CHAPTER FIVE

5 STATISTICAL ANALYSIS AND DATA INTERPRETATION

5.1 INTRODUCTION

The purpose of the empirical survey was to determine the extent to which team management is implemented in secondary schools in the RSA attended predominantly by black students, based on the perceptions of the target population. Most particularly the survey sought to determine the absence or presence of evidence of compliance with the elements of team management. Evidence of compliance will include :

- a participative or team management style of leadership similar to the 9.9 style of Blake and Mouton (cf. 2.7.1.6) ;
- free flow of information as evidenced by the absence of forces obstructing this flow, active listening, effective feedback and upward communication;
- great participation by teachers and departmental heads in drafting school policy, formulating the aims and objectives of their departments and selecting text-books.

5.2 BIOGRAPHICAL DATA OF THE RESPONDENTS

Section 1 of the questionnaire was designed to gather the biographical and demographical characteristics of the respondents (See appendices A and B). The biographical information on principals, departmental heads and teachers is provided to highlight similarities and differences between the three groups. Frequencies and percentages have been used in interpreting the biographical and demographical data of the principals, departmental heads and teachers. Both biographical and demographical data are analysed on regional and provincial bases as the tables show. The totals are based on those respondents who answered a question. The presentation follows the format of the questionnaire.

Bailey (1978:136) indicates that one of the disadvantages of the questionnaire is that many questions may remain unanswered due to the absence of supervision during the filling in of the questionnaire. Thus it came as no surprise when some questionnaires were returned with certain questions unanswered. This problem was handled by subtracting the number of non-responses from the total sample size and using the smaller figure as the basis for the percentages (Bailey, 1978:323) in all the tables.

5.2.1 Sex of the respondents

TABLE 5.1 RANK BY SEX (V01)

	NORTH REGION						CENTRAL REGION						SOUTH REGION					
R	MALE		FEMALE		TOTAL		MALE		FEMALE		TOTAL		MALE		FEMALE		TOTAL	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1	21	5,15	4	0,98	25	6,13	25	4,81	6	1,15	31	5,96	31	4,86	7	1,10	38	5,96
2	46	11,28	20	4,90	66	16,18	40	7,69	33	6,35	73	14,04	72	11,29	47	7,36	119	18,65
3	152	37,25	165	40,44	317	77,69	198	38,08	218	41,92	416	80,00	220	34,48	261	40,91	481	75,39
T	219	53,68	189	46,32	408	100	263	50,58	257	49,42	520	100	323	50,63	315	49,37	638	100
NRF					1						1							

KEY 1 = Principals NRF = None response Frequency

2 = HODs

3 = Teachers

According to Table 5.1, 805 (51,40%) of the sample population were males and 761 (48,6%) females. The North region had 219 (53,68%) males and 189 (46,32%) females; the Central region had 263 (50,58%) males and 257 (49,42%) females and in the South region there were 323 (50,63%) males and 315 (49,37%) females.

What is significant in the Table 5.1 data is the increase in the number of female teachers in secondary schools. In the past, secondary schools were predominantly male, while females were in the majority in the primary schools. Table 5.1 reveals a tendency towards a balance of the two sexes.

Of the 94 principals who responded, 17 (18,1%) were females and 77 (81,9%) males, resulting in a female : male ratio of 1:4,5. These findings almost correspond with Teleki's (1994:18) which revealed that in the OFS Province (previously DET OFS Region) male managers represent 79,7% of the sample population, while female managers only represent 20,3%. A possible explanation for this discrepancy is the existence of barriers which stifle the upward mobility of female teachers into managerial positions.

The data also supports the problem of female under-representation in key management position as highlighted by researchers such Teleki (1994), Legotlo (1994) and Kitavi (1995). This is an example of sexual discrimination. Affirmative action will most probably accelerate the promotion of women to principalship positions in schools.

5.2.2 Age of respondents

TABLE 5.2: RANK BY AGES (V02)

NORTH REGION								
RANK		1	2	3	4	5	TOT	NRF
Principals	f	0	6	17	1	1	25	
	%	0	1,47	4,16	0,25	0,25	6,13	
HODs	f	5	28	26	5	2	66	
	%	1,23	6,86	6,37	1,23	0,49	16,18	
Teachers	f	70	181	46	15	5	317	1
	%	17,15	44,36	11,27	3,68	1,23	77,69	
TOTAL	f	75	215	89	21	8	408	1
	%	18,38	52,69	21,80	5,16	1,97	100	
CENTRAL REGION								
RANK		1	2	3	4	5	TOT	NRF
Principals	f	1	4	18	7	2	31	
	%	0	0,77	3,46	1,35	0,38	5,96	
HODs	f	2	33	30	5	3	73	1
	%	0,38	6,35	5,77	0,96	0,58	14,04	
Teachers	f	74	229	91	18	4	416	
	%	14,23	44,04	17,50	3,46	0,77	80,00	
TOTAL	f	76	266	139	30	9	520	1
	%	14,61	51,16	26,73	5,77	1,73	100	
SOUTH REGION								
RANK		1	2	3	4	5	TOT	NRF
Principals	f	1	16	15	5	1	38	
	%	0,16	2,51	2,36	0,79	0,16	5,98	
HODs	f	6	70	37	3	2	118	1
	%	0,94	11,01	5,82	0,47	0,31	18,55	
Teachers	f	122	285	66	6	1	480	1
	%	19,18	44,81	10,38	0,94	0,16	75,4	
TOTAL	f	129	371	118	14	4	636	2
	%	20,28	58,33	18,56	2,20	0,63	100	

Key: Ages: 1 = 20 - 29 years NRF = None Responce Frequency

2 = 30 - 39

3 = 40 - 49

4 = 50 - 59

5 = 60+

Table 5.2 indicates that the majority of respondents in all the three regions are in the 30-39 age group. This means that 1132 (72,38%) of the respondents are under the age of 40, while 1478 (94,5%) are below 50. The younger generation of teachers, that is those within 20-29 age group are 280 (17,90%). This is the group referred to in chapter one (cf. 1.1).

With 94,50% of the respondents being under the age of 50, the prospect of newly qualified teacher training college graduates finding teaching posts is minimal. It is not surprising that the colleges are scaling down their intake of new trainees. Only 21 (1,34%) of the respondents are nearer to the retirement age.

More than 50% of the sampled principals are in the 40-49 age group. This differs from the findings of Sehlare (1993) but is in agreement with the findings of Kitavi (1995) and Mampuru (1992). This implies that it will take longer before a proportional number of female principals are promoted. In all three regions, most of the HODs are in the 30-39 age group.

5.2.3 Experience in the post

TABLE 5.3: RANK BY EXPERIENCE (V03)

NORTH REGION								
RANK		1	2	3	4	5	TOT	NRF
Principals	f	11	9	1	1	3	25	
	%	2,70	2,20	0,25	0,25	0,74	6,13	
HODs	f	28	23	13	2	0	66	
	%	6,86	5,64	3,19	0,49	0	16,18	
Teachers	f	94	116	59	25	23	317	1
	%	23,03	28,43	14,46	6,13	5,64	77,69	
TOTAL	f	433	148	73	28	26	408	1
	%	32,58	36,27	17,90	6,87	6,38	100	
CENTRAL REGION								
RANK		1	2	3	4	5	TOT	NRF
Principals	f	10	12	3	2	4	31	
	%	1,93	2,31	0,58	0,39	0,77	5,98	
HODs	f	28	17	14	7	7	73	1
	%	5,39	3,28	2,70	1,35	1,35	14,07	
Teachers	f	120	136	81	46	32	415	1
	%	23,12	26,12	15,60	8,86	6,17	79,95	
TOTAL	f	158	165	98	55	43	519	2

TABLE 5.3 (cont.)

	%	30,44	31,79	18,88	10,6	8,29	100	
SOUTH REGION								
RANK		1	2	3	4	5	TOT	NRF
Principals	f	23	9	0	2	4	38	
	%	3,61	1,41	0	0,31	0,63	5,97	
HODs	f	50	44	14	4	6	118	1
	%	7,85	6,91	2,20	0,63	0,94	18,52	
Teachers	f	173	204	63	26	15	481	
	%	27,16	32,03	9,89	4,08	2,35	75,51	
TOTAL	f	246	257	77	32	25	637	1
	%	38,62	40,35	12,09	5,02	3,92	100	

Table 5.3 shows that 537 (34.33%) of 1564 respondents reported that they have fewer than 5 years experience in the position they are occupying. With regard to the principals, 46 (48,93%) have fewer than five years' experience in the senior positions they occupy. Considering the fact that these principals will possibly be around in the next twenty years, it will be a good investment if they could be subjected to extensive training in team management.

More than 50% of the HODs also have fewer than five years' experience. As team leaders in their respective departments they also need training. The South also has more HODs' with fewer than five years' experience, which does not augur well for team management.

5.2.4 Qualifications of respondents

TABLE 5.4: RANK BY HIGHEST ACADEMIC QUALIFICATION (V04)

NORTH REGION								
RANK		1	2	3	4	5	TOT	NRF
Principals	f	1	9	11	4	0	25	
	%	0,25	2,21	2,69	0,98	0	6,13	
HODs	f	18	30	14	4	0	66	
	%	4,42	7,35	3,43	0,98	0	16,18	
Teachers	f	163	111	41	1	1	317	1
	%	39,95	27,20	10,04	0,25	0,25	77,69	
TOTAL	f	182	150	66	9	1	408	1
	%	44,62	36,76	16,16	2,21	0,25	100	

TABLE 5.4 (cont.)

CENTRAL REGION								
RANK		1	2	3	4	5	TOT	
Principals	f	1	14	13	3	0	31	
	%	0,19	2,71	2,52	0,58	0	6,00	
HODs	f	17	28	21	6	0	72	2
	%	3,29	5,43	4,07	1,16	0	13,95	
Teachers	f	227	120	57	7	2	413	3
	%	43,99	23,26	11,05	1,36	0,39	86,05	
TOTAL	f	245	162	91	16	2	516	5
	%	47,48	31,40	17,64	3,10	0,39	100	
SOUTH REGION								
RANK		1	2	3	4	5	TOT	
Principals	f	3	12	23	0	0	38	
	%	0,48	1,92	3,68	0	0	6,08	
HODs	f	52	39	24	3	1	119	
	%	8,32	6,24	3,84	0,48	0,16	19,04	
Teachers	f	304	132	29	1	2	468	13
	%	48,64	21,12	4,64	0,16	0,32	74,88	
TOTAL	f	359	183	76	4	3	625	13
	%	57,44	29,28	12,16	0,64	0,48	100	

Key: Academic Qualification: 1 = Std 10 4 = B.Ed./Honours
2 = B.A. degree 5 = D. degree
3 = M. degree

NRF = None Response Frequency

Table 5.4 shows the highest academic qualifications of the respondents in all the three regions of Gauteng. When the total of the three regions are added together, it becomes evident that 786 (50,74%) of the subjects have Std 10 as their highest academic qualification, 495 (31,96%) have a junior degree, 233 (15,04%) have a senior degree and 29 (1,87%) reported that they possess a Master's degree and only 6 (0,39%) claim to have a doctorate degree.

Five (0,32%) principals have Std 10 as their highest qualification, 35 (2,26%) have junior degrees, 47 (30,34%) have senior degrees and 7 (0,45%) have a Master's degree. None of the principals have a doctorate degree, while five (0.32%) teachers have doctorate degrees.

The academic qualifications of principals will undoubtedly have a bearing on their confidence, knowledge and skill to introduce and manage the team management process. A principal without a degree will most probably lack the skill and confidence to introduce team management to a staff consisting of teachers with B.Ed., M.Ed. and Ph.D. degrees.

The literature study has indicated that principals should rely more on expert power than on legitimate power (cf. 2.7.1.4). Academic qualifications provide one with such expertise while inadequate qualifications can result in a leader resorting to legitimate power to compensate for the lack of degree qualifications.

5.2.5 Student numbers

TABLE 5.5: RANK BY STUDENT NUMBERS (V05)

NORTH REGION								
RANK		<600	600 - 799	800 - 999	1000 - 1199	1200+	TOT	
Principals	f	0	1	3	11	10	25	
	%	0	0,25	0,74	2,71	2,46	6,76	
HODs	f	0	2	7	23	34	66	
	%	0	0,49	1,72	5,67	8,37	16,25	
Teachers	f	0	16	33	125	141	315	3
	%	0	3,94	8,13	30,79	34,37	77,59	
TOTAL	f	0	19	43	159	185	406	3
	%	0	4,68	10,59	39,16	45,57	100	
CENTRAL REGION								
RANK		<600	600 - 799	800 - 999	1000 - 1199	1200+	TOT	
Principals	f	0	3	3	8	16	30	1
	%	0	0,58	0,58	1,55	3,10	5,81	
HODs	f	0	4	16	23	30	73	1
	%	0	0,78	3,10	4,46	5,81	14,15	
Teachers	f	3	25	72	143	170	413	3
	%	0,58	4,84	13,96	27,71	32,95	80,04	
TOTAL	f	3	32	91	174	216	516	5
	%	0,58	6,20	17,64	33,72	41,86	100	

TABLE 5.5 (cont.)

SOUTH REGION								
RANK		<600	600 - 799	800 - 999	1000 - 1199	1200+	TOT	
Principals	f	1	1	6	9	21	38	
	%	0,16	0,16	0,94	1,42	3,31	5,99	
HODs	f	0	11	12	33	63	119	
	%	0	1,73	1,89	5,20	9,92	18,74	
Teachers	f	17	39	43	142	237	478	3
	%	2,68	6,14	6,77	22,36	37,32	75,27	
TOTAL	f	18	51	61	184	321	635	3
	%	2,84	8,03	9,60	28,98	50,55	100	

Data from Table 5.5 indicates that more than three-quarters (79,58%) of the respondents in all the three regions belong to schools with more than 1000 students. Seventy-five (80,65%) of the principals are heading schools with a student population of more than 1000. Six (6,45%) of the principals head schools with fewer than 800 students and only 1 (1,08%) is in charge of a secondary school with fewer than 600 students.

Large schools require a principal very skilled in delegating duties, managing the staff, the pupils through the staff and utilising the available human resources. Team management provides such skills.

5.2.6 Number of teachers

TABLE 5.6: RANK BY NUMBER OF TEACHERS (V06)

NORTH REGION								
RANK		<20	21 - 30	31 - 40	41 - 50	51+	TOT	
Principals	f	0	5	11	9	0	25	
	%	0	1,24	2,72	2,23	0	6,19	
HODs	f	0	5	24	33	3	65	1
	%	0	1,24	5,94	8,17	0,74	16,09	
Teachers	f	1	50	116	128	19	314	4
	%	0,25	12,38	28,71	31,68	4,70	77,72	
TOTAL	f	1	60	151	170	22	404	5
	%	0,25	14,86	37,39	42,08	5,44	100	

TABLE 5.6 (cont.)

CENTRAL REGION								
RANK		<20	21 - 30	31 - 40	41 - 50	51+	TOT	
Principals	f	0	4	18	5	4	31	
	%	0	0,77	3,48	0,97	0,77	5,99	
HODs	f	1	7	30	28	7	73	1
	%	0,19	1,35	5,80	5,42	1,35	14,11	
Teachers	f	5	33	178	133	64	413	3
	%	0,97	6,39	34,43	25,73	12,38	79,90	
TOTAL	f	6	44	226	166	75	517	4
	%	1,16	8,51	43,71	32,12	14,50	100	
SOUTH REGION								
RANK		<20	21 - 30	31 - 40	41 - 50	51+	TOT	
Principals	f	1	7	8	12	10	38	
	%	0,16	1,10	1,26	1,89	1,57	5,98	
HODs	f	7	15	25	47	25	119	
	%	1,10	2,36	3,93	7,39	3,93	18,71	
Teachers	f	15	86	104	180	94	479	2
	%	2,36	13,52	16,35	28,30	14,78	75,31	
TOTAL	f	23	108	137	239	129	636	2
	%	3,62	16,98	21,54	37,58	20,28	100	

Table 5.6 shows that 14 (14,89%) principals are managing schools with more than 50 teachers. Twenty-six schools (12 in the South, 5 in the Central and 9 in the North region) have more than 40 teachers. The large numbers of teachers in the schools make the introduction of team management a crucial necessity. To promote their growth and development, more managerial duties should be delegated to them, whilst involving them into making decision which affect them.

A principal not trained in team management or group dynamics will not effectively utilise most of these teachers. The goals of the individual teachers will not harmonise or blend with the goals of the school. The establishment of teams under various leaders can promote the co-ordination of activities.

5.2.7 Departments

TABLE 5.7: RANK BY DEPARTMENT (V07)

NORTH REGION									
RANK		1	2	3	4		5	TOT	
Principals	f	3	4	4	13	1	0	25	
	%	0,74	0,99	0,99	3,21	0,25	0	6,18	
HODs	f	15	10	13	11	6	11	66	
	%	3,70	2,47	3,21	2,72	1,48	2,72	16,30	
Teachers	f	89	66	47	65	36	11	314	4
	%	21,97	16,29	11,60	16,05	8,89	2,72	77,52	
TOTAL	f	107	80	64	89	43	22	405	4
	%	26,41	19,75	15,80	21,98	10,62	5,44	100	
CENTRAL REGION									
RANK		1	2	3	4		5	TOT	
Principals	f	1	4	15	10	1	0	31	
	%	0,19	0,78	2,92	1,95	0,19	0	6,03	
HODs	f	12	12	7	11	13	16	71	3
	%	2,34	2,34	1,36	2,14	2,53	3,12	13,84	
Teachers	f	107	69	58	97	46	34	411	5
	%	20,86	13,45	11,31	18,91	8,97	6,63	80,13	
TOTAL	f	120	85	80	118	60	50	513	8
	%	23,39	16,57	15,59	23,00	11,69	9,75	100	
SOUTH REGION									
RANK		1	2	3	4		5	TOT	
Principals	f	1	5	5	25	1	0	37	1
	%	0,16	0,79	0,79	3,93	0,16	0	5,83	
HODs	f	21	16	23	20	15	24	119	
	%	3,30	2,52	3,62	3,14	2,36	3,77	18,71	
Teachers	f	133	81	67	103	75	21	480	1
	%	20,91	12,74	10,53	16,19	11,79	3,30	75,46	
TOTAL	f	155	102	95	148	91	45	636	2
	%	24,37	16,05	14,94	23,26	14,31	7,07	100	

KEY: 1 = Official Languages; 2 = African Languages; 3 = Social Sciences 3 = Natural Sciences; 4 = Commercial Sciences; 5 = Others.

This question was worded differently for the three groups (cf. appendices A and B). Principals were requested to indicate the number of departmental heads they have so as to give an idea of the possible departmental teams in existence. Most principals 49 (52,69%) had about four HODs. In the Central region most principals 15 (16,13%) had three HODs each. The possibility of the other HOD posts being vacant cannot be ruled out.

5.2.8 Conclusion

Some of the aspects of the biographical and demographical sections of this survey, corroborate other studies conducted by Mampuru (1992), Teleki (1994), Legotlo (1994) and Kitavi (1995).

The findings of these researchers indicate that school principals are usually middle-aged males with junior degrees. Teleki's research is related to the Free State Province, Mampuru's to the Mpumalanga Province (Kangwane) Legotlo's to the North West (Bophuthatswana) and Kitavi's to Kenya.

Emerging from the these studies is the sexual discrimination against females in senior managerial positions. This discrimination has resulted in the under representation of women as school principals and heads of departments.

5.3 DESCRIPTIVE DATA

5.3.1 Leadership

5.3.1.1 Introduction

HODs and teachers were requested to record their perceptions of the leadership style of their principals. The leadership style was divided into six elements, e.g. decisions (V08), convictions (V09), conflict (V10), emotions/temper (V11), humour (V12) and effort (V13).

Each of these elements were further subdivided into five items indicating or representing the five leadership styles identified by Blake and Mouton (1978) :

- Impoverished Management style (1,1).
- Country Club Management style (1,9).
- Organisational Man Management style (5,5).
- Authority Obedience style (9,1).
- Team Management style (9,9).

Principals were given similar questionnaires to indicate their perception of their own leadership style.

5.3.1.2 Decisions (V08)

TABLE 5.8 : ELEMENT DECISIONS

R	1,1	1,9	5,5	9,1	9,9
1.	13 (13,83%)	5 (5,32%)	59 (62,77%)	15 (15,96%)	2 (2,13%)
2	42 (16,80%)	17 (6,80%)	113 (45,20%)	44 (17,60%)	34 (13,60%)
3	257 (21,63%)	104 (8,75%)	396 (33,33%)	218 (18,35%)	213 (17,93%)
Total	312 (20,37)	126 (8,22)	568 (37,08)	277 (18,08)	249 (16,25)

KEY. R = RANK : 1 = Principal; 2= HOD; 3= Teachers

Table 5.8 shows that the majority of the respondents within the ranks i.e. principals 59 (62,77%), HODs 113 (45,20%) and teachers 396 (33,33%) perceived that the principals placed high value on getting sound creative decisions that result in understanding and agreement. This perception is supported by far the majority of the 94 principals, four more times than those supporting the next highest perception. On the Managerial Grid, this perception represents the Organisation Man style (5,5) (cf. 2.7.1.6).

5.3.1.3 Convictions (V09)

TABLE 5.9 : ELEMENT CONVICTIONS

R	1,1	1,9	5,5	9,1	9,9
1.	8 (8,51)	59 (62,77)	7 (7,45)	15 (15,96)	5 (5,32)
2.	38 (15,20)	110 (44,00)	26 (10,40)	69 (27,60)	7 (2,80)
3.	220 (18,38)	379 (31,66)	232 (19,38)	283 (23,64)	83 (6,93)
Total	266 (17,26)	548 (35,56)	265 (17,20)	367 (23,82)	95 (6,16)

KEY: R = RANK : 1 = Principal; 2= HOD; 3= Teachers

Table 5.9 also reveals a common perception on this element within the three ranks. The majority of principals 59 (62,77%), HODs 110 (44%) and teachers 379 (31,66%) felt that the principals placed high value on making decisions that stick. On the Managerial Grid this could be interpreted as the 1,9 style called Country Club. Only 95 (6,16%) of the respondents perceived principals as using the team management style (9,9).

5.3.1.4 Conflict (V10)

TABLE 5.10: ELEMENT CONFLICT

R	1,1	1,9	5,5	9,1	9,9
1.	25 (26,60)	2 (2,13)	13 (13,83)	54 (57,45)	0 (0,00)
2.	78 (30,95)	16 (6,35)	71 (28,17)	70 (27,78)	17 (6,95)
3.	305 (25,37)	180 (14,98)	388 (32,28)	215 (17,89)	114 (9,48)
Total	408 (26,36)	198 (12,79)	472 (30,49)	339 (21,90)	131 (8,46)

KEY: R = RANK : 1 = Principal; 2= HOD; 3= Teachers

This element is characterised by the absence of a common perception on the leadership style of principals. The majority in the three ranks perceived the principal's leadership style on conflict differently (cf. Table 5.10). For example, the majority of principals, 54 (57,45%) perceived their style as being a 9,1 and 78 (30,95%) of the HODs perceived it was a 1,1 style while the majority of teachers 388 (32,28%) viewed it as being a 5.5 style. Different views should be expected concerning conflict because even theorists differ in their interpretation of conflict (cf. 3.3.2)

5.3.1.5 Emotions (temper) (V11)

TABLE 5.11: ELEMENT EMOTIONS

R	1,1	1,9	5,5	9,1	9,9
1.	4 (4,30)	17 (18,28)	3 (3,23)	39 (41,94)	30 (32,26)
2.	54 (21,51)	65 (25,90)	21 (8,37)	33 (13,15)	78 (31,08)
3.	286 (24,03)	266 (22,35)	244 (20,50)	172 (14,45)	222 (18,66)
Total	344 (22,43)	348 (22,69)	268 (17,47)	244 (15,91)	330 (21,51)

KEY: R = RANK : 1 = Principal; 2= HOD; 3= Teachers

The different perceptions which characterised the conflict element, also prevail in the emotions element. However, this is not surprising since in certain instances conflict is associated with high emotions or temper.

The difference (see Table 6.11) is reflected in the fact that 39 (41,94%) principals perceived their style as being an Authority-obedience style (9,1) while the majority of HODs 78 (31,08%) regarded it as being Team management style (9,9) and the majority of teachers, 286 (24,03%) felt it as being an Impoverished management style (1,1).

5.3.1.6 Humour (V12)

TABLE 5.12 : ELEMENT HUMOUR

R	1,1	1,9	5,5	9,1	9,9
1.	41 (43,62)	43 (45,74)	5 (5,32)	2 (2,13)	3 (3,19)
2.	97 (38,49)	115 (45,63)	15 (5,95)	11 (4,37)	14 (5,56)
3.	430 (35,86)	445 (37,11)	167 (13,93)	87 (7,26)	70 (5,84)
Total	568 (36,76)	603 (39,03)	187 (12,10)	100 (6,47)	87 (5,63)

KEY: R = RANK : 1 = Principal; 2= HOD; 3= Teachers

Like in Decisions (V08) and Convictions (V09) a majority common perception prevails within the three ranks with regard to this element (cf. Table 5.12). In each rank the majority of the respondents 43 (45,74%) principals, 115 (45,63) HODs and 445 (37,11%) teachers felt that the principal's humour aims at maintaining friendly relations or when strains do arise, it shifts attention away from the serious side.

5.3.1.7 Effort (V13)

TABLE 5.13 : ELEMENT EFFORT

R	1,1	1,9	5,5	9,1	9,9
1.	6 (6,38)	24 (25,53)	32 (34,04)	8 (8,51)	24 (25,53)
2.	43 (17,41)	73 (29,55)	49 (19,84)	45 (18,22)	37 (14,98)
3.	272 (22,65)	245 (20,40)	311 (25,90)	207 (17,24)	166 (13,82)
Total	321 (20,82)	342 (22,18)	392 (25,42)	260 (16,86)	227 (14,72)

KEY: R = RANK : 1 = Principal; 2= HOD; 3= Teachers

Table 5.13 shows that within the ranks of principals there is a majority common perception of 32 (34,04%) principals and 311 (25,90%) teachers which believe that principals seek a steady pace, while the the majority of HODs, 73 (29,55%) perceived that their principals exert vigorous efforts and others join in.

5.3.1.8 Leadership styles total perceptions

TABLE 5.14 : LEADERSHIP STYLES TOTAL PERCEPTIONS

R	1,1	1,9	5,5	9,1	9,9
1.	97 (17,23)	150 (26,64)	119 (21,14)	133 (23,62)	64 (11,37)
2.	352 (26,24)	396 (22,77)	291 (16,73)	275 (15,81)	425 (24,44)
3.	1770 (24,67)	1619 (22,56)	1738 (24,22)	1182 (16,47)	866 (12,07)
Total	2219 (23,41)	2165 (22,84)	2148 (22,67)	1590 (16,78)	1355 (14,30)

KEY: R = RANK : 1 = Principal; 2= HOD; 3= Teachers

Table 5.14 displays the total perception of all the elements for each rank. This total perception reveals that the majority of principals 150 (26,64%) viewed their style as being a 1,9; while the majority of theHODs, 425 (24,44%) perceived the principal's leadership style as being a 5,5. The majority of teachers 1770 (24,67) perceived the style as a 1,1. The majority of the HODs viewed the leadership style of their principals as being in line with the team management style. The possible explanation may be because they are part of the management team they are invariably treated favourably or democratically.

5.3.1.9 Conclusion

With regard to the team management process, the literature study has revealed that a 9,9 style was the most appropriate of the five styles on the Managerial Grid. The empirical research (cf. Table 5.14) has, however, revealed that according to the perceptions of the teachers and the principals themselves, the prevailing leadership style is either 1,1 or 1,9 respectively. Only the HODs perceived the leadership style of principals as being a 9,9.

5.3.2 Communication

5.3.2.1 Introduction

This subsection was designed to determine the perceptions of respondents regarding a possible explanation for the effectiveness of communication within the schools.

Respondents were asked their views or perceptions on the effectiveness of the communication process in their schools on a four-point scale.

5.3.2.2 Item 14. Upward communication

TABLE 5.15 : UPWARD COMMUNICATION (V14)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NOT	4	4,30	22	8,70	204	16,87
2. MODERATE	23	24,73	70	27,67	395	32,68
3. EFFECTIVE	45	48,39	116	45,84	443	36,64
4. VERY	21	22,58	45	17,79	167	13,81
TOTAL RESPONSES	**93**	**100**	**253**	**100**	**1209**	**100**
NON-RESPONSES	1		6		6	

According to Table 5.15 more than half (53,82%) of the respondents felt that upward communication was effective with 14,99% indicating that it was very effective. On the other hand 16,87% of the teachers and 8,7% of HODs felt that communication was not effective.

This implies that the majority of the principals, 70,97% believe that their teachers and HODs are free to discuss with them any matter of concern to them (teachers). However, only 50,45% of the teachers agree with this perception.

These findings correlate with those of the study conducted by Likert (Wynn & Guditus, 1984:77) in which 90% of the managers interviewed stated that their foremen felt free to discuss important aspects of their work with them, yet only 67% of the foremen reported that they actually felt free to do so.

Principals appear to have an exaggerated perception of the upward communication in their schools when compared with teachers. HODs on the other hand, seem to be leaning towards principals. According to team management, both superiors and subordinates usually hold accurate perceptions of each other.

5.3.2.3 Item 15: Forces distorting information

TABLE 5.16: FORCES DISTORTING INFORMATION (V15)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NOT	24	25,53	70	27,56	329	27,74
2. MODERATE	33	35,11	95	37,40	406	34,23
3. EFFECTIVE	22	23,40	57	22,44	267	22,51
4. VERY	15	15,96	32	12,60	184	15,52
TOTAL RESPONSES	**94**	**100**	**254**	**100**	**1186**	**100**
NON-RESPONSES			5		29	

Table 5.16 indicates that 34,81% of the respondents of the whole sample believe that the forces distorting information are moderately effective. This consists of 35,11% of the principals, 37,40% of the HODs and 34,23% of the teachers. In this regard the perceptions correlate positively.

The above perceptions imply that the effect of these forces is negligible. However, the combination of the perceptions of those respondents who felt that these forces are effective (23,56%) and those who feel they are very effective (15,06%) counterbalances the above perception i.e. moderately effective. The fact that more teachers and HODs feel that these forces or barriers do exist is cause for concern. They will make the free flow of communication difficult. The literature study has revealed strategies to improve communication (cf. 2.7.2.5).

5.3.2.4 Item 16. Forces leading to accurate information

TABLE 5.17: FORCES LEADING TO ACCURATE INFORMATION (V16)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NOT	01	1,08	16	6,58	137	11,59
2. MODERATE	26	27,96	78	32,10	382	32,32
3. EFFECTIVE	48	51,61	113	46,50	488	41,29
4. VERY	18	19,35	36	14,82	175	14,80
TOTAL RESPONSES	**93**	**100**	**243**	**100**	**1182**	**100**
NON-RESPONSES	1		16		33	

Table 5.17 illustrates that 57,83% of the total sampled population are satisfied with the effectiveness of the forces contributing to accurate information. This includes the majority of the principals 70,96%, the majority of the HODs, 61,32% and the majority of the teachers 56,09%. Only a minority of the respondents, 19,25% felt that these forces were not effective. This includes one principal.

Miles (quoted by Wynn & Guditus, 1984:74) alleges that adequate communication is an essential hallmark of healthy organisations. He believes that communication is adequate when distortion-free information travels reasonably well vertically, horizontally, and to and from the surrounding environment.

5.3.2.5 Item 17: Keeping staff informed

TABLE 5.18: KEEPING STAFF INFORMED (V17)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NOT	00	00	20	7,84	184	15,19
2. MODERATE	12	12,9	60	23,53	284	23,45
3. EFFECTIVE	45	48,39	79	30,98	368	30,39
4. VERY	36	38,71	96	37,65	375	30,97
TOTAL RESPONSES	**93**	**100**	**255**	**100**	**1211**	**100**
NON-RESPONSES	1		4		4	

Table 5.18 shows that 32,52% of the respondents indicated that principals were very effective in keeping the staff informed about matters related to their subjects or jobs. This is almost equal to those who felt they were effective (i.e. 31,56%).

Only a minority of the teachers, 15,19% and HODs 7,84% stated that the principals were not effective in keeping the staff informed. What is interesting is that the majority of these were females, 127 females to 77 males. This feeling could possibly be attributed to the dominance of management positions by men. It is probably easier for male teachers to obtain information from a male principal than it is for females. Another noteworthy observation from Table 5.18 is the different perception of each other held by the three groups or ranks, proving that the communication process does not live up to the characteristics of team management or System 4.

5.3.2.6 Item 18: Sharing information with the staff

TABLE 5.19: SHARING INFORMATION WITH THE STAFF (V18)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NOT	0	0	14	5,51	141	11,66
2. MODERATE	07	7,45	61	24,02	296	24,48
3. EFFECTIVE	41	43,62	87	34,25	414	34,24
4. VERY	46	48,93	92	36,22	358	29,62
TOTAL RESPONSES	**94**	**100**	**254**	**100**	**1209**	**100**
NON-RESPONSES			5		6	

Item 17 and 18 are related. The purpose of including them was to evaluate the consistency of the respondents by checking whether response to item 18 will corroborate responses to item 17, which was indeed the case.

Two-thirds (66,67%) of the respondents felt that the principal's sharing of information with the staff was effective (34,81%) and very effective (31,86%). Only a minority of 11,66% of the teachers and 5,51% of the HODs felt that the sharing of information by the principals was not effective (cf. Table 5.19).

The feelings of the 11,66% could be ascribed to lack of active listening on both sides (cf. 3.3.5.1.), and poor working relations (cf. 3.3.3.). The implication which can be drawn from this perception is that staff meetings as a mechanism for sharing information are ineffective, meaningless and a waste of precious time to these respondents.

5.3.2.7 Item 19: Communication aimed at achieving school objectives

TABLE 5.20: INTERACTION AND COMMUNICATION (V19)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NOT	02	2,15	11	4,32	116	9,61
2. MODERATE	10	10,75	70	27,45	346	28,67
3. EFFECTIVE	55	59,14	103	40,39	470	38,94
4. VERY	26	27,96	71	27,84	275	22,78
TOTAL RESPONSES	**93**	**100**	**255**	**100**	**1207**	**100**
NON-RESPONSES	1		4		8	

Table 5.20 illustrates that 40,39% of the total sample believed that the interaction and communication aimed at achieving school objectives was effective and 23,92% indicated that it was very effective. This includes the majority of 59,14% of all the principals, 40,39% of all the HODs and 38,94% of the teachers. Only 8,30% felt it was not effective.

According to the literature study (cf. 3.3.1) the only time this interaction could result in the achievement of school goals, is when the team or staff is motivated, satisfied, involved and committed.

5.3.2.8 Item 20: Listening capacity

TABLE 5.21: LISTENING CAPACITY (V20)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1, NOT	0	0	18	7,11	131	10,91
2, MODERATE	12	12,77	41	16,21	315	26,23
3, EFFECTIVE	50	53,19	125	49,41	441	36,72
4, VERY	32	34,04	69	27,27	314	26,14
TOTAL RESPONSES	**94**	**100**	**253**	**100**	**1201**	**100**
NON-RESPONSES			6		14	

The majority of teachers (62,86%) and an overwhelming majority of the HODs (76,68%) indicated satisfaction with the effectiveness of the principals' listening capacity. Only 10,91% of the teachers and 7,11% HODs felt it was not effective.

According to the literature study the principal must be an active listener. The literature revealed that teachers are more likely to talk with someone whom they believe will listen to what they have to say (cf. 3.3.5.2).Within the management team, the principal's listening capacity will reduce misunderstanding in interpersonal communication.

5.3.2.9 Item 21: Feedback

TABLE 5.22: FEEDBACK (V21)

ITEM INTENSITY EFFECTIVENESS	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NOT	01	1,06	20	7,87	127	10,56
2. MODERATE	06	6,38	52	20,47	273	22,69
3. EFFECTIVE	63	67,02	97	38,19	470	39,07
4. VERY	24	25,53	85	33,47	333	27,68
TOTAL RESPONSES	**94**	**100**	**254**	**100**	**1203**	**100**
NON-RESPONSES			5		12	

The majority of the respondents (69,12%) believe that the feedback provided by principals was effective (40,62%) and very effective (28,50%). This perception is shared by 67,02% and 25,53% of the principals, 38,19% and 33,47% of the HODs as well as 39,07% and 27,68% of the teachers respectively. Only 9,54% recorded that the feedback was not effective.

There is a very narrow percentage difference of perception between HODs and teachers, but a very wide difference between principals and teachers or HODs. The overwhelming positive response is an indication that principals do ascertain whether the information has been interpreted correctly.

5.3.2.10 Synthesis

System 4 shares similar characteristics with team management and they are both based on McGregor's Theory Y (cf. 2.7.2.2). According to Likert (1976:25), administrators view their organisations as much more like System 4 than do teachers. The findings of this survey on communication supports Likert's study. This study also reveals that more than half of the teachers view the communication process favourable.

However, the existence of perceptions of forces distorting communication and the inaccurate perceptions which both the principals and the teachers hold of each other, indicate that the communication process is not adequately in the System 4 league in accordance to Likert (Wynn & Guditus, 1984:75-76).

On the average, more than 60% of the respondents perceived the communication process in all the items, excluding item 15, as being effective or very effective. On the basis of this data, it can be concluded that the communication process does serve the needs of the majority in that in most of the items the respondents felt that principals were effective.

5.3.3 Participative decision-making

5.3.3.1 Introduction

There are limitations that apply to the participation of teachers in management functions. The review of the literature revealed that teachers show a strong preference for involvement in those decisions that are directly related to their work in the classroom. This section of the questionnaire except item 25, consisted of issues within the zone of concern to the teachers.

5.3.3.2 Item 22. Selecting text-books

TABLE 5.23: SELECTING TEXT-BOOKS (V22)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	15	16,13	50	19,61	370	30,68
2. LITTLE	13	13,98	43	16,86	257	21,31
3. SOME	31	33,33	85	33,33	329	27,28
4. GREAT	34	36,56	77	30,20	250	20,73
TOTAL RESPONSES	**93**	**100**	**255**	**100**	**1206**	**100**
NON-RESPONSES	1		4		9	

According to Table 5.23 the majority of the principals (36,56%) claim that there is great participation by teachers in the selection of text-books in their schools. In contrast, many teachers (30,68%) indicated that they have no participation in the selection of the textbooks they use in their classrooms. The majority of the HODs (33,33%) recorded that they do enjoy some participation.

There seems to be very little difference of opinion between principals and HODs in their perception of participation in textbook selection and a wide difference of perception between principal and teachers. This is not surprising since HODs are team leaders in their respective departments. Consequently they enjoy more participation than teachers. Teachers' participation depends on the initiative of the HODs when it comes to textbook selection.

Overall more than half of the teachers feel that they do not enjoy adequate participation while more than sixty percent of the HODs feel that they enjoy some participation. In other words, teachers are deprived of greater participation in their zone of concern.

5.3.3.3 Item 23: Deciding on subject to teach

TABLE 5.24: DECIDING ON SUBJECTS TO TEACH (V23)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	04	4,26	14	5,53	157	13,05
2. LITTLE.	12	12,77	26	10,28	242	20,12
3. SOME	34	36,17	87	34,39	395	32,83
4. GREAT	44	46,80	126	49,80	409	34,00
TOTAL RESPONSES	**94**	**100**	**253**	**100**	**1203**	**100**
NON-RESPONSES			6		12	

Less than half (46,81%) of the principals claim that teachers enjoy great participation in choosing subjects they teach. Almost an equal percentage perception by HODs (49,80%) supports this claim. However, only 34% of the teachers concurred with this assertion.

What is odd, is the perception by a minority of the HODs, 15,81% that they have no participation (5,53%) or little participation (10,28%) in deciding on subjects they are to teach. One can attribute this to the possibility that since their appointment as HODs, their schools have been receiving the same textbooks. It has not been possible for them to change the series.

What is noteworthy about Table 5.24 is the fact that 13,05% of the teachers teach subjects they did not choose. This contradicts the literature findings that teachers' desire to participate is strongest in areas closely related to the classroom activities (cf. 4.5). Selection of textbooks to be used in the classrooms and deciding what subjects the individual teacher is to teach, are related to classroom activities

5.3.3.4 Item 24: Formulating departmental aims and objectives

TABLE 5.25: FORMULATING DEPARTMENTAL AIMS AND OBJECTIVES (V24)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	01	1,08	10	3,94	231	19,27
2. LITTLE	17	18,28	13	5,12	250	20,85
3. SOME	41	44,09	89	35,04	433	36,11
4. GREAT	34	36,56	142	55,91	285	23,77
TOTAL RESPONSES	**93**	**100**	**254**	**100**	**1199**	**100**
NON-RESPONSES	1		5		16	

In each secondary school, teachers belong to departments according to subjects they teach. The empirical survey has revealed that the minimum number of departments per school is four. It is in these departments where decisions which affect classroom activities are taken. In other words, issues which are discussed in these departments fall within the teacher's zone of concern. Therefore, the aims and objectives of these departments will impact on classroom activities.

Table 5.25, however, indicates that 36,11% of the teachers enjoy some participation instead of great participation. What is disturbing is that a total of 40,12% of the teachers allege no participation (19,27%) or little participation (20.85%) in formulating the aims and objectives of the departments which have greater influence on their classroom activities.

5.3.3.5 Item 25: Drafting school policy

TABLE 5.26: DRAFTING SCHOOL POLICY (V25)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	06	6,38	24	9,45	377	31,71
2. LITTLE	24	25,53	46	18,11	244	20,52
3. SOME	27	28,73	92	36,22	322	27,08
4. GREAT	37	39,36	92	36,22	246	20,69
TOTAL RESPONSES	**94**	**100**	**254**	**100**	**1189**	**100**
NON-RESPONSES			5		26	

The majority of principals (39,36%) claimed that teachers enjoy greater participation in drafting school policy and in contrast very few teachers (20,69%) supported this allegation (cf. Table 5.26).

More than half the teachers (52,23%) felt that they had little (20,52%) or no participation (31,71%), while 27,56% of the HODs felt that they also enjoy little or no participation. About a third (31,91% of the principals confirmed that they did not involve their teachers in drafting school policy or provided them little participation. Probably because of their rank 72,44% HODs enjoyed better participation

There are many valid reasons for this state of affairs in the schools. The responsibility of the teacher must necessarily be focused on the immediate needs of the children. The teacher has little time nor energy left to think of matters of policy outside the small, action packed world of the classroom. To some teachers, drafting school policy might fall within their zone of indifference.

5.3.3.6 Item 26: Planning the school's year programme

TABLE 5.27: PLANNING YEAR PROGRAMME (V26)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	08	8,51	27	10,59	339	28,34
2. LITTLE	25	26,60	35	13,73	282	23,58
3. SOME	30	31,91	98	38,43	346	28,93
4. GREAT	31	32,98	95	37,25	229	19,15
TOTAL RESPONSES	**94**	**100**	**255**	**100**	**1196**	**100**
NON-RESPONSES			4		19	

According to Table 5.27, a total of 64,89% of the principals claimed that teachers are provided with some participation (31,91%) and great participation (32,98%). This perception is shared by almost half (48,08%) of the teachers and 75,68% of the HODs. HODs as members of the principal's management team do of cause enjoy more favourable participation than teachers. However, they do not extend the same amount of participation to the teachers in their departments. The total number of teachers (51,92%) who have no participation (28,34%) and little participation (23,58%) gives testimony to this argument which is supported by 35,11% of the principals.

5.3.3.7 Item 27: Representation in the PTSA

TABLE 5.28: REPRESENTATION IN THE PTSA (V27)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	02	2.15	15	5.91	135	11.27
2. LITTLE	09	9.68	35	13.78	165	13.77
3. SOME	15	16.13	68	26.77	369	30.80
4. GREAT	67	72.04	136	53.54	529	44.16
TOTAL RESPONSES	**93**	**100**	**254**	**100**	**1198**	**100**
NON-RESPONSES	1		5		17	

With regard to selecting teacher representation to the PTSA, 44,16% of the teachers indicated that they enjoyed greater participation on this item than on any of the other 9

items (cf. Table 5.28). Overall 74,96% of the teachers enjoyed some or great participation while 80,31% of the HODs have similar participation.

The 9 participation items (greatest participation) were ranked according to the perception of the teachers. Table 5.34 shows that of the 9 items teachers enjoyed the greatest participation when it came to selecting representation to the PTSA. What is interesting is that this participation is not through the goodwill of the principals but the result of the struggle of SADTU for teacher representation in the school governing bodies.

This contradicts literature findings (cf. 4.5) which indicate that teachers are not interested in participating in school wide issues. PTSAs do not deal with classroom activities but school wide matters.

5.3.3.8 Item 28: Deciding who should be send to an in-service course

TABLE 5.29: IN-SERVICE TRAINING COURSE (V28)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	05	5,38	34	13,33	337	28,08
2. LITTLE	20	21,50	48	18,83	283	23,58
3. SOME	26	27,96	71	27,84	309	25,76
4. GREAT	42	45,16	102	40,00	271	22,58
TOTAL RESPONSES	**93**	**100**	**255**	**100**	**1200**	**100**
NON-RESPONSES	1		4		15	

Table 5.29 reflects that many teachers feel that they did not participate in deciding who should be sent in their respective departments to an in-service course. Forty percent of the HODs claimed great participation and 13,33% no participation. The claim of 45,16% of the principals is supported by only 22,58% of the teachers.

It is very odd that 32,15% of the HODs alleged that they had little participation (18,82%) or no participation at all (13,33%) in selecting teachers in their departments who should go for in-service training. HODs as team leaders are the ones who should facilitate the involvement of teachers in deciding who within the team should be send for in service training. A possible explanation for these claims is that some principals override their HODs by taking departmental decisions.

5.3.3.9 Item 29: Drawing the school's time-table

TABLE 5.30: SCHOOL TIME-TABLE (V29)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	07	7,53	32	12,70	265	22,14
2. LITTLE	10	10,75	25	9,92	209	17,46
3. SOME	23	24,73	66	26,19	328	27,40
4. GREAT	53	56,99	129	51,19	395	33,00
TOTAL RESPONSES	**93**	**100**	**252**	**100**	**1197**	**100**
NON-RESPONSES	1		7		18	

An overwhelming majority (81,72%) of the principals reported that their teachers had some participation (24,73%) and great participation (56,99%). This perception is shared by the majority of the teachers 60,4% and of the HODs 77,38%. Only 37,60% of the teachers felt that they either had little or no participation in deciding who should draw the school's time table (cf. Table 5.30).

A time table is a control technique of the classroom activities and as such it falls within the teachers' zone of concern. According to Table 5.34 this item was ranked third highest amongst the nine participation items in terms of greatest participation by teachers.

5.3.3.10 Item 30: Participating in problem solving within departments

TABLE 5.31: PROBLEM SOLVING WITHIN THE DEPARTMENTS (V30)

ITEM INTENSITY PARTICIPATION	RANK RESPONSES					
	PRINCIPALS		HODs		TEACHER	
	f	%	f	%	f	%
1. NONE	03	3,19	11	4,38	184	15,27
2. LITTLE	14	14,89	24	9,56	236	19,59
3. SOME	41	43,62	82	32,67	422	35,02
4. GREAT	36	38,30	134	53,39	363	30,72
TOTAL RESPONSES	**94**	**100**	**251**	**100**	**1205**	**100**
NON-RESPONSES			8		10	

According to Table 5.34 this item has the fourth highest ranking of great participation by teachers. A total of 35,02% teachers felt that they did have some participation, while

30,12% recorded that they had great participation in solving problems which other teachers within their departments encountered (cf. Table 5.31).

More than three-quarters (81,92%) of the principals claim that teachers in their schools either have some or great participation in departmental problem-solving and 86,06% of the HODs confirm this allegation. However, this is not surprising because as team leaders this is one of their functions.

However, a minorityof the HODs, 4,38% claim no participation. A possible explanation could be that these are HODs who have been prevented by teacher unions from exercising their managerial functions as departmental heads.

5.3.3.11 Synthesis

TABLE 5.32(a) : RATINGS ACCORDING TO EXTENT OF VERY EFFECTIVE COMMUNICATION

ITEM NO	ITEM DESCRIPTION	RESPONSE %	RANKING
V17	KEEPING STAFF INFORMED	30,97	01
V18	SHARING INFORMATION WITH STAFF	29,61	02
V21	FEEDBACK	27,68	03
V20	CAPACITY TO LISTEN	26,14	04
V19	AMOUNT OF INTERACTION	23,78	05
V15	FORCES DISTRIBUTING INFORMATION	15,51	06
V16	FORCES LEADING TO ACCURATE INFORMATION	14,81	07
V14	UPWARD COMMUNICATION	13,81	08

TABLE 5.32(b) : RATINGS ACCORDING TO EXTENT OF INEFFECTIVE COMMUNICATION

ITEM NO	ITEM DESCRIPTION	RESPONSE %	RANKING
V15	FORCES DISTRIBUTING INFORMATION	27,74	01
V14	UPWARD COMMUNICATION	16,87	02
V17	KEEPING STAFF INFORMED	15,19	03
V18	SHARING INFORMATION WITH STAFF	11,66	04
V16	FORCES LEADING TO ACCURATE INFORMATION	11,59	05
V20	CAPACITY TO LISTEN	10,91	06
V21	FEEDBACK	10,54	07
V19	AMOUNT OF INTERACTION AND COMMUNICATION	9,61	08

Table 5.32 (a) and 6.32 (b) show a ranking of the communication items on the basis of very effective and not effective. According to the perception of the teachers (cf. Table 5.32 (a) item V17, keeping the staff informed, is ranked as the highest (30,97%) in the very effective category, followed by V18, sharing information with the staff (29,61%). The last item in this category is V14, upward communication (13,81%).

Table 5.32 (b) shows that the teachers rated item V15, forces distorting information as the highest (27,74%) in the not effective category, followed by item V14, upward communication (16,87%). The last item in this category is V19, amount of interaction and communication aimed at achieving objectives (9,61%).

TABLE 5.33(a) : RATINGS ACCORDING TO GREATEST PARTICIPATION

ITEM NO	ITEM DESCRIPTION	RESPONSE %	RANKING
27	SELECTING PTSA REPS	44,16	01
23	DECIDING SUBJECTS TO TEACH	34,00	02
29	WHO SHOULD DRAW THE TIME TABLE	33,00	03
30	SOLVING MEMBERS' PROBLEMS	30,12	04
24	DEPARTMENTAL AIMS	23,77	05
28	IN SERVICE COURSE	22,58	06
22	SELECTING TEXT BOOKS	20,73	07
25	DRAFTING SCHOOL POLICY	20,69	08
26	YEAR PROGRAMME	19,15	09

TABLE 5.33(b) : RATINGS ACCORDING TO EXTENT OF NO PARTICIPATION

ITEM NO	ITEM DESCRIPTION	RESPONSE %	RANKING
25	DRAFTING SCHOOL POLICY	31,71	01
22	SELECTING TEXT BOOKS	30,68	02
26	PLANNING YEAR PROGRAMME	28,34	03
28	IN SERVICE COURSE	28,08	04
29	DRAWING THE TIME TABLE	22,14	05
24	FORMULATING DEPARTMENTAL AIMS & OBJECTIVES	19,27	06
30	SOLVING MEMBERS' PROBLEMS	15,27	07
23	DECIDING SUBJECTS TO TEACH	13,05	08
27	SELECTING PTSA REPRESENTATIVES	11,27	09

Table 5.33 (a) displays the items in which the teachers enjoyed the greatest participation ranking are: (1) item 27 selecting teacher representation to the PTSA (44,16%), (2) item 23, deciding which subject to teach (34,00%) and (3) item 29 deciding who should draw the time table (33%). The lowest in this category is item V26, planning the school's year programme (19,15%).

Table 5.33 (b) indicates the three highest items in which the teachers recorded decisional deprivation according to teachers' perception are : (1) drafting school policy 31,71%; (2) selecting textbooks 30,68% and (3) planning the school's year programme or activities 28,34%.

5.4 INFERENTIAL STATISTICS

5.4.1 Analysis of variance (F-test)

The analysis of variance compares all three ranks to one another simultaneously. It is used to determine whether three sample means differ significantly from one another (Borg & Gall, 1979:427). The sample means in this study belong to principals, HODs and teachers.

5.4.2 The t-test

The analysis of variance, however, does not specify which of the three sample means differ significantly from one another. For this purpose, the t-test was used.

5.4.3 The p-value

The p-value illustrates whether there are statistically significant differences between the two means of the samples (Ary *et al.*, 1976:158). In this study, a p-value of less than 0.05 indicates that there are statistically significant differences between the two means of the samples (principals and HODs; principals and teachers as well as HODs and teachers).

A statistically significant difference indicates that the difference between the means are less likely to be a function of chance (Ary *et al.*, 1976:155).

5.4.4 The d-value (effect size)

Borg and Gall (1979:409) recommends that not only the statistical significance but also the practical significance of findings based on the statistical test that was used should be considered.

The d-value indicates the practically significant differences between two groups (Cohen, 1988). In this study the practically significant differences were determined for principals and HODs; principals and teachers and finally for HODs and teachers.

The d-value was computed using the following formula (Cohen, 1988) :

$$d = \frac{\overline{X}_1 - \overline{X}_2}{sd\max}$$

Where :

$\overline{X}_1$ = Mean of one group

$\overline{X}_2$ = Mean of the other group

$Sd\max$ = Maximum of the two standard deviations of the groups.

d = the effect size or d-value

Following the calculations of the d-values, the following three cut-off points (cf. Cohen, 1988:40) were used to indicate the effect of differences between the averages of the groups:

d = 0,2 (small effect)

d = 0,5 (medium effect)

d = 0,8 (large effect)

Because the d-value is meaningful only where there is a statistical significance, the d-values shown in Tables 6.37, 6.40 and 6.43 are only for those instances where $p < 0,05$.

5.5 DIFFERENCES IN RESPONSES AMONGST THE THREE RANKS

5.5.1 Leadership

5.5.1.1 Analysis of variance

TABLE 5.34: ANALYSIS OF VARIANCE FOR LEADERSHIP

ELEMENTS OF LEADERSHIP		F. RATIO	P. RATIO
V08	DECISIONS	0,63	0,53
V09	CONVICTIONS	2,09	0,73
V10	CONFLICT	2,51	0,08
V11	EMOTION	21,61	0,00 *
V12	HUMOUR	6,02	0,00 *
V13	EFFORT	4,37	0,01 *

* Significant difference at 0,05 level p < 05

From Table 5.34 it can be seen that in items V08, V09 and V10 no significant difference could be established among the perceptions of principals, HODs and teachers. The F-value was non-significant, consequently, no t-test was subsequently conducted. Item V11, V12 and V13 revealed a significant difference at the 0,05 level. As a result a t-test was conducted to specify which of the sample means differ significantly from one another.

5.5.1.2 The t-test

TABLE 5.35: THE T-TEST FOR LEADERSHIP STYLE

LEADERSHIP STYLE PERCEPTIONS: DIFFERENCES BETWEEN RANKS						
	PRINCIPALS AND HODs		PRINCIPALS AND TEACHERS		HODs AND TEACHERS	
	T-VALUE	P-VALUE	T-VALUE	P-VALUE	T-VALUE	P-VALUE
V09 CONVICTIONS	0.8987	0.3694	-1.9849	0.0476 *	-1.2344	0.2172
V10 CONFLICT	1.8184	0.0699	2.2575	0.0241 *	0.2107	0.8331
V11 EMOTIONS	4.5820	0.0001 *	7.4734	0.0001 *	2.3164	0.0211 *
V12 HUMOUR	-1.4090	0.1597	-3.5072	0.0006 *	-2.2049	0.0276 *
V13 EFFORT	2.3653	0.0186 *	2.9469	0.0033 *	0.4949	0.6207

* p < 0,05

Table 5.35 reflects a significant difference between the perception of principals and HODs with regard to item V11 and V13 and no significant difference in item V12. A comparison of the perceptions of the principals and teachers reveals a significant difference in all the three items viz. V11, V12 and V13. On the other hand, the perceptions of the HODs and teachers indicate no significant difference on item V13 while the differences in perceptions in item V11 and V12 are significant.

5.5.1.3 The d-value

TABLE 5.36: PRACTICAL DIFFERENCES IN RESPONSES ON LEADERSHIP STYLE

(1) PRINCIPALS & HODS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V11	3,80	3,06	1,58	0,47 *
V13	3,21	2,84	1,32	-0,28 *

(II) PRINCIPALS & TEACHERS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V09	2,47	2,69	1,21	-0,18
V10	3,02	2,71	1,30	0,24 *
V11	3,79	2,81	1,43	0,69 **
V12	1,76	2,10	1,14	-0,30
V13	3,21	2,79	1,34	-0,31 *

(III) HODS & TEACHERS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V11	3,06	2,81	1,58	0,16
V12	1,93	2,10	1,14	-0,15

* Small Effect

** Medium Effect

(a) Responses with small effect size

(i) Principals and HODs

Table 5.36 indicates that there is a small practically significant differences between the responses of the principals and HODs on the following items :

- Item V10 : Conflict (t = 1,82; p = 0,07; d = 0,22).
- Item V11 : Emotions (t = 4,58; p = 0 ; d = 0,47).
- Item V13 : Effort (t = 2,37; p = 0,09; d = 0,28).

(ii) Principals and teachers

- Item V10 : Conflict (t = 2,26; p = 0,02; d = 0,24).
- Item V13 : Effort (t = 2,95; p = 0 ; d = 0,31).

(b) Responses with medium effect size

(i) Principals and teachers

According to Table 5.36 there is a statistically practical significant difference of medium effect size between the responses of the principals and teachers on the following leadership style item :

- Item V11 : Emotions (t = 7,47; p= 0 ; d = 0,69).

5.5.2 Communication

TABLE 5.37: ANALYSIS OF VARIANCE FOR COMMUNICATION

ITEM No	ITEM DESCRIPTION	F. VALUE	P. VALUE
V14	UPWARD COMMUNICATION	15,50	0,0001 *
V15	FORCES DISTURBING INFORMATION	0,43	0,6478
V16	FORCES ACCURATE INFORMATION	6,17	0,0021 *
V17	KEEPING STAFF INFORMED	13,17	0,0001 *
V18	SHARING INFORMATION	19,59	0,0001 *
V19	ACHIEVING SCHOOL OBJECTIVES	10,52	0,0001 *
V20	CAPACITY TO LISTEN	12,55	0,0001 *
V21	FEEDBACK	7,06	0,0009 *

* Significant difference at 0,05 level p < 0,05

5.5.2.1 Analysis of variance

With the exception of item V15 which is non-significant, all the communication items reflect a significant difference (cf. Table 5.37). Consequently a t-test was subsequently performed for these seven items.

5.5.2.2 The t-test

TABLE 5.38: THE T-TEST FOR COMMUNICATION

COMMUNICATION DIFFERENCES BETWEEN RANKS							
		PRINCIPALS AND HODs		PRINCIPALS AND TEACHERS		HODs AND TEACHERS	
		T-VALUE	P-VALUE	T-VALUE	P-VALUE	T-VALUE	P-VALUE
V14	Upward communication	1,6205	0,1061 *	4,2236	0,0001 *	3,9960	0,0000 *
V16	Accurate information	2,0755	0,0039 *	3,8224	0,0001 *	1,6809	0,093
V17	Keeping staff informed	2,9642	0,0003 *	4,4048	0,0000 *	2,9882	0,0002 *
V18	Sharing information	4,6658	0,0001 *	5,7086	0,0000 *	2,8815	0,0004 *
V19	Achieving objectives	2,3948	0,0017 *	5,0542	0,0000 *	2,7085	0,0006 *
V20	Capacity to listen	2,8415	0,0004 *	4,3023	0,0000 *	3,1181	0,0002 *
V21	Feedback	2,3721	0,0018 *	3,3371	0,0000 *	2,0488	0,0040 *

* $p < 0,05$

From Table 5.38 it can be seen that, with the exception of item V14, all the items recorded a significant difference at .05 level between the perceptions of the principals and the HODs. There is a significant difference in all the items between the views of the principals and the teachers. With regard to the HODs and the teachers the difference is significant in all the items except item V16.

5.5.2.3 The d-value

TABLE 5.39: PRACTICAL DIFFERENCES IN RESPONSES FOR COMMUNICATION

(1) PRINCIPALS & HODS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V15	2,30	2,20	1,03	0,10
V16	2,89	2,70	0,80	0,24 *
V17	3,26	2,98	0,96	0,29 *
V18	3,42	3,01	0,91	0,45 *
V19	3,13	2,92	0,85	0,25 *
V20	3,21	2,97	0,85	0,28 *
V21	3,17	2,97	0,93	0,22 *

(II) PRINCIPALS & TEACHERS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V14	2,89	2,47	0,93	0,45 *
V15	2,30	2,26	1,03	0,04
V16	2,89	2,59	0,88	0,34 *
V17	3,26	2,77	1,05	0,47 *
V18	3,41	2,82	0,99	0,60 **
V19	3,13	2,75	0,92	0,41 *
V20	3,21	2,78	0,96	0,45 *
V21	3,17	2,84	0,95	0,35 *

(III) HODS & TEACHERS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V14	2,73	2,47	0,93	0,28 *
V15	2,20	2,26	0,98	0,06
V17	2,98	2,77	0,96	0,22 *
V18	3,01	2,82	0,99	0,19
V19	2,92	2,75	0,91	0,19
V20	2,97	2,78	0,96	0,20 *
V21	2,97	2,84	0,95	0,14

* Small Effect Size

** Medium Effect Size

(a) Responses with small effect size

Table 5.39 shows that there is a small practically significant difference between the responses of the principals and HODs; principals and teachers as well as HODs and teachers on the following items :

(i) Principals and HODs

- Item V16 : Effectiveness of the forces leading to accurate information (t = 2,08; p = 0,04; d = 0,24) .
- Item V17 : Effectiveness of the principal's attempts to keep the staff informed about matters related to teachers' job (t = 2,96; p = 0 ; d = 0,29)
- Item V19 : Effectiveness of interaction and communication aimed at achieving school objectives (t = 2,39; p = 0,02; d = 0,25) .
- Item V20 : Effectiveness of the principal's listening capacity (t = 2,84; p = 0 ; d = 0,28) .

(ii) Principals and teachers

- Item V16 : Effectiveness of the forces leading to accurate information (t = 3,82; p = 0; d = 0,34) .
- Item V21 : Effectiveness of the principal's feedback to the teachers (t = 3,34; p = 0 ; d = 0,35) .

(iii) HODs and teachers

- Item V14 : Effectiveness of upward communication (t = 4,00; p = 0 and d = 0,28) .
- Item V17 : Effectiveness of the principal's attempt to keep the staff informed about matters related to teachers' jobs (t= 3,00; p = 0 ; d = 0,22) .
- Item V20 : Effectiveness of the principal's listening capacity (t= 3,12; p =0 ; d =0,20) .

(a) Responses with medium effect size

Table 5.39 indicates that there is a statistically practically significant difference of medium effect size between the responses of the following groups, viz. principals and HODs as well as principals and teachers on the following items :

(i) Principals and HODs

- Item V18 : Effectiveness of the principal's sharing of information with the staff about the school (t = 4,67; p = 0 ; d = 0,45) .

(ii) Principals and teachers

- Item V14 : Effectiveness of upward communication (t= 4,22; p = 0; d = 0,45) .
- Item V17 : Effectiveness of the principal's attempt to keep the staff informed about matters related to teachers' job (t = 4,40; p = 0; d = 0,47) .
- Item V18 : Effectiveness of the principals sharing information with the staff about the school (t = 5,77; p = 0; d = 0,60) .
- Item V19 : Effectiveness of the amount of interaction and communication aimed at achieving school objectives (t = 5,05; p = 0; d = 0,41) .
- Item V20 : Effectiveness of the principal's listening capacity (t = 4,30; p = 0; d = 0,45)

5.5.3 Participative decision-making

5.5.3.1 Analysis of variance

TABLE 5.40: ANALYSIS OF VARIANCE FOR PARTICIPATIVE DECISION-MAKING

ITEM No	ITEM DESCRIPTION	F-VALUE	P-VALUE
V22	SELECTING TEXTBOOKS	18,39	0,0001 *
V23	DECIDING ON SUBJECTS TO TEACH	31,91	0,0001 *
V24	FORMULATING AIMS & OBJECTIVES	72,60	0,0001 *
V25	DRAFTING SCHOOL POLICY	44,46	0,0001 *
V26	PLANNING SCHOOL YEAR PROGRAMME	43,45	0,0001 *
V27	SELECTING REPS FOR PTSA	14,24	0,0001 *
V28	IN SERVICE COURSE	36,54	0,0001 *
V29	SCHOOLS' TIMETABLE	26,10	0,0001 *
V30	PROBLEM SOLVING WITHIN DEPT	35,52	0,0001 *

* Significant difference at 0,05 level p < 0,05

According to Table 5.40 all the PDM items reveal a significant difference. Consequently they were subjected to a t-test.

5.5.3.2 The t-test

TABLE 5.41: THE T-TEST FOR PARTICIPATIVE DECISION-MAKING

PARTICIPATION PERCEPTUAL DIFFERENCES BETWEEN RANKS						
	PRINCIPALS AND HODs		PRINCIPALS AND TEACHERS		HODs AND TEACHERS	
	T-value	P-value	T-value	P-value	T-value	P-value
V22 Selecting textbooks	1,2303	0,219	4,3313	0,000 *	4,6747	0,000 *
V23 Deciding on subjects to teach	-0,2827	0,777	4,1172	0,000 *	6,5875	0,000 *
V24 Formulating aims & objectives	-2,8967	0,004 *	6,1601	0,000 *	13,8461	0,000 *
V25 Drafting school policy	0,1597	0,873	6,1883	0,000 *	9,0924	0,0001 *
V26 Planning year program.	-1,1128	0,266	4,3566	0,000 *	9,2922	0,0001 *
V27 Selecting ptsa reps	3,0994	0,002 *	5,9986	0,000 *	3,1244	0,0019 *
V28 In service course	1,4770	0,140	6,8537	0,000 *	6,7424	0,000 *
V29 Schools' timetable	1,2358	0,217	5,8004	0,000 *	5,7068	0,000 *
V30 Problem solving with dept	-1,8200	0,069	4,2279	0,000 *	9,1583	0,0001 *

* $p < 0,05$

With the exception of items V24 and V27, which show a significant difference between the perceptions of principals and HODs, all the other seven items indicate no significant difference at the .05 level - meaning that the existing differences are due to chance (cf. Table 5.41) . On the other hand the same table reveals the existence of significant differences in all the items between the principals and teachers as well as between HODs and teachers.

5.5.3.3 The d-value (size effect)

TABLE 5.42: PRACTICAL DIFFERENCES IN RESPONSES FOR PARTICIPATIVE DECISION-MAKING

(1) PRINCIPALS & HODS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V24	3,16	3,43	0,77	-0,35
V27	3,58	3,28	0,91	0,33 *

(II) PRINCIPALS & TEACHERS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V22	2,90	2,38	1,13	0,46 *
V23	3,26	2,88	1,02	0,37 *
V24	3,16	2,64	1,04	0,5 **
V25	3,01	2,37	1,13	0,57 **
V26	2,89	2,39	1,09	0,46 *
V27	3,58	3,08	1,01	0,5 **
V28	3,13	2,43	1,12	0,63 **
V29	3,31	2,71	0,94	0,64 **
V30	3,17	2,80	1,03	0,36 *

(III) HODS & TEACHERS

ITEM	MEAN1	MEAN2	SD-MAX	D-VALUE
V22	2,74	2,38	1,12	0,32 *
V23	3,28	2,88	1,02	0,39 *
V24	3,43	2,64	1,04	0,76 **
V25	2,99	2,37	1,13	0,55 **
V26	3,02	2,39	1,09	0,55 **
V27	3,27	3,08	1,01	0,19
V28	2,95	2,43	1,12	0,46 *
V29	3,16	2,71	1,14	0,44 *
V30	3,15	2,80	1,03	0,53 **

* Small Effect Size

** Medium Effect Size

(a) Responses with small effect size

Table 5.42 shows that there is a small practically significant difference between the responses of (i) principals and HODs, (ii) principals and teachers and (iii) HODs and teachers.

(i) Principals and HODs

The d-value for the seven items which indicated no significant difference were not computed (cf. 6.4.4)

- Item V27 : Selecting teacher representatives for the PTA (t = 3,10; p = 0; d = 0,33) .

(ii) Principals and teachers

Since all items reflected a significant difference between the principals and teachers, the d-value was calculated and resulted in a small d-value.

- Item V22 : Selecting text-books (t = 4,33; p = 0,00; d = 0,46) .
- Item V23 : Deciding which subjects you are to teach (t = 4,11; p = 0; d = 0,37)
- Item V26 : Planning the school's year programme (t = 4,36; p = 0; d = 0,46) .
- Item V30 : Solving problems which members of your department meet in their teaching situations (t = 4,22; p = 0; d = 0,36) .

(iii) HODs and teachers

- Item V22 : Selecting textbooks (t = 4,68; p = 0; d = 0,32) .

- Item V23 : Deciding which subjects you are to teach (t = 6,59; p = 0; d = 0,39) .
- Item V28 : Deciding who should be sent for an in service course (t= 6,74; p = 0; d = 0,46) .
- Item V29 : Deciding who should draw the school's time table (t = 5,71; p = 0; d = 0,40) .

(b) Responses with medium effect size

Table 5.42 shows that there is a statistically practically significant difference of medium effect size between the responses of (i) principals and teachers and (ii) HODs and teachers in the following items :

(i) Principals and teachers

- Item V24 : Formulating aims and objectives of your departments (t = 6,16; p = 0; d = 0,5) .
- Item V25 : Drafting school policy (t = 6,19; p = 0; d = 0,57) .
- Item V27 : Selecting teacher representation for the PTSA (t = 6,00; p = 0; d = 0,5) .
- Item V28 : Deciding who should be sent for an in service course (t = 6,85; p = 0; d = 0,63) .
- Item V29 : Deciding who should draw the school 's time table (t = 5,80; p = 0; d = 0,64) .

(ii) HODs and teachers

- Item V24 : Formulating the aims and objectives of your department (t = 13,85; p = 0; d = 0,76) .
- Item V25 : Drafting school policy (t = 9,09; p = 0; d = 0,55) .
- Item V26 : Planning the school's year programmes and activities (t = 9,29; p = 0; d = 0,58) .
- Item V30 : Solving problems which members of your department meet in their teaching situations (t = 9,16; p = 0; d = 0,53) .

5.6 SUMMARY

This chapter presented an analysis and interpretation of data in two sections. The first section presented a descriptive analysis of data which included the distributional

characteristics of each of the variables in the study. The second section dealt with inferential statistics which included statistical techniques such as analysis of variance, students' t-test and the d-value (effect size) . Chapter 6 will include the summary of all the chapters, the findings of the study, conclusions and recommendations.