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Towards an Assessment of the Relationships
Between the Residential Environment and the
Social Progress of Secondary School Boys

G.G. Able, M.A.,
P.G.C.E.

A thesis submitted to the University of Durham
for the degree of Master of Arts

April, 1983.

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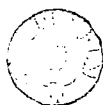
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ABSTRACT

This thesis provides an initial analysis of possible relationships between the social progress of secondary school boys and their residential environment.

Key factors in the physical environment are identified using a specially developed questionnaire, and these are further explored following discussions in the group meetings.

Techniques are developed for monitoring social progress under the two headings of independence and caring, and the monitoring process is carried out over a four term period.

Analysis of these observations leads to a hypothesis that the physical environment does influence social development in normal secondary school boys, and it further suggests that the social environment is a major factor in this development.

The research leads to positive action to improve a relatively poor part of the school's physical environment, and suggestions are made as to how the social environment in boarding schools may be further enhanced.

ACKNOWLEDGEMENTS

Many people have given me generous help with this study.

The Headmaster and my colleagues in the Common Room at Sutton Valence School have been of great assistance, and most of them have been involved in making pupil assessments on my behalf. In particular, my House Tutors, Charles Atkinson and George Anderson, and Rosa Martin, my House Matron, have contributed greatly in all the data collection, and Bob Chance generously allowed me to use St. Margaret's House for the comparative survey of facilities.

My prefectorial bodies of 1981-2 and 1982-3 have also acted as willing assessors in addition to the demanding tasks which I normally expect of them.

Ewan Anderson's guidance has been of inestimable value, and the day spent with Haydn Davies Jones in Newcastle was particularly profitable.

Ideas have been exchanged and books swapped with my fellow research student, Andy Sinclair, and my wife has somehow managed to keep me sane and reasonably calm throughout the long hours of reading, writing and statistical analysis.

I thank them all for their assistance, and above all, I thank my mother-in-law, Peggy Munro, for her typing of the manuscript.

A special word of thanks, too, goes to Graham Foulkes for all his photographic work.

G.G.A.

I am a child,
All the world waits for my coming
All the earth watches with interest
To see what I shall become.
The future hangs in the balance,
For what I am
The world of tomorrow will be.

I am a child,
I have come into your world
About which I know nothing.
Why I came I know not.
How I came I know not.
I am curious.
I am interested.

I am a child,
You hold in your hand my destiny.
You determine, largely,
Whether I shall succeed or fail.
Give me, I pray you,
Those things that make for happiness.
Train me, I beg you,
That I may be a blessing to the world.

Mamie Gene Cole, 53.

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CHAPTER 1

Introduction to the School and the aims and
background of the research project

The School

To put the research programme into context it is necessary to understand the type of school to which it refers and also to appreciate something of the local environment.

Sutton Valence was founded and endowed by William Lambe in 1576 and he entrusted "it's future maintenance and governance" to the Worshipful Company of Clothworkers.¹ It was created as a "Free Grammar School", independent of Church control, and admitted the first pupils in 1580 shortly after the founder's death.² The original buildings, of which only the Alms Houses survive, were largely replaced in 1864 by the present Lambe's House, and the School's governorship passed from the Clothworkers to United Westminster Schools in 1910.² This transfer occasioned the building of the main School block, including Westminster House, and signified a considerable expansion in numbers; the School reached its current size of 370 pupils (240 of whom are boarders) following the building of a fourth senior boarding House in 1961.

William Lambe was the son of a local Kentish landowner who became a typical example of the successful Tudor merchant middle-classes, rising to be a Gentleman of the Chapel Royal, and Fleming's account of his career³ would suggest that he would approve greatly of the School's current links with business and industry.

The School is situated on top of a ridge overlooking the Weald of Kent, and it is the principle employer in the small village which, geographically, it dominates. Its rural environment tends to encourage a happy and relaxed atmosphere, as well as removing the boarding pupils from some of the temptations which

are more readily accessible in an urban environment. The Boarding Houses have approximately sixty boys each under the care of at least three residential adults, a Housemaster (with his family), a House Tutor and a House Matron.

Sutton Valence is a fairly traditional, small independent school in that its curriculum is wide, extending outside the classroom to drama, sporting activities, music, etc., and its academic teaching is geared to 'O' and 'A' level courses. The intake is fairly comprehensive in the top 50% of the I.Q. range, and about 75% of students stay on in the sixth form and most of these progress to Universities or Polytechnics.

The aims of this Research

1. To identify key variables in the total residential environment.
2. To develop the study of the social progress of boys as they move through the various age groups in the House, with particular reference to their increasing independence and the development of a caring attitude towards others.
3. To develop methods for quantifying the above progress via a check list system using assessments from other members of staff, including non-academic staff and senior boys.
4. To assess possible relationships between the residential environment and social progress.

Aim 1 is pursued in Chapter 2, which includes an inter-house comparison, whereas aims 2 and 3 are covered in the following two chapters.

Aim 4 is discussed in Chapter 5, and Chapter 6 looks forward to possible future developments.



Plate 1a The Dormitory



Plate 1b 2nd Floor Bathroom



Plate 2

The Dayroom



Plate 3 A Den



Plate 4

A Study-bedroom

CHAPTER 2

THE HOUSE ENVIRONMENT

- (a) The Housemaster's view
- (b) Questionnaire development
- (c) The pupils' view by questionnaire
- (d) The pupils' view by group meeting

The House Environment

a. The Housemaster's view and the Basic Layout

If there were no financial restrictions, one might immediately make many changes to the House environment, but economic factors do not allow this to happen, and one therefore has to identify priorities for improvements to the physical environment and attempt to achieve them in the desired order. The boys' section of the House is on three levels, and the plan of each floor is as shown on the adapted architect's drawings shown in Figure 2.1.⁴

The ground floor accommodation includes recently modernised changing rooms and lavatories, five study-bedrooms, the dayroom, the dens and a library/games room. The dayroom desks and the study cubicles in the dens are now somewhat decrepid, and are the oldest facilities in the House. The games room contains a table tennis table, a fiction library and numerous board games, and it also affords free access to the Housemaster's study and accommodation.

The first floor contains twenty-one study-bedrooms which were constructed from the then senior dormitory eleven years ago, a television room - now equipped with a colour set, a kitchenette, washrooms and lavatories. These latter three facilities were fully modernised four years ago, and most study-bedrooms have been repainted, mainly by the boys themselves, during the last two years.

Similar washrooms and lavatories are located on the second floor which also includes the dormitory: this houses thirty-two boys, but is partitioned off into smaller units. Although somewhat old-fashioned in concept, having no curtains and bare boards on the

floor, the dormitory is a well-decorated and pleasant room. There is a study-bedroom just outside the dormitory, and this is generally occupied by a senior prefect. The House Tutor's study, the House Matron's accommodation and the linen room are also located at the South end of this floor.

b. Planning an investigation of the boys' and the staff's view of various House facilities and possible improvements.

Various assessment techniques were considered for this investigation, and the advantages and disadvantages of each possible instrument were appraised as follows:-

(i) Assessment by individual interviews.

This type of instrument has many advantages: the skilled interviewer can ensure that each question is understood by the respondent, and some open ended questions can be introduced to allow a greater range of responses if desired.⁵ At the same time, the formal interview allows for the stimulus-response situation to be standardised for a number of interviewers and is hence a convenient instrument for statistical analysis.⁶

The absence of skilled interviewers, however, makes interviewer bias a potential problem,^{7, 8} and the interviews would undoubtedly be discussed widely in a closed community: thus whilst initial results might reflect the views of individuals, group responses would probably soon take over. Sampling techniques could be used⁷ and this would reduce the number of interviews, but it would also reduce the data collected to a level which would make the statistics meaningless. It was thus concluded that, despite several advantages, the formal interview technique would be inappropriate in this particular survey.

Fig 2.1

WESTMINSTER HOUSE PLAN

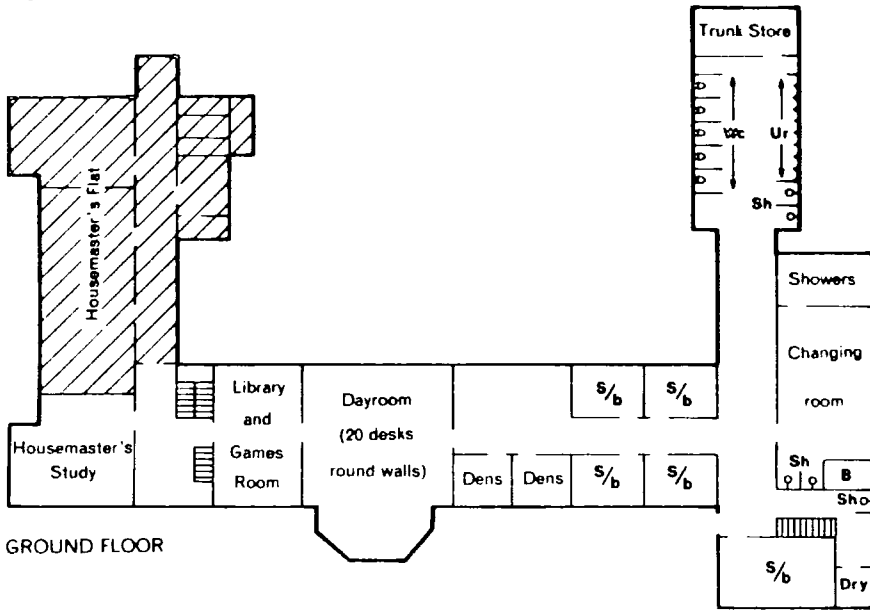


Fig 2.2

WESTMINSTER HOUSE PLAN

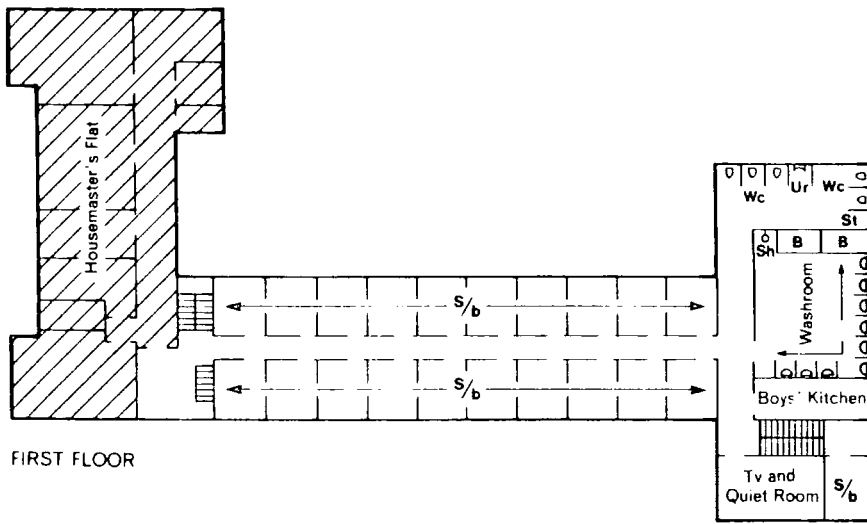
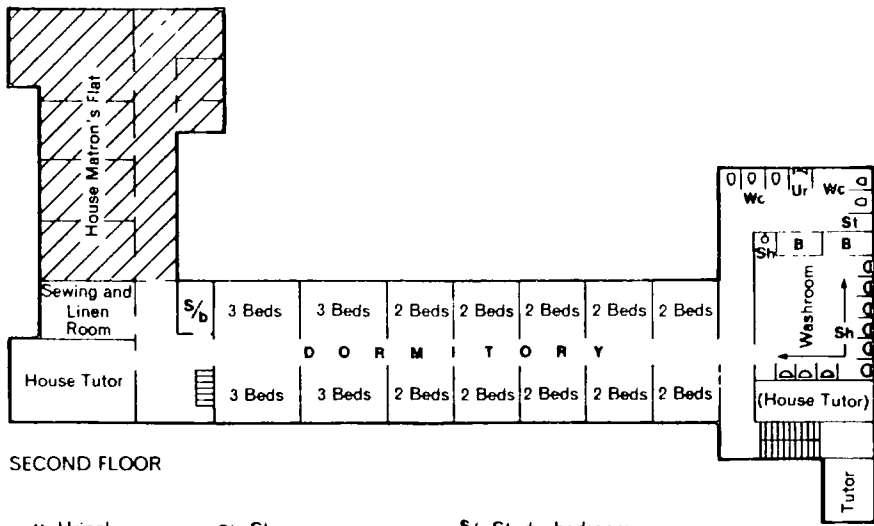


Fig 2.3 WESTMINSTER HOUSE PLAN



SECOND FLOOR

- | | | | |
|-----------|---------------------|------------------------------|--------------|
| Ur Urinal | Sh Showers | S _b Study-bedroom | |
| B Bath | S Sink or Washbasin | Dry Drying room | st Storeroom |

(ii) Self-administered questionnaire.

Traditionally this instrument is administered by mail, and one of its great problems is the low response rate achieved by this method:⁷ this in turn often upsets the balance of the chosen sample population. With a captive population on site, however, this considerable disadvantage disappears. Another pitfall of this method is the respondent who fails to understand a given question, but in the particular situation careful questionnaire design and piloting should avoid this. Such a questionnaire cannot, by its very nature, investigate in as much depth as the interview,⁶ but as this survey is confined to assessing straightforward preferences and ratings this is not an important consideration. It was thus decided that a self-administered questionnaire would be the major instrument of assessing the House's evaluation of its own environment. The development of this questionnaire is described below.

(iii) Less obtrusive measurements.

The objections to the use of interviews or questionnaires on their own and the desirability of multiple operationism in order to reduce methodological weaknesses are well documented in Webb et al⁹. Some inherent sources of invalidity in obtrusive measures are listed below.

- (i) The guinea-pig effect - the very awareness of being tested or questioned can induce different attitudes.
- (ii) Role selection by the person being questioned. This is probably even more prevalent amongst role-conscious adolescents than in an adult population.

- (iii) Measurement as a change agent. In this particular case, the very fact that questions are being asked about the environment may stimulate criticism of those areas in the House where change may be of most benefit to the individual respondent, rather than the areas where change is most needed.
- (iv) Response sets: these are particularly applicable to questionnaires - respondents will say 'yes' to something more readily than 'no' to its opposite.
- (v) Population stability over time. This is an obvious problem with this particular study where the attitudes of the House may well change considerably, as the population changes completely over a five-year cycle.
- (vi) Population stability over area. This is not applicable to one boarding House, but it may well account for any differences in attitude between the two boarding Houses surveyed.

Having listed these objections to obtrusive measures, it becomes obvious that some less obtrusive measure is desirable to be used in conjunction with a questionnaire. This way it should be possible to test the same attitudes using methods with different methodological weaknesses. Although no completely non-reactive measure is really applicable to such a survey, group meetings were held with the three most senior year groups where general discussion of the House environment was the main aim. Observation of these meetings gave some measure of attitudes towards the various facilities in the House and the priorities for future improvements.

The development of the questionnaire.

To facilitate analysis of the results it was decided to restrict the questions to those of a closed nature thus eliminating the need for coding any free response answers.⁷

Three aims were identified for the questionnaire:

- a. to find out which areas of the House were most important for social contact,
- b. to determine the adequacy of each area or facility and
- c. to determine an order of priority for certain suggested improvements.

The first and third aims seemed best suited to a ranking approach, whereas the rating of facilities should be most readily measured by a rating scale.

Ranking is a somewhat crude instrument as it produces an order, but the size of rank-intervals is unknown and unlikely to be equal.⁷ It is, however, a convenient instrument for the target population to understand, and it should provide the necessary orders of importance, both for areas of social contact and for possible improvements to facilities. The final questionnaire asks respondents to rank eight areas for importance as meeting places and seven possible improvements to facilities; both questions thus come within Oppenheim's suggestion of a maximum of ten items to be ranked.⁷ The instructions to the respondents were re-written between the original draft and piloting in order to point out the possibility of equal ranking for two or more items.

The assessment of House facilities required the provision of a suitable rating scale, and, as all the target population were familiar with a five point scale for academic achievement within the School, it was decided to use a five point scale. Again

in this second survey is thus likely.⁷ In both surveys the anonymity of the responses was stressed in order to encourage frankness.

The questionnaire is reproduced on the following two pages.

Confidential. Westminster House Survey

The results from this survey will be used for statistical purposes only. Please complete the form NOW, without any reference to anyone else.

1. Please put a CIRCLE round your year group (a second year fifth former counts as lower sixth).

U6 L6 5 U4 L4/3 St.

2. Rank the following for importance as areas for meeting and talking to other members of the House: corridors, dayroom, dens, dormitory, library/games room, study-bedrooms, TV/Quiet room, washrooms.

N.B: put the most important area FIRST. You may place two or more areas as being of equal importance if you so wish.

- | | |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. | 8. |

3. Score each of the following facilities for their quality on the 1 to 5 scale as indicated. (Think of the scale as a grade period assessment of standard):

1. Excellent, no need of any improvement in the near future.
2. Good, any minor improvements will be of low priority.
3. Adequate, some, mainly minor, improvements desirable in the near future.
4. Poor, some improvements necessary as soon as possible.
5. Totally inadequate, major improvements urgently required.

<u>Facility</u>	<u>Score</u>
Dayroom	
Dens	
Dormitory	
Library/Games Room	
Television Set	
Quiet room	
Study-bedrooms	
Changing room	
Washrooms	

4. Rank the following possible improvements in order of priority (as above, you may place two or more improvements as being of equal importance if you so wish):

Carpeting the dormitory, carpeting the study-bedroom corridor, curtains in the dormitory, improvements to dayroom, improvements to dens, provision of a colour T.V., wardrobe-type cupboards in the dormitory.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Thank you very much for your co-operation.

GGA/1982.

(c) Interpretation of Results of Surveys.A. Area of Social Contact (See Tables 2.1 and 2.2)

These tables show average rankings for areas of social contact via Year Group. Although overall average rankings have been produced for each House surveyed, these are fairly meaningless statistics, and there is no definite positive correlation between the average rankings of the two Houses. The Spearman rank correlation coefficient ¹⁰ between the two Houses is +0.10, with confidence limits between +0.65 and -0.60. The one most noticeable difference in the average rating, the much greater importance of the TV/Quiet Room in St. Margaret's is, however, significant, as this room is used as a meeting area for the dayroom and dens population during the daytime; on the other hand the Westminster junior boys tend to use the dayroom and dens as their social area. Post survey questioning in Westminster suggested that this difference in social habits was largely influenced by the banning of loud music from the TV/Quiet Room in Westminster. The other significant difference between the two Houses was in the responses of fifth-form boys to this question: the St. Margaret's fifth formers all had study-bedrooms in 1981/2 whereas only two Westminster fifth formers enjoyed this privilege, the others being accommodated in the "dens" during the daytime and sleeping in the dormitory.

Thus the dominance of study-bedrooms as a social contact area for the St. Margaret's fifth former is matched in Westminster by a dominance of the dormitory and the dens. Also, the television-watching rules in both Houses allow considerable scope for the sixth formers to view after prep: this is reflected by the high ranking of the T.V./Quiet Room as a social contact area by the senior boys in both Houses. The different rankings by junior boys

TABLE 2.1

WESTMINSTER HOUSE SURVEY - AREAS OF SOCIAL CONTACT

Year Group	AREA							
	Day Room	Dens	Dormitory	Lib./ Games	Corridors	T.V. Quiet Room	Wash-rooms	Study Bedrooms
Staff N = 5	9	17	14	28	33	21	34	23
Total Placings	1.80	3.40	2.80	5.60	6.60	4.20	6.80	4.60
Av. Position	1	3	2	6	7	4	8	5
Rank Order								
U.6 N =10								
Total Placings	45	45	42	66	42	38	57	19
Av. Position	4.50	4.50	4.20	6.80	4.20	3.80	5.70	1.90
Rank Order	5=	5=	3=	8	3=	2	7	1
L.6. N =15								
Total Placings	68	74	90	96	66	42	73	22
Av. Position	4.53	4.93	6.00	6.40	4.40	2.80	4.87	1.47
Rank Order	4	6	7	8	3	2	5	1
5* N=11(9)								
Total Placings	46 (34)	32 (20)	29 (19)	69 (56)	65 (57)	52 (42)	53 (49)	39 (37)
Av. Position	4.18 (3.78)	2.91 (2.22)	2.64 (2.11)	6.27 (6.22)	5.91 (6.33)	4.73 (4.67)	4.82 (5.44)	3.55 (4.11)
Rank Order	4 (3)	2 (2)	1 (1)	8 (7)	7 (8)	5 (5)	6 (6)	3 (4)
U.4 N = 9								
Total Placings	18	17	24	43	51	44	55	68
Av. Position	2.00	1.89	2.67	4.78	5.67	4.89	6.11	7.56
Rank Order	2	1	3	4	6	5	7	8
L.4 N =12								
Total Placings	13	44	33	55	60	61	75	79
Av. Position	1.08	3.67	2.75	4.58	5.00	5.08	6.25	6.58
Rank Order	1	3	2	4	5	6	7	8
Overall N =62								
Total Placings	199	229	232	357	317	258	347	250
Av. Position	3.21	3.69	3.74	5.76	5.11	4.16	5.60	4.03
Rank Order	1	2	3	8	6	5	7	4

* Figures in parenthesis discount the responses of the two fifth formers in study bedrooms.

TABLE 2.2

ST. MARGARET'S HOUSE SURVEY - AREAS OF SOCIAL CONTACT

	AREA							
	Day Room	Dens	Dormitory	Lib./ Games	Corridors	F.V. Quiet Room	Wash-rooms	Study Bed-rooms
Staff N = 3								
Total Placings	9	17	3	23	8	16	22	10
Av. Position	3	5.67	1	7.67	2.67	5.33	7.33	3.33
Rank Order	3	6	1	8	2	5	7	4

U.6. N = 5								
Total Placings	23	29	20	26	26	12	26	9
Av. Position	4.6	5.8	4.0	5.20	5.20	2.4	5.20	1.80
Rank Order	4	8	3	5=	5=	2	5=	1

L.6 N = 6								
Total Placings	34	35	38	37	21	13	20	8
Av. Position	5.67	5.83	6.33	6.16	3.5	2.17	3.33	1.33
Rank Order	6	5	8	7	4	2	3	1

5 N = 12								
Total Placings	61	67	91	70	40	34	41	15
Av. Position	5.08	5.58	7.58	5.83	3.33	2.83	3.42	1.25
Rank Order	5	6	8	7	3	2	4	1

U.4 N = 10								
Total Placings	53	17	27	52	60	25	54	71
Av. Position	5.30	1.70	2.70	5.20	6	2.50	5.40	7.10
Rank Order	5	1	3	4	7	2	6	8

L.4 N = 12								
Total Placings	35	62	36	73	63	30	51	79
Av. Position	2.92	5.17	3.00	6.08	5.25	2.50	4.25	6.58
Rank Order	2	5	3	7	6	1	4	8

Overall N = 48								
Total Placings	215	227	215	281	218	133	214	192
Av. Position	4.48	4.73	4.48	5.85	4.54	2.77	4.46	4.00
Rank Order	4=	7	4=	8	6	1	3	2

of this area between the two Houses has already been discussed above.

Interestingly, in Westminster it was possible to apply certain non-reactive measures⁹ to compare the usage of the various areas. These observations backed up the overall results of the ranking in the survey as more damage reports (fused lightbulbs, damage to fabric, etc.) were written for the dayroom and dens, in that order, than for the rest of the House put together. The damage reports for 1981/2 academic year were as follows:-

Dayroom	21
Dens	15
Dormitory	8
Study/Bedrooms	9
T.V./Quiet Room	2
Corridors	3
Washrooms	5
Lib./Games Room	2

The comparatively high number of five for the washrooms included three requests to the maintenance staff to adjust the automatic temperature control on the showers, and this did not reflect boy usage. It should also be noted that sixteen of the damage reports in the dens and dayroom were referring to a disastrous design of chair which is being phased out on account of its fragility, but nevertheless this unobtrusive measure helps to give credence to the questionnaire answers.

B. Rating of House Facilities (See Tables 2.3, 2.4, 2.5, & 2.6)

Table 2.3 gives a full breakdown of the Westminster House responses to question 2 of the questionnaire, and Table 2.4 reports the corresponding set of responses from St. Margaret's. Tables 2.5 and 2.6 are summaries of these results.

The overall average ratings were subjected to detailed statistical analysis, firstly to determine the significance, if any

TABLE 2.3

WESTMINSTER HOUSE SURVEY : RATING OF CURRENT FACILITIES

A. Dayroom
 B. Dens
 C. Dormitory
 D. Lib./Games Room
 E. T.V. Set

F. Quiet Room
 G. Study Bedroom
 H. Changing Room
 I. Washrooms

		A	B	C	D	E	F	G	H	I
Staff (5)	1					1			2	3
	2			1			2	5	1	
	3			1	4	1	2		2	2
	4	3	1	3		3				
	5	2	4		1		1			
<u>Av. Staff Score</u>	<u>4.40</u>	<u>4.80</u>	<u>3.40</u>	<u>3.40</u>	<u>3.20</u>	<u>3.00</u>	<u>2.00</u>	<u>2.00</u>	<u>2.00</u>	<u>1.80</u>
U.6 (10)	1								3	5
	2		1	2	2	3	5	5	5	3
	3	5	4	5	4	3	5	5	1	1
	4	4	5	3	2	3			1	1
	5	1			2	1				
<u>Av. U.6 Score</u>	<u>3.60</u>	<u>3.40</u>	<u>3.10</u>	<u>3.40</u>	<u>3.20</u>	<u>2.50</u>	<u>2.50</u>	<u>2.00</u>	<u>2.00</u>	<u>1.80</u>
L.6 (15)	1						1		5	6
	2	3	1	4	4	1	5	7	7	5
	3	6		8	4	2	7	8	2	2
	4	6	11	3	4	6			1	2
	5		3	4	3	6	2			
<u>Av. L.6 Score</u>	<u>3.20</u>	<u>4.07</u>	<u>3.73</u>	<u>3.60</u>	<u>4.07</u>	<u>2.80</u>	<u>2.53</u>	<u>1.93</u>	<u>2.00</u>	<u>2.00</u>
5 (11)	1						2		2	4
	2			1	4	1	5	6	6	4
	3	6	1				4	3	3	3
	4	2	6	4	2	3		2		
	5	3	4	2		2				
<u>Av. 5 Score</u>	<u>3.73</u>	<u>4.27</u>	<u>3.64</u>	<u>2.82</u>	<u>3.55</u>	<u>2.18</u>	<u>2.64</u>	<u>2.09</u>	<u>1.91</u>	<u>1.91</u>
U4 (9)	1	1		1				2	4	3
	2			2	4		3	4	4	3
	3	3		3	4	4	4	1	3	1
	4	4	8	2	1	1	2	2		
	5	1	1	1		4				
<u>Av. U.4 Score</u>	<u>3.40</u>	<u>4.11</u>	<u>3.00</u>	<u>2.67</u>	<u>4.00</u>	<u>2.89</u>	<u>2.33</u>	<u>1.89</u>	<u>1.78</u>	<u>1.78</u>
L.4 (12)	1							1		3
	2	1	2	3	2	2	5	7	5	4
	3	6	4	6	6	4	3	4	5	3
	4	4	6	2	4	6	4		2	2
	5	1		1						
<u>Av. L.4 Score</u>	<u>3.42</u>	<u>3.33</u>	<u>3.08</u>	<u>3.17</u>	<u>3.33</u>	<u>2.92</u>	<u>2.25</u>	<u>2.75</u>	<u>2.33</u>	<u>2.33</u>
Overall (62)	1	1	0	1	0	1	3	3	16	24
	2	4	4	9	16	7	25	34	26	21
	3	26	9	26	27	19	24	21	16	12
	4	23	37	17	13	22	6	4	4	5
	5	8	12	8	6	13	3	0	0	0
<u>Av. Score</u>	<u>3.53</u>	<u>3.92</u>	<u>3.36</u>	<u>3.15</u>	<u>3.63</u>	<u>2.69</u>	<u>2.52</u>	<u>2.13</u>	<u>1.97</u>	<u>1.97</u>

Ratings: 1. Excellent : no need of any improvement in the near future.
 2. Good : any minor improvements will be of low priority
 3. Adequate : some, mainly minor, improvements desirable in the near future.
 4. Poor : some improvements necessary as soon as possible.
 5. Totally inadequate : major improvements urgently required.

TABLE 2.4


ST. MARGARET'S HOUSE SURVEY : RATING OF CURRENT FACILITIES

A. Dayroom
 B. Dens
 C. Dormitory
 D. Lib./Games Room
 E. T.V. Set
 F. Quiet Room
 G. Study/Bedrooms
 H. Changing Room
 I. Washrooms

		A	B	C	D	E	F	G	H	I
Staff	1					2			3	3
(3)	2			1		1		3		
	3		1	2	3		2			
	4	3	2				1			
	5									
<u>Av. Staff Score</u>		<u>4.00</u>	<u>3.67</u>	<u>2.67</u>	<u>3.00</u>	<u>1.33</u>	<u>3.33</u>	<u>2.00</u>	<u>1.00</u>	<u>1.00</u>
U.6	1			1		1				2
(5)	2				1	4	3	2	3	2
	3	4	3	3	2		2	2	2	1
	4		2	1	1					
	5	1			1			1		
<u>Av. U.6 Score</u>		<u>3.40</u>	<u>3.40</u>	<u>3.00</u>	<u>3.40</u>	<u>1.80</u>	<u>2.40</u>	<u>3.00</u>	<u>2.40</u>	<u>1.80</u>
L.6	1	2	2	1		2	1	1	3	2
	2		1	2		2		2	2	2
	3	2	2	3	2	2	3	1	1	1
	4	1			2		1	2		1
	5	1	1		2		1			
<u>Av. L.6 Score</u>		<u>2.83</u>	<u>2.50</u>	<u>2.33</u>	<u>4.00</u>	<u>2.00</u>	<u>3.17</u>	<u>2.67</u>	<u>1.67</u>	<u>2.17</u>
5	1	1	1	3	2	5	2	2	1	4
(12)	2	4	1	4	2	4	2	4	7	8
	3	5	6	3	5	2	4	2	4	
	4	1	2	1	3		4	4		
	5	1	2	1		1				
<u>Av. 5 Score</u>		<u>2.75</u>	<u>3.25</u>	<u>2.42</u>	<u>2.75</u>	<u>2.00</u>	<u>2.83</u>	<u>2.67</u>	<u>2.25</u>	<u>1.67</u>
U.4	1		2			1			1	3
(10)	2	2	1	4	3	5	3	1	4	4
	3	6	4	5	2	2	3	4	4	3
	4	2	3	1	4	1	2	3	1	
	5				1	1	2	2		
<u>Av. U.4 Score</u>		<u>3.00</u>	<u>2.80</u>	<u>2.70</u>	<u>3.30</u>	<u>2.60</u>	<u>3.30</u>	<u>3.60</u>	<u>2.50</u>	<u>2.00</u>
L.4	1					7		1	2	1
(12)	2	1	1	4	3	3	3	8	6	8
	3	3	7	4	5	2	6	3	4	2
	4	5	4	3	2		1			1
	5	3		1	2		2			
<u>Av. L.4 Score</u>		<u>4.00</u>	<u>3.42</u>	<u>3.08</u>	<u>3.25</u>	<u>1.58</u>	<u>3.17</u>	<u>2.17</u>	<u>2.33</u>	<u>2.25</u>
Overall	1	3	5	5	2	18	3	4	10	15
(48)	2	7	4	15	9	19	11	20	22	24
	3	20	23	18	19	8	20	12	15	7
	4	12	13	6	12	1	9	9	1	2
	5	6	3	2	6	2	5	3	0	0
<u>Average</u>		<u>3.23</u>	<u>3.10</u>	<u>2.35</u>	<u>3.23</u>	<u>1.96</u>	<u>3.10</u>	<u>2.73</u>	<u>2.16</u>	<u>1.92</u>

Ratings: 1. Excellent : no need of any improvement in the near future.
 2. Good : any minor improvements will be of low priority.
 3. Adequate : some, mainly minor, improvement desirable in the near future.
 4. Poor : some improvements necessary as soon as possible.
 5. Totally inadequate : major improvements urgently required.


TABLE 2.5SUMMARY OF RATINGS FOR FACILITIES IN WESTMINSTER HOUSE

	Facility	Average Rating	% Rating 1 or 2	% Rating 3	% Rating 4 or 5
Best  Worst	Washrooms	1.97	72.6	19.4	8.1
	Changing Rooms	2.13	67.7	25.8	6.5
	Study Bedrooms	2.52	59.7	33.9	6.5
	Quiet Room	2.69	45.2	38.7	14.5
	Library/ Games Room	3.15	25.8	43.5	30.6
	Dormitory	3.36	16.1	41.9	40.3
	Dayroom	3.53	8.1	41.9	50.0
	Television Set	3.63	12.9	30.6	56.5
	Dens	3.92	6.5	14.5	79.0

Satis-
factoryReasonably
Satis-
factoryUn-
satis-
factory

TABLE 2.6

SUMMARY OF RATINGS FOR FACILITIES IN ST. MARGARET'S HOUSE

Best  Worst	Facility	Average Rating	% Rating 1 or 2	% Rating 3	% Rating 4 or 5
	Washrooms	1.92	81.25	14.58	4.17
	T.V. Set	1.96	77.08	16.67	6.25
	Changing Rooms	2.16	66.67	31.25	2.08
	Dormitory	2.35	41.67	37.50	16.67
	Study Bedrooms	2.73	50.00	25.00	25.00
	Quiet Room	3.10	29.17	41.67	29.17
	Dens	3.10	18.75	47.92	33.33
	Library/ Games Room	3.23	22.92	39.58	37.50
	Dayroom	3.23	20.83	41.67	37.50

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of the difference in the ratings of the various facilities within one House and secondly to do an inter-House comparison. Two tests of significance could be used, the t-test for unmatched groups and a computation of confidence limits for each rating.^{10,11} In practice both tests were employed, as the t-test produces more easily interpreted results, whereas confidence limits are more scientifically rigorous. The t-tests were computed from the formula:

$$t = \frac{\bar{x}_i - \bar{x}_{ii}}{S_d}$$

where \bar{x}_i and \bar{x}_{ii} are the respective means of the two sets of ratings and S_d , the standard deviation, is given by:

$$S_d = \sqrt{\left[\frac{S_{d_i}^2(n_i - 1) + S_{d_{ii}}^2(n_{ii} - 1)}{(n_i + n_{ii} - 2)} \right] \left[\frac{1}{n_i} + \frac{1}{n_{ii}} \right]}$$

n_i and n_{ii} are the numbers of ratings in each set, and S_{d_i} and $S_{d_{ii}}$ are the respective standard deviations.

The standard deviations of each overall rating were computed using the built-in facility of a Casio Fx-501 P Calculator, and the t-tests were then worked out according to the above formula. Each t-test was then checked using the calculator programmed according to the Casio program library.¹² The results of the t-tests are shown in tables 2.7, 2.8 and 2.9; table 9 also gives the confidence limits of each average rating.

These confidence limits are 95% limits of confidence computed from the formula:

$$\text{Limits of confidence} = \pm \frac{1.96 \times S_d}{\sqrt{n}} \quad 10,13$$

TABLE 2.7

t-TEST RESULTS BETWEEN PAIRS OF RATINGS FOR FACILITIES -
WESTMINSTER HOUSE

A. Dayroom
B. Dens
C. Dermitory
D. Lib./Games Room
E. T.V. Set
F. Quiet Room
G. Study-bedrooms
H. Changing Rooms
I. Washrooms

	A	B	C	D	E	F	G	H	I
A	X	2.72	0.93	2.41	0.61	5.46	8.12	9.10	9.67
B	2.72	X	3.71	5.10	1.82	8.36	11.63	12.17	12.59
C	0.93	3.71	X	1.27	1.57	4.16	6.50	7.64	8.26
D	2.41	5.10	1.26	X	2.79	2.86	5.04	6.33	7.02
E	0.61	1.82	1.57	2.79	X	5.58	7.91	8.90	9.47
F	5.46	8.36	4.16	2.86	5.58	X	2.63	3.56	4.37
G	8.12	11.63	6.50	5.04	7.91	2.63	X	2.06	3.02
H	9.10	12.17	7.64	6.33	8.90	3.56	2.06	X	0.96
I	9.67	12.59	8.26	7.02	9.47	4.37	3.02	0.96	X

All values refer to $|t|$

For significance on a 5% two-tailed test
 $|t|$ must be greater than 1.98

TABLE 2.8

t-TEST RESULTS BETWEEN PAIRS OF RATINGS FOR FACILITIES :
ST. MARGARET'S HOUSE

A. Dayroom
B. Dens
C. Dormitory
D. Lib./Games Room
E. T.V. Set
F. Quiet Room
G. Study-bedrooms
H. Changing rooms
I. Washrooms

	A	B	C	D	E	F	G	H	I
A	X	0.62	2.66	0	6.04	1.13	2.30	5.66	6.87
B	0.62	X	2.12	0.63	5.62	0.28	1.76	5.20	6.44
C	2.66	2.12	X	2.70	3.50	1.79	0.29	2.85	4.11
D	0	0.63	2.70	X	6.13	0.90	2.33	5.77	7.00
E	6.04	5.62	3.50	6.13	X	5.21	3.66	1.04	0.22
F	1.13	0.28	1.79	0.90	5.21	X	1.45	4.75	5.98
G	2.30	1.76	0.29	2.33	3.66	1.45	X	3.04	4.25
H	5.66	5.20	2.85	5.77	1.04	4.75	3.04	X	1.44
I	6.87	6.46	4.11	7.00	0.22	5.98	4.25	1.44	X

All values refer to $|t|$

For significance on a 5% two-tailed test
 $|t|$ must be greater than 1.98

TABLE 2.9AVERAGE RATINGS OF HOUSE FACILITIES95% Confidence limits and inter-House t-tests

	Westminster House	t	St. Margaret's House
Dayroom	3.53 \pm 0.21	1.66	3.23 \pm 0.30
Dens	3.92 \pm 0.19	4.91 *	3.10 \pm 0.28
Dormitory	3.36 \pm 0.23	3.77 *	2.67 \pm 0.28
Library/Games Room	3.15 \pm 0.23	0.43	3.23 \pm 0.29
T.V. Set	3.63 \pm 0.25	8.72 *	1.96 \pm 0.28
Quiet Room	2.69 \pm 0.22	1.92	3.04 \pm 0.29
Study-Bedrooms	2.42 \pm 0.17	1.86	2.73 \pm 0.30
Changing Rooms	2.13 \pm 0.22	0.12	2.15 \pm 0.22
Washrooms	1.97 \pm 0.24	0.29	1.92 \pm 0.22

For significance on a 5% two-tailed test,
|t| must be greater than 1.98.

* Significant differences between the average ratings of the two Houses.

This formula holds true for any set of data provided n is greater than 30, and is the basis of a computer programme for the RML 380 Z developed by the author to calculate confidence limits for sets of experimental results.¹⁴ This programme was used to compute the confidence limits listed in table 2.9 and they were then checked by calculator from the known standard deviations. There is a 95% possibility of the "true" value being within the quoted limits.

(i) Facilities in Westminster House

The dens were rated significantly worse than any other facility, except for the television set (this has now been replaced with a colour model). The dayroom and dormitory were not significantly better than the television set, and the library/games room, although rated more highly than the dayroom, was statistically on a par with the dormitory. All the other facilities attracted significantly above average ratings with the washrooms and changing room coming out best, ahead of the study-bedrooms and quiet room.

(ii) Facilities in St. Margaret's House

Here, again, the washrooms and changing rooms were significantly the most highly rated facilities, together with the television set (a colour model had been installed in St. Margaret's six weeks before the survey).

The dormitory is rated as just above average, but there is no significant difference between this rating and those for the study-bedrooms and the quiet room; indeed, if confidence limits, rather than the t-test are taken as the criteria for significance, then the dens should also be included in this approximately averagely-rated group of facilities. Finally, the dayroom and library/games room are rated as significantly worse than all the other facilities, except the dens and the quiet room.

(iii) An inter-House comparison

If table 2.9 is consulted, it can be seen that there is a statistically significant difference between the two Houses in the average ratings of only three facilities.

The biggest difference occurs with the television set, and this is entirely predictable: at the time of the Westminster survey, the House had an old monochrome model, but before the St. Margaret's survey, some four months later, both Houses had been re-equipped with colour sets. It is thus an internal check on the reliability of the responses that the St. Margaret's rating of their colour television set is, indeed, much higher than that of the Westminster monochrome set.

The higher rating of the St. Margaret's dens is also understandable if these facilities are observed in the two Houses. Both contain chipboard-partitioned cubicles largely erected by boys themselves, and the Westminster ones, being older and less recently decorated, are undoubtedly "tattier" than those in St. Margaret's. In spite of this, it should be noted that no facility in St. Margaret's was rated as being significantly worse than the dens.

The difference in average rating of the two dormitories is puzzling at first sight, as the two rooms are virtually identical and both in a good state of decoration and general repair. Subsequent conversations with members of both Houses has revealed, however, that the different ratings were most likely caused by the different times of the survey: the Westminster questionnaire was administered in February, whilst St. Margaret's were not asked for their ratings until late June. As the dormitories are not very efficiently heated it is highly likely that this lack of nocturnal warmth was reflected in a less favourable rating of the dormitory by Westminster during the cold month of February as compared with

St. Margaret's during the heat of summer.

Thus, overall, there is fairly good agreement between the two Houses on the rating of similar facilities.

C. Ranking of Seven possible improvements

The results of this ranking exercise are summarised in tables 2.10 and 2.11. The Westminster survey yielded results which were consistent with the ratings given in response to question 2, and the St. Margaret's responses, although much less uniform, showed a similar trend.

If the overall rank orders are taken and the Spearman rank correlation coefficient between the two Houses computed^{11,12} no significant relationship is found as $r = +0.21$ with confidence limits of $+0.85$ and -0.60 . This seeming lack of correlation disappears, however, if one discounts the suggestion of carpeting the study-bedroom corridor which was ranked last in Westminster and first in St. Margaret's: the other six items show a high correlation in relative ranking as $r = 0.94$ with confidence limits of $+0.99$ and $+0.50$. This shows strong evidence, but the confidence level is important for a comparatively small population. The vast difference in ranking of carpeting the study-bedroom corridor may well reflect its greater usage as a thoroughfare in St. Margaret's, where it is the accepted route for all to the linen room and the House Matron, whereas the different layout of Westminster means that its study-bedroom corridor is only used for access to the study-bedrooms themselves.

Conclusions drawn from questionnaires.

The areas of Westminster most in need of improvements would seem to be the dens, the dayroom and the dormitory, in that order; These were also the three areas of the House most widely used for social contact.

TABLE 2.10

WESTMINSTER HOUSE SURVEY : RANKING OF SEVEN POSSIBLE IMPROVEMENTS

Year Group	Improvements						
	Carpet- ing Dorm	Carpet- ing S/B.Cor.	Curtain- ing Dorm	Day Room Imps.	Dens Imprv- mnts	Prov.of Colour i.V.	Wardrobes in Dorms
Staff N=5							
Total Placings	19	24	23	10	6	33	26
Av.Positions	3.80	4.80	4.60	2.00	1.20	6.60	5.20
Rank Order	3	5	4	2	1	7	6

U.VI N=10							
Total Placings	33	46	52	27	31	37	51
Av.Position	3.30	4.60	5.20	2.70	3.10	3.70	5.10
Rank Order	3	5	7	1	2	4	6

L.VI N=15							
Total Placings	62	58	53	78	46	46	70
Av.Position	4.13	3.86	3.53	5.20	3.07	3.07	4.67
Rank Order	5	4	3	7	1=	1=	6

V. N=11							
Total Placings	33	52	37	52	19	55	48
Av.Position	3.00	4.73	3.36	4.73	1.73	5.00	4.36
Rank Order	2	5=	3	5=	1	7	4

U.IV N= 9							
Total Placings	30	49	39	31	17	33	47
Av.Position	3.33	5.44	4.33	3.44	1.89	3.67	5.22
Rank Order	2	7	5	3	1	4	6

L.IV N=12							
Total Placings	38	66	49	29	43	53	47
Av. Position	3.17	5.50	4.08	2.42	3.58	4.42	3.92
Rank Order	2	7	5	1	3	6	4

Overall N=62							
Total Placings	215	295	253	227	162	257	289
Av.Position	3.47	4.76	4.08	3.66	2.61	4.15	4.66
Rank Order	2	7	4	3	1	5	6

TABLE 2.11

**ST. MARGARET'S HOUSE SURVEY : RANKING OF SEVEN
POSSIBLE IMPROVEMENTS**

Year Group	Improvements						
	Carpet- ing Dorm.	Carpet- ing S/B.Cor	Curtain ing Dorm.	Day Room Imps.	Dens Improv mnts	Prov.of Colour T.V.	Wardrobes in Dorms
Staff N = 3							
Total Placings	18	12	13	5	4	17	15
Av.Position	6	4	4.33	1.67	1.33	5.67	5.00
Rank Order	7	3	4	2	1	6	5

U.VI N = 5							
Total Placings	11	15	18	19	19	25	27
Av.Position	2.20	3.00	3.60	3.80	3.80	5.00	5.40
Rank Order	1	2	3	4	4	6	7

L.VI N = 6							
Total Placings	27	13	30	20	22	18	28
Av.Position	4.50	2.17	5.00	3.33	3.67	3.00	4.67
Rank Order	5	1	7	3	4	2	6

V. N = 12							
Total Placings	44	39	48	41	41	42	48
Av.Position	3.67	3.25	4.00	3.42	3.42	3.50	4.00
Rank Order	5	1	6	2	2	4	6

U.IV N = 8							
Total Placings	27	12	26	36	34	26	35
Av.Position	3.33	1.50	3.25	4.50	4.25	3.25	4.33
Rank Order	4	1	2	7	5	2	6

L.IV N = 12							
Total Placings	28	57	54	43	33	56	48
Av.Position	2.33	4.75	4.50	3.58	2.75	4.67	4.00
Rank Order	1	7	5	3	2	6	4

Overall N = 46							
Total Placings	155	148	189	164	153	184	201
Av.Position	3.37	3.22	4.11	3.57	3.33	4.00	4.37
Rank Order	3	1	6	4	2	5	7

The inter-House comparisons showed good agreement about two similar House environments, and most significant differences were either expected or were susceptible to rational explanation.

(c) The pupil's view by group meetings

Following the administration of the questionnaire, group meetings were held for the three senior age groups in the House to discuss the House environment and their ideas for future changes. These sessions fulfilled a further purpose, as the sociometry of each group was recorded for use in conjunction with the statistics collected in Chapter 4. The subjects covered were recorded by the use of rough pattern notes¹⁵, and the sociometry of the group was recorded in a manner similar to that suggested in the Kenton Lodge report.¹⁶ The value of group meetings in problem solving is well documented,¹⁷ and it seemed a particularly appropriate method through which to obtain an overall view of the House environment. Each group was invited to discuss the facilities of the House and the desirability of improvements to the House fabric; no further guidance was given as the purpose of the meetings was to ascertain the views of each group and not to reflect the views of the Housemaster.

In all three meetings, the dens were declared to be the area of the House most urgently in need of modernisation; purpose-built study cubicles were suggested by all three groups, and the fifth form meeting, containing all but three of the present occupants of the dens, suggested that these cubicles should be melamine faced and should contain strip lighting and a power socket in addition to adequate working space and storage facilities.

Whereas the fifth-form and lower-sixth groups thought that "softening" of the dormitory area was the next most important improvement, curtains and carpets being equally favoured by both groups, the fifth-form attached greater importance to the provision of wardrobes and the upper-sixth were keener to see the dayroom upgraded along similar lines to those suggested above for the dens. All the groups discussed the siting of the games room/House library, which the fifth form group suggested might be swapped with that of the dens.

The lower-sixth group expressed a desire to redecorate some of the study-bedrooms themselves, and this subsequently led to a total of fifteen being repainted within a month of the meeting.

The sociometry of the three meetings is summarised in Table 2.12 and this is utilised during Chapter 4.

General Conclusion.

The group meetings confirmed the questionnaire results about the House environment. Whereas the occupants of study-bedrooms had very good facilities, those provided for the less senior members of the House were not so ideal with the dens being the least satisfactory. Possible relationships between this environment and the social progress of the pupils is covered in Chapter 5.

TABLE 2.12

SOCIOMETRY OF GROUP MEETINGS

Pupil number	Positive Contributions	Negative Contributions	Net Total
U. VI			
2	16	-	16
11	10	-	10
14	2	-	2
6	8	-	8
18	3	-	3
37	9	-	9
44	7	-	7
48	10	-	10
L. VI			
53	10	-	10
21	15	3	12
55	8	-	8
49	6	-	6
32	6	-	6
26	14	3	11
25	2	-	2
3	-	-	0
45	1	-	1
27	-	-	0
1	-	2	-2
57	1	-	1
22	2	2	0
56	-	-	0
25	2	-	2
43	5	1	4
V.			
17	1	-	1
39	9	-	9
52	12	1	11
24	11	-	11
23	5	-	5
20	4	1	3
47	4	-	4
30	-	-	0
41	8	-	8

12
Absent10, 46
Absent.

CHAPTER 3

- (a) The development of techniques for
studying social progress.
- (b) The pilot scheme.

(a) The Development of Techniques

A considerable amount of work has been done on attitude assessment within residential institutions of varying types, but most of the available literature refers to populations which can be regarded as being in some way atypical. The aim of this research was to monitor the progress of the normal secondary school pupil in a boarding environment, and although the methods used owe much to previous workers, they have been very much tailored to suit the circumstances of one boarding House in a particular school. Many of the specific measurements used have been taken directly or adapted from the Kenton Lodge project¹⁶ and the more general research work of the Boarding Schools Association.¹⁷ Many other sources were very useful in planning the variables for measuring social progress, notably Beedell,¹⁸ Brown B. and Christie and Brown H. and Stevens.²⁰ In addition Priestly et al²¹ and Goldstein et al²² helped to identify the specific skills needed for community living.

Following Anderson and others at Kenton Lodge¹⁶ it was decided to group the various assessments together under two main headings, independence and caring. An independence index should be a measure of the individual's ability to do without support from the community, whereas the caring index should reflect his willingness to help other individuals and to contribute towards the general good of the community.

Independence and caring indices were chosen as the parameters for measuring social progress as these reflected

two key social aims of Sutton Valence and many other boarding schools. Certainly, parental expectation of such schools includes increased independence and a greater care for others as Lambert²⁴ indicates:

"We live in an isolated village with no social life... we feel that boarding school would give him a greater sense of values and an independent outlook."

"Being an only child we feel that David would benefit from the communal life at a boarding school, learning self-reliance and how to mix and live with others."

Although Lambert and his co-workers²⁵ found only limited evidence that boarding schools approached such goals more effectively than their day counterparts, verdicts quoted by pupils in Lambert's previous work²⁶ suggest that they feel that the experience of boarding has helped towards realising these goals:

"You have to fend for yourself and make your own decisions."

"I have learned the meaning of tolerance and charity."

In order to eliminate bias and prejudice, it was decided to use at least two and up to four independent measurements of each variable. Thus each boy in the lower sixth form and below was assessed by the Housemaster, House Tutor, House Matron and a prefect; although such assessments were all treated in strict confidence, it was nevertheless felt improper for one upper sixth former to assess another, and so the most senior

students were only graded by the staff. Similarly, as shown below, there were some headings under which one or other of the assessors felt incompetent to judge, and these parameters were therefore assessed by fewer observers.

Methods of assessment were considered very carefully. Although ways of using qualitative data were contemplated, particularly following J.L. Chatterton's recent research²³ into the collection and analysis of such data, it was eventually decided that the numbers involved, and the time-scale of the research, would invalidate this, and it was therefore decided to make all assessments on a numerical scale. Many scales have been suggested for attitude measurement, but after considerable literature research (Shaw and Wright,²⁷ Oppenheim,⁷ Anderson,^{16,17} Henerson²⁸ and others) it was decided to use a five-point assessment of each variable. From a statistical point of view, a six point scale may well have been preferable, but the familiarity of the observers with a five-point School grades scale meant that they were likely to operate a similar assessment system more confidently. For ease of statistical treatment the rating scale chosen actually worked in the opposite direction from the School's academic grades, but this was deemed acceptable after discussion.

(b) Piloting the Assessment Technique

It was decided to make the following assessments in the pilot scheme.

The extreme ratings for each of these seventeen measures is summarised in Table 3.1, and while it was realised that there was some overlap between some of these factors, the assessors felt that they were reasonably discrete and that each one represented an important contribution to the social aims of a residential community.

A. Measurements of Independence

A.1. Personal Hygiene

A good score for personal hygiene was indicative of a student who regularly changed underwear, socks and shirt without prompting from the House Matron and who was regular and thorough in his bathing and tooth cleaning habits.

Only the House Matron was deemed to be in a position to judge personal hygiene, so this factor was assessed solely by her.

A.2. Personal Tidiness

Observers were asked to note the general appearance of the individual student including the state of his hair, shoes, school clothes and casual clothes during each assessment period.

This factor was individually assessed by the House Matron, House Tutor and the group prefect (except for U.VIth).

A.3. Self-control

The student was rated according to his ability to control his temper and emotions. A high score indicated a student who was not prone to loss of temper or emotional outbursts. The House Matron was not keen to make this assessment for all pupils as she felt that certain types of loss of self-control came to her attention more than others, and hence it was assessed by the other three observers.

A.4. Initiative

All four observers assessed this factor, which was defined as performing or planning tasks or contributing ideas without prior stimulus from others.

A.5. Self-confidence

This was again assessed by all four observers who rated the pupil's confidence in his dealings with other people and his ability to cope with varying situations.

A.6. Recreational reading

The student was assessed by the Housemaster and the House Tutor as to his recreational reading habits; this was done by casual observation in dayrooms, study-bedrooms and the dormitory during each observation period.

A.7. Self-expression

Clarity of enunciation, accurate communication of ideas and extent of vocabulary were jointly assessed under this heading. The prefects felt that their abilities to judge use of language would probably vary too widely, and this was thus assessed by the three adult House staff.

A.8. Sports effort

Each master in charge of a given sports game or group was asked to assess each Westminster pupil in that group at the end of each term. In order to ensure that effort rather than ability was being measured, these members of staff were asked for two grades, a number from one (excellent) to five (very poor) for ability at the sport and a letter from A (100% effort) to E (no real effort at all) for commitment or effort. Although both measures, converted to a five (excellent)

to one (very poor) scale, were recorded, only the effort grade was used as part of the survey.

A.9. Activities commitment

The member of staff in charge of each pupil's chosen activity or hobby was asked to assess that pupil's contribution to his activity or hobby at the end of each term. A five point A to E scale was used as this is associated with effort grades in the School grades system (see below), and this was then converted into a numerical scale (A = 5 etc.) before entering onto the pupil's record sheet.

A.10 Work effort

Each student up to and including those in the lower sixth are graded every "period" (usually about three weeks) by every member of staff who teaches him. A number grade is given for achievement on a five point scale with one representing academic excellence and five indicating a very poor standard; up to the fifth form a grade three is used to represent work compatible with a grade C at G.C.E. Ordinary level. A letter grade, A (excellent) to E (idle), is also given to report on the effort of the pupil during that particular period. This effort grade is the device used in this research to rate the academic effort of each pupil, the rating being calculated as follows:-

for each A grade, count +2

for each B grade, count +1

for each C grade, count 0

for each D grade, count -1

for each E grade, count -2

Let the total count be X , and the total number of grades be N .

Then the following five point scale was used to assess overall the effort grades:

<u>Score</u>	<u>Value of X/N</u>
5	greater than +1
4	between +0.5 and +1 (inclusive)
3	above -0.5 but below +0.5
2	between -1 and -0.5 (inclusive)
1	less than -1

The upper sixth formers do not receive such periodic grades, and their effort was thus assessed from their subject reports at half term and at the end of each term. This measurement was achieved by the Housemaster subjectively converting each report into an estimated School effort grade and then applying the above formula in order to obtain a rating on the five point scale.

A.11. Responsibility

This was assessed by the Housemaster and House Tutor, and was deemed to have two components, responsibility of behaviour and willingness to assume leadership.

B. Measurements of caring

B.1. Co-operation with authority

The helpfulness of the pupil to the teaching staff, to the House Matron and her staff and to the prefectorial body was assessed. The Housemaster and House Tutor made an overall assessment, whereas the House Matron and the group prefect concentrated on their own particular areas.

B.2. Co-operation with peer group

The loyalty of the student to his peer group, and his willingness to participate in peer group activities was assessed by the Housemaster and the House Tutor.

B.3. Peer group acceptance.

The popularity of the student with his peer group was assessed by all four observers. This was used as a measurement of how sociable and caring a person the student was reckoned to be by his peer group; previous observation suggested that selfish students were not popular.

B.4. Voluntary House Activities

The helpfulness of the pupil in House activities and his general commitment to House affairs was assessed by three observers. The House Matron felt that she was less able than them to make this assessment.

B.5. Sensitivity to others

This measure was assessed by all four House observers for each student, and the rating indicated the amount of concern and care shown towards others and the degree of appreciation of other people's attitudes and problems.

B.6. Current affairs and Philosophical interest

The pupil was rated by the Housemaster and the House Tutor for his knowledge and appreciation of world affairs, moral issues and his general philosophy of life.

TABLE 3.1ASSESSMENTS : SUMMARY OF SCORES FOR EACH PARAMETER

Assessed Parameter	Score 5	Score 1
Personal Hygiene	Fastidious in personal hygiene.	Always needs to be told to change clothes. Showers and bathes insufficiently.
Personal Tidiness	Shoes always polished, hair combed, generally tidy.	Dishevelled, dirty shoes, ink on shirt, gravy on tie.
Self Control	Calm, always in control of emotions.	Prone to outbursts of shouting, crying or violence; very touchy.
Initiative	Great initiative shown around House and School.	Never even thinks about doing anything unless asked.
Self Confidence	Copes readily with all situations : untroubled by crises, and not subject to self-doubt.	Always worried about coping; doubts own ability to succeed in anything.
Recreational Reading	Reads widely and avidly	Never reads a book outside his English Syllabus.
Self Expression	Enunciates clearly and communicates his ideas accurately. Extensive vocabulary.	Mumbles and fails to communicate adequately. Limited vocabulary.
Sports Effort	Always gives 100% effort, keen to improve individual and/or team skills.	Makes no effort at all, does as little as possible.
Activities Commitment	Works hard at hobby or activity and always contributes fully to it.	Misses activity sessions often and shows no interest when he does turn up.
Work Effort	Average effort grade better than B.	Average effort grade worse than D.

Cont...

TABLE 3.1 (Contd.)

Assessed Parameter	Score 5	Score 1
Responsibility	Behaves in a sensible and trustworthy manner. Does nothing which is likely to cause harm to people or property. Shows positive leadership.	Behaves in a totally unthinking and silly manner. Shirks responsibilities.
Co-operation with Staff.	Friendly, polite and obliging towards Staff.	Hostile, uncommuni-cative and disruptive.
Co-operation with Peer Group	Always prepared to join in with peer group activities. Loyal to peer group.	A loner; cuts himself off from peer group contact.
Peer Group Acceptance	Liked by all peer group.	Unpopular in House, avoided by rest of peer group.
Voluntary House Activities.	Volunteers for House debates, House duties, helping Matron with cocoa, etc. Carries out set duties well and with good grace.	Never volunteers for anything. Shirks all duties possible, and only completes tasks if supervised.
Sensitivity to others	Shows genuine care and concern for others. Protects the weak and stands up against bullying or teasing.	Insensitive, teases others or even bullies them. Does not consider the feelings of others at all.
Current affairs and philosophical interest	Has an excellent knowledge of current affairs and world problems. Takes a keen interest in philosophical, theological and/or political ideas and discussions.	Has no idea what is going on in the world, never listens to Sunday sermon and does not read a newspaper.

In addition to these variables, ratings were obtained for general happiness and, from the Matron only, for general health.

After piloting the assessments for a group of six students of varying ages for a two week period, it was found that the observers' totals for "independence" and "caring" correlated very well, even if they differed considerably over some individual measures for particular pupils. It was decided at this stage that general health was not a suitable measure for incorporation into the survey, but that the House Matron would continue to assess this for internal use if necessary. Likewise it was decided that happiness should continue to be monitored, even though it would not be used for statistical analysis, as any low score here would necessitate action by the House staff or prefects, and it was thus a very useful internal measurement.

It was finally decided that the main research programme would be over one academic year plus one term; this allowed time to study one full year and to do a further comparison of two similar terms in different years.

Each observer's measurements would be averaged over the term, and then the mean of the various observers' averages taken for each parameter. This method gives a large number of observations for each measurement in accordance with scientific practice, and, as emphasised by Bauman,²⁹ allows greater confidence in the results.

Indices could then be calculated for the two variables, independence and caring; it was decided to quote these as

percentage ratings, thus:

Independence index = sum of the mean ratings for all
 the A parameters $\times \frac{100}{55}$

and

Caring index = sum of the mean ratings for all the
 B parameters $\times \frac{30}{100}$

As Cronbach³⁰ and others have pointed out, such indices calculated from sets of results are more reliable than the single results themselves. This was considered a vital part of the experimental design.

CHAPTER 4

The Social Progress of the pupils over
the four term study.

This study was completed during the four terms from September 1981 until December 1982, and every pupil in the House, including those who joined or left the House whilst the survey was in progress, was monitored throughout that period.

The assessors were each provided with rating sheets for individual students and these were constructed to minimise potential sources of error. Thus, as in the survey described in Chapter 2, in order to reduce the well-known halo effect,⁷ the assessor was asked to insert a rating from one to five in each box rather than to mark a position on a printed scale. Three types of rating sheet were produced, one each for Housemaster/tutor, House Matron and group prefect; the variables to be measured were listed in different orders on these three types of pro-forma, and there was a deliberate mixing of the independence and caring variables on all three. It was hoped that these precautions would further reduce any halo effect, and also guard against any one variable from becoming unduly influential, as it has been shown that the first rating in such a list can often influence the remainder.^{7, 28}

Examples of the three types of record sheets are shown in Tables 4.1 to 4.4. It should be noted that the Housemaster/tutor's record sheet has spaces for the Housemaster to record the gradings of other colleagues who assessed sporting or activity commitment as all the ratings were transferred to this sheet at the end of each term. Table 4.5 shows the form sent out towards the end of each term to each master in charge of a particular game or activity; these measurements were

obtained only once in a term, whereas all other assessments were made at the end of each School academic grades period: this resulted in four assessments in each of the two autumn terms, two in the Lent term and three in the Summer term, and these were then averaged out for a termly assessment of each parameter as discussed in Chapter 3.

The tables 4.1 to 4.4 show actual ratings for one pupil for the final term of the project; this pupil was in the upper fourth for the first year of the survey and these assessments refer to his first term in the fifth form; he moved into a study-bedroom for the first time at the beginning of this term. The data from table 4.1 is used below to illustrate the calculation of independence and caring indices. In tables 4.1 to 4.5 the names of the pupils have been replaced by numbers assigned by the Housemaster to protect the anonymity of individuals.

TABLE 4.1HOUSEMASTER'S ASSESSMENT RECORDS FOR EACH GRADE PERIOD

Name of Pupil: 19

Form: 5

Assessment	1	2	3	4	Hsmstr's Total	Tutor's Total	Matron's Total	Prefect's total
Pers.tidiness	4	4	4	4	16	12	16	16
Co-operation with staff	4	4	3	3	14	12	15	12
Co-operation with peer gr.	4	4	4	4	16	16		
Peer group Acceptance	4	4	4	4	16	16	13	8
Self Control	3	3	3	3	12	12		15
Initiative	3	3	3	3	12	12	12	12
Vol.House activities	3	3	3	3	12	12		9
Sensitivity to others	3	3	3	3	12	12	12	12
Happiness	4	4	4	4	16	16	16	14
Self- confidence	4	4	4	3	15	16	16	12
Recreational Reading	3	3	3	3	12	12		
C/A & phil. Interest/ideas	4	4	3	3	14	12		
Self Express.(oral)	3	4	4	3	14	12	16	
Responsibility	3	4	3	3	13	12		
Personal Hygiene							16	
Sports effort				2				
Activities Commitment				4				
Work Effort	4	4	3	4				

TABLE 4.2HOUSE TUTOR'S ASSESSMENT RECORDS FOR EACH GRADE PERIOD

Name of Pupil: 19

Form: 5

Assessment	1	2	3	4
Personal tidiness	3	3	3	3
Co-operation with Staff	3	3	3	3
Co-operation with peer group	4	4	4	4
Peer Group Acceptance	4	4	4	4
Self-control	3	3	3	3
Initiative	3	3	3	3
Voluntary House Activities	3	3	3	3
Sensitivity to others	3	3	3	3
Happiness	4	4	4	4
Self-confidence	4	4	4	4
Recreational Reading	3	3	3	3
C/A & Phil. interest/ideas	3	3	3	3
Self expression (oral)	3	3	3	3
Responsibility	3	3	3	3

TABLE 4.3HOUSE MATRON'S ASSESSMENTS AT EACH GRADE PERIOD

Name of Pupil: 19

Form: 5

Assessment	1	2	3	4
Health	5	5	5	5
Personal Hygiene	4	4	4	4
Initiative	3	3	3	3
Co-operation with Staff	4	4	4	3
Peer Group Acceptance	3	3	3	4
Sensitivity to others	3	3	3	3
Personal tidiness	4	4	4	4
Happiness	4	4	4	4
Self-confidence	4	4	4	4
Self expression (oral)	4	4	4	4

TABLE 4.4RECORD SHEET TO BE COMPLETED BY HOUSE PREFECT AT EACH GRADE PERIOD

Name of pupil: 19
Form: 5

Name of Group Prefect: 21

Assessments	1	2	3	4
Happiness	3	4	3	4
Self-confidence	3	3	3	3
Self-control	3	4	4	4
Sensitivity to others	3	3	3	3
Personal tidiness	4	4	4	4
Initiative	3	3	3	3
Helpfulness in House tasks	2	2	2	3
Peer Group acceptance	2	2	2	2
Attitude to authority	3	3	3	3

These periodic assessments should help you to assist in the social development of your group members.

TABLE 4.5

**BOARDING SCHOOLS ASSOCIATION/DURHAM UNIVERSITY
RESEARCH PROJECT**

In order to help me accumulate data for this project, it is necessary for me to grade all the boys in my House on their extracurricular activities. I would therefore be extremely grateful if you would kindly supply gradings for the boys listed below for the activity in question. For games, please enter two grades - as for academic grades periods - a number to indicate level of excellence and a letter to indicate effort. For other activities, please just indicate effort/interest by the appropriate letter.

- | | |
|-------------------------|-------------------------------|
| 1. Outstanding player | A. Excellent effort. |
| 2. Above average player | B. Above average effort. |
| 3. Average skills. | C. Average effort. |
| 4. Rather poor player | D. Poor effort. |
| 5. Motor moron! | E. Makes virtually no effort. |

Please note that "a" game players will normally come in skill categories 1 - 3, and that "b" game players will rarely, if ever, score better than 3. Effort, however, should be assessed independently of skill.

Activity/Game: 1st XV Rugby

Master i/c: G.H.A.

Boy	Assessment
21	1A
49	2A
55	2A

With many thanks

G.G.A.

The following series of calculations shows how the independence and caring indices were obtained termly for each pupil. A mean rating is obtained for each individual parameter, and then an index of independence/caring is derived from these means:

A. Independence index

Personal hygiene	$16 \div 4$	= 4.00
Personal tidiness	$(16+12+16+16) \div 16$	= 3.75
Self-control	$(12+12+15) \div 12$	= 3.25
Initiative	$(12+12+12+12) \div 16$	= 3.00
Self-confidence	$(15+16+16+12) \div 16$	= 3.69
Recreational reading	$(12+12) \div 8$	= 3.00
Self-expression	$(14+12+16) \div 12$	= 3.50
Responsibility	$(13+12) \div 8$	= 3.13
Sports Effort	$2 \div 1$	= 2.00
Activities commitment	$4 \div 1$	= 4.00
Work effort	$15 \div 4$	= <u>3.75</u>
	Total	37.07

$$\begin{aligned} \text{Independence index} &= 37.07 \times \frac{100}{55} \\ &= 67.40 \end{aligned}$$

The index is now rounded down to the nearest whole number, and is thus quoted as 67.

B. Caring index

Co-operation with Staff/ prefects	$(14+12+15+12) \div 16$	= 3.31
Co-operation with peer group	$(16+16) \div 8$	= 4.00
Peer group acceptance	$(16+16+13+8) \div 16$	= 3.31
Voluntary House activities/ helpfulness	$(12+12+9) \div 12$	= 2.75
Sensitivity to others	$(12+12+12) \div 12$	= 3.00
Current affairs/philosophical interest and ideas	$(14+12) \div 8$	= 3.25
	Total	<u>19.62</u>

$$\begin{aligned} \text{Caring index} &= 19.62 \times \frac{100}{30} \\ &= 65.40 \end{aligned}$$

This index is also rounded down to the nearest whole number and is thus quoted as 65.

It should be noted that an "average" degree of caring or independence, as understood by the assessors, would be indicated by an index of 60; this is a consequence of using five point rating scales which will result in indices which must be within the range of 20 to 100.

The calculated independence and caring indices for each pupil throughout the survey period are listed in tables 4.6 to 4.11, each table summarising the assessments for a particular year group. These tables also show mean values for both indices calculated for each year group every term, together with standard deviations and confidence limits. The standard deviations were calculated via the built-in statistical functions on a Casio FX-501P calculator, and the confidence limits derived from them through multiplication by the correct factor obtained from

TABLE 4.6**CO-ORDINATED PUPIL ASSESSMENTS FOR / → L.4th YEAR GROUP**

Pupil Number	1981 ³ -		1982 ¹ -		1982 ² -		1982 ³ (L.4)	
	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing
61							70	64
62							70	62
63							70	68
64							65	60
65							74	68
66							74	62
67							64	59
70							49	42
71							73	68
72							58	55
51							55	52
Number							11	11
Mean							65.6	60.0
Standard Deviation							8.38	7.94
95% Confidence Limits							+5.7 -5.7	+5.4 -5.4
80% Confidence Limits							+3.5 -3.5	+3.3 -3.3

TABLE 4.7**CO-ORDINATED PUPIL ASSESSMENTS FOR L 4th → U 4th YEAR GROUP**

PUPIL NUMBER	1981 ³ (L.4)		1982 ¹ (L.4)		1982 ² (L.4)		1982 ³ (U.4)	
	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing
4	72	65	77	74	79	74	64	70
5	55	58	53	55	48	56	57	54
7	58	59	62	62	59	62	63	61
16	60	64	59	63	59	61	57	58
58	-	-	69	60	68	63	65	61
28	64	66	68	71	63	67	65	64
31	73	64	76	69	76	72	80	74
34	67	59	69	69	69	63	-	-
36	76	70	79	71	79	73	80	75
42	46	48	51	50	44	52	46	45
50	60	49	61	51	63	51	62	52
51	53	46	53	49	50	47	-	-
75	-	-	-	-	-	-	65	57
Number	11	11	12	12	12	12	11	11
Mean	62.1	58.9	64.7	62.0	63.0	61.7	64.0	61.0
Standard Deviation	9.25	9.00	9.75	9.00	11.79	8.92	9.71	9.31
95% Confidence Limits	+ _{6.1}	+ _{6.0}	+ _{6.1}	+ _{5.7}	+ _{7.4}	+ _{5.6}	+ _{6.5}	+ _{6.3}
80% Confidence Limits	+ _{3.8}	+ _{3.7}	+ _{3.9}	+ _{3.6}	+ _{4.6}	+ _{3.6}	+ _{4.0}	+ _{3.8}

TABLE 4.8

CO-ORDINATED PUPIL ASSESSMENTS FOR U4th → 5th YEAR GROUP

Pupil Number	1981 ³ (U.4)		1982 ¹ (U.4)		1982 ² (U.4)		1982 ³ (5)	
	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing
8	70	71	73	70	76	69	76	69
9	61	53	65	62	65	64	69	63
13	65	60	65	61	62	61	55	53
60	-	-	-	-	62	57	50	54
19	78	72	74	74	76	69	67	65
29	62	55	60	57	60	56	62	62
33	56	58	59	60	64	61	70	65
35	79	75	82	81	83	85	86	86
38	55	51	64	56	54	53	50	58
54	73	74	76	75	75	71	63	64
69	-	-	-	-	-	-	65	55
76	-	-	-	-	-	-	60	55
Number	9	9	9	9	10	10	12	12
Mean	66.5	63.2	68.6	66.2	67.7	64.6	64.4	62.3
Standard Deviation	8.93	9.69	7.87	8.96	9.17	9.36	10.4	9.15
95% Confidence Limits	+6.9 -6.9	+7.5 -7.5	+6.1 -6.1	+6.9 -6.9	+6.6 -6.6	+6.7 -6.7	+6.6 -6.6	+5.8 -5.8
80% Confidence Limits	+5.4 -5.4	+5.9 -5.9	+4.8 -4.8	+5.5 -5.5	+5.3 -5.3	+5.4 -5.4	+4.1 -4.1	+3.6 -3.6

TABLE 4.9

CO-ORDINATED PUPIL ASSESSMENTS FOR 5th → L.6th YEAR GROUP

Pupil Number	1981 ³ (5)		1982 ¹ (5)		1982 ² (5)		1982 ³ (L.6)	
	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing
10	62	48	71	56	71	54	-	-
17	67	57	69	65	67	67	70	69
20	58	60	53	61	56	68	56	63
23	65	64	62	70	67	71	73	73
24	53	58	54	59	53	56	-	-
30	64	59	58	63	60	60	60	57
59	-	-	-	-	69	68	66	73
39	75	71	70	71	76	72	72	71
41	63	63	57	63	64	65	64	68
46	65	57	68	59	73	59	-	-
47	75	75	75	75	76	75	-	-
52	62	65	61	67	67	67	-	-
68	-	-	-	-	-	-	70	61
Number	11	11	11	11	12	12	8	8
Mean	64.4	61.5	63.4	64.4	66.5	65.1	66.3	66.8
Standard Deviation	6.46	7.33	7.50	5.82	7.33	6.56	6.04	5.91
95% Confidence Limits	+ -4.3	+ -4.9	+ -5.0	+ -3.9	+ -4.7	+ -4.2	+ -4.9	+ -4.8
80% Confidence Limits	+ -2.6	+ -3.0	+ -3.1	+ -2.4	+ -2.9	+ -2.6	+ -3.9	+ -3.8

TABLE 4.10CO-ORDINATED PUPIL ASSESSMENTS FOR L.VI → U.VI YEAR GROUP

Pupil Number	1981 ³ (L.6)		1982 ¹ (L.6)		1982 ² (L.6)		1982 ³ (U.6)	
	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing
1	56	60	-	-	-	-	-	-
3	65	67	69	71	72	74	-	-
15	76	73	77	80	70	81	76	77
21	76	73	78	77	78	78	87	87
22	75	66	76	72	63	72	73	78
25	66	64	66	66	68	65	75	79
26	73	66	76	72	78	75	72	77
27	63	63	-	-	-	-	-	-
32	70	64	71	65	73	68	79	81
43	71	64	76	69	76	64	73	70
45	55	55	57	60	60	65	-	-
49	87	78	85	84	90	85	90	91
53	85	79	87	83	88	87	86	88
56	70	62	65	63	64	55	-	-
57	69	60	70	65	64	64	67	65
55	84	80	88	82	87	84	86	82
Number	16	16	14	14	14	14	11	11
Mean	71.3	67.1	74.3	72.0	73.6	72.6	78.5	79.5
Standard Deviation	9.31	7.38	8.79	7.95	9.72	9.58	7.55	7.64
95% Confidence Limits	+ _4.9	+ _3.9	+ _5.1	+ _4.6	+ _5.6	+ _5.5	+ _5.1	+ _5.1
80% Confidence Limits	+ _3.1	+ _2.5	+ _3.2	+ _2.9	+ _3.5	+ _3.5	+ _3.1	+ _3.1

TABLE 4.11

CO-ORDINATED PUPIL ASSESSMENTS FOR UVI → (left) YEAR GROUP

Pupil Number	1981 ³		1982 ¹		1982 ²		1982 ³	
	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing	Ind.	Car- ing
2	85	89	88	89	73	78	All this group left school at end of 1982/2	
6	78	83	77	80	77	78		
11	71	80	73	82	70	85		
12	80	80	83	76	78	72		
14	86	87	89	89	86	90		
18	82	85	81	83	77	81		
37	84	81	81	83	77	77		
40	81	82	85	85	85	86		
44	82	78	80	77	85	76		
48	81	82	87	82	82	80		
NUMBER	9	9	9	9	9	9		
Mean	81.0	82.7	82.4	82.6	79.0	80.3		
St.Deviation	4.24	3.40	5.06	4.35	5.37	5.35		
95% Confidence Limits	+ 3.3 - 3.3	+ 2.6 - 2.6	+ 3.9 - 3.9	+ 3.3 - 3.3	+ 4.1 - 4.1	+ 4.1 - 4.1		
80% Confidence Limits	+ 2.0 - 2.0	+ 1.6 - 1.6	+ 2.3 - 2.3	+ 2.0 - 2.0	+ 2.5 - 2.5	+ 2.5 - 2.5		

the statistical tables in Fitz-Gibbon and Morris.¹¹ For example, the caring index for the fifth form year group in the autumn term of 1982 is calculated as 62.3 with a standard deviation of 9.15 in a population of 12. The relevant confidence limit factors for a population of 12 are 0.635 (95% confidence) and 0.393 (80% confidence).¹¹

Thus we obtain the following results:

$$95\% \text{ confidence limits are } \pm (9.15 \times 0.635) = \pm 5.8$$

and

$$80\% \text{ confidence limits are } \pm (9.15 \times 0.393) = \pm 3.6$$

Although 95% or even 99% confidence limits are the customary tests of relationships in the physical sciences, the social sciences of necessity deal with less precise measurements and hence Fitz-Gibbon and Morris¹¹ suggest that 80% confidence limits should be regarded as more applicable criteria when interpreting data in the social sciences.

The variation of each index with age group is shown graphically in figures 4.1 and 4.2. The first three terms are directly comparable as the same assessors were used throughout, but the fourth term's ratings were obtained with a new set of group prefects and refer to a changed population; hence the absolute values are not directly comparable although trends may still be compared usefully. As will be seen in the following chapter, the observed trends do seem to be related to both the physical and the social environment within the boarding House, but a considerably longer term study would be required to look at the effect of the changing population with time, and this is a potential source of unreliability, identified by Webb and others,⁹ which must be remembered in any generalisation of these results.

Table 4.12 shows the 80% confidence limits for both sets of mean indices for each term. Although trends will be looked at more closely in Chapter 5, there are definite statistical conclusions which can be drawn from this table:

1. There is no significant change in either mean index within any age group during an academic year.
2. In two out of the four terms for independence, and in three terms for caring, the lower sixth indices are significantly higher than those of the fifth form and lower fourth (three terms in both cases for the latter): they are, however, not significantly higher than the upper fourth indices.
3. Although the difference just falls short of statistical significance, the lower sixth indices for Autumn Term, 1982, would appear to be considerably lower than for the previous three terms.
4. The upper sixth indices are with one marginal exception for independence in Summer Term, 1982, significantly higher than the corresponding ones for other age groups, and their variance is markedly less.

Figure 4.1

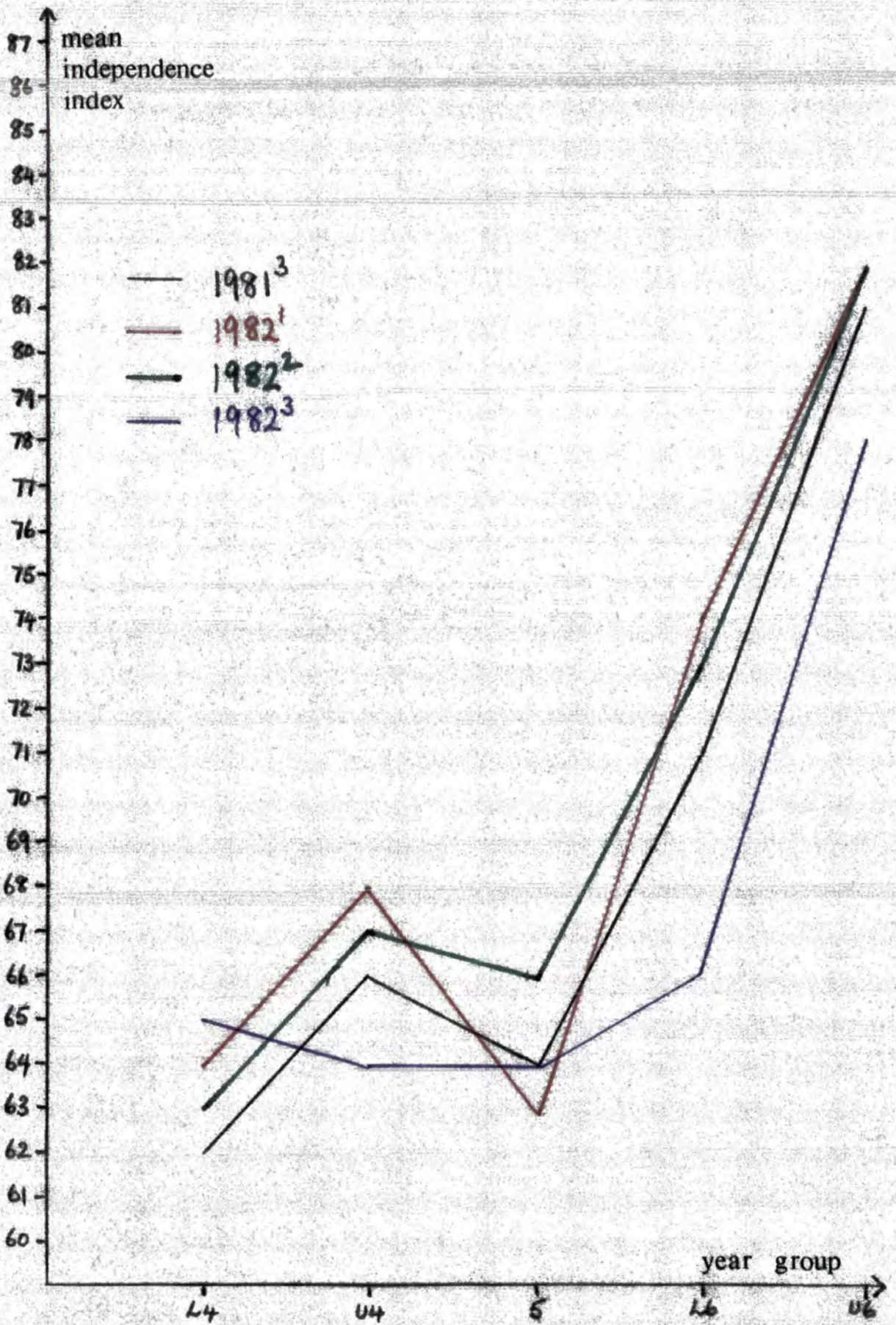


Figure 4.2

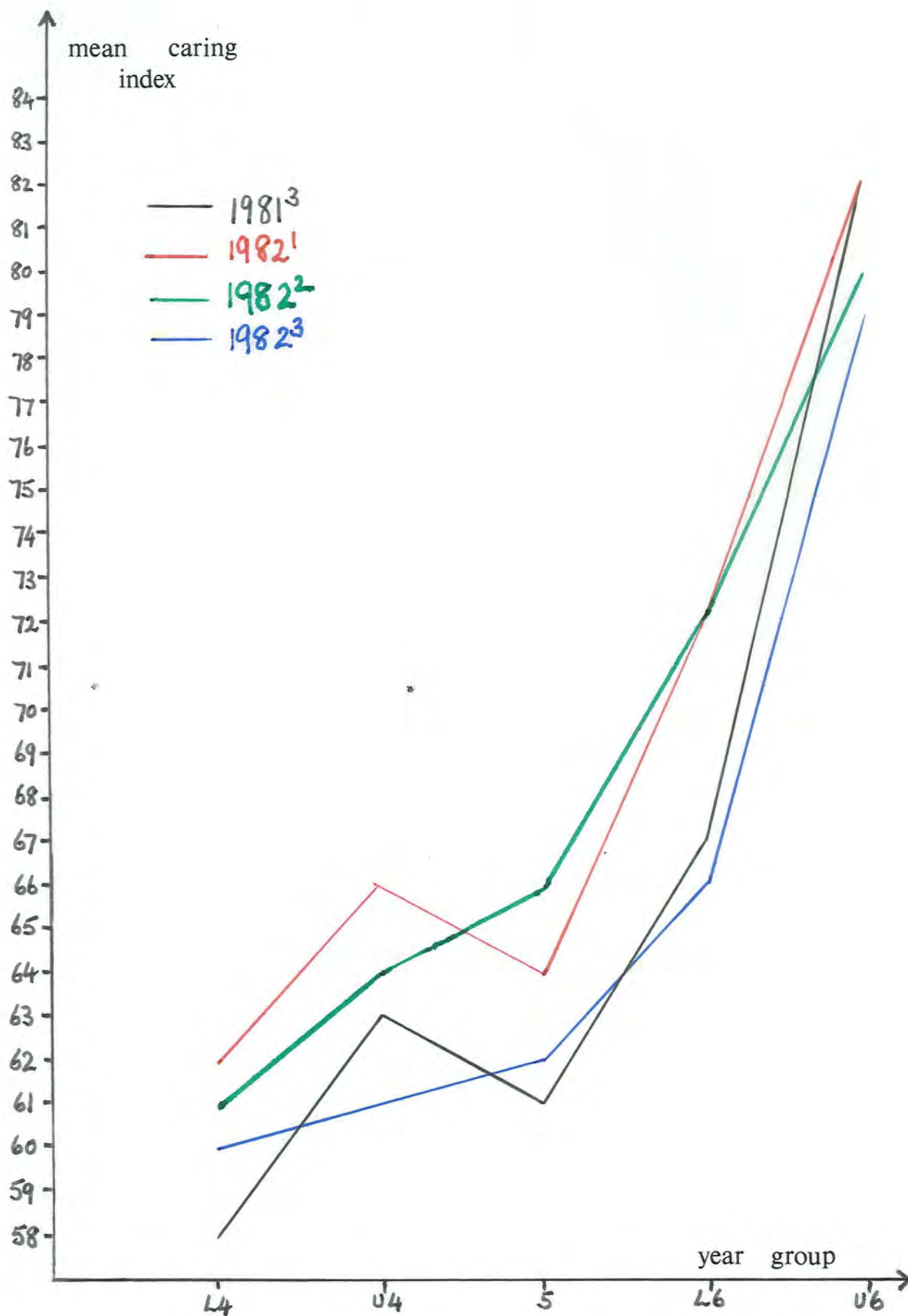


TABLE 4.12

80% Confidence limits for mean independence
and caring indices

Year Group	1981 ³	1982 ¹	1982 ²	1982 ³
L. IV				
Independence	58.3 ↔ 65.9	60.8 ↔ 68.6	58.4 ↔ 67.6	62.1 ↔ 69.1
Caring	55.2 ↔ 62.6	58.4 ↔ 65.6	58.1 ↔ 65.3	56.7 ↔ 63.3

U. IV				
Independence	61.1 ↔ 71.9	63.8 ↔ 73.4	62.4 ↔ 73.0	62.0 ↔ 68.0
Caring	57.3 ↔ 69.1	60.7 ↔ 71.7	59.2 ↔ 70.0	57.2 ↔ 64.8

V				
Independence	61.8 ↔ 70.0	60.3 ↔ 66.5	63.6 ↔ 69.4	60.3 ↔ 68.5
Caring	58.5 ↔ 64.5	62.0 ↔ 66.8	62.5 ↔ 67.7	58.7 ↔ 65.9

L. VI				
Independence	68.2 ↔ 74.4	71.1 ↔ 77.5	70.1 ↔ 77.1	62.4 ↔ 70.2
Caring	64.6 ↔ 69.6	69.1 ↔ 74.9	69.1 ↔ 76.1	63.0 ↔ 70.6

U. VI				
Independence	79.0 ↔ 83.0	80.1 ↔ 84.7	76.5 ↔ 81.5	75.4 ↔ 81.6
Caring	81.1 ↔ 84.3	80.6 ↔ 84.6	77.8 ↔ 82.8	76.4 ↔ 82.6

The significance of these observations is looked at in Chapter 5.

Although the group meetings held in November and December 1981 provide only one measurement each of the sociometry of three year groups, it is nevertheless interesting to look at the relationship, if any, between the sociometry of these groups and the indices calculated for relevant individuals in that particular term. In order to do this the top third of each group who produced the most positive contribution to the meetings were identified and average caring and independence indices calculated for them. A similar treatment was accorded to the bottom third of each group; these were the students who made the fewest positive contributions to the meetings. The results of this exercise are shown below with the relevant pupil numbers in brackets (see table 2.12).

Upper Sixth: Top Third (2,11,48)	Independence 79.00 Caring 83.67
Bottom Third (14,18,44)	Independence 83.33 Caring 83.33
Lower Sixth: Top Third (21,26,32, 49,53,55)	Independence 79.16 Caring 73.33
Bottom Third (1,3,22,27, 45,57)	Independence 63.83 Caring 61.83
Fifth: Top Third (24,39,52)	Independence 63.33 Caring 64.67
Bottom Third (17,20,30)	Independence 63.00 Caring 58.66

There is no statistical significance between the two sets of upper sixth form students, but as this year group all score very highly for both caring and independence, this is hardly surprising.

The lower sixth sets differed markedly, however, and those who made most positive contributions were significantly more independent and more caring as measured by the survey. Although there was a less significant difference between the two fifth form sets, the trend was similar.

Thus, albeit by using a simple analysis of single observation sets, some confirmation of the validity of the independence and caring indices can be obtained, as one would expect the more caring and more independent students to make more positive contributions to such group meetings, although other factors, such as degree of extroversion, will also be important. This small internal check on the validity of the measured parameters does not, of course, go as far as the multiple operationism suggested by Webb and others⁹, but it does lend some extra credence to the results.

The actual scales used would undoubtedly be interpreted differently in other establishments, but the degree of consistency shown by the assessors throughout the research period was remarkably high, and suggests that their standards were fairly constant.

CHAPTER 5

- (a) Inter-relationships between the environment and social progress.
- (b) General conclusions.

a. Inter-relationships between the environment and social progress.

The ensuing interpretation of the statistics accumulated during the research period should be seen as an attempt to formulate hypotheses which can be tested by future workers in this field. Johnson (1975)³¹ argues that the methods of the physical sciences may not be applicable to the social sciences as the latter must of necessity lack the degree of objectivity enshrined in a doctrine of logical positivism, and he further discusses Marxist objections to apolitical postures in social science as being highly political because they defend the status quo. Both of these views seem indefensible in the light of Popper's writings which effectively destroy logical positivism as a scientific philosophy³² and also refute Marxist historicism.³³ It thus seems reasonable to use data gathered by "observation of naturally occurring everyday events"³¹ to propose theories and relationships which are capable of being disproved by further studies. This falsifiability of the proposed hypotheses is the *true* criterion of a scientific statement.³² Furthermore, by proposing an interpretation of possible trends which goes beyond that which is strictly statistically significant, a more useful hypothesis is reached which, as it is more easily falsifiable by future studies, is entirely permissible under Popper's scientific philosophy.

The importance of the physical environment in residential institutions is well documented by Johnson,³⁴ Moos³⁵ and Rose,³⁶

and Bulley³⁷ shows how a living situation can be designed to encourage independence, but all these workers are referring specifically to special education or other treatment situations. If the trends in independence and caring indices (figures 4.1 and 4.2) are now studied, however, it is possible to propose that a decline in the physical environment does arrest, or even reverse, the growth of caring and independence in normal students. For the first three terms of the study, the "dens" were occupied almost exclusively by fifth-formers. The "dens", as established in Chapter 2, are regarded by all observers as being the least satisfactory part of the physical environment in Westminster. In all three terms for independence and in the first two terms for caring there is a decrease in the respective mean indices between the upper fourth group and the fifth form group; although not statistically significant, these decreases do lend credence to the hypothesis that the physical environment is acting as a limiting factor to social development. Further support, although again not statistically significant, may be obtained by considering the changed population distribution in the fourth term of the study. The "dens" were now occupied by an equal number of upper fourth and fifth formers, and, relative to the previous three terms, tables 4.1 and 4.2 show that the upper fourth indices have been depressed; this is what would be expected if the physical environment is an important factor as against the alternative interpretation that the decrease in the two indices noted for the previous year's fifth form was merely a product of the fifth form stage of

development: if this latter were true decreases should have been seen whatever the physical environment.

If this hypothesis is correct, it would be interesting to see how long a group of pupils takes to catch up in their social development once moved to a more agreeable physical environment. Figures 2 and 3 do suggest that the Lower Sixth of September, 1981, were marginally more caring and considerably more independent than their counterparts of 1982, and this may be related to the higher proportion of the former group occupying study-bedrooms in their fifth form year.

The increase in both independence and caring, noted for lower sixth formers and the further considerable increase observed for upper sixth formers is obviously attributable at least in part to their increasing general maturity, but the rate of increase is quite probably influenced by the prevailing social and physical environment. Moos³⁵ stresses the importance of the total environment to human relationships, and it is vitally important that any residential community should attempt to create the type of social environment which will foster the desired attitudes within its community, in this case independence and caring. As Jahoda argues³⁸ any community also tends to foster some degree of conformity, and the desirable balance between conformity and independence is often a matter of some controversy. In a boarding House such as Westminster, the social climate tends to be greatly influenced by the senior students and by the House staff, and the role played by the prefectorial body is usually crucial. Lieberman³⁹ and others

have discussed the influence on a person's attitudes of the role required of him within a social system; careful definition of the prefect's role from the House staff can thus have a marked effect on the social environment of the House. Prefects can be encouraged to act as a repressive elite, and this was often the case *in* many traditional boarding schools of the 1950's, but they can also be given an important role in the counselling of younger students with a view to helping those students to develop caring attitudes and individual talents and ideas. The generally high ratings in both indices achieved by members of the House community in this study and the conscientiousness shown by the prefects in their assessments suggests that the social environment within the House does indeed foster the development of independence and caring. Whereas in September 1981 all available upper sixth formers were appointed prefects, this was not so in September 1982, when there were too many upper sixth formers for this to be a realistic policy; those who were not appointed were rated slightly lower than any of the prefects for both independence and caring during the final term of the study, and this observation provides evidence that role expectation is an influential factor in the development of attitudes, as their ratings had not been consistently lower than those of their peers throughout the previous three terms. This interpretation leads to the desirability of giving all upper sixth students prefectorial responsibility for at least part of their final year, and this policy has been followed with some success by Westminster House over the past seven years.

b. General conclusions about the social development of the pupils

As well as a general increase in both the independence index and the caring index with increasing maturity, modified by environmental factors as discussed above, there is also a slight decrease in the range of these indices as one moves from the lower fourth to the upper sixth year groups. This is mainly caused by some pupils having very highly developed independence and caring when they join the House, whereas others are more dependent and less caring. As the year group moves through the school, there is a tendency for those who started at a less mature level to make more social progress. This is highly desirable, and affords some evidence that the community itself may be accelerating this progress rather than waiting for time to take its course.

Boarding schools can be viewed as total societies "exercising complete control over their members' behaviour and value-orientations by the provision of all their basic necessities within their boundaries" (Lambert et al)²⁵ or they can be regarded as complex organisations, "social systems constructed to attain specific goals" (Etzioni).⁴⁰

Both these views would have their proponents, and Wall⁴¹ argues powerfully that nineteenth century boarding schools were very much total societies, but the increasing availability of exeat and the desire to become involved in community service and similar activities have resulted in many schools

becoming more open, thus resembling complex societies.

This latter view is perhaps a more accurate description of Sutton Valence, although the high proportion of time spent by the pupils within the establishment suggests that some aspects of the total society are retained.

In Lambert's general study of boarding schools²⁵ he reached the following conclusion:

"Certain kinds of independence are fostered as other forms of dependence may be increased. There was a clear tendency to induce gregarious living and to condition those experiencing it to value social rather than individual characteristics in people. There is little evidence of more conformity to the group."

Whilst it would be wrong to generalise with confidence from a study of one House in one school, the data collected in this research would support the hypothesis that a boarding environment provides an opportunity for developing attitudes of independence and caring in individuals, and that this opportunity can be most easily realised by creating the best possible physical and social environment in the boarding situation. Previous workers have shown that this hypothesis appears to hold in treatment situations,^{34, 35, 36} and it is hoped that future studies may be undertaken in "normal" situations to test the validity of the following general conclusions:

- a. There is evidence that the quality of the physical environment affects the rate of social progress of boys in a residential secondary school.

- b. It would seem that role expectation and social environment are also key factors in social development.
- c. There would seem to be an opportunity to accelerate social progress in residential establishments by providing suitable physical and social environments.

It should be noted that such an interpretation is in accordance with the evidence collected in this research although that evidence is not conclusive from this single study; if many similar studies were to reproduce consistent evidence, then these conclusions could be advanced in a less qualified statement.

The results do suggest, however, that the stated social aims of the school in furthering independence and caring are being achieved to a considerable extent at present, and that positive modifications to the social and physical environments should lead to increased realisations of these aims.

CHAPTER 6

Prospect

This study has helped to confirm to the Headmaster of Sutton Valence and to his Housemasters that the physical environment of the younger pupils within the boarding Houses is in need of improvement. Various minor changes have already occurred and plans are now well advanced for re-designed senior dayrooms, fully carpeted, to replace the "dens" in St. Margaret's and Westminster before September 1983. (see Appendix 2) Furthermore, a small group of pupils have already completed the repainting of the junior dayroom desks and lockers in Westminster; this follows the repainting of seventeen study-bedrooms undertaken by the sixth form in 1981-2, and both result from the House survey and group meetings covered in Chapter 2.

With these imminent changes to the physical environment a follow-up study in two years time could provide a good test of the proposed relationship between social progress and the physical environment of the boarding House. There are, unfortunately, always economic reasons why the physical environment is likely to fall short of the ideal in most boarding schools. Most schools would now claim to have progressed beyond the situation described by a boy in "The Cloistered Elite"⁴²:

"Much of our teaching of self discipline comes from the experience of living together with others at close quarters, ---- often in antiquated buildings with suspect plumbing and fuse-prone wiring, or on economy budget food, surrounded by constant bells and

noises, and without the adult's recourse to tranquilisers".

Nevertheless, the following observation made by Fraser in 1968⁴³ is still very much true, particularly in the independent sector:

"Headmasters have to cope with the buildings they inherit or raise finance to build, or do both."

When finances permit, however, it should be possible to create physical environments which reflect a definite philosophy and stated objectives in residential education. The link between architecture and educational philosophy is well-established for day schools⁴⁴ and where new boarding Houses are being built from scratch some excellent environments have been created, notably at Cranleigh.

Creating a suitable social environment requires little finance, and this is therefore an area in which all residential communities should be able to foster the social development of their members. The success of applying social learning theory in residential care is well documented by Walton and Elliott⁴⁵ and by Wills⁴⁶, and a greater knowledge of such techniques amongst House staff in normal boarding schools would enhance their ability to modify the social environment. Certainly many of the skills and methods discussed by McMaster in his two recent publications^{47, 48} are directly applicable to most boarding Houses. A skilled team of caring House staff, assisted by a caring group of senior pupils or prefects, should not only create a suitable social environment, but should also

help others to learn by example. Helping and management skills, in particular, need to be encouraged in senior students, and one should perhaps aim towards a situation where the Housemaster acts as supervisor⁴⁸ of a team comprising his assistants and prefects, thus mirroring the type of structure envisaged by Davies Jones.⁴⁹

Perhaps the most important factor in achieving a stated set of objectives is a continuous assessment of the progress being made towards those objectives, and the following four questions quoted from O'Connor⁵⁰ if answered honestly, will keep all House staff aware of what they are trying to achieve and how best to go about it:

- "1. Are you looking critically at what you are doing?
2. Why are you doing it?
3. Are you doing it well?
4. Should you be doing something different?"

Most normal boarding schools do not give their prospective House staff any formal training in caring or management skills, yet it would seem that they are the essential tools of Housemasters and their assistants. It is thus concluded that some instruction in these skills would be beneficial to all new House staff before they take up their appointments; such instruction could be carried out internally, by experienced staff, or it could take the form of a short course, perhaps run by the Boarding Schools Association.

This latter possibility, with its greater emphasis on specialised instruction, would probably produce the better results.

Schools are changing continuously in response to the demands of society, and boarding schools are no exception, although as Rae⁵¹ suggests, it is the expectations of pupils and parents rather than any developing philosophy which have tended to shape the service offered in the independent sector.

There are some schools which already do give prospective House staff some guidance on pastoral work, and a very highly developed example of this is the "Relief Houseparent Guide"⁵² produced by the Milton Hershey School in America.

In all these areas, further research is needed to test the hypotheses advanced in Chapter 5 and to provide further confirmation of the apparent relationship between the total environment and social progress within boarding schools.

Possible approaches may include:

- a. Studies similar to this one carried out in as many different schools as possible in order to maximise replication.
- b. Comparative studies between boarders and day pupils within the same school. Such studies might be expected to show differences in social progress between the two populations, and these differences might be accentuated at prefectorial level where the boarding pupil would be expected to have greater responsibilities. It should be noted, however, that there are a wide variety of external factors affecting day pupils, and it is not therefore possible to assess their total environment as a group as it will vary greatly from one individual to another.

- c. A follow-up study at Sutton Valence in five years' time to investigate whether the refurbishment of the dens has accelerated social progress within the House.
- d. Comparative studies between Houses or Schools with markedly different social or physical environments.
- e. Longitudinal studies on large populations. The contact maintained with their former pupils by the Milton Hershey School has already suggested some long-term social benefits to their pupils and the data from a longitudinal study of twenty thousand children, including 440 who attended residential schools, is currently stored on a computer by the National Children's Bureau. Analysis of this data could produce further evidence.

It is thus hoped that this initial investigation will stimulate further research into the suggested relationships between the total environment of residential schools and the social progress of their pupils.

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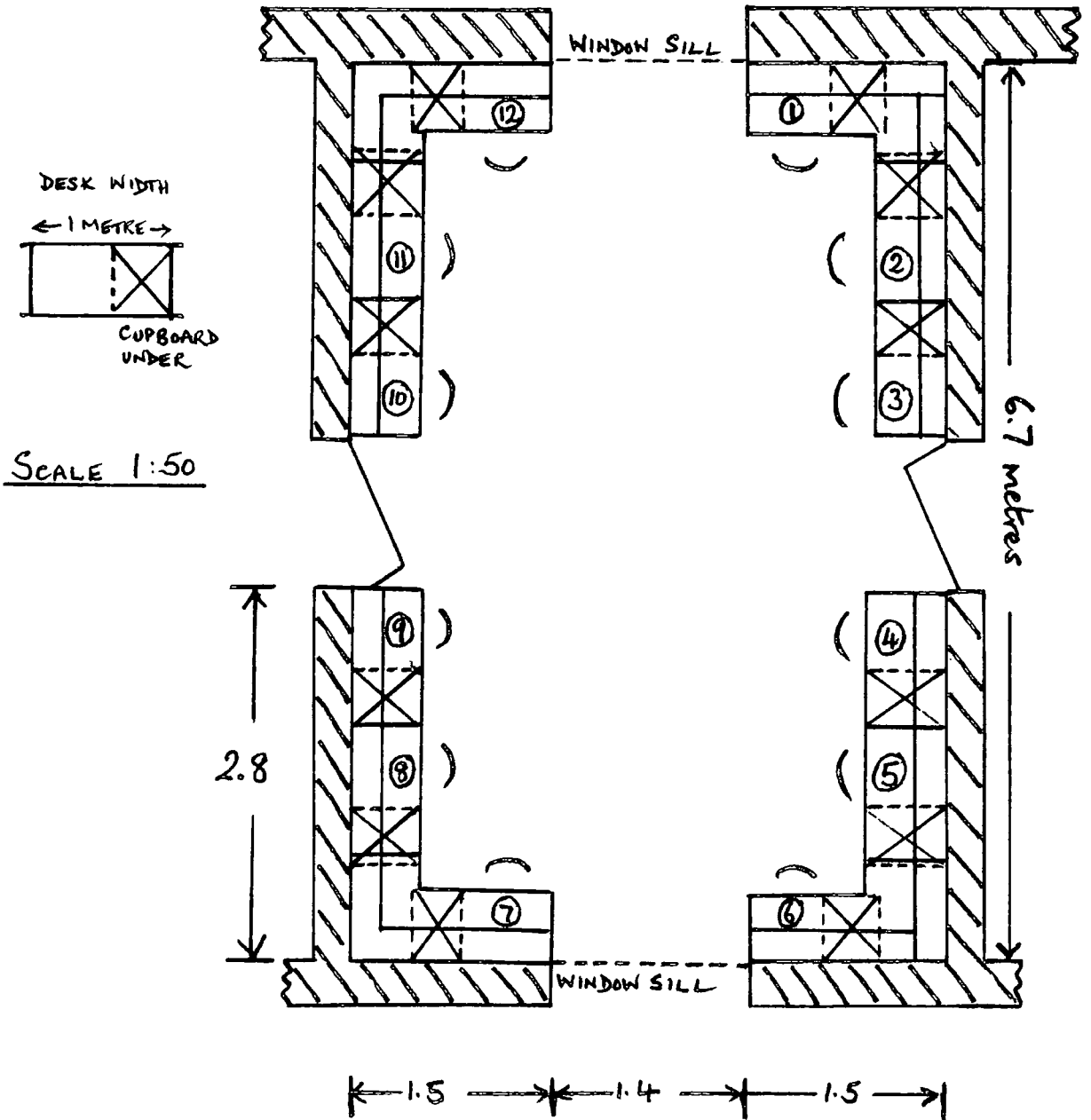
APPENDIX 1: Mean/Error Computer Programme.

```

10 PRINTER 2,4
20 CLEAR 20
30 DIM J(70):DIM K(70):DIM F(30)
40 PRINT "Estimating Mean Result & 95% Confidence Limits"
50 REM PROGRAMME DEvised BY G.G.ABLE IN OCTOBER,1981
60 PRINT:PRINT"INPUT NUMBER OF RESULTS"
70 INPUT N
80 IF N<71 THEN 110
90 PRINT "N MUST BE 70 OR LESS"
100 GOTO 60
110 PRINT:PRINT "TYPE IN RESULTS"
120 FOR I=1 TO N:INPUT J(I):NEXT I
130 LET T=J(1)
140 FOR I=2 TO N
150 LET T=T+J(I)
160 NEXT I
170 LET M=T/N
180 FOR I=1 TO N
190 LET K(I)=(J(I)-M)^2
200 NEXT I
210 LET S=K(1)
220 FOR I=2 TO N
230 LET S=S+K(I)
240 NEXT I
250 LET B=SQR(S/(N-1))
260 PRINT:PRINT "MEAN RESULT IS";M:PRINT
270 LPRINT:LPRINT"MEAN RESULT IS";M:LPRINT
280 GOSUB 410
290 PRINT "95% CONFIDENCE LIMITS ARE + OR -";F*B
300 LPRINT"95% CONFIDENCE LIMITS ARE + OR -";F*B
310 LPRINT:LPRINT"POPULATION IS";N:LPRINT
320 PRINT:GOSUB 490
330 PRINT "RUN THE PROGRAMME AGAIN?"
340 PRINT:PRINT "YES or NO"
350 INPUT A$
360 IF A$="YES" THEN 60
370 IF A$="NO" THEN 400
380 PRINT:PRINT "Answer YES or NO"
390 GOTO 350
400 END
410 FOR I=1 TO 30:READ F(I):NEXT I
420 DATA 0,.8.984,2.484,1.591,1.241,1.05,.925,.836,.769,.715
430 DATA .672,.635,.604,.577,.554,.533,.514,.497,.482,.468
440 DATA .455,.445,.434,.423,.413,.404,.395,.388,.38,.373
450 IF N>30 THEN 470
460 LET F=F(N):GOTO 480
470 LET F=1.96/SQR(N)
480 RETURN
490 PRINT "RESULTS OUTSIDE 2X S.D.ARE"
500 LPRINT"RESULTS OUTSIDE TWICE S.D. ARE"
510 LET G=0
520 FOR I=1 TO N
530 IF ABS(J(I)-M)<2*B THEN 560
540 PRINT:PRINT J(I):LET G=1
550 LPRINT J(I)
560 NEXT I
570 IF G=1 THEN 600
580 PRINT:PRINT "NONE":PRINT:PRINT
590 LPRINT"NONE":LPRINT:LPRINT
600 RETURN

```

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