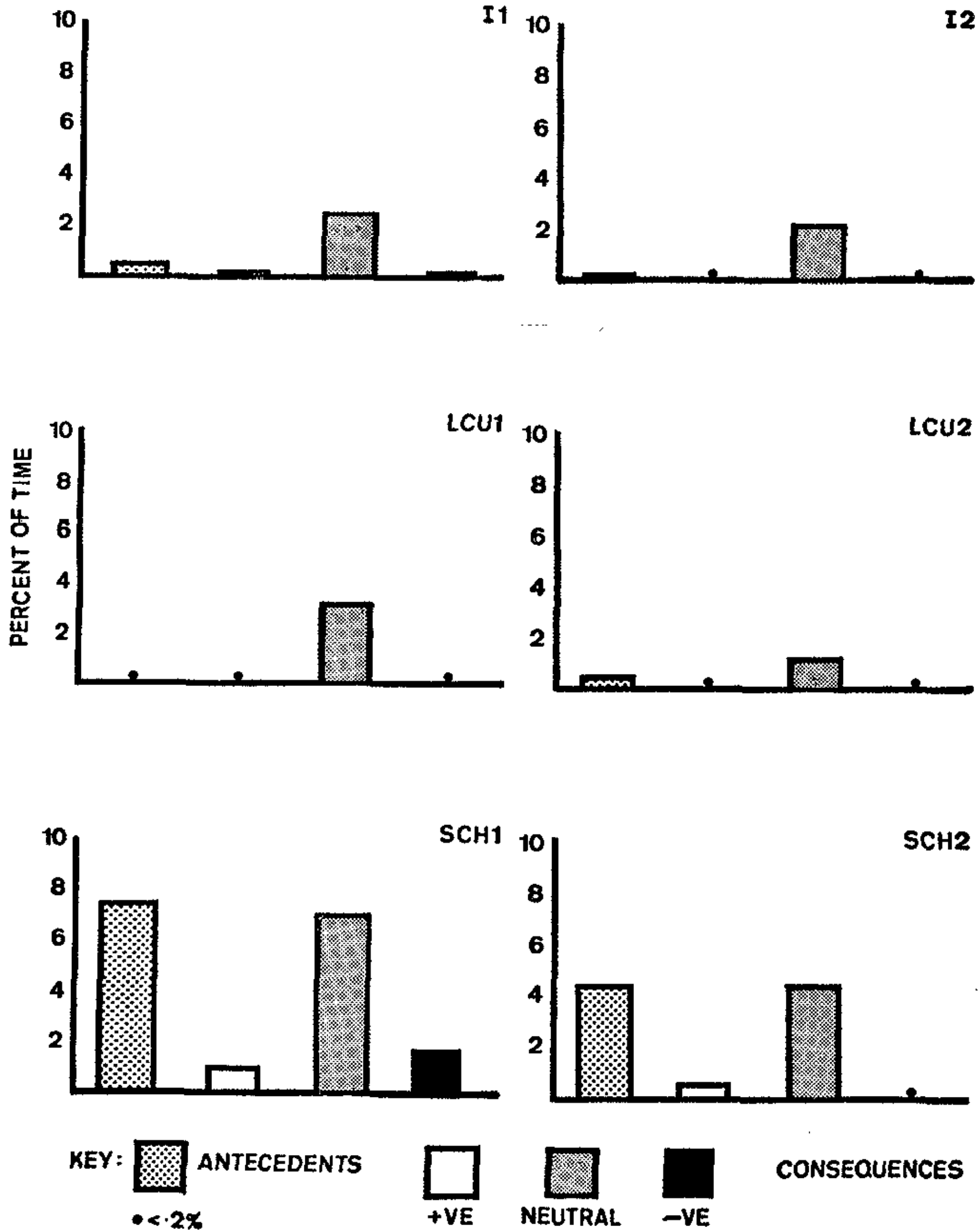
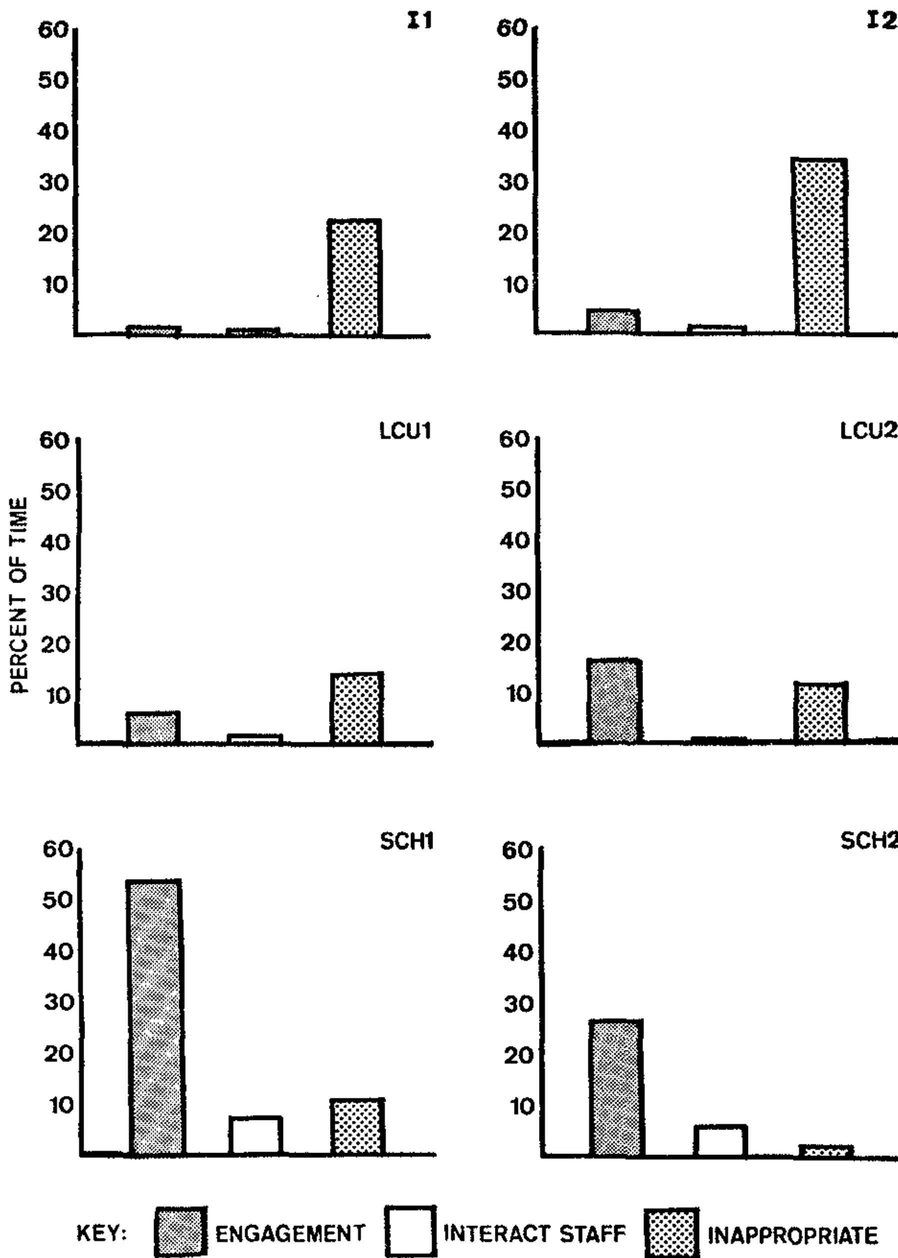


FIGURE 2 Activity (% total time) of severely and profoundly mentally handicapped adults in institutions, large community units and small community houses.



DISCUSSION

This study demonstrated greater client engagement in appropriate activity, more interaction with staff, less inappropriate activity and more staff input per client in the small community homes than either the institutional or large community unit settings. Thus it supports the findings of prior research showing a greater level of stimulation in the small community homes and the paucity of institutional environments (Felce et al, in press a). It also showed that clients in large community units were more appropriately engaged than institutional clients, a result which is also consistent with previous evaluation (Felce et al, 1980). This research therefore, although being simple in conception and design, has an importance in adding support to previous studies evaluating the relative merits of discernable types of residential setting at a global level.

Facility type has been implicated as an influential determinant of resident management practices in a setting (King, et al, 1971; McCormick, et al, 1975). This study showed consistent improvement in appropriate client activity and reduction in inappropriate activity in line with a transition across setting types from institutions to large and then small community-based homes. Many factors are involved within this transition including (a) improved staff:client ratios, (b) greater physical integration of the setting into the community, (c) smaller facility size, (d) differences in architectural design, (e) improved client access to different activity areas, (f) greater material enrichment, (g) improved autonomy over budget use and staff recruitment, and, (h) increased permanence of staff allocation in the community settings. Other research has shown that such variables on their own may not be effective in generating improvement in the quality of staff and client activity. In fact no substantial effect has been attached to improved staffing levels (Landesman-Dwyer, Note2). One may conclude that change in a considerable combination of factors, indeed large enough to be termed a change in facility type, may be necessary to generate improvement.

Even then one cannot be sure that the improvement found in the non-institutional settings has been generated by the structural differences between the settings as opposed to the consequences of other input, such as staff training or their status as new developments connected with research. Although larger than many might now consider desirable, the large community units differed from the institutions on many of the structural variables listed above but staff performance per client was remarkably similar in extent and content. Moreover, the variation between settings of ostensibly the same type adds weight to the view that it is not just the structural features of the residential model which determine quality of outcome.

Higher levels of client activity in the small community homes were strongly associated in this and the prior study (Felce et al, in press a) with raised levels of staff performance. Although these in turn were related to improved staff:client ratios, such favourable staffing conditions were also present in one of the institutions and large community units in this study without generating similar staff performance. What perhaps is more directly relevant to the differences found was the content of the training staff in the small homes had received (Felce et al, Note 3). This had emphasised the importance of client engagement in meaningful activity in general and participation in household life in particular and characterised the staff role as helping the handicapped resident join in by providing antecedents and consequences to support client engagement rather than doing tasks for clients themselves.

Complementary research suggests that there are important elements in the structure of the small home service: (a) smallness of scale which may encourage staff:client groupings conducive to higher levels of staff:client interaction and activity (Felce et al, in press b), (b) the absence of domestic and catering staff doing such activities independently of clients (Felce et al, in press a), and (c) the opportunities available in the materially enriched environments (Felce et al, 1985). But whether such opportunities would be realised without the emphasis on staff procedures is not known. However, although one cannot be sure about causation, it is fairly certain that there are many factors other than size (small) and location (community-based) being assessed in this and other studies on residential care. The client and staff activity levels can only be viewed as a product of the entire model of care and not as the inevitable property of all small community-based housing schemes. Nonetheless, this research has shown that high quality staff per formance can occur and that severely and profoundly mentally handicapped clients can be supported in considerable meaningful occupation in ordinary housing. As we look to improve residential services by developing alternatives to traditional institutions, it is clearly important that staff training and procedures for organising and motivating staff performance are given the same emphasis as the initial planning of the residential model and the search for the optimum service structure.

SUMMARY

Recent work evaluating residential care for mentally handicapped adults has supported moves away from large institutions to smaller community homes. Patterns of client behaviours and staff interaction in two small community homes were compared with those found in two larger 25-place local community units and two institutions. The results showed increased levels of client engagement in activity and staff interaction in the small homes compared to both the institutions and large community units. Client engagement in the latter was found to be higher than in the institutions but this was not true of staff activity. The need for further research to clarify the comparative effects of size, staff/client ratios, staff training and the organisational and design features of residential environments is discussed.

Reference notes

1. REPP, A., HARMAN, M. & FELCE, D. A real time parallel entry portable computer system for observational research. Dept. of Learning, Development and Special Education, Northern Illinois University.
2. LANDESMAN-DWYER, S. The changing structure and function of institutions: a search for optimal group environments. Paper presented at the NICHD Lake Wilderness, WA conference on the impact of residential environments on retarded people and their care givers. August 28-31, 1982.
3. FELCE, D., JENKINS, J., MANSELL, J., DE KOCK, U., TOOGOOD, S., & POMPHREY, A. Staff Induction Training, Department of Psychology University of Southampton.

References

BALLA, D. (1976) Relationship of institution size to quality of care; a review of the literature. *Am. J. Ment. Defic.* 81, 117-124.

BJAANES, A. T., & BUTLER, E. W. (1974) Environmental variation in community care facilities for mentally retarded persons. *Am. J. Ment. Defic.* 78, 429-439.

CLOSE, D. W., (1977) Community living for severely and profoundly retarded adults: A group home study. *Educat. Train. Ment. Retard.* 12, 256-262.

FELCE, D., KUSHLICK, A. & MANSELL, J. (1980) Evaluation of alternative residential facilities for the severely mentally handicapped in Wessex: Client engagement. *Advances Behav. Res. Therap.* 3, 13-18.

FELCE, D., DE KOCK, U. & REPP, A. C. (in press a.) An eco-behavioral analysis of small community-based houses and traditional large hospitals for severely and profoundly mentally handicapped adults. *Appl. Res. Ment. Retard.*

FELCE, D., THOMAS, M., DE KOCK, U., SAXBY, H. & REPP, A. (1985) An ecological comparison of small community-based houses and traditional institutions II: Physical setting and the use of opportunities. *Behav. Res. Therap.* 23, 3, 337-348.

FELCE, D., REPP., A. C., DE KOCK, U., THOMAS, M., AGER, A. & BLUNDEN, R. (in press b.) Staff : client ratios and their effects on staff interactions and client behaviour in twelve facilities for severely and profoundly mentally handicapped adults. *Analysis and Intervention in Developmental Disabilities.*

GRUNEWALD, K. (1977) Community living for mentally retarded adults in Sweden. *Current Sweden*, 159.

HEMMING, H., LAVENDER, T. & PILL, R. (1981) Quality of life of mentally retarded adults transferred from large institutions to new small units. *Am. J. Ment. Defic.* 86 2, 157-169.

KING, R., RAYNES, N. & TIZARD, J. (1971) *Patterns of residential care.* London, Routledge and Kegan-Paul.

KUSHLICK, A. (1970) Residential care for the mentally subnormal. *Roy. Soc. Health J.* 90, 5, 255-261.

LANDESMAN-DWYER, S., SACKETT, G. P. & KLEINMAN, J. S. (1980) Relationship of size to resident and staff behaviour in small community residences. *Am. J. Ment. Defic.* 85, 1, 6-17.

MANSELL, J. FELCE, D., JENKINS, J., DE KOCK, U. & TOOGOOD, S. (1983) A staffed house for eight mentally handicapped adults. *Nursing Times.* Aug. 3, 51-56.

McCORMICK, M., BALLA, D. & ZIGLER, E. (1975) Resident care-practices in institutions for retarded persons: a cross institutional, cross cultural study. *Am. J. Ment. Defic.* 80, 1-77.

REPP, A. C. & BARTON, L. E. (1980) Naturalistic observations of institutionalised retarded persons: a comparison of licensure decisions and behavioural observations. *J. Appl. Behavior Analysis*, 13, 333-341.

SMITH, J., GLOSSOP, C. & KUSHLICK, A. (1980) Evaluation of alternative residential facilities for the severely mentally handicapped in Wessex: Client progress. *Advances in Behavior Research and Therapy*, 3, 5-11.

TIZARD, B., COOPERMAN, O., JOSEPH, A. & TIZARD, J. (1972) Environmental effects on language development: a study of young children in long-stay residential nurseries. *Child development*, 43, 337-358.