CHAPTER 5

RESEARCH RESULTS:
MAKING SENSE OF THE ACADEMIC SELF-CONCEPT OF LEARNERS WITH HEARING IMPAIRMENT IN DIFFERENT SCHOOL CONTEXTS

5.1 ORIENTATION

The aim of the study is to investigate the ASC of learners with HI in two South African public school contexts, namely special and full-service inclusion schools. An aim of Chapter 5 is to present the quantitative data, attempting to measure, describe and analyse the nature of the relationship, including its strength and direction, between the ASC and barriers of HI in the two school contexts. Chapter 5 also aims to enrich the analysis of the quantitative data with an analysis of the qualitative data, thereby attempting to further explore the nature of the relationship, more specifically in respect of the dynamics, between the ASC and HI in the two school contexts. The findings derived from the quantitative and qualitative data will be integrated, synthesised and discussed.

5.2 SAMPLE DESCRIPTION

5.2.1 Schools

Table 5.1 indicates the schools participating in the study, in terms of school context, predominant first language of learners and historical educational status.

Table 5.1 Schools participating in the research

School	School context	Predominant learner language	Historical educational status
1	Full-service inclusion school	Afrikaans	Historically advantaged
2	Full-service inclusion school	Sepedi	Historically disadvantaged
3	Special school for learners with HI	Afrikaans	Historically advantaged
4	Regular school	Afrikaans	Historically advantaged
5	Regular school	Sepedi	Historically disadvantaged

5.2.2 Learners

Table 5.2 indicates the number of learners who participated in the study, in terms of school, gender and home language.

Table 5.2 Sample distribution: learners, as per school, gender and home language

	School	1		2		3		4		5		Total
	Gender	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl	
Home language	Afrikaans	18	11			9	2	20	16			76
	Sepedi			14	18					11	7	50
	Tsonga			4	6					1	4	15
	Zulu			5	6					3	1	15
	Tswana									2	5	7
	South Sotho									1	1	2
	Venda									1		1
Total		18	11	23	30	9	2	20	16	19	18	166
Total per school		29		53		11		36		37		166

A total of 166 learners – 89 boys and 77 girls – participated in the study. In School 1, 3 and 4, 76 (100%) learners were Afrikaans speaking, 32 (60.38%) learners in School 2 were Sepedi speaking and 18 (48.65%) learners in School 5 were Sepedi speaking. The Grade Seven classes in School 1, 3 and 4 contained no learners whose home language was any of the indigenous languages of South Africa.

Of the learners in this study, 90 (54.22%) learners attended primary schools in traditionally black residential areas, lived in homes or squatter camps in these areas, had little or no contact with white peer groups, and had limited and indirect contact with white adults. The other 76 (45.78%) of the learners attended primary schools in traditionally white residential areas, lived in traditionally white residential areas, had little or no contact with black peer groups, and had limited contact with black adults. These inclusionary-exclusionary factors may have influenced the development of a collective consciousness and an individual self-concept in the two groups of learner participants in the study.

The mean ages of the learners, in years and months, are indicated in Table 5.3, and the frequency and distribution of ages in Table 5.4. The mean ages were determined as on the day the ASCQ was administered in the particular school. The dates for the schools were as

follows: School 1 and 5: 11 September 2003, School 2: 15 September 2003, School 3: 17 September 2003 and School 4: 12 September 2003.

Table 5.3 Age of learners*

School	Gender	N	Mean Age	Standard Deviation	Standard error	Median	Minimum age	Maximum age
1	Boys	18	13y06m	00y07m	00y02m	13y04m	12y09m	15y05m
	Girls	11	13y04m	00y04m	00y01m	13y06m	12y10m	13y11m
	Total	29	13y05m	00y06m	00y01m	13y04m	12y09m	15y05m
2	Boys	23	14y06m	01y06m	00y04m	13y11m	11y09m	17y03m
	Girls	30	13y09m	01y02m	00y03m	13y09m	12y02m	16y06m
	Total	53	14y01m	01y04m	00y02m	13y10m	11y09m	17y03m
3	Boys	9	14y06m	00y09m	00y03m	14y03m	13y05m	15y08m
	Girls	2	14y01m	01y06m	01y01m	14y01m	13y00m	15y02m
	Total	11	14y05m	00y10m	00y03m	14y03m	13y00m	15y08m
4	Boys	19	13y05m	00y04m	00y01m	13y05m	12y11m	14y03m
	Girls	16	13y07m	00y07m	00y02m	13y06m	12y11m	15y05m
	Total	35	13y06m	00y05m	00y01m	13y05m	12y11m	15y05m
5	Boys	19	13y08m	01y01m	00y03m	13y06m	12y02m	16y08m
	Girls	18	13y00m	00y08m	00y02m	12y09m	12y03m	14y06m
	Total	37	13y04m	01y00m	00y02m	13y02m	12y02m	16y08m
1-5	Boys	88	13y11m	01y01m	00y01m	13y06m	11y09m	17y03m
	Girls	77	13y06m	00y11m	00y01m	13y04m	12y02m	16y06m
	Total	165	13y08m	01y00m	00y01m	13y06m	11y09m	17y03m
1,3,4 (Afrikaans)	Total	75	13y07m	00y08m	00y01m	13y06m	12y09m	15y08m
2,5 (Sepedi)	Total	50	13y11m	01y03m	00y02m	13y08m	11y09m	17y03m

* Data were not available on all of the 76 Afrikaans speaking learners, hence N=75 in Table 5.3. Since some of the data will only be analysed for the Sepedi-speaking learners, data in respect of age are given only for the Sepedi-speaking learners in School 2 and 5.

Table 5.3 shows that the mean age of the boys (13y11m) is 5 months higher than the mean age of the girls (13y06m). The mean age of the boys is higher than the girls in all the schools except in School 4, where the mean age of the girls is 2 months higher than the boys. The youngest and oldest learners in the study are boys (11y09m and 17y03m respectively). There is an extensive age range in the study, which might have influenced the

Table 5.4 Frequency and distribution of age*

Age	F	%	Cum f	Cum %
11y09m	1	.61	1	.61
12y02m	2	1.21	3	1.82
12y03m	3	1.82	6	3.64
12y04m	4	2.42	10	6.06
12y05m	3	1.82	13	7.88
12y06m	1	.61	14	8.48
12y07m	5	3.03	19	11.52
12y08m	1	.61	20	12.12
12y09m	5	3.03	25	15.15
12y10m	1	.61	26	15.76
12y11m	6	3.64	32	19.39
13y00m	6	3.64	38	23.03
13y01m	7	4.24	45	27.27
13y02m	10	6.06	55	33.33
13y03m	5	3.03	60	36.36
13y04m	10	6.06	70	42.42
13y05m	7	4.24	77	46.67
13y06m	11	6.67	88	53.33
13y07m	11	6.67	99	60.00
13y08m	6	3.64	105	63.64
13y09m	8	4.85	113	68.48
13y10m	3	1.82	116	70.30
13y11m	6	3.64	122	73.94

Age	f	%	Cum f	Cum %
14y00m	2	1.21	124	75.15
14y01m	5	3.03	129	78.18
14y02m	1	.61	130	78.79
14y03m	5	3.03	135	81.82
14y04m	1	.61	136	82.42
14y06m	3	1.82	139	84.24
14y08m	3	1.82	142	86.06
14y10m	1	.61	143	86.67
14y11m	1	.61	144	87.27
15y00m	1	.61	145	87.88
15y02m	1	.61	146	88.48
15y03m	2	1.21	148	89.70
15y04m	1	.61	149	90.30
15y05m	3	1.82	152	92.12
15y06m	1	.61	153	92.73
15y08m	3	1.82	156	94.55
15y11m	1	.61	157	95.15
16y01m	2	1.21	159	96.36
16y02m	1	.61	160	96.97
16y03m	1	.61	161	97.58
16y06m	1	.61	162	98.18
16y08m	1	.61	163	98.79
16y09m	1	.61	164	99.39
17y03m	1	.61	165	100.00

* The date of birth of one learner was unknown.

responses on the ASCQ and the projective pictures. The mean age of the Sepedi-speaking learners is 4 months higher than the Afrikaans-speaking learners. The mean age of the boys and girls in School 3, the special school, is higher than the boys and girls in the other schools (except for the boys in School 2, who have the same mean age as the boys in School 3). Section 5.6 deals case by case with the age of the learners with HI.

Since school is compulsory for learners in the year when they turn seven, learners can be expected to turn thirteen in Grade Seven. By September of Grade Seven the age of the learners who have never repeated a grade should range from approximately 12 years 9 months to approximately 13 years 9 months. Therefore, 20 learners (12.12%) in the study can be considered as under-age and 52 learners (31.52%) as over-age, as seen in Table 5.5. The under-age learners started school at the age of five or six, and the over-age learners may have started school late and/or repeated grades. Considering that one of the highest achieving learners in School 2 was already 16 years old, and that he probably had not repeated any grade, the culturally congruent fieldworker suggested that a temporary

absence from school because of cultural or household commitments, such as initiation school or herding, might also account for the learner's age. Table 5.5 indicates per school the number of learners who are under- and over-age, and at the expected (norm) age.

Table 5.5 Number of under-, norm and over-age learners in the study*

School	Gender	N	Under-age		Norm age		Over-age	
			N	%	N	%	N	%
1	Boys	18	0	0%	16	88.89%	2	11.11%
	Girls	11	0	0%	10	90.91%	1	9.09%
	Total	29	0	0%	26	89.66%	3	10.34%
2	Boys	23	2	8.70%	8	34.78%	13	56.52%
	Girls	30	7	23.33%	8	26.67%	15	50.00%
	Total	53	9	16.98%	16	30.19%	28	52.83%
3	Boys	9	0	0%	1	11.11%	8	88.89%
	Girls	2	0	0%	1	50.00%	1	50.00%
	Total	11	0	0%	2	18.18%	9	81.81%
4	Boys	19	0	0%	18	94.74%	1	5.26%
	Girls	16	0	0%	14	87.50%	2	12.50%
	Total	35	0	0%	32	91.43%	3	8.57%
5	Boys	19	3	15.79%	9	47.37%	7	36.84%
	Girls	18	8	44.44%	8	44.44%	2	11.11%
	Total	37	11	29.73%	17	45.95%	9	24.32%
1-5	Boys	88	5	5.68%	52	59.09%	31	35.23%
	Girls	77	15	19.48%	41	53.25%	21	27.27%
	Total	165	20	12.12%	93	56.36%	52	31.52%
1, 3, 4 (Afrikaans)	Total	75	0	0%	60	80.00%	15	20.00%
2,5 (Sepedi)	Total	50	10	20.00%	17	34.00%	23	46.00%

* The date of birth of one Afrikaans-speaking learner was unknown.

Table 5.5 shows that in School 1 and 4, the historically advantaged schools, there are no under-age learners, and only a few over-age learners (3 in each school, 10.34% and 8.57% respectively). The learner with HI in School 1 is one of the over-age learners. In School 2 and 5, the historically disadvantaged schools, less than half of the learners (30.19% and 45.95%, respectively) in the class are in the norm age range, with slightly more than half of the learners in School 2 being over-age (52.83%), and in School 5 the under-age (29.73%) and over-age (24.32%) learners being nearly the same proportion. The learner with HI in

School 2 is one of the over-age learners. In School 3 (the special school) most of the learners (81.81%) are over-age, suggesting that learners with HI fail in regular schools before being placed in the special school, and/or that learners with HI struggle to progress scholastically even in the special school. Only School 2 and 5 have under-age learners, and in both schools there are more under-age girls than boys (School 2: under-age girls – 23.33%, under-age boys – 8.70%; School 5: under-age girls – 44.44%, under-age boys – 15.79%). All the schools have over-age learners, and in all the schools, except School 4, there are more over-age boys than girls in the schools (School 1: over-age girls – 9.09%, over-age boys – 11.11%; School 2: over-age girls – 50.00%, over-age boys – 56.52%; School 3: over-age girls – 50.00%, over-age boys – 88.89%; School 4: over-age girls – 12.50%, over-age boys – 5.26%; School 5: over-age girls – 11.11%, over-age boys – 36.84%). The majority of under-age learners being girls and the majority of over-age learners being boys suggest that girls may be sent to school earlier than boys, and that boys may be sent to school later than girls, and/or fail more often, and/or participate more in activities that temporarily keep them from school. Of the Afrikaans-speaking learners in the sample, 60 (80%) are in the norm age range, as opposed to 17 (34%) of the Sepedi speaking learners in the sample. The 66% of the Sepedi speaking learners who are either under- or over-age, might have an influence on the ASC scores. Refer to 5.4.8 for the statistical significance in the difference among the age groups.

5.3 RESULTS AND FINDINGS: MEASURING QUALITY OF THE ASCQ

The sections on the results and findings of the research, that is 5.3 - 5.6, will firstly deal with the quantitative data (5.3). The quality of the ASCQ as an instrument to collect data will be established, followed by the moderator effects in respect of the ASC (5.4) and a discussion of the quality of the ASCQ and the moderator effects in 5.5. The qualitative data will be incorporated into the discussion of the school contexts where the ASC of learners with HI will be examined further (5.6).

The ASCQ was administered during the second last week of the third school quarter. A description of the administration of the questionnaires at the various schools can be found in Appendix O. The best way to handle non-responses to items in questionnaires is to try to prevent non-responses by encouraging the participants to co-operate (Beaton, 1997:763). In the Sepedi version of the ASCQ, only 20 non-responses occurred, spread over 16 items, and none in the Afrikaans version. As the items omitted were few and the distribution uneven, the non-responses were not regarded as serious (based on Beaton, 1997:763; Holt, 1997:593) and means were not interpolated. Some of the items in the ASCQ completed by

the Sepedi learners received two responses and such double responses were treated as non-responses. It is interesting to note that only some of the Sepedi-speaking learners gave non- and double responses, and none of the Afrikaans-speaking learners. The non- and double responses might be linked to the process of administering the questionnaire, as the questionnaire was administered to the Sepedi-speaking learners by the culturally congruent fieldworker, but what exactly prompted the learners to do so is unknown. The researcher was present during the implementation at School 2, and nothing was observed that appeared to influence the learners. A reason for the non- and double responses might also perhaps be sought in the background of the learners: uncertainty, possible fears of being wrong or of not being accepted could have prompted the learners to refrain from responding or to give two responses in respect of some of the items. Initially it was thought that it could be the non-Sepedi-speaking learners in the class who were unsure of the items and who made non- and/or double responses, but an analysis of the non- and double responses contradicted this possibility.

The ASCQ is expected to have four major dimensions: general academic self-concept (GASC), mathematics academic self-concept (MASC), first language academic self-concept (LASC) and, for the Sepedi classes only, English academic self-concept (EASC). (Data on the EASC will not be discussed because the research design calls for the comparison of only the GASC, LASC and MASC across school contexts. The EASC was only administered in the two historically disadvantaged schools where a multilingual approach to teaching was observed.) For each set of items a maximum-likelihood factor analysis was run, first requesting two factors and, second, one factor. It was expected that there would be no items loading on the second factor; hence, provided all items made sufficient contribution to the first factor, a one factor solution would be adopted. This turned out to be the case for two of the ASC dimensions: the LASC and the MASC. The GASC analyses suggested that there could be two distinct factors, satisfaction and efficacy, but the estimates of reliability were sufficiently low for efficacy, so that it was decided to accept a single factor for this study. It may be worthwhile, in future research, further to explore satisfaction and efficacy as two factors of GASC.

Table 5.6 addresses the measuring quality of the GASC section of the ASCQ by giving the means, standard deviations, factor loadings from one factor and the corrected item-total correlations. The items have been arranged according to the mean score, ranging from highest to lowest.

Table 5.6 Means, standard deviations, factor loadings from one factor, and item-total correlations for GASC

Item	Brief Description	Mean	sd	One Factor	Item-total r
7	*I am satisfied with my schoolwork.*	4.24	.81	.53	.40
8	*I think my ability is sufficient to cope with schoolwork.*	4.19	.85	.64	.55
18	*I would not be able to achieve better marks, even if I worked harder.*	4.13	1.03	.21	.25
13	*I have confidence in myself to do schoolwork.*	4.12	.93	.65	.58
5	*I feel good about my ability to do schoolwork.*	4.10	.85	.57	.45
1	*I am happy with the schoolwork that I do.*	4.04	.92	.66	.51
2	*I am proud of my ability in schoolwork.*	4.01	.89	.65	.59
10	*I feel good about my schoolwork.*	4.01	.86	.47	.45
3	*I am sure of myself in school tasks*	3.99	.94	.53	.38
9	*I feel worthless in class.*	3.91	1.10	.34	.44
19	*I think that the teachers treat me well.*	3.84	1.07	.61	.54
12	*It is bad for me when my teachers ask me questions.*	3.81	1.20	.24	.27
4	*I am proud of my school report.*	3.77	1.06	.55	.46
11	*I am capable to get the results I would like to get in schoolwork.*	3.69	.96	.36	.32
17	*I think I take longer than my classmates to understand schoolwork.*	3.67	1.09	.34	.39
14	*I understand most of my lessons well.*	3.65	.88	.33	.35
16	*I feel left out of things that happen in class.*	3.61	1.11	.14	.22
15	*I see myself as a good learner in class.*	3.47	1.03	.28	.28
6	*Most of my teachers do not understand me.*	3.40	1.28	.47	.44

The estimate of reliability (coefficient alpha) for the single factor score is .83, and as can be seen from the item-total correlations, all items are contributing to this overall score, as all item-total correlations exceed the minimum criterion of .2. The highest mean score on the GASC is 4.24 out of a possible 5 (Question 7: '*I am satisfied with my schoolwork*.') and the lowest (3.40) relates to Question 6 ('*Most of my teachers do not understand me*'). The generally high means are noteworthy. In the historically advantaged schools, 228 (17.17%) of the total of 1282 responses on the GASC were *always* (negative items had already been inverted and added), as opposed to the 691 (47.49%) of the total of 1455 responses on the GASC in the historically disadvantaged schools. The high percentage of learners assessing themselves to have a good GASC may suggest successful schooling practices and/or an unrealistically high GASC in the historically disadvantaged schools.

Table 5.7 addresses the measuring quality of the LASC section of the ASCQ by giving the means, standard deviations and the corrected item-total correlations. The items are again arranged in declining order according to the means.

Table 5.7 Means, standard deviations and item-total correlations for LASC

Item	Brief description	Mean	sd	Item-total r
18	*I would not be able to achieve better marks in *, even if I worked harder.*	4.06	1.03	.30
13	*I have confidence in myself to do * schoolwork.*	4.04	.88	.65
12	*It is bad for me when my * teacher asks me questions.*	4.03	1.10	.41
1	*I am happy with the * schoolwork that I do.*	4.00	.92	.50
7	*I am satisfied with my * schoolwork.*	3.95	.89	.56
17	*I think I take longer than my classmates to understand the * schoolwork.*	3.90	1.05	.38
9	*I feel worthless in the * class.*	3.89	1.11	.40
16	*I feel left out of things that happen in the * class.*	3.89	1.04	.12
3	*I am sure of myself in * school tasks.*	3.88	1.02	.70
6	*My * teacher does not understand me.*	3.87	1.22	.45
19	*I think that the * teacher treats me well*	3.85	1.07	.44
2	*I am proud of my ability in *.*	3.83	.98	.70

Item	Brief description	Mean	sd	Item-total r
14	*I understand most of my * lessons well.*	3.80	.89	.42
5	*I feel good about my ability to do *.*	3.79	.93	.53
8	*I think my ability is sufficient to cope with * schoolwork.*	3.74	1.07	.38
10	*I feel good about my * schoolwork.*	3.74	.94	.54
11	*I am capable to get the results I would like to get in *.*	3.59	.97	.62
15	*I see myself as a good learner in the * class.*	3.48	.93	.47
4	*I am proud of my mark in **	3.44	1.00	.60

* represents the first language of the class, either Afrikaans or Sepedi

The estimate of reliability (coefficient alpha) for the single factor score is .87, and as can be seen from the item-total correlations, all items except Question 16 ('*I feel left out of things that happen in the * class',* with .12) are contributing to this overall score, since their item-total correlations far exceed the minimum criterion of .2. It is interesting to note that Question 16 in the LASC did fulfil the minimum criterion of ≥.2 for both the Afrikaans and Sepedi versions in the pilot study. The highest mean score on the LASC is 4.06 out of a possible 5 (Question 18: '*I would not be able to achieve better marks in *, even if I worked harder*') and the lowest (3.44) relates to Question 4 ('*I am proud of my mark in **'). Once again, the high means are noteworthy. In the historically advantaged schools, 213 (16.35%) of the total of 1303 responses on the LASC were *always* (negative items had already been inverted and added), as opposed to the 605 (40.91%) of the total of 1479 responses on the LASC in the historically disadvantaged schools. The high percentage of learners assessing themselves to have a good LASC suggests successful schooling practices, and/or strong identification with the mother tongue (which is interesting considering the strong emphasis on English as language of teaching and learning), and/or an unrealistically high LASC in the historically disadvantaged schools.

Table 5.8 addresses the measuring quality of the MASC section of the ASCQ by giving the means, standard deviations and the corrected item-total correlations. The items are arranged in declining order according to the means.

Table 5.8 Means, standard deviations and item-total correlations for MASC

Item	Brief description	Mean	sd	Item-total r
12	*It is bad for me when my maths teacher asks me questions.*	4.38	.96	.51
19	*I think that the maths teacher treats me well*	4.24	.94	.27
9	*I feel worthless in the maths class.*	4.17	1.07	.52
13	*I have confidence in myself to do maths schoolwork.*	4.15	.90	.62
7	*I am satisfied with my maths schoolwork.*	4.12	.81	.59
1	*I am happy with the maths schoolwork that I do.*	4.08	.98	.53
8	*I think my ability is sufficient to cope with maths schoolwork.*	4.02	1.01	.46
10	*I feel good about my maths schoolwork.*	4.02	.96	.56
17	*I think I take longer than my classmates to understand the maths schoolwork.*	3.98	1.12	.48
2	*I am proud of my ability in maths.*	3.97	.98	.63
18	*I would not be able to achieve better marks in maths, even if I worked harder.*	3.94	1.19	.48
3	*I am sure of myself in maths school tasks.*	3.92	.93	.59
5	*I feel good about my ability to do maths.*	3.89	.95	.65
14	*I understand most of my maths lessons well.*	3.89	.86	.62
16	*I feel left out of things that happen in the maths class.*	3.89	1.17	.47
6	*My maths teacher does not understand me.*	3.85	1.29	.32
4	*I am proud of my mark in maths*	3.80	1.10	.60
11	*I am capable to get the results I would like to get in maths.*	3.74	1.06	.54
15	*I see myself as a good learner in the maths class.*	3.62	1.09	.44

The estimate of reliability (coefficient alpha) for the single factor score is .89, and as can be seen from the item-total correlations, all items are contributing to this overall score, as all item-total correlations exceed the minimum criterion of .2. The highest mean score on the MASC is 4.38 out of a possible 5 (Question 12: '*It is bad for me when my maths teacher asks me questions.*') and the lowest (3.62) relates to Question 15 ('*I see myself as a good learner in the maths class.*'). Once again, the high means, even higher than the means on the

LASC, are noteworthy. In the historically advantaged schools 469 (36.30%) of the total of 1292 responses on the MASC were *always* (negative items had already been inverted and added), and 573 (38.77%) of the total of 1478 responses on the MASC in the historically disadvantaged schools. In contrast to the GASC and the LASC, the learners from the historically advantaged and disadvantaged schools assessed themselves fairly similarly on the MASC, suggesting successful schooling practices and/or an unrealistically high MASC.

For each of the dimensions of the ASC, the mean across all items contributing to the dimension was calculated, as shown in Table 5.9.

Table 5.9 Item means across dimensions of ASC, all learners

Dimension of ASC	N	Mean	sd
GASC	146	3.89	0.49
LASC	147	3.83	0.55
MASC	146	3.98	0.59

It can be seen from Table 5.9 that the item means were quite similar. Table 5.9 includes learners of all languages found in the sample. Table 5.10 indicates the mean of only the Afrikaans and Sepedi learners across all items contributing to the dimension. It is safe to assume that the validity of the ASCQ would be higher when looking at only the Sepedi-speaking learners' responses to the Sepedi questionnaire, than when including the responses of the learners of other languages to the Sepedi questionnaire.

Table 5.10 Item means across dimensions of ASC, Afrikaans- and Sepedi-speaking learners

Dimension of ASC	N	Mean	sd
GASC	113	3.84	0.49
LASC	113	3.76	0.57
MASC	113	3.97	0.63

Comparing Table 5.9 and Table 5.10, it can be seen that the differences in means are small, but it seems as if the inclusion of learners of other languages in the sample actually increases the means on the dimensions GASC (3.89 *vs* 3.84) and LASC (3.83 *vs* 3.76), but less so on the MASC (3.98 *vs* 3.97). The difference might be smaller on the MASC as mathematics is taught in Afrikaans in School 1, 3 and 4 and in English in School 2 and 5. Home language, therefore, is a smaller factor in the MASC in School 2 and 5. (Refer also to

home language as moderator effect in 5.4.3 and the discussion of the ASCQ and moderator effects in 5.5).

5.4 RESULTS AND FINDINGS: OVERALL MODERATOR EFFECTS

5.4.1 Introduction

A number of multivariate analyses of variance (using the GASC, LASC and MASC) were conducted to examine mean differences on various moderators, namely historicity of schools (historically advantaged *vs.* historically disadvantaged schools), home language, gender, school, hearing ability, achievement and age of the learners.

5.4.2 Historicity of schools

Differences in means between responses from learners in historically advantaged and historically disadvantaged schools on the dimensions of the ASC are shown in Table 5.11.

Table 5.11 Significance of differences in means between historically advantaged and historically disadvantaged schools on the dimensions of the ASC

Dimension of ASC	MS	df	F	*p*
GASC	4.320	1, 145	20.601	<0.001
LASC	4.041	1, 145	13.967	<0.001
MASC	1.011	1, 145	2.950	0.088

There was a statistically significant difference between the three ASC dimensions of the two groups of schools (Wilks' Lambda = 0.75, Mult.F = 15.55, df = 3, 141, p <0.001). An inspection of the univariate ANOVAs, shown in Table 5.11, indicates that GASC and LASC differed at a highly significant level (p<0.001) in historically advantaged and historically disadvantaged schools, but MASC only at the 10% level of significance (p=0.088).

The means of the ASC dimensions in the different school groups are shown in Figure 5.1.

Figure 5.1 Means of the ASC dimensions in historically advantaged and historically disadvantaged schools

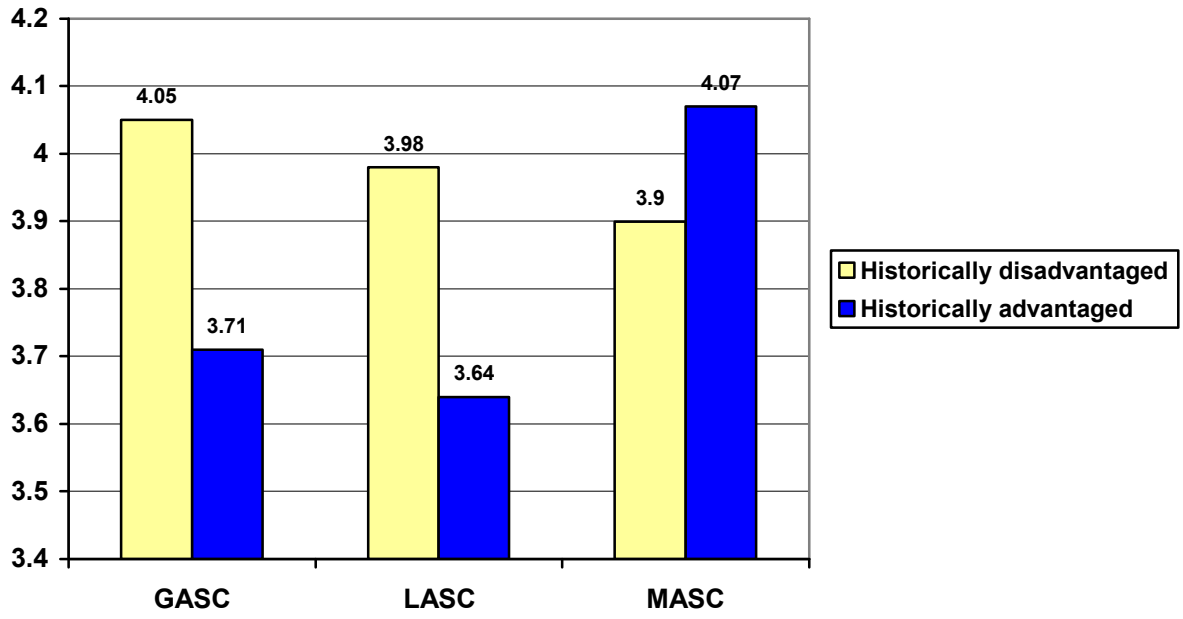


Figure 5.1 shows that the responses to the ASCQ from the learners in the historically disadvantaged schools were significantly higher ($p<0.001$) than the responses from the learners in the historically advantaged schools on both GASC (4.05 : 3.71) and LASC (3.98 : 3.64). On MASC, the results were reversed (3.9 : 4.07) and also of weaker significance ($p=0.088$).

5.4.3 Home language

The significance of differences in means among responses from learners with different home languages on the dimensions of the ASC is shown in Table 5.12. Only Afrikaans (N=69), Sepedi (N=45), Tsonga (N=13), Zulu (N=11) and Tswana (N=5) were included in this analysis, as the other cells, South Sotho (N=2) and Venda (N=1), were too small.

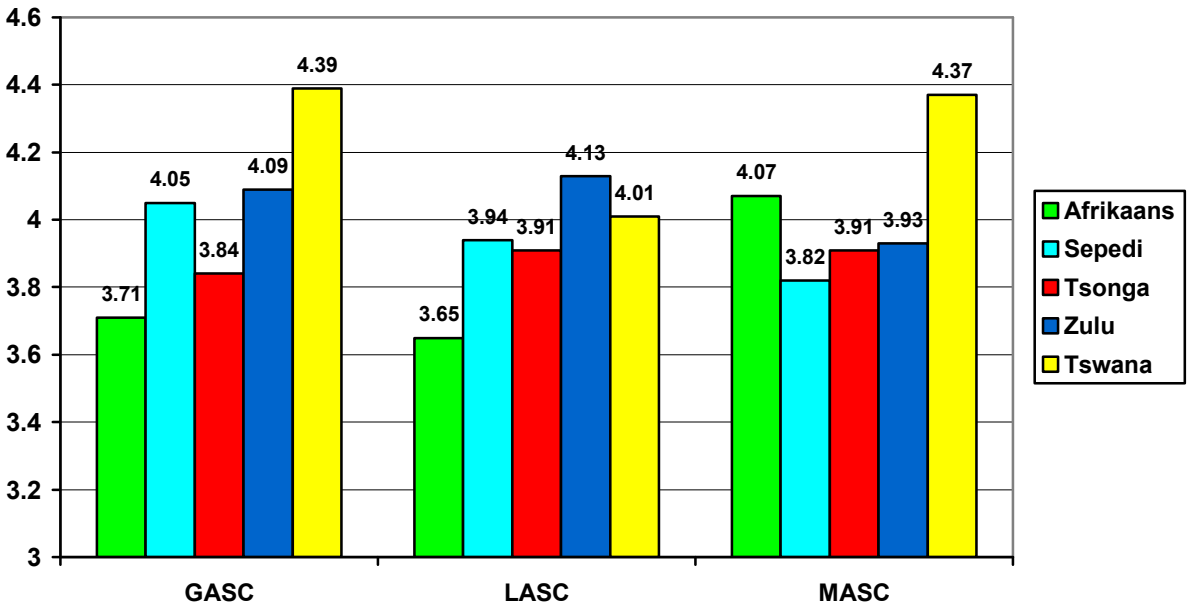
Table 5.12 Significance of differences in means among learners with different home languages on the dimensions of the ASC

Dimension of ASC	MS	df	F	*p*
GASC	1.265	4, 143	6.225	0.0001
LASC	1.000	4, 144	3.569	0.008
MASC	0.620	4, 143	1.802	0.132

Table 5.12 indicates that the overall means regarding the GASC differed among learners with different home languages at a highly significant level ($p<0.001$), the overall means regarding the LASC differed at the 1% level of significance ($p=0.008$), and the difference in the overall means regarding the MASC was not significant at all ($p=0.132$).

The means of the ASC dimensions for the home language groups represented in the sample are shown in Figure 5.2. The two South Sotho speaking and one Venda speaking learners in the sample were excluded in this analysis.

Figure 5.2 Means of the ASC dimensions for the home language groups represented in the sample



It can be seen in Figure 5.2 that the means of the Afrikaans-speaking learners reflect the trend set by the historically advantaged schools, namely GASC (3.71) and LASC (3.65) are lower than the GASC means (4.05; 3.84; 4.09; 4.39) and LASC means (3.94; 3.91; 4.13; 4.01) of the other language groups. Their MASC (4.07) is higher than their GASC (3.71) and LASC (3.65), also higher than the MASC of most of the other language groups (3.82; 3.91; 3.93).

5.4.4 Gender

The significance of differences in means among responses from boys and girls on the dimensions of the ASC is shown in Table 5.13.

Table 5.13 Significance of differences in means on the dimensions of the ASC according to gender

Dimension of ASC	MS	df	F	*p*
GASC	0.544	1, 145	2.303	0.131
LASC	0.752	1, 145	2.407	0.123
MASC	0.178	1, 145	0.512	0.476

There were no statistically significant differences among the three ASC dimensions related to the gender of the learners (Wilks' Lambda = 0.96, Mult.F=1.81, df=3, 141, p=0.148).

5.4.5 School

Table 5.14 indicates the importance of the differences in the means of the ASC dimensions according to the school attended by the learners.

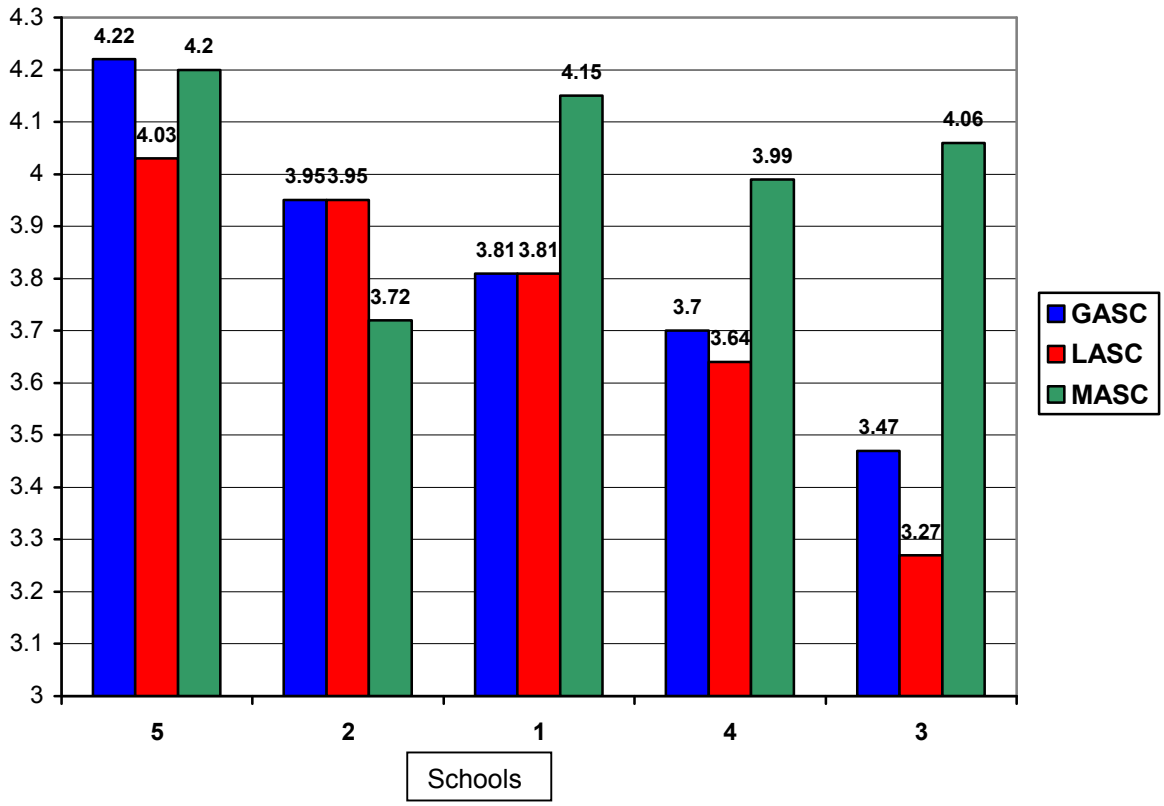
Table 5.14 Significance of differences in means on the dimensions of the ASC according to school

Dimension of ASC	MS	df	F	*P*
GASC	6.64	4, 145	8.23	<0.0001
LASC	4.74	4, 146	5.23	0.0006
MASC	4.25	4, 145	5.12	0.0007

The difference among the means of all the dimensions of the ASC according to the school attended by the learners was statistically highly significant (GASC: p<0.0001; LASC: p=0.0006; MASC: p=0.0007). The means for the ASC dimensions in each school are displayed in Figure 5.3. The schools are shown in declining order in terms of the GASC (refer to 5.2.1 for the school context, predominant learner language and historical educational status of the schools).

It appears that there is a general tendency regarding GASC and LASC in the schools, with GASC being slightly higher than the LASC (School 5 - 4.22: 4.03; School 4 - 3.70: 3.64; School 3 - 3.47: 3.27) or equal to the LASC (School 2 - 3.95; School 1 - 3.81). The GASC and LASC means are the highest in the two historically disadvantaged schools (School 5: GASC – 4.22, LASC – 4.03; School 2: GASC – 3.95, LASC – 3.95), followed by the

Figure 5.3 Means of the ASC dimensions in each school



historically advantaged full-service and regular schools, (School 1: GASC – 3.81, LASC – 3.81; School 4: GASC – 3.70, LASC – 3.64). The GASC and LASC means are the lowest in School 3, the special school (3.47 and 3.27 respectively). MASC does not appear to be related to the GASC and/or LASC, but remains high (School 1: 4.15, School 3: 4.06, School 4: 3.99 and School 5: 4.20), except for the MASC in School 2 (3.72), which is also lower than its GASC and LASC.

5.4.6 Hearing

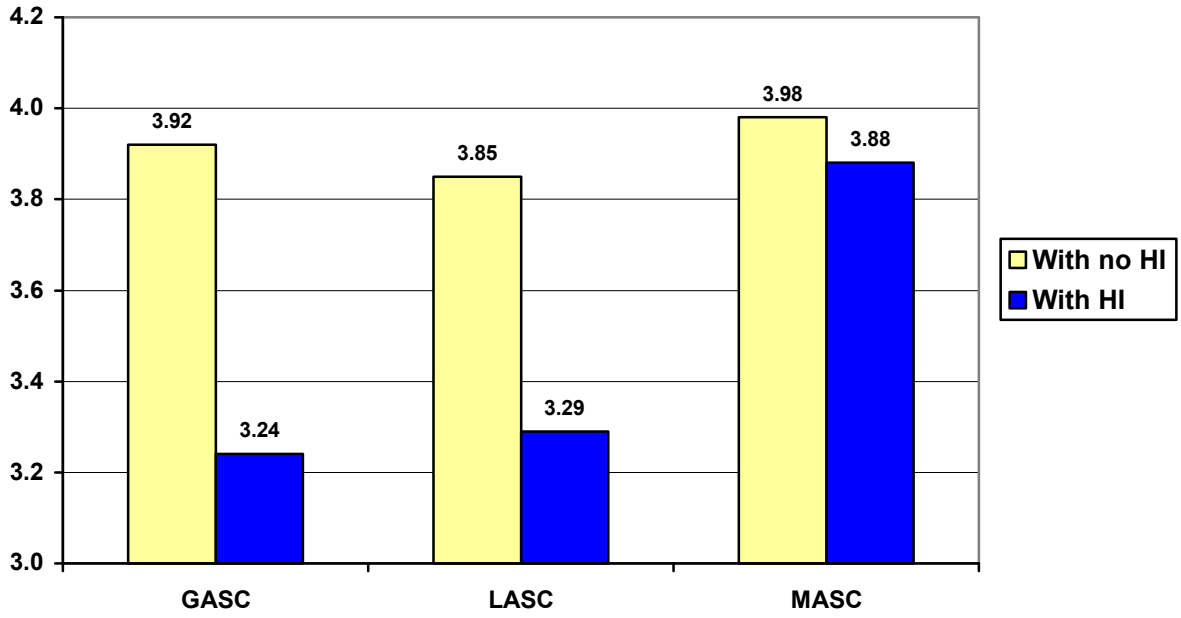
Table 5.15 indicates the differences in the means of the ASC dimensions of the learners with HI and the learners without HI.

There were statistically significant differences in the means of the ASC dimensions of the eight learners with HI compared with the means of those learners with no HI (Wilks' Lambda =0.898, Mult.F=5.63, df=3, 141, p=0.002). The most significant difference was found in the GASC ($p<0.0001$), followed by the LASC on a 1% level of significance. The difference in means on the MASC was not significant. The means of the learners with HI and learners with no HI on the ASC dimensions are shown in Figure 5.4.

Table 5.15 Significance of differences in means on the dimensions of the ASC of learners with HI and learners without HI

Dimension of ASC	MS	df	F	*p*
GASC	3.099	1, 145	14.199	0.0001
LASC	2.092	1, 145	6.904	0.010
MASC	.072	1, 145	0.206	0.651

Figure 5.4 Means of the ASC dimensions of learners with and without HI



It can be seen in Figure 5.4 that the means of the learners with HI were much lower than the means of the learners with no HI on GASC (3.24:3.92) and LASC (3.29:3.85), but there was very little difference in MASC (3.88:3.98). Of course, it must be appreciated that there are only eight learners with HI in this analysis, so a more qualitative analysis is necessary, and this is made in 5.6. A discussion of the moderator effects follows in 5.5.

5.4.7 Achievement

Table 5.16 contains the mean, median, minimum and maximum marks of the participating learners for the mean of their achievement marks across all learning areas and their first language and mathematics marks for the second and third school quarters, where applicable, as per school, gender and Afrikaans and Sepedi language groups.

Table 5.16 Mean, median, minimum and maximum school achievement marks in respect of the mean achievement mark across learning areas (MAM), first language (L1) and mathematics marks (Math) for the second and third school quarters

School	Gender	Learning Area	N	Mean	Std Deviation	Std Error	Median	Minimum	Maximum
1	Boys	2nd MAM[o]	18	66.89	12.94	3.05	66.00	45.00	89.00
		2nd L1[1]	18	64.56	14.50	3.42	63.50	40.00	89.00
		2nd Math[2]	18	75.11	12.58	2.96	77.00	47.00	95.00
		3rd MAM[3]	18	65.67	12.19	2.87	64.50	44.00	90.00
		3rd L1	18	66.50	13.57	3.20	68.00	37.00	87.00
		3rd Math	18	73.44	16.80	3.96	75.00	25.00	93.00
	Girls	2nd MAM	11	77.55	4.72	1.42	77.00	71.00	86.00
		2nd L1	11	76.36	5.10	1.54	77.00	66.00	84.00
		2nd Math	11	82.27	5.93	1.79	83.00	71.00	90.00
		3rd MAM	11	76.72	4.78	1.44	76.00	68.00	84.00
		3rd L1	11	75.91	6.88	2.07	78.00	63.00	84.00
		3rd Math	11	82.18	4.09	1.23	80.00	76.00	90.00
	Total	2nd MAM	29	70.93	11.72	2.18	74.00	45.00	89.00
		2nd L1	29	69.03	13.07	2.43	72.00	40.00	89.00
		2nd Math	29	77.83	11.01	2.04	80.00	47.00	95.00
		3rd MAM	29	69.86	11.33	2.10	71.00	44.00	90.00
		3rd L1	29	70.07	12.26	2.28	72.00	37.00	87.00
		3rd Math	29	76.76	14.00	2.60	80.00	25.00	93.00
2	Boys	2nd MAM	23	41.30	14.14	2.95	38.00	21.00	81.00
		2nd L1	23	41.83	21.72	4.53	39.00	11.00	83.00
		2nd Math	23	27.26	17.40	3.63	24.00	11.00	85.00
	Girls	2nd MAM	30	49.23	17.33	3.16	46.5	13.00	83.00
		2nd L1	29	53.28	19.26	3.58	52.00	24.00	87.00
		2nd Math	30	32.60	19.51	3.56	28.00	4.00	78.00
	Total	2nd MAM	53	45.79	16.37	2.25	43.00	13.00	83.00
		2nd L1	52	48.21	30.98	2.91	48.5	11.00	87.00
		2nd Math	53	30.28	18.64	2.56	25.00	4.00	85.00
3	Boys	2nd MAM	9	49.33	8.03	2.68	49.00	38.00	65.00
		2nd L1	9	51.56	10.43	3.48	52.00	36.00	67.00
		2nd Math	9	49.33	15.62	5.21	43.00	35.00	83.00
	Girls	2nd MAM	2	47.50	3.54	2.50	47.50	45.00	50.00
		2nd L1	2	53.50	6.36	4.50	53.50	49.00	58.00
		2nd Math	2	48.50	12.02	8.50	48.50	40.00	57.00
	Total	2nd MAM	11	49.00	7.31	2.20	49.00	38.00	65.00
		2nd L1	11	51.91	9.58	2.89	52.00	36.00	67.00
		2nd Math	11	49.18	14.48	4.37	43.00	35.00	83.00

[o] Second school quarter: Mean of achievement marks across all learning areas **(Continued on next page)**
[1] Second school quarter: Achievement in the first language (either Afrikaans or Sepedi)
[2] Second school quarter: Achievement in mathematics
[3] *3rd* relates to marks achieved during the third school quarter and applies only to School 1.

School	Gender	Learning Area	N	Mean	Std Deviation	Std Error	Median	Minimum	Maximum
	Boys	2nd MAM	20	61.55	14.76	3.30	66.00	34.00	80.00
4		2nd L1	20	59.95	12.49	2.79	60.00	36.00	79.00
		2nd Math	20	67.60	17.77	3.97	71.50	30.00	94.00
	Girls	2nd MAM	14	58.57	13.33	3.56	59.00	34.00	78.00
		2nd L1	14	60.57	13.62	3.64	62.00	34.00	82.00
		2nd Math	14	62.36	15.97	4.27	59.00	43.00	87.00
	Total	2nd MAM	34	60.32	14.06	2.41	62.00	34.00	80.00
		2nd L1	34	60.21	12.77	2.19	60.00	34.00	82.00
		2nd Math	34	65.44	17.01	2.92	66.50	30.00	94.00
	Boys	2nd MAM	19	54.00	12.96	2.97	59.50	19.50	85.00
5		2nd L1	19	49.84	8.64	1.98	50.00	35.00	68.00
		2nd Math	19	47.37	15.28	3.50	46.00	22.00	73.00
	Girls	2nd MAM	18	57.39	19.73	4.65	59.50	19.50	85.00
		2nd L1	18	45.17	10.50	2.47	46.00	23.00	68.00
		2nd Math	18	52.00	17.15	4.04	50.50	22.00	86.00
	Total	2nd MAM	37	55.65	16.46	2.71	59.50	19.50	85.00
		2nd L1	37	47.57	9.74	1.60	48.00	23.00	68.00
		2nd Math	37	49.62	16.16	2.66	49.00	22.00	86.00
	Boys	2nd MAM	89	54.55	16.14	1.71	56.00	19.50	89.00
1-5		2nd L1	89	53.19	17.05	1.81	53.00	11.00	89.00
		2nd Math	89	52.53	23.96	2.54	51.00	11.00	95.00
	Girls	2nd MAM	75	57.04	18.21	2.10	59.50	13.00	86.00
		2nd L1	74	56.12	17.43	2.03	56.00	23.00	87.00
		2nd Math	75	50.52	23.99	2.77	49.00	4.00	90.00
	Total	2nd MAM	164	55.69	17.11	1.34	57.50	13.00	89.00
		2nd L1	163	54.52	17.23	1.35	54.00	11.00	89.00
		2nd Math	164	51.61	23.92	1.87	50.00	4.00	95.00

(Continued on next page)

School	Gender	Learning Area	N	Mean	Std Deviation	Std Error	Median	Minimum	Maximum
1,3,4 (Afri-kaans)	Boys	2nd MAM	47	61.26	14.26	2.08	62.00	34.00	89.00
		2nd L1	47	60.11	13.53	1.97	60.00	36.00	89.00
		2nd Math	47	66.98	17.84	2.60	72.00	30.00	95.00
	Girls	2nd MAM	27	65.48	14.49	2.79	71.00	34.00	86.00
		2nd L1	27	66.48	13.32	2.56	69.00	34.00	84.00
		2nd Math	27	69.44	16.64	3.20	75.00	40.00	90.00
	Total	2nd MAM	74	62.80	14.39	1.67	64.00	34.00	89.00
		2nd L1	74	62.43	13.72	1.60	61.00	34.00	89.00
		2nd Math	74	67.88	17.34	2.02	72.00	30.00	95.00
2,5 (Sepe-di)	Boys	2nd MAM	25	45.20	14.96	2.99	44.50	19.50	85.00
		2nd L1	25	41.96	17.07	3.41	47.00	11.00	68.00
		2nd Math	25	33.48	14.68	2.94	32.00	11.00	68.00
	Girls	2nd MAM	25	52.10	21.40	4.28	50.00	13.00	85.00
		2nd L1	24	50.54	17.62	3.60	49.50	24.00	80.00
		2nd Math	25	39.44	22.98	4.60	37.00	4.00	78.00
	Total	2nd MAM	50	48.65	18.60	2.63	44.50	13.00	85.00
		2nd L1	49	46.16	17.70	2.53	48.00	11.00	80.00
		2nd Math	50	36.46	19.32	2.73	34.50	4.00	78.00

The achievement marks are used in looking at the ASCs of the learners with HI in 5.6, and will not be discussed here, except for the following few remarks. It is acknowledged that the assessments in each school were very different and that combinations across schools only give a rough estimate of school marks according to all the schools and language, which is also indicative of the historically advantaged and disadvantaged schools. The boys' marks are generally lower than the girls' marks, except for the mean of the achievement marks across learning areas and mathematics marks of School 4, and the first language mark of School 5.[1] The mean of the achievement marks across learning areas and the first language and mathematics marks achieved by the Afrikaans-speaking learners in the historically advantaged schools are consistently much higher than those achieved by the Sepedi-speaking learners in the historically disadvantaged schools (62.80%, 62.43%, 67.88%: 48.65%, 46.16%, 36.46% respectively). Where the mathematics marks are the highest achievement for the Afrikaans-speaking learners (67.88%), they are the lowest achievement for the Sepedi-speaking learners (36.46%). This pattern of achievement is not at all reflected in the school- and language-based comparisons for GASC and LASC (5.4.2 and 5.4.3), but might explain the differences for MASC.

[1] Since School 3 had only one girl in Grade Seven, a gender-based comparison of achievement is of course irrelevant in respect of the special school.

When comparing full-service schools, it can be seen that for the second school quarter, School 1, the historically advantaged school, has higher marks for the mean of the achievement marks across learning areas, first language and mathematics than School 2, a historically disadvantaged school (70.93%, 69.03%, 77.83% : 45.79%, 48.21%, 30.28%). When comparing schools of similar socio-economic context, School 1 has higher marks for the mean of the achievement marks across learning areas, first language and mathematics than School 4 (70.93%, 69.03%, 77.83% : 60.32%, 60.21%, 65.44%). School 2 has lower marks for the mean of the achievement marks across learning areas and mathematics than School 5 (45.79%, 30.28% : 55.65%, 49.62%), but a higher mark for first language than School 5 (48.21% : 47.57%). When comparing the marks achieved by the Grade Sevens in the full-service schools with the marks of the Grade Sevens in the special school, School 1 has a higher mean of achievement marks across learning areas, first language and mathematics marks than School 3, the special school (70.93%, 69.03%, 77.83% : 49.00%, 51.91%, 49.18%), but School 2 has lower marks than the special school (45.79%, 48.21%, 30.28% : 49.00%, 51.91%, 49.18%).

Although a full examination of the correlations between the mean of the achievement marks across all learning areas and GASC, first language achievement and LASC, and mathematics achievement and MASC clearly promise to be relevant and interesting, it is not included in the study, as it does not contribute directly to the research question. For further development of the ASCQ, the correlations will be investigated in a separate study.

5.4.8 Age of learner

As explained in 5.2.2 and shown in Table 5.4 and Table 5.5, by September of Grade Seven the age of the learners who have never repeated a grade should range from approximately 12 years 9 months to approximately 13 years 9 months. To examine the effect of age on the ASC results, the learners were, therefore, classified into three age groups: under-age (20 learners – 12.12%), norm-age (93 learners – 56.36%) and over-age (52 learners – 31.52%). Table 5.17 indicates the significance of the differences among the age groups.

Table 5.17 Significance of differences in means on the dimensions of the ASC among the age groups

Dimension of ASC	MS	df	F	*p*
GASC	1.192	2, 145	5.304	0.006
LASC	0.208	2, 145	0.655	0.521
MASC	2.230	2, 145	6.953	0.001

A MANOVA indicated that there was a statistically significant difference between these three age groups (Wilks' Lambda = 0.828, Mult.F=4.618, df=6, 280, p<0.001). Specifically, there was a statistically significant difference at the 1% level regarding the GASC of the learners in the different age groups, and a statistically significant difference at the 0.1% regarding the MASC of the learners in the different age groups. There was no statistically significant difference among the three groups in respect of LASC. Figure 5.5 is a graphic presentation of the means of the ASC dimensions by age group.

Figure 5.5 Means of the ASC dimensions by age group

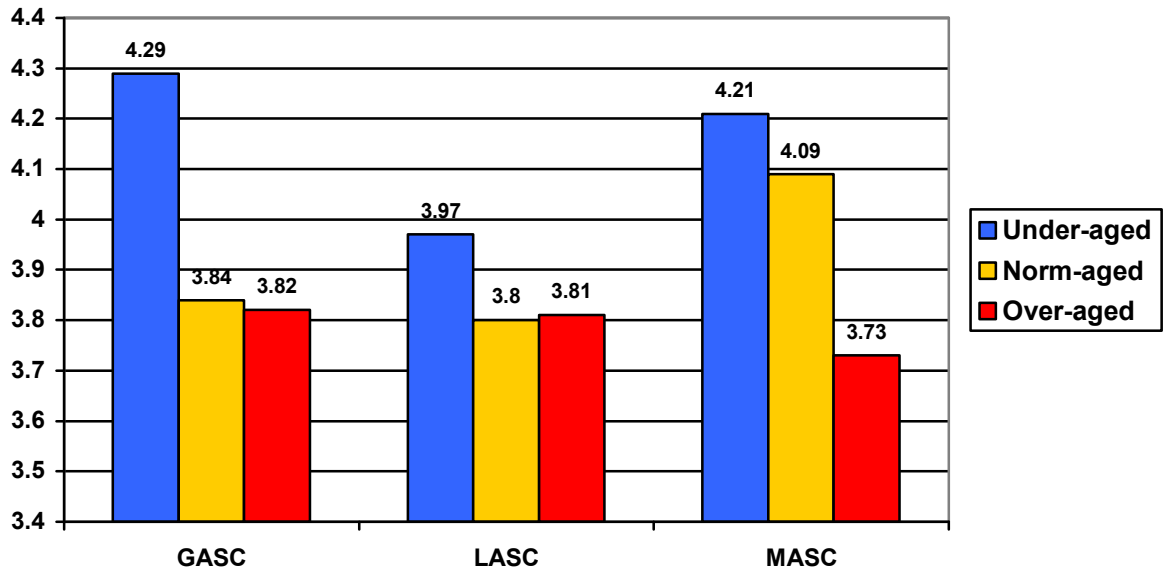


Figure 5.5 shows that the under-age learners reflect an overall higher self-assessment on the GASC (4.29), LASC (3.97) and MASC (4.21) than the norm-age learners (3.84, 3.8 and 4.09 respectively) and over-age learners (3.82, 3.81 and 3.73 respectively). The ASC means of the norm-age learners follow the same trend as the ASC means of the historically advantaged schools (Figure 5.1), the Afrikaans speaking learners (Figure 5.2) and most individual schools (Figure 5.3), namely a GASC and LASC clustered together, and a higher MASC. A discussion of the means of the different age groups is contained in 5.5.

5.5 DISCUSSION OF QUANTITATIVE DATA: ASCQ AND MODERATOR EFFECTS

The results and findings in respect of the ASCQ and moderator effects will be discussed by, firstly, addressing the reliability of the ASCQ; secondly, in accordance with the aim of the study, addressing the roles HI and school placement play in the ASC of learners with HI; and thirdly, discussing the influence the moderator effects have on each ASC dimension.

(i) The high Cronbach alphas for GASC (0.83), LASC (0.87) and MASC (0.89) and the very high item-total correlations for most items (Tables 5.6, 5.7 and 5.8) strongly suggest that the ASCQ was a reliable instrument to assess the ASC of Grade Seven learners, including Grade Seven learners with HI. Item-total correlations for all items of the GASC, LASC and MASC exceeded the minimum criterion of 0.2, except for Question 16 on the LASC with 0.12. For further development of the ASCQ, correlations between the mean of the achievement marks across all learning areas and GASC, first language achievement and LASC, and mathematics achievement and MASC will have to be examined in a more extensive study.

(ii) Table 5.18 contains a summary of data derived from Tables 5.11, 5.12, 5.13, 5.14, 5.15 and 5.17 for easy reference during the discussion in (ii) to (iv).

Table 5.18 Level of significance of moderator effects on ASC

Reference to …	Moderator	GASC: *p*	Significance	LASC: *p*	Significance	MASC: *p*	Significance
Table 5.11	School historicity: adv/disadv	<0.001	0.1%	<0.001	0.1%	0.088	10%
Table 5.12	Home language	<0.001	0.1%	0.015	5%	0.132	Not
Table 5.13	Gender	0.131	Not	0.123	Not	0.476	Not
Table 5.14	School	<0.0001	0.1%	0.0006	0.1%	0.0007	0.1%
Table 5.15	Hearing	<0.0001	0.01%	0.01	1%	0.651	Not
Table 5.17	Age	0.006	1%	0.521	Not	0.001	0.1%

As there were no statistically significant differences among the three ASC dimensions related to the gender of learners (GASC: p=0.131; LASC: 0.123; MASC: 0.476), the ASC of learners

with HI in full-service and special schools can be discussed and compared without consideration of gender.

From the statistically significant differences in the means of the GASC ($p<0.0001$) and LASC ($p=0.01$) of the eight learners with HI compared with the means of learners with no HI (refer to 5.4.6), one can safely conclude that HI impacts heavily on learners' perceptions of themselves in school generally and in the first language class, but not in respect of mathematics ($p=0.651$). Figure 5.4 showed that learners with HI have considerably less favourable perceptions than learners with no HI of themselves as learners (3.24 : 3.92) and of their language performance (3.29 : 3.85), than of themselves in respect of mathematics (3.88 : 3.98). The unique ASC profile of each learner with HI in the different contexts of the full-service and special school is discussed in 5.6, then considering the possible role of particular learning content, educators, personal characteristics and peers on each ASC dimension.

The data seem to confirm that learners with HI struggle to access language sufficiently, hence perhaps the difference between the means of the GASC and LASC of learners with HI and with no HI. GASC and LASC typically represent self-evaluations concerning learning areas which rely greatly on language during the instruction thereof. Instruction of the first language especially entails oral work; instruction of other learning areas relies much on oral exposition of content and often uses group work for further exploration and exercise; hence language and interaction play an important role. By contrast, it appears as if language might possibly be less of a critical factor when learners with HI engage with mathematics. Visual examples are given of types of sums, usually arranged from easy to more complex, and the application of principles, usually by the individual and not a group, remains constant; hence language is enhanced and made 'concrete' by visual explanation. One could also surmise that the mathematics educator in the special school, which contained six of the eight learners with HI in the study, perhaps surpasses her colleagues at that school in her standard of instruction of learners with HI or in her relationship with them. Another factor possibly contributing to the relatively similar MASC for learners with HI and with no HI might be that the level of difficulty of the mathematics assessment in the special school differs from that of the other learning areas. Finally, following the I/E model of Marsh (1986b: 132-133) (refer to the Internal/External model of Marsh in 3.8.1), a lower self-assessment of ability in language by the learners with HI may predispose their higher MASC.

School placement seems to contribute to the ASCs of learners in general, possibly also for learners with HI, as seen in the high levels of statistical significance of the differences among

the means of all the ASC dimensions according to school (refer to 5.4.5). The GASC and LASC means were the lowest by far in the special school (3.47 and 3.27 respectively), but their MASC (4.06), although at the median, was well within the top range (4.2 – 3.72).

(iii) When the significance of the moderator effects on each of the ASC dimensions is examined, GASC is seen to be influenced by the historicity of the schools ($p<0.001$), home language ($p<0.001$), school ($p<0.0001$), hearing ability ($p<0.0001$) and age ($p=0.006$). Specifically, GASC is significantly higher in historically disadvantaged schools (Figure 5.1), higher for the speakers of African languages than for the speakers of Afrikaans (Figure 5.2), higher in School 5 and 2 (Figure 5.3), higher for learners with no HI (Figure 5.4), and higher for under-age learners compared to norm-age learners and over-age learners (Figure 5.5).

It must be considered why GASC is higher in the historically disadvantaged schools and among the speakers of the African languages, especially when noting their low school achievement percentages (Table 5.16) and bearing in mind that, of all the participating schools, School 5 registered the highest scores on all the dimensions of the ASC (Figure 5.3). A high GASC could be evidence of successful schooling practices, the role of the educators, the content of the learning area (for example easy or difficult, culturally familiar or foreign) and/or unrealistic self-assessment. It could also be argued that learners in disadvantaged circumstances might tend to deny their difficulties, contributing to an inflated self-evaluation of own perceptions. Limited within-group diversity may further contribute to a high GASC. Many of the learners have parents who are unemployed, manual labourers and/or illiterate. The learners could then be fish in a largely 'uniform' pond and, therefore, comparison as a way of evaluating themselves could have limited value. This line of conjecture leads to considering the possible role of a collective consciousness in the African community, as claimed by several authors (Kotzé, 1993:1-20; Markus & Kitayama, 1991:224-230; Mwamwenda, 1995:424; Stevens & Lockhat, 1997:254; Triandis, 1989:509-510; Venter, 1999:26-28, 31), in the high GASC at the historically disadvantaged schools. It might be that, collectively, the learners feel they function well, and that they, therefore, rate themselves highly. In addition, the effect of language and school on GASC might have been reciprocal. In the historically advantaged schools in the study, the learners are taught in their home language, Afrikaans, but in the historically disadvantaged schools, all the learning areas, except for the first language, are taught in English, augmented by explanations in mainly Sepedi, Zulu and Tsonga. Learners with other home languages, such as South Sotho, Tswana and Venda, however, are also present in the class, even though they are very small minority groups, and are rarely, if ever, accommodated by explanations in their home language. Why GASC is higher for learners with no HI than for

those with HI, seems understandable in the light of the substantial barriers to learning which are cast up by difficulties in listening, understanding and communicating at school. The higher GASC of the under-age learners could possibly be attributed to insufficiently developed self-assessment abilities, as indeed suggested by findings in an earlier study (Du Plessis, 1999: 95; Wigfield & Karpathian, 1991: 248, 251) or inflated self-evaluation (as argued above), or it might be that under-age learners actually do feel and think themselves to be better than the other learners. Over-age learners, who have lower GASCs, entered school late or have failed one or more grades. Not being with their peers, having a history of failure and/or the tedium of having to repeat work might contribute to a lower academic self-evaluation as compared to under-age learners. It is worth noting, however, that the GASC of over-age learners (3.82) is virtually the same as that of norm-age learners (3.84), suggesting that over-age *per se*, when not compounded by other negative factors, does not strongly affect the learners' GASC.

LASC was significantly influenced by the historicity of the schools ($p<0.001$), home language ($p=0.015$), school ($p=0.0006$) and hearing ability ($p=0.01$), but not by gender ($p=0.123$) or age ($p=0.521$). Specifically, LASC is higher in historically disadvantaged schools (Figure 5.1), higher among the speakers of African languages (Figure 5.2), higher in School 5 and 2 (Figure 5.3) and higher for learners with no HI (Figure 5.4).

Similar reasons as for the higher GASC in the historically disadvantaged schools could be considered in explaining the higher LASC in the historically disadvantaged schools: successful schooling practices, the role of the educators, the content of the learning area, unrealistic academic self-assessment, denial of challenging circumstances and/or a collective consciousness. The high LASC in the historically disadvantaged schools could further be attributed to the learners' strong identification with the mother tongue and/or some confidence in respect of their performance in that learning area, which is interesting considering the strong emphasis in the schools on English as the language of teaching and learning. Only Sepedi, Zulu and Tsonga are formally taught as first languages in the historically disadvantaged schools. Speakers of the other languages must select one of the first language classes to attend. The responses of these learners on the LASC could have contributed to the fact that the difference between home language groups in respect of the LASC is less significant ($p=0.008$) than in respect of the GASC ($p=0.0001$). As HI drastically obstructs the way to language acquisition and communication, it is again apparently clear why the LASC of learners with no HI is significantly higher than the LASC of learners with HI. A question would be why some learners with HI, contrary to expectations, do not have low LASCs, as will be discussed in 5.6. The LASC of norm-age and over-age learners (3.8;

3.81) are virtually the same, suggesting that over-age learners do not experience more difficulties with the first language than the norm-age learners.

MASC seems to be influenced the least by moderator effects: historicity of schools (p=0.088), school (p=0.0007) and age (p=0.001) influence MASC, but not home language (0.132), gender (0.476), or hearing ability (0.651). Specifically, MASC is higher in the historically advantaged schools (Figure 5.1), low for School 2 (Figure 5.3), and higher for under-age learners compared to norm-age learners and norm-age learners compared to over-age learners (Figure 5.5).

Under *Apartheid* policy, mathematics was not encouraged in historically disadvantaged schools (Parsons, 1982:291-293), with their educators generally lacking the appropriate training in mathematics, which has probably contributed in various ways to a lower MASC. In contrast to the profile of the learners at the norm-age where their MASC (4.09) is higher than their GASC (3.84) and LASC (3.8) (Figure 5.5), the MASC of the under-age learners (4.21) is slightly lower than their GASC (4.29). It might be that mathematics in Grade Seven requires cognitive skills that have not yet developed fully in the younger learners. The MASC of the over-age learners (3.73) is the lowest of all mean scores registered in respect of ASC dimensions and age. Mathematics is one of the learning areas that determine a pass or a fail. It may be assumed that failure to pass mathematics, leading to failing a grade, would be one of the reasons why some learners are over-age. A lower MASC could then be indicative of the resulting feelings and thoughts that the older learners have regarding mathematics, the learning area that led to them being held back in school. Home language and hearing ability do not seem to influence the MASC, suggesting – somewhat surprisingly – that mathematics can be learned without relying very heavily on listening skills and/or language skills in the home language. The lack of statistical significance in the overall means of the MASC among learners of different home languages could further be attributed to the limited role that the home languages play in a mathematics class conducted in English as the language of learning and teaching. The high MASC of the Tswana learners - 4.37 (Figure 5.2), the highest of all the language groups, merits contemplation, especially when taken into consideration that the Tswana speaking learners also had the highest GASC (4.39) and the second highest LASC (4.01) of all the language groups. The small sample size (N=5) obviously calls for caution when trying to understand their high means. Since the Tswana speaking learners were in one class, however, the high means may be suggestive of a strong sense of identity within a minority group, giving rise to a language group dynamics within the class. Strong denial of challenges experienced at school, especially in respect of language, may also have affected the results. Tswana was the only language depicted in

Figure 5.2 that was not taught as a first language in the schools. The Tswana learners had to select one of the other languages as a first language class to attend, possibly Sepedi, as Sepedi and Tswana form part of the same group of South African languages, namely Sotho.

Section 5.6 presents case studies of learners with HI per school context of full-service and special school. Data from especially interviews with principals, educators and learners, and classroom observations are integrated with the ASC scores on the ASCQ of each learner, to broaden and deepen understanding of the ASC of learners with HI in special and full-service inclusion schools.

5.6 RESULTS AND FINDINGS: THE CONTEXTS OF THE SCHOOLS AND CASE STUDIES PER CONTEXT

Section 5.6 examines the ASC of the learners with HI[2] in two South African school contexts, namely full-service and special schools, by briefly considering the background of the schools and learners with HI, before trying to understand the GASC, LASC and MASC of each learner with HI, in the light of the ASC scores, interviews and classroom observations. Interview transcripts (including conversations regarding the projective pictures) and classroom conversation transcripts were read while simultaneously listening to the tapes to verify the correctness of the transcripts. Where necessary, appropriate changes were made, for example '*die sluitende onderwys*' was changed to '*insluitende onderwys*'. Additional information obtained from the field notes was added to the transcripts. The additional information mostly came from the classroom observations and included non-verbal behaviour, actions and conversations not recorded, for example how many times Hanno asked Pete to help him (refer to Appendix P for extracts from an interview transcript). The transcripts were scrutinised for similar themes, starting with the interviews with the principals (to understand the school context), before continuing to the interviews with the class educator, the first language educator and the mathematics educator, in that order. The first and second interview with an educator were treated as a unit and completed before continuing to the transcripts of the other educators. The questions in the interview schedules were used as guidelines to identify themes. The transcripts of the interviews and classroom observations were analysed for data supporting, expanding or contradicting the themes. Themes unrelated to the interview schedule were also noted, for example attempts to bring about equality in gender expectations. Provisional themes included themes relating to ASC, HI, teaching strategies, disciplinary problems the educators experienced, feelings about the

[2] The names of the learners have been changed to protect their identity.

principal, career opportunities of learners with HI and incidences of a personal nature. The final themes related mainly to the ASC, HI and teaching strategies. During the second interviews with the educators, matters which were unclear from the first interviews and the observations were discussed with the educators, thereby validating some of the themes identified during the first interviews and observations.

In line with the data demands of qualitative research methods, Section 5.6 adopts a narrative style of data portrayal. It contains fine detail of the unique contexts of the learners with HI, which contributes to a deeper understanding of the dynamics underpinning the ASC of learners with HI and, thus, to more encompassing answers to the main research question. Of necessity, the style differs from the conciseness of reporting on the instrument development process and the quantitative results, reflecting the different requirements of a mixed method research design in respect of data reporting. The reader is therefore kindly requested to shift gears now, to follow the track of a narrative portrayal of the qualitative data.

5.6.1 Full-service inclusion schools (School 1 & 2)

(1) School 1

(a) Background of the school

School 1 was a primary school with approximately 1300 learners and 50 educators. Class sizes varied from 26 - 32 learners per class, since the school governing body was willing and able to appoint additional educators to keep the class sizes within reasonable limits. The school was situated in an average to above-average income area. Resources were, in the view of the principal, limited, but available.

The school was described by the principal as a community school: An educational psychologist had a practice on the school premises. Professionals were contracted to assist the school and learners whenever the need arose. Businesses supported the school with donations in the form of money and/or items such as computers. Churches were involved. The school assisted a school in a disadvantaged area by sharing lessons and helping with assessment of learning area content. Parent involvement was held in high esteem.

Educators could rely on peer support, as well as support from outside the school when expertise to address an issue was not available in the school. The school had an aid class with an educator who had additional teaching qualifications. The aid class educator worked collaboratively with educators from aid classes of other schools in the surrounding area. The

aid class was available for learners of nine years and younger, with above-average intelligence and who struggled with reading, writing or arithmetic. Once the backlog had been eliminated, the learner was returned to the regular classes.

According to the principal, inclusive education could be successful when the classes were small enough, funds were available, and there were a motivated educator and assistant(s) in the class. He was sceptical whether inclusive education would be successful in the new South African education system. It appeared to the researcher, however, as if inclusive education was succeeding in his school, even without meeting his conditions. The principal was of the opinion that learners with impairments should not be grouped together, but should work with other learners in a regular school setting. According to him, homogeneous grouping pulled down the learners with impairments instead of supporting their progress.

The principal viewed all learners, including those with impairments, as learners who had to learn. All learners eventually had to be able to find a place in the adult world. Learners should not be judged on the basis of what they could not do, but rather on what they could do. No learner was regarded as superior to another learner.

The principal acknowledged that the ideal would be to include all learners with impairments, but he had found that the school could include only some learners with impairments successfully, whereas it struggled to include others. Some learners with impairments in the school were referred elsewhere when the placement did not prove advantageous to the learner or when the placement was disadvantageous to the other learners in the school. In order to achieve advantageous placement for all learners, the key was, according to the principal, to have a motivated educator, someone who was willing to walk the extra mile. The principal selected and motivated a specific educator before a learner with an impairment was placed in that educator's class. According to the principal, it was crucial to first prepare the educators for the challenges brought about by having learners with impairments in a class. He mentioned that his staff were prepared for six months beforehand in ways to deal with the learners with impairments. Staff also attended relevant courses. At the beginning of the year, educators who had learners with impairments in their classes were required to consult the educators who had taught those learners during the previous year, to become more knowledgeable regarding the particular learner. The principal also decreased the class size when the class contained a learner with an impairment.

The school had been criticised by special schools and by its own parents for its policy concerning learners with impairments. Some parents requested that their children should not

be placed in the same class as a learner with an impairment, for fear of their children being '*handicapped*' by the learner with an impairment.

The principal was of the opinion that, in many ways, the school had moved beyond the inclusive education policy of the Department of Education. In his view, many aspects of the inclusive education policy did not work. According to him, the school had its own policy in respect of inclusive education. The existence of the aid class was an example of school policy contradicting departmental policy.

(b) Brief background of Hanno

The Grade Seven class in School 1 that participated in the study had 29 learners: 18 boys and 11 girls. Hanno, one of the boys in the class, experienced severe HI. He was born prematurely at six months, weighing 1.2kg. His HI had existed since birth, but was only identified when he was about 2 ½ years old. When he was 3 years and 6 months old, he was sent to a crèche at a special school for learners with HI. He remained in the special school until March 1999, when he was in Grade Three and 11 years old. His parents then decided to enrol him in Grade Three in School 1 from April 1999. During 2000 he was referred to the educational psychologist at the school and attended a number of sessions, but the nature of the referral and support remain confidential. Notes in his school file mention that Hanno experienced aggression from other learners in the school.

According to the most recent audiological reports (September 1999), Hanno had severe sensorineural hearing loss of 70% in his right ear and a profound sensorineural hearing loss of 100% in his left ear. He relied on two hearing aids which amplified sound. Despite the severity of his hearing loss, Hanno had very good pronunciation and could converse easily and clearly.

He was 15 years and 5 months old at the time of the investigation; that is two years older than the mean age of the other boys and girls in his class, but only one year older than the mean age of learners in School 3, the special school for learners with HI. No indication could be found that he had had to repeat grades in School 1, therefore it could be assumed that Hanno had either repeated grades in the special school, or that he had started his school career later than his peers.

(c) Hanno's ASC

Figure 5.6 depicts the actual GASC, LASC and MASC of all the learners with HI, as well as the mean GASC, LASC and MASC of the learners with no HI. In 5.4.6 it was already

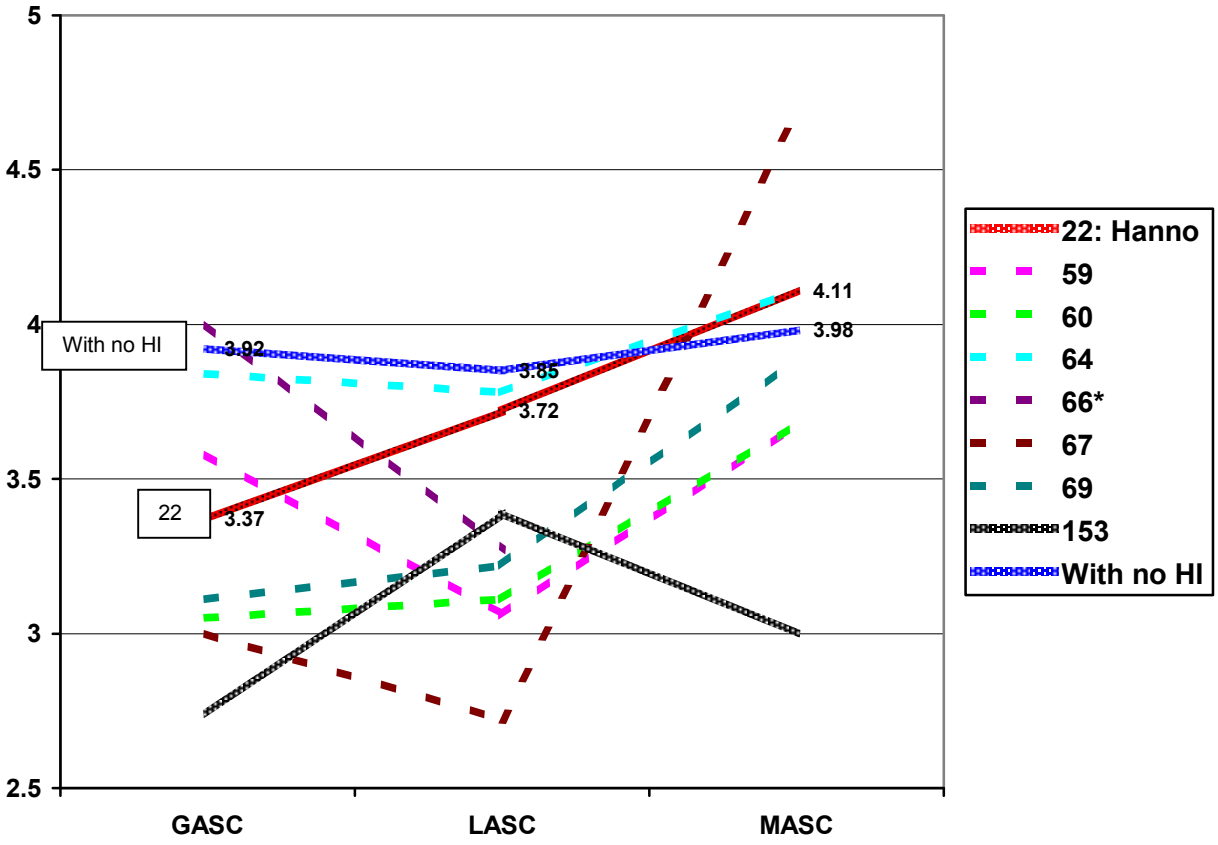
established that there were statistically significant differences in the ASC means of the eight learners with HI compared with the means for those learners with no HI (Wilks' Lambda = 0.898, Mult.F=5.63, df=3, 141, p=0.002). Hanno's ASC will be looked at in this section, but comparisons and explanations for the similarities and differences in ASC across the schools and learners will be considered in 5.7, that is, once all the contexts and schools have been described. Hanno's learner number was 22.

On a 5-point scale, Hanno registered means of 3.37 for GASC, 3.72 for LASC and 4.11 for MASC. Hanno's MASC (4.11) was 0.13 higher than the MASC of learners with no HI (3.98). His GASC (3.37) was 0.55 lower than the GASC of learners with no HI (3.92) and his LASC (3.72) was 0.13 lower than the LASC of learners with no HI (3.85).

Figure 5.6 shows that Hanno's GASC (3.37) was well below the mean GASC of the learners with no HI (3.92). The mean of his achievement marks across all learning areas decreased slightly from 54% in the second school quarter to 52% in the third school quarter. The mean of the achievement marks of the class was similar from the second to the third quarter, 70.93% and 69.86%, respectively. All the line graphs in Figure 5.6 are higher for MASC than GASC, although the difference is negligible (0.06) in the graph depicting the ASC of the learners with no HI.

During the administration of projective pictures, Hanno identified several typical classroom activities in the first picture, namely '*School in General*': a learner asking the educator something, a learner helping another learner, a learner building something, a girl fetching a book, a learner paging through his work to see if everything had been completed whilst another learner was looking on, a learner talking to another learner sitting next to him, and one learner who was doing his work. The learner who was asking the educator a question, did so because he did not understand his work or he was asking the educator what he had to do. Both of these themes had cropped up in interviews with Hanno's educators and confirmed what happened in class when Hanno asked the educators questions. On enquiring whether it helped the boy to ask the educator, Hanno replied with '*Maybe*'. It appeared as if Hanno doubted whether the educators in general were always helpful. The learner who was helping another learner did so because the latter perhaps did not know what to do. Asked why the latter perhaps did not know what to do, Hanno's answer was profound: "*Perhaps the educator was too quick for him – talked fast.*" He added that perhaps the educator was ahead with the work. Asked to explain what '*ahead with the work*' meant, he explained as follows: "*The guy sits and pages through his work and the educator talks. She talks fast, of course. Then she's on 10, now she's on 13 … 12. Then the guy asks*

Figure 5.6 Actual GASC, LASC and MASC of learners with HI (Hanno) and mean GASC, LASC and MASC of learners with no HI



* Learner 66 did not complete the MASC section of the ASCQ.

afterwards: 'On which page are you now, Ma'am?'" In reply to a further question, Hanno said that it did not happen often that the educator talked fast or worked ahead.

When the cross-cultural interviewer spoke to Hanno, Hanno said that the learners talked too much in class, stood up too many times, and talked with friends next to them. Hanno's hearing aids probably amplified all sounds, and the talking and standing up of classmates was presumably extremely bothersome if he was trying to concentrate on the board or on his work.

In an interview, Hanno's class educator mentioned that she would like to see all the staff members teaching a particular learner with an impairment to come together and decide how that learner would be assessed and how his/her tests would be constructed. She would like the collaboration to be more than once a year, preferably in the form of weekly meetings. She did not think that the Department of Education gave educators the knowledge or skills to

include a learner with an impairment. She appeared to think that if educators worked collaboratively and agreed on a similar approach to accommodate a specific learner, the GASC of the specific learner might be raised. Presently, accommodations apparently depended on the experience and initiative of the individual educators. She declared that the Department of Education did not meet her needs for including learners with impairments. The Afrikaans educator was also of the opinion that, generally, educators were not being equipped to deal with learners with impairments.

Figure 5.6 shows that Hanno's LASC (3.72) was only 0.13 lower than the LASC of learners without HI (3.85). Considering the enormous barrier that HI brings to language instruction and learning, Hanno's LASC is remarkable. His marks for Afrikaans, his first language, increased from 40% in the second quarter to 52% in the third quarter, whereas the class mean for Afrikaans increased only slightly, from 69.03% to 70.07%, during the same period.

According to the Afrikaans educator, Hanno had an unrealistic idea of his language abilities, but she was of the opinion that the unrealistically high LASC was not necessarily detrimental. According to her, the high LASC '*carried his whole being*'. She also thought that Hanno felt that he coped well. She expected he would be able to stand up against anyone in the class, should the need arise.

When shown the projective picture that referred to an Afrikaans class, Hanno spoke about a learner who was walking around and did not want to do his work, but wanted to play in class. It was interesting that Hanno noted a learner who wanted to play in class. During observations it became clear that the Afrikaans educator made use of games as teaching methods. The learners appeared to enjoy the games, although it seemed as if Hanno could not always follow the games. From his projection, it might be concluded that even the games in the Afrikaans class were still hard work for him, as will be illustrated later. One of the classes ended with the educator asking Hanno what he was writing. Hanno answered: "*Too much*."

The desks in the Afrikaans class were arranged to form six groups. Each group could accommodate up to six learners. Hanno sat in the group that was positioned in the centre of the class and in the front. His seat faced the window, but he had easy access to the chalkboard and the area from where the educator habitually taught. She often sat on the table directly in front of him.

The observations[3] in the Afrikaans class were riveting in respect of accommodations made for Hanno, and his participation, and sometimes lack thereof, in classroom activities. According to the Afrikaans educator, her decisions to make accommodations were guided by Hanno's facial expressions, which sometimes indicated total confusion with some instructions. She let herself be guided by his abilities and level of comprehension in making the accommodations. Even some written instructions he found difficult and he lagged behind the rest of the class. She usually repeated the instructions individually and reduced the volume of the exercise for him. Other day-to-day accommodations for Hanno included the following: She supported Hanno by sometimes indicating with her finger where the answers in the text lay, where they were reading or where he had to fill in the answers. When the learners had to fill in a worksheet by looking for the answers on a previous page in their books, Hanno was given a separate worksheet, so that he did not have to page through the book for the answers. She also tried to use low frequencies when speaking, as she found that Hanno was better able to hear lower frequencies. Her observation corresponded with Hanno's audiogram. She also relied on gestures to catch his attention or to convey instructions. She used gestures generally understood, such as '*come here*', '*keep quiet*' and '*no*'. A short cough or clearing of the throat also caught his attention. She normally asked Hanno the easier questions to involve him and to give him self-confidence; however, she did not ask him the easy questions first, but tactfully mixed the level of difficulty of the questions she asked in the class. She was of the opinion that the accommodations made for Hanno could also benefit other learners who were not academically strong. In an interview, Pete, a friend of Hanno, actually said that work explained and repeated for Hanno helped the whole class. According to Pete, the Afrikaans educator made Hanno's work easier.

Besides day-to-day accommodations, the Afrikaans educator always made accommodations in respect of oral and listening exercises. The educator made substantial accommodations in assessing Hanno during an unprepared oral speech. Hanno was visibly more tensed up than usual and requested permission to go to the bathroom prior to his speech. She later confirmed that Hanno had been nervous about making an unprepared speech in front of the class. Hanno was the fifth learner to be selected randomly for the unprepared speech. Hanno complained, saying he had been given his topic "*Dogs must have licenses*", and the educator explained that he had to say yes, he agreed with the statement, or no, he did not agree with the statement. When Hanno went outside to prepare, he came back immediately '*for a book to write on*' ('… *wil daarop skryf* …'). The educator corrected his sentence and

[3] The Afrikaans educator confirmed the credibility and trustworthiness of the classroom observations in her class: the behaviour of the learners was as it had always been, for the duration of the observations.

said "*you mean a book to press upon*" ("*Jy bedoel jy wil daarop druk …*"). When Hanno came in to deliver his unprepared speech, he appeared shy. The educator asked him "*Why do you think dogs must have licenses?*" She introduced the topic to the rest of the class, as she had done once before for another learner. She reminded him to stand on the little orator's box and told him to tell the class why he thought dogs must be licensed. Hanno was physically larger than most of the boys in the class, and, besides being nervous about addressing the class, he might have felt self-conscious about his size when standing on the box. For the third time the educator repeated: "*Yes, Hanno, do you think dogs must have licenses?*" Hanno answered: "*No*." Hanno was not able to make a speech on current topics as all of the other learners did. Once the educator had established that he was unable to make a speech, she asked him guiding questions. The rest of the conversation ran as follows:

Educator: *Now tell me, why must a dog not have a license? …* [unclear] *… Is a dog a car? Is a dog a car? Is a dog like a car? Why is a dog like a car? Why do cars have licenses, Hanno? Why do you need a license for your car?*

Hanno: [Hanno responded to the last question only.] *Because then you can drive on the road.*

Educator: *OK. Why do dogs need licenses?* [The educator deviated from Hanno's original point of view, namely that dogs did not need licenses. The change might have confused Hanno, depending on what he had prepared.]

Hanno: *Because they can* … [unclear] *… not on people.*

Educator: *So that they can walk everywhere they want? OK. Why?*

[Hanno wanted to get down from the orator's box and go to his seat.]

Educator: *No, no, no.*

Hanno: *For three minutes?* [The said length of the unprepared speeches. No one's speech was even remotely close to three minutes.]

[The class laughed.]

Educator: *Yes. Why do licenses cost money? Does a car license cost money?*

Hanno: *Yes.*

Educator: *What do you think will a dog's license cost? The same as a car or cheaper?*

Hanno: *Cheaper.*

Educator: *Why do you think should dog licenses be cheaper than car licenses?*

Hanno: *Because he is not as …* [unclear] *… and pretty …* [unclear] …

Educator: *And important, and dangerous? Because dogs can be a dangerous thing, therefore they should … Hey, Hanno and I are talking. … Lastly, how do you think are we going to get the people so far to buy dog licenses?*

Hanno: *You just go to the place where, where one … the licenses …*

Educator: *Buy the licenses. Yes, and then?*

Hanno: *Then one writes …* [unclear] …

Educator: *Now the last question. What are you going to do if one does not, if you catch someone who does not have a license for such a dog?*

Hanno: *Then fine them …* [unclear] …

Educator: *A fine. Good. Your book, Hanno.*

[Some of the learners clapped their hands.]

When Hanno sat down, he rattled his chair loudly, rendering it difficult to hear the next speaker. It might have been because of relief that he had completed the speech, it might have been a way still to focus attention on himself, and/or it might have happened because he was unaware of the sound the chair was making.

The educator explained during an interview that she did not expect Hanno to be able to make a speech. She expected him to be able to respond to her questions. The most important accommodation the educator made was therefore in respect of the expected outcomes – answering questions, and not delivering a speech.

Hanno also exhibited clowning behaviour when he stood in front of the class. The educator interpreted it as a survival skill copied from other learners. She described it as the best alternative he had to just standing in front of the class saying nothing. She stated that Hanno would have been able to give a more independent unprepared speech had he been talking to her individually. Hanno received 50%, which falls in the category 'partially achieved', for his unprepared speech.

Other interesting accommodations took place when the class were required to complete a listening exercise. As Hanno could listen, but not necessarily hear in the same way as his peers, his listening exercise was adapted to resemble a comprehension test. The listening exercise took place during the fifth observation. The learners were instructed to fold the pages of the listening exercise in their workbooks so that the text, a poem, was covered. Hanno wanted to know what they were writing about. The educator told him to listen. The educator read the poem twice. While she was reading, the learners had the opportunity to make notes of detail in the poem. Hanno looked at the educator whilst she was reading, but not the whole time. When a learner entered the classroom, he turned around. The educator looked at Hanno. Hanno did not make any notes, which was consistent with learners with HI not being able to listen and write simultaneously, as they rely on speech reading to 'hear'

what is being said. When she had finished reading, she told Hanno to sit at her table, as he was allowed to look at the text. Hanno joked and said he was sitting on the king's throne. The educator asked the first question, and told Hanno that the answer was in the first verse. Upon Question 4, Hanno repeated part of the question to the educator. She had asked the question with her back towards Hanno. She repeated the question and told him to look in the fourth verse. She continued without waiting long by saying "*Question 5*", but Hanno said: "*Wait … Right!*" The educator read Question 5. The learners had to deduce from the text whether the hunt had been successful. Hanno looked at the educator for a lead. He was told: "*You must know that, Hanno. It does not specifically stand there in the text. Hanno, you must be able to know that. It is not in the text. The text implies it.*" She then simplified the question: "*Did he manage to kill the mosquito, yes or no?*" Hanno asked: "*At Number 6, Ma'am?*" The question, however, was at Number 5 and he was told so. She asked Question 6 and immediately asked Hanno whether he had heard and whether he was OK. He replied in the affirmative. Hanno repeated part of the seventh question again. It seemed as if he only wanted to make sure that he had heard correctly, as previously. The educator later helped Hanno with Question 8 by saying the answer lay in the second verse. She told him there were not any other leads, and continued to imply that there could have been more leads had he behaved himself better. Before the educator started with Question 9, Hanno called out that she must wait. She said "*Nine!*" and again Hanno said: "*Wait, Ma'am!*" After a few seconds, she continued with Question 9. Hanno wanted to know whether this was Question 9. The educator confirmed that it was and wanted to know whether Hanno had heard the question. He replied yes. The educator repeated Question 10, the second version being slightly easier than the first: "*Where was the hunting field? Where was the mosquito hunted*?" She looked at Hanno whilst she was saying it and told him to look in verse one.

After the listening exercise, Hanno went back to his original seat and gave his book to the boy who sat next to him, to mark his work. Hanno asked a question, but the question probably related to the answer he was required to mark, and not to his own work. His question, however, did reflect that he was not sure what the answer was. Then Hanno was quiet until Question 6, where he loudly said that he had made a spelling mistake. Afterwards, the learners had to add up their marks and read the marks to the educator. Hanno had 5 ½ out of a total of 10. Hanno's mark was the lowest; the next mark was six, which had been obtained by six learners. Hanno was praised by the educator, and was the only learner in the class, except for another learner who had obtained nine, who received praise. It must be considered how the other learners might have felt when Hanno was allowed to look at the text, or how they would have felt if he had achieved higher marks than they.

The Afrikaans educator usually allowed Hanno to ask ample questions. She also allowed other learners to ask questions, but Hanno asked many more questions during the course of a period than any other learner. For example, during one 45-minute period he asked six questions to the educator, and two questions to learners in the class. Many of Hanno's questions indicated that he did understand the question, but that he needed confirmation and reassurance as to whether he actually understood correctly. This question-asking behaviour, which could be time-consuming during a lesson period, could be indicative of a learned dependence or learned helplessness, or it could be indicative of the type of challenges a learner with HI has to contend with during the course of a normal day in a hearing environment, and therefore of the type of support required.

One such incident, which could be an example of learned helplessness or learned dependence, or indicative of everyday challenges, or perhaps a combination of both, occurred during the second observation. The lesson was on idioms, intensive forms and comparisons in the Afrikaans language. The educator gave instructions for them to learn the items by marking the ones on the list that they did not know, and by learning those. The class started to learn. Hanno came with his questions: "*This page?*" "*Are you going to ask us questions?*" The educator stood next to him and explained to him again. Hanno wanted to know whether they had to know the work by heart. Hanno asked a question about one of the intensive forms. The educator showed him how to learn by covering part of the expression. After five minutes of learning, they wrote a small test. Hanno's test behaviour was interesting: He asked the educator to repeat the first word. The educator let him page back to the work when he could not answer the second question. By merely interpreting a glance from Hanno, she knew she had to repeat the third word for Hanno. He still did not know the answer. She once gave him a lead to an answer. He expected a lead for the next question, but she did not give him a lead. Later on she reminded Hanno of a picture that he had seen that related to the answer of a question. The class then exchanged books and marked each other's work. They had to do their own corrections, but the educator asked a boy at Hanno's table to do Hanno's corrections for him. Hanno received his marks. He wanted to know from the educator whether something was right, however, it was not, and he was disappointed. She had to explain to Hanno what a '*mule*' was. Hanno asked the answer to the third question. Hanno inquired after the spelling of a word, whether it had one or two o's. The educator helped Hanno further. Hanno did not hear the first sound of a word. He heard '*oepel*', instead of '*hoepel*', the │h│ being an unvoiced sound in Afrikaans.

Another incident that clearly illustrated Hanno's lack of independence in the Afrikaans class, occurred when the learners were given work to occupy them whilst the unprepared speeches were being made. The class had to divide animal names into syllables. Then they had to make up their own funny animal name by combining the syllables and they had to prepare a speech on that animal. Hanno asked a number of questions, until the educator, who was engaged in listening to the unprepared speeches, conceded to a final question. Hanno wanted to know whether he had to combine three or four animal names. The educator told him the instructions had been two or three animal names. He asked another question, but was told to put up his hand and wait his turn. Hanno wanted to know when the work had to be completed. The educator responded by saying that it was not homework, but class work. Hanno then wanted to know whether the work had to be completed that day, but was told that it was class work. After the third unprepared speech, Hanno asked the educator about his funny animal word, which he still had not decided on. She responded by briefly repeating the instructions, saying that he could not use her example and ended by saying "*You are again too lazy to think for yourself. Come on!*" It appeared as if Hanno could not work independently in the Afrikaans class, and frequently wanted to ask the educator questions. His behaviour stood in sharp contrast to his behaviour in the mathematics class, where, although he also asked questions, he seemed to be able to work independently. It should be considered whether Hanno's dependence was a matter of ability-level, learned helplessness or dependence, related to the content of the learning area, or in response to the educator's supportive style in class.

It was interesting to note that Hanno was able to participate in most of the lessons, but when games were played, he seemed not to participate. During the third observation, the educator played a word game with the learners. The game entailed her drawing pictures of syllables of a word on the board and the learners had to determine which word was represented by the drawings. Hanno was unusually quiet during the game. Although the pictures were of concrete objects, the combination of the syllables represented by the pictures required some abstract skills and knowledge of the language. It might be that Hanno was not able to synthesise well. It could also be that there was too much noise in the class for him to follow what was going on in the game. Or he might have been tired, as this occurred during one of the last periods of the day.

Another game that did not arouse Hanno's involvement, required the learners to divide animal names into syllables. The educator gave an easy example for Hanno to do, which he did correctly. The class then had to make up funny animal names by using the first syllable of the name of one animal (the 'head' of the word) and the last syllable of the name of

another animal (the 'tail' of the word). For example, a rhiraffe would be a rhinoceros and a giraffe; a centiphant a centipede and an elephant. The explanation was rather concrete, but Hanno did not react to or participate in the game. Some examples became more complicated, using the first, middle and final syllable of three animal names, for example a buncoder: a bunny, a crocodile and a spider. Hanno was unable to make up his own funny animal name by applying the process.

Hanno's concrete processing of language became evident during the first observation. The educator told a story as part of a comprehension exercise. Hanno listened attentively, though playing with his hands. Upon hearing the word '*amputate*', he made a cutting motion with one of his fingers from his right hand on one of his fingers from his left hand. Once, when the educator reminded him to look and listen, he touched his ears and his hearing aids.

In summary, the observations in the Afrikaans class included accommodations for day-to-day situations and oral and listening exercises, question-asking behaviour, learned helplessness or learned dependence, Hanno's lack of participation in games and his concrete understanding of language.

Hanno's MASC (4.11) is noteworthy because he had a higher MASC than the learners with no HI. His high MASC was also contradictory to the tendency of over-aged learners having a low MASC, as depicted in Figure 5.5. (At 15 years and 5 months, Hanno was an over-age learner.) Hanno's marks in mathematics increased from 60% to 69% in the third school quarter, even though the class mean for mathematics decreased slightly from 77.83% to 76.76%, during the same time. His high MASC could certainly be a reflection of his improvement in mathematics. It is interesting to note that Hanno was probably not satisfied with his marks. During the administration of projective pictures, he thought that the boy who was asking the educator something (as he often did), did not have good marks. The reasons given for the poor marks, were as follows: *he had to ask the educator many times*, *he did not understand the first time*, *he did not do his homework*, *he talked*, and *he did not concentrate*. Remember, however, that MASC, or any ASC for that matter, is not merely the product of achievement marks – good or poor - but also of feedback from and interaction with the mathematics educator and peers.

The desks in the mathematics class were arranged in a traditional way: one desk behind another, in neat orderly rows, each seating two learners. The educator's table stood in the front corner, and Hanno's desk was adjacent to the educator's table, that is, one of the desks at the front of the class. Pete, a friend of Hanno's, shared the desk.

The educator usually introduced new content at the beginning of the lesson, made sure the content was understood and gave the learners homework, with which they had to continue in class. The mathematics educator said that he talked more loudly in Hanno's class. He made sure that Hanno had heard his lesson correctly and that Hanno understood the work. He often asked Hanno whether he had heard him and invited Hanno to tell him if he could not hear. The educator repeated facts that he deemed necessary for Hanno to hear. The following two extracts, from the transcriptions during the first and second observations in the mathematics class, are examples of ways in which the educator determined whether Hanno had heard and understood him correctly:

Extract 1:

Educator: *Hanno, do you understand it?*
Hanno: … (Unclear) …
Educator: *Are you sure?*
Hanno: *Yes, Sir.*
Educator: *Everything? … Do you understand it? Are you sure?*
Hanno: *Yes. If I don't understand, I will come and ask you.*
Educator: *Then you will come and ask me. Try the first three and then you bring your book so that I can see …*

Extract 2:

The educator addressed the whole class, saying they must ask him if they do not understand, and ended his address with "*Did you hear, Hanno?*". After explaining the example, he addressed Hanno again: "*Do you understand it, Hanno?*". Hanno explained in a sentence what he had understood. The educator explained again, ending the explanation with "*Are you with me, Hanno? You must speak up, brother.*" Hanno affirmed. The educator proceeded to do an example on the board, whilst prompting Hanno for the subsequent steps and the answers. Hanno's answers were correct.

While they were working, the educator sat at his desk and marked books, all the time being available for the learners to ask him questions. He sometimes called learners one by one to his desk to mark their work, and explain their mistakes to them. He repeatedly invited the learners to come and ask him questions. He was accessible to all the learners and gave much individual assistance. He helped all learners, regardless of their demeanour, in an equally supportive way. Many learners made use of the opportunity, including Hanno. According to the mathematics educator, Hanno usually continued to ask questions until he

understood the work. During the administration of projective pictures, Hanno confirmed his habit of asking questions until he understood. With many of the questions, Hanno only sought confirmation that he was correct. During the administration of the projective pictures, Hanno mentioned that the boy benefited from asking the educator questions. He explained that the boy felt very bad when he did not understand the work, because then he could not do his work and finish it. Fortunately, this happened very seldom. Hanno gave the following two reasons for failure to understand or finish work: someone talked to the boy and, whilst the educator was busy teaching, the boy did other things and was not listening.

Hanno's close proximity to the educator also facilitated the asking of questions by Hanno, and hearing the answers clearly without repetition. Often Hanno did not get up to go to the educator's desk, but merely said "*Sir?*" to gain the attention of the educator, before posing his question.

Pete repeatedly and patiently helped Hanno with his mathematics, even without being asked by Hanno for assistance. Once, Hanno was not satisfied by an answer the educator had given. When Hanno sat down, he looked in Pete's book. A conversation between Pete and Hanno ensued, in which Pete explained to Hanno by referring to the example on the board. Hanno once again looked in Pete's book and Pete continued his explanation. Pete asked Hanno whether he knew how to do the work. Conversation followed before Hanno continued on his own. Hanno asked Pete's assistance at least four more times during that period. Later, Pete was heard to prompt Hanno to do something when he reached number 'd'.

In an interview with Pete, Pete said that he liked to help Hanno with mathematics. He wanted Hanno to understand the work and to achieve good marks, so that one day he could become something, do something with his life. He was aware that Hanno experiences HI. In mathematics class, Hanno usually of his own initiative asked Pete to help him, but on mornings before tests, Pete would ask Hanno to revise work with him. According to Pete, Hanno did not always hear the words correctly, especially if the educator used difficult words, and then he could not pronounce the words. Pete then explained the content of the lesson to Hanno in simpler words. Pete emphasised that Hanno was '*not stupid*', but that he sometimes could not hear the words properly. According to Pete, the whole class benefited when work was explained in an easier way to Hanno. He found that he sometimes understood the work better after it had been explained again to Hanno. Pete had also experienced that by helping Hanno to learn, he actually learnt more himself than when he was being taught. He found that his own marks had increased since he had started helping Hanno. He helped Hanno by explaining the work to him, doing an example with him and

leaving Hanno to do the rest of the work himself. If Hanno struggled, he would help again. Apparently Hanno was shy to ask other educators to repeat words, but not the mathematics educator.

The nature of the mathematics curriculum might have contributed to Hanno feeling good about his mathematical abilities. Examples of the work were done and explained on the board by the educator. In the examples chosen for the day's lesson, usually one new mathematical principle was applied. Hanno usually would have been able to follow the application, even if he had not heard the explanation fully. All the instructions were in a written format in their books, and Hanno could rely on his reading to understand the instructions. Further, the structured way in which the lessons were presented in organised, small steps and the many examples done in class could also have contributed to Hanno's high MASC.

According to the mathematics educator, Hanno would be able to pass Grade 12 mathematics one day if he worked hard. It appeared to him as if Hanno wanted to succeed at mathematics. He worked in class and did not daydream. His homework was always done. Despite his questions and even mischief, it appeared as if Hanno worked independently in class. He even continued to work, though learners would be standing around him, joking with one another. The mathematics educator promoted independence amongst the learners by not babying them. He was very strict, but treated all the learners similarly. During the interview with Pete, Pete mentioned that the mathematics educator was extremely just. The mathematics educator was once observed to praise Hanno on work done well and encourage him to continue doing so.

To summarise, there were several conditions in the mathematics class which might have contributed to Hanno's high MASC: the educator making sure that Hanno had heard and understood, the availability and accessibility of the educator for questions, Hanno's close proximity to the educator, Pete's supportive presence in the class, the nature of the content of mathematics, the structure of the lessons, Hanno's personal motivation and a good relationship between Hanno and the mathematics educator. Ironically, of the three educators interviewed at School 1, the mathematics educator was the least informed of inclusive education policy and practice.

(2) School 2

(a) Background of the school

School 2 was a primary school with approximately 1750 learners. Class sizes, according to the principal, averaged 60 learners per class. The school was situated in a below-average income area where the majority of the parents were unemployed. The principal described the community as "*the poorest of the poor*". Resources were limited. According to the principal, the community was unstable ("*always on the move*"): people came from the rural areas to the city in search of work. They did not necessarily settle in that area, but later moved to neighbouring areas in search of accommodation. The result was that new learners were enrolled in the school throughout the year.

The principal found that many learners attended school infrequently because of hunger. There were also learners in the school who were exposed to abuse, including sexual abuse. Crime was apparently also rife in the area, especially during weekends. Many learners were exposed to drug abuse, criminality and drunkenness. Families were incomplete and broken and child neglect was a general occurrence. There were also child-headed households, where the parents were deceased or the parent worked in another city and left the children in the care of the eldest sibling.

Learners from three main language groups were accommodated in the school: Sepedi, Zulu and Tsonga. The majority of the learners were Sepedi speaking (approximately 60%), followed by the Zulu speaking learners (approximately 25%) and the Tsonga speaking learners (approximately 15%). Learners from Zimbabwe and Mozambique, who also sometimes attended the school, could, according to the principal, easily adapt to either Zulu or Tsonga. Their numbers in the school appeared to be negligibly small. The language of instruction in the intermediate phase (Grades Four – Six) and the senior phase (Grade Seven) was English, but the learners did not always understand. The content was then explained in Sepedi, Zulu and Tsonga. The class educator mentioned that it was time consuming to explain the content in four languages. He estimated that he spoke English for 40% – 45% of the time and that for the rest of the time he spoke in learners' mother tongues. The multi-lingual approach to teaching was also observed in the mathematics class.

According to the principal, the mission of the school was to use the school to change the lives of people, adults and children alike, who lived in the areas surrounding the school. Because the lives of all the people in the vicinity of the school were acknowledged as important, no discrimination took place regarding admittance of learners who spoke languages other than Sepedi, Zulu or Tsonga, or learners with impairments. The school had

become involved in including learners with impairments because there were no special schools in the area, and because, even if there had been, the parents would not have been able to afford to send their children to the more expensive special schools.

The principal was very committed to inclusive education: "*We want to try and show the world that nothing is impossible … we can change the system of education … here we have a duty to try and change the attitudes …*" Although the school did not discriminate against learners with impairments, the principal acknowledged that there were some learners with a severe degree of impairment, such as learners with severe mental or severe physical impairments, whom the school referred to a special school, as the school was of the opinion that they could not handle such impairments. The principal also mentioned that any learner should be able to fit into their system. (The system appeared to be flexible enough to allow for many accommodations.) When some parents were of the opinion that their children would not be able to cope in school, the school still encouraged such parents to bring their children to school. Evaluating the children's needs and the school's ability to provide in those needs, the school would then either accommodate the child or refer the child elsewhere. The special school, in turn, sent learners who they believed could cope in a regular school, to School 2.

The principal mentioned that initially the educators had been reluctant to educate learners with impairments, thinking that they did not have the ability to handle learners with impairments and that they were being confronted with an unnecessary burden. Slowly and over time, however, they adapted and realised that there was a need for inclusive education. The principal was also of the opinion that the educators had expected that the school would be swamped with learners with all kinds of impairments, which did not happen. He emphasised that it was important for the educators to realise that special schools would not fade away and that special schools would still be there for learners who could not be accommodated in regular schools.

The school-based support team (SBST) comprised eight volunteer educators and some parents,and supported the educators and the learners. The special needs coordinator of the school coordinated the SBST. When educators realised learners were not performing well, or that learners experienced problems, they referred the matter to the SBST, *via* the grade representative who was a member of the SBST. The SBST met on a weekly basis in the afternoons. They mainly dealt with challenges the learners encountered regarding learning. Many of the challenges were related to situations at home. Once a learner had been identified, the SBST invited the parents to school, upon failing to come to the school, the

SBST did home visits. The SBST reported to the school management team. The SBST also arranged workshops for the educators to determine which aspects of teaching were problematic for them and to support them. The members of the SBST attended workshops on a regular basis. One of the educators, not a member of the SBST, mentioned during an interview that the SBST attended the workshops but that they did not always disseminate the information. The SBST sometimes involved the school governing body (SGB) in assisting a family or learner in need. The SGB supported the educators, the learners and the parents by networking with stakeholders, such as prominent people in the community, businesses and doctors, outside the school.[4] Because local businesses were weak, the school searched further abroad for support. A cell phone operator had erected an antenna on the school grounds and paid rent to the school for the area of land used. Embassies were asked for donations and a photocopier and clothes had been received. A private school had donated sports equipment and clothing for which they had no further use. The town council also gave a grant to the school to enable the school to provide a feeding scheme for learners who were in need. Local councillors had been asked to petition for land for some parents in order for them to erect shacks for accommodation for themselves. The SOS Village for children in need had also been involved in supporting child-headed households.

The Department of Education had recently appointed an educator to deal with matters of inclusion. She was to be stationed at School 2, but would also be responsible for three other schools. Her duties would include supporting the schools to assist learners who required support. According to the principal, other schools sometimes asked School 2 to assist them in dealing with the implementation of inclusive education policy in their schools.

School 2 had been chosen, through contact between the principal and the school district manager, as a pilot school to implement inclusive education and participation; hence the school was ahead of the EWP 6 regarding many aspects of inclusive education. The Department of Education had helped with the implementation of inclusive education by arranging meetings between themselves and the school, by building ramps and by presenting workshops on how to deal with more than one learner with impairment in a class. The Department of Education needed to supply equipment necessary to support learners with HI, for example, as the parents were too poor to afford assistive devices themselves.

[4] As member of the SGB, the principal put policy into practice and wanted to know what we, the researchers, could do for his school in respect of inclusive education. Immediate support was to arrange assessment of the hearing of one learner in Grade Seven, and facilitate decisions regarding her future school career. Long-term support included sharing with the school important information and guidelines for facilitating inclusive education that came forth from the study, and presenting a workshop on accommodating learners with HI.

The Grade Seven classroom attended by Sarah, the Grade Seven learner with HI in School 2, was situated on the perimeter of the school grounds, next to a road. During all the observations, no disturbing noises came from the road, although one educator complained that sometimes drunken people or criminals walked down the street and made a noise. The learners remained in the same classroom and the educators rotated. Only for the first language class did the learners separate according to their home languages: Sepedi, Zulu or Tsonga. The class was overcrowded, with usually three learners sharing a desk, sometimes even four. One visible effect of the overcrowding was that the educator could not interact easily with the learners who were experiencing difficulties. The furniture was old, and some of the desktops were loose. The learners let the desktops rest on their thighs. One of the window panes was broken. There were not many decorations in the class: four posters were displayed against the back wall of the classroom. The desks were grouped together to form clusters to facilitate group work. Because of the overcrowded classroom and the arrangement of the desks, some of the learners sat with their backs to the educator. If they wanted to see the educator, they had to turn around in their seats, which was difficult, especially for the middle learner in a group of three sharing a desk. It appeared as if the learners shared textbooks and rulers, but that all learners had their own exercise books. There was no electricity in the class. Teaching aids were limited to the resourcefulness of the educators, a chalkboard and loose sheets of paper. When group work was done, each group was given one sheet of paper. Considering that there were eight groups, compared to the 53 learners in the class, paper was used sparingly. Achievement would seem complicated by this arrangement, since only one learner could keep the paper and the other group members would have to rely on memory.

(b) Brief background of Sarah

The Grade Seven class in School 2 that participated in the study had 53 learners: 23 boys and 30 girls. Sarah, one of the girls in the class, experienced HI. Sarah had been a full-term baby, weighing 2.5 kg at birth. She was born in a rural area where resources and access to health care were limited. She was a healthy child, but had mumps at the age of five years. Her mother noticed discharge from her ears when she was five years old. Sarah was attending pre-school when an educator first mentioned the possibility of hearing loss. The mother was unaware of any hearing loss, but noticed when Sarah was in Grade One that she carefully looked at one's lips when one talked. The school encouraged her to go to a clinic, which then referred her to a hospital. At the hospital, Sarah received medicine which, according to the mother, only helped while Sarah was using it. In the long term, the medicine

did not cure the discharge. Every winter, Sarah would start to cough and the discharge would reappear.

In 1994 when Sarah was approximately seven years old, her parents moved to Pretoria in search of employment and better care for Sarah. Sarah remained behind, in the care of a grandmother, joined them in 2001 and enrolled in Grade Six in School 2. The area hospital referred Sarah to the academic state hospital. Assessment at the Ear, Nose and Throat (ENT) clinic led to bilateral ear operations in April 2002 (left ear) and June 2003 (right ear) for cholesteatoma. The conduction problem was because of an incomplete ossicular chain. According to the ENT specialist, Sarah had lost her ossicles because of extensive infection. A follow-up assessment by the ENT specialist, on recommendation of an audiologist, recommended another operation in January 2004 to fix the ossicles. After the operation, hearing aids might not be necessary. Scar tissue was seen in the external ear canal of the right ear during otoscopic examination which was attributed to the ear surgery Sarah had undergone. Sarah's middle ear functioning in both ears was regarded as abnormal, since the movability of the eardrum was very low.

According to the most recent audiological reports (August 2003), Sarah had a slight conductive hearing loss in the left ear, and an average conductive hearing loss in the right ear for the frequency range 125 – 8000Hz. The high and low frequency ranges were more affected than the mid-frequency range (500 – 2000Hz). A maximum correct word discrimination of 100% was obtained at 55dBHL in both ears, which indicated good discrimination abilities with increase in intensity. The audiologists recommended that Sarah return to the ENT specialist who had done the ear surgery to investigate the possibility of further surgery or suitable treatment to relieve the conductive component of her hearing loss. If there was no possibility of further surgery, hearing aids were recommended. It was also recommended that her seating placement in the class be changed. The recommendation was duly reported to the educators. Continuous assessment of middle ear functioning and follow-up hearing assessments was also recommended.

At the time of the investigation, Sarah was 16 years and 6 months old, that is 2 years and 5 months older than the mean age of the learners in her class (14 years 1 month) and 2 years and 1 month older than the mean age of the learners with HI in the special school (14 years 5 months). According to her mother, Sarah had repeated Grade Two, Four, Five and Six, which could explain her high age in Grade Seven. Sarah, however, was a very small girl, estimated not to be much older than 10 or 11 years.

Sarah was referred by the school to a Sepedi-speaking psychologist who assessed Sarah's intellectual abilities. According to the Individual Scale for Northern Sotho-Speaking Pupils, Sarah had moderate mental impairment. The validity of the results, however, is questionable: Sarah had never been supported with her HI, and therefore any assessment which involved language, as the intelligence test did, probably could not accurately reflect Sarah's intellectual abilities.

According to some of the educators, Sarah's speech was unclear and it was difficult to understand her. If one did not listen carefully, one would not be able to understand her. Apparently her sentences were by and large grammatically correct, but her pronunciation was very poor. The class educator estimated that he understood her 40% of the time. In addition to the HI, Sarah also faced educational challenges associated with multi-lingualism in the classroom: a language deficit resulting from the hearing loss plus the accommodation of different languages in one classroom. When Sarah was interviewed, it was clear that she had a very limited understanding of English, which was the language of instruction in the school in Grades Four to Seven.

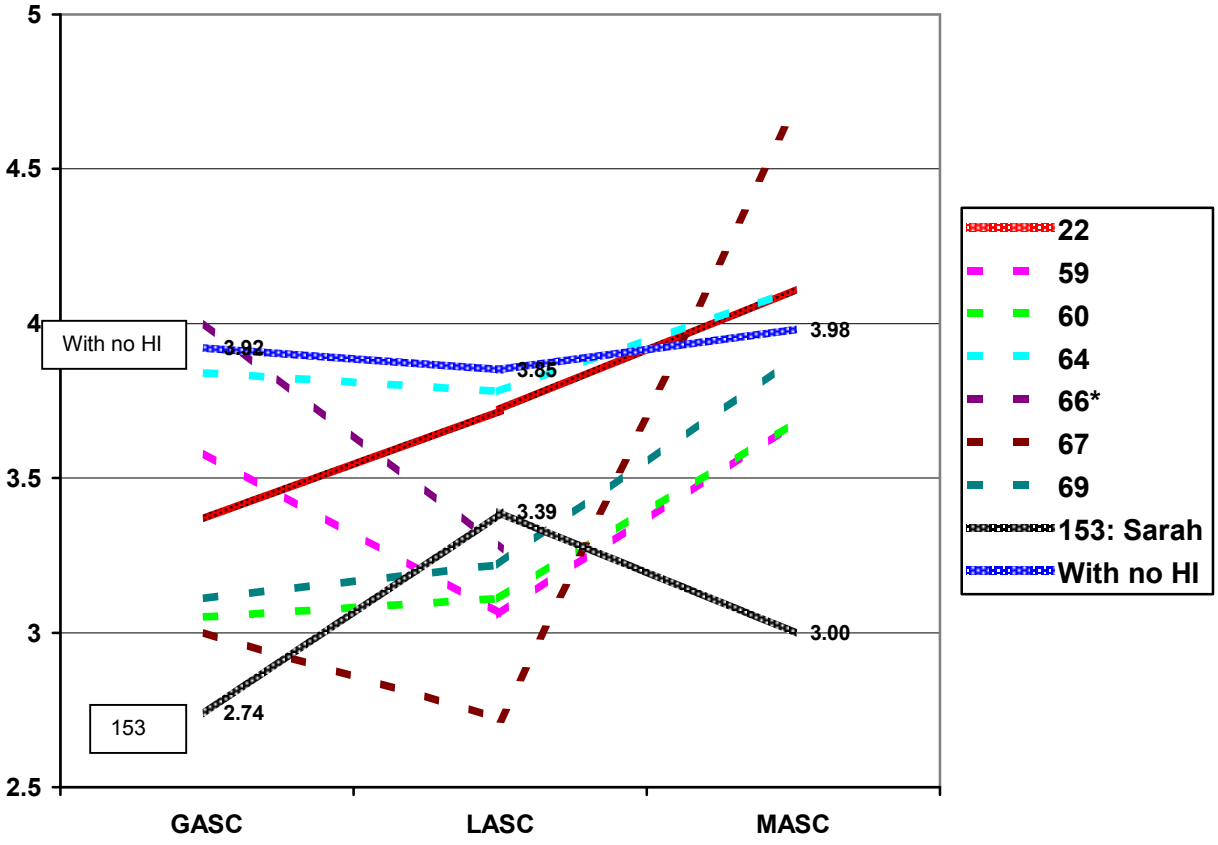
The class educator described Sarah as an eager learner, respectful and willing to participate in all the activities, even though her HI was a challenge. She did not ask questions often in class. During observations, she was never seen to ask a question to any educator, although some interaction was noted between her and some of the group members.

(c) Sarah's ASC

Figure 5.7 depicts the actual GASC, LASC and MASC of all the learners with HI, as well as the mean GASC, LASC and MASC of the learners with no HI. In 5.4.6 it was already established that there were statistically significant differences in the ASC means of the eight learners with HI compared with the means for those learners with no HI (Wilks' Lambda = 0.898, Mult.F=5.63, df=3,141, p=0.002). Sarah's ASC will be addressed in this section, but comparisons and explanations for the similarities and differences in ASC across the schools and learners will be considered in 5.7, that is, once all the contexts and schools have been described. Sarah's learner number was 153.

On a 5-point scale, Sarah's means were 2.74 for GASC, 3.39 for LASC and 3.0 for MASC. Sarah's GASC (2.74) was 1.18 lower than the GASC of learners with no HI (3.92), her LASC (3.39) was 0.46 lower than the LASC of learners with no HI (3.85) and her MASC (3.0) was 0.98 lower than the MASC of learners with no HI (3.98). Compared to the overall high means in the historically disadvantaged schools, Sarah's ASC means are thus much lower

Figure 5.7 Actual GASC, LASC and MASC of learners with HI (Sarah) and mean GASC, LASC and MASC of learners with no HI



* Learner 66 did not complete the MASC section of the ASCQ.

than expected.

Sarah's low GASC (2.74) is noteworthy as it is the lowest GASC of all the learners participating in the study, even lower than the GASC of all the other learners with HI. Compared to Figure 5.5, which contains the GASC of over-aged learners, Sarah's GASC of 2.74 was considerably lower than the GASC of 3.82 of the other over-aged learners. Her mean percentage across all learning areas for the second school quarter was 21.89%, with 33% for arts and culture being her highest mark and 4% for mathematics her lowest mark. The mean percentage of her class across all learning areas for the second school quarter was 45.79%.

When shown the first projection picture, '*School in general*', Sarah described a situation where the educator asked the learner a question and the learner kept quiet. Then both the

learner and the educator kept quiet. When probed, she said that the educator did not hear the learner answering, but that the learner also did not hear the question. This might be a true reflection of Sarah's situation. In all but one of her classes, she sat with her back to the educator. She also sat between two other learners and turning around in her seat would be difficult. Following the lesson was probably difficult if she could not hear properly nor see the educator to track the visual cues of articulation. When asked what made the girl happy, Sarah answered that as long as the girl could write in class, she would be happy. When asked what made the girl sad, Sarah replied that failing a learning area made the girl sad. Considering that Sarah only passed arts and culture, and that the projection could be applied to Sarah herself, one can get an indication of the extent of her sadness in school, which contributes to understanding her low GASC. Exams also made the girl in the projective picture very sad, because she did not write '*nicely*'.

Sarah was mostly part of a group in a front corner of the class. The group had been formed during the previous academic year (it is not known whether by an educator or the learners themselves). When the new school year started, they had requested the educator not to break them up. This group performed very well. When group work was done, all the learners in the group received the same mark. Being in that group, according to the class educator, boosted Sarah's marks. If being in the group boosted her marks, the available marks might be an inflated version of Sarah's knowledge and skills in schoolwork.

According to the class educator, given the chance and time, Sarah would succeed in life. He did not mention what chances and how much time were required. The educator, however, thought she would not pass at the end of the school year, but would receive conditional transfer to the next grade because of her age. The educator also thought her progress in secondary school would be very poor, because her strong pillar – the group members in her group - would not all attend the same secondary school, the whole set-up would be new to Sarah, the new educators would still have to adapt their teaching methods to accommodate Sarah, and less individual attention was given to learners in the secondary school than in primary school.

The class educator mentioned that one tended to forget about her HI amidst the pressure of the workload. The big classes also made it more difficult to give individual attention to Sarah, which was confirmed by the classroom observations.

It was only Sarah's LASC (3.39) that was at a level comparable with the LASC of other learners with HI. It was also interesting to note that Sarah achieved her highest score on the

ASCQ for her LASC. Sarah, even so, scored only 25% for her first language, Sepedi, during the second school quarter, compared to the class mean of 48% in the first language. Unrealistic evaluation of the self and/or classroom factors might have contributed to her LASC. Also, Sepedi was one of the learning areas in which she performed relatively well, compared to some of the other learning areas.

But Sarah might indeed have felt more comfortable in the Sepedi class, as the class was taught only in Sepedi. In most of the Sepedi classes, Sarah faced the educator. The educator stated that she did not find it difficult to accommodate learners with impairments. She had clear-cut solutions: if a learner had a problem with hearing, she tried to speak loudly so that the learner could hear; if a learner had a speech problem, she listened to what he/she was trying to say. Sarah received additional support from the Sepedi educator. The educator gave Sarah, and some other learners who performed poorly, a worksheet with kg-words, a consonant blend in Sepedi, in a large font. The purpose was to explain to them how to write such words. She then followed up with dictations to see if Sarah had read the words and whether she could remember the words. Apparently she could remember the words. The extent and regularity of the additional support, however, is unknown.

According to the educator, the researcher's presence did not influence her during the observations. Observations in the Sepedi class were, however, hampered by the frequent absence of the educator and by disciplinary measures which were taken during class time. Sarah was not involved in any of the disciplinary incidents. Sarah's ambivalence in classroom participation, the effort made by the educator to involve Sarah and Sarah's reliance on peers for support, however, could be observed.

Sarah's classroom participation in the Sepedi class oscillated among isolation, half-hearted involvement and full participation. She was usually quiet in the class. When she sat with her back to the educator, between two other learners, she sometimes turned around to look at the educator, but mostly looked in front of her. Mostly, she did not participate in classroom conversation, nor did she put up her hand many times to answer. By and large, it was as if Sarah was in the class, but not part of the class.

She tried once or twice to put up her hand, but decided against it. Once, the class was having a discussion. She was then looking around and following the educator with her eyes. She still did not put up her hand. When the class said something in unison, Sarah repeated it together with the class. At times when nearly all the other learners had eagerly put up their

hands, she put up her hand halfway, uncertainly. It did not seem as if Sarah was participating.

Once, the class burst out in laughter, Sarah did so as well. For a moment it was thought that perhaps she laughed when she saw the class laughing, but actually it appeared as if her reaction was immediate. Once, when doing parts of speech, Sarah was more involved in the proceedings. Her hand eagerly went up all the way and not only halfway.

During each observation session in the Sepedi class, the educator either spoke to Sarah or posed a question, sometimes even more than one question. It appeared as if Sarah answered the questions correctly, but the level of difficulty of the questions is unknown. Once the educator asked whether Sarah had understood the homework. Considering that there were in excess of 55 learners in the Sepedi class, the educator's commitment to involve Sarah was commendable. According to the educator, Sarah could answer questions which was proof that she had been concentrating. The educator was unsure whether Sarah really had HI. She apparently performed better than some of the older boys in the class. Sometimes she told the educator that she could not hear. The educator also reminded her to tell her if she could not hear her. Sarah was never observed to ask the educator questions, but she sometimes asked her friends questions.

Sarah's interaction with a group member, initiated by herself, and her reliance on peers for support were observed during a class period when the Sepedi educator arrived late for the class. The learners were left to their own devices and a very high level of noise ensued. Sarah sat in the middle group in the front of the class, facing the central teaching area. She looked happy. She and a girl to her right had a conversation/communication going. Sarah wrote down words and gave it to the girl to mark. The girl then handed Sarah's book back to her. The two boys on either side of the girl also participated, but less actively. Again Sarah wrote down words which she gave to the girl who marked them. Sarah laughed and clapped her hands, probably because her work was correct. It then seemed as if Sarah dictated words to the girl to write down. Sarah received the paper. (It was the paper with kg-words.) She gave it back to the girl, who did something before she gave it back to Sarah again. The paper was exchanged several times between the two girls before the Sepedi educator appeared. It was the end of the lesson period, however, and not much teaching could be observed. Sarah's high LASC might thus also be a reflection of the benefit of the group support in the Sepedi class.

In summary, several factors might have contributed to Sarah's LASC: the language of learning and teaching was only Sepedi, the educator made an effort to speak loudly enough, the educator provided additional support in the form of worksheets, the educator tried to involve Sarah in classroom activities, and the group supported Sarah. As the educator did not (need to) discipline Sarah, a good relationship between the educator and Sarah might also have contributed to her LASC.

Sarah's MASC (3.0) was 0.98 lower than the MASC of learners with no HI (3.98), 0.73 lower than the MASC of the over-aged learners (3.73) and the lowest of all the participating learners with HI. Her mark of 4% for mathematics during the second school quarter was the lowest in the class, though followed by some other learners with 9%, 11%, 12% and 13%. The class mean for mathematics was a low 30.28%.

When shown the '*In the mathematics class'* picture and asked whether the learners liked mathematics, her answer suggested that she found mathematics too demanding. "*This one had closed the books. They want to take break.*" As the mathematics picture was the last picture in the projective series, her answer could also have suggested the end of the interview. But Sarah's low MASC could indeed have been influenced by a lack of mathematics ability, in which case her low MASC might be a realistic portrayal. It is interesting to note the discrepancy between Sarah's MASC and the judgment of the mathematics educator. According to him, she was able to apply what she had learnt in class in real life situations and, therefore, he said: "*But up to so far she is confident with mathematics*."

The responsibility for the discrepancy in perception of Sarah's MASC should perhaps not be placed solely on the shoulders of the mathematics educator. During the interview he mentioned that he was uncertain as to how to support her. He said that he tried supporting her through teaching aids and involving her in group work. It was observed that he tried to involve her in classroom activities as well. It was also observed that his teaching style involved repetition and that he tried to facilitate extra opportunities for support. Throughout the interview, he repeatedly expressed his need to be workshopped on how to deal with learners with impairment. "*So, we are ordinary teachers, we are not remedial teachers, yes!"* What is important to note, is that the combined effect of the measures taken to support Sarah was not enough to raise Sarah's performance and, accordingly, her MASC, to a level comparable to that of other learners.

"*All in all I can say I use teaching aids, you see,*" the mathematics educator said. During the observation, the only teaching aids seen were the financial section of newspapers, a poster of types of triangles and a set of cards bearing the currencies and symbols for currencies of three countries, which were stuck onto the chalkboard. The teaching aids were applied during the lesson for the whole class and not specifically to support Sarah. An example could illustrate the educator's use of teaching aids. He once gave a pairing exercise on the board: learners had to come to the front and place a card with the symbol of the currency next to the card that contained the name of the currency in words. The currencies were rand (SA), dollar (US) and pound (UK) and the symbols were R, $ and £ respectively. Sarah was asked to pair the first example, R and rand. He gave the instruction to her in Sepedi. She quietly did it correctly and the class clapped hands. No emotion could be observed on Sarah's face when the class applauded her.

The maths educator used the group members in Sarah's group to help her. She was shy and he thought she might be more responsive in the group. Some of the group members were apparently clever and achieved good marks. He requested them to discuss the work before trying to explain to Sarah what they had been discussing, to make sure that she understood. " *… she is not like them. Ja, she's slow in grasping.*" He seemed to rely heavily on the group for supporting Sarah, as Sarah did not ask him for support, nor was given additional support from the educator, except during the fourth observation when additional explanation of work briefly took place. While the learners were doing group work, he explained work to some of the groups, but not the group Sarah was in. The support received from group members, however, did not seem to have the same effect on her MASC as the support received from group members in the Sepedi class had on her LASC, even though many of the group members were in both her Sepedi and mathematics groups, which suggests that group work is not the only contributory factor in the formation of the ASC.

In probing a reference to the projection picture '*In the mathematics class*', two girls who were group members of the group Sarah was in, confirmed their role in supporting Sarah in the mathematics class, but probably in the other classes as well. According to one of them, the life orientation educator, who was also the coordinator of the special needs education at the school, had instructed the group to make Sarah their group leader. The first question then had to be addressed to Sarah. If she did not understand, they were allowed to tell her the answer. She could then go through the paces by giving them the answer and they had to write it down. Sometimes Sarah was required to go to the front of the class to report. If she did not understand, the girl accompanied her. The girl elaborated on her personal involvement with Sarah. She said that Sarah asked her when she did not understand what

the educator or she was saying: "*What are we doing here, I don't understand*." The girl then told Sarah to come and sit with her and explained the work to her so that she could understand. The next day she would ask Sarah whether she had understood. If not, she would start again to help Sarah. If the girl herself did not understand, she asked a good friend to explain to her, and then she would in turn explain to Sarah.

The mathematics educator mentioned in the interview that he tried to involve Sarah in classroom activities such as oral presentations or doing activities on the chalkboard. He realised that Sarah was shy and would not want to be the centre of attraction; therefore, he first asked other shy learners to report before giving her an opportunity for reporting. By involving others, he wanted to create a learning environment for her. As Sarah was in a group with clever learners, he was confident that her report to the class on the group discussion would be important for the rest of the class to hear. He also tried to involve her by asking questions. The questions were simple, such as giving an example of a vegetable that grows in winter. During the first four observations, Sarah was directly involved by the educator each time (first observation: pairing of currency and symbol; second observation: giving an example of a winter vegetable and an amount of money to be spent on groceries; third observation: drawing a figure containing many circles with a chalkboard compass on the chalkboard[5]; fourth observation: educator explaining something to Sarah). Sarah herself seldom put up her hand to volunteer an answer. It did not always seem as if she was paying attention. During the fourth and fifth observations, however, when characteristics of triangles were being dealt with, she appeared to be more involved in the classroom activities: she paid attention, compared the work in her book with the work on the chalkboard, and did corrections. A group member helped her.

The mathematics educator used much repetition of words and of content, of which the following is an example:

Educator : *And the third one deals with what? Yes.*
Learner : *Frequency.*
Educator : *The frequency?*
Learner : *The frequency.*
Educator : *The frequency. And at the end of your frequency table you must …*

The repetition would give Sarah ample opportunity to hear, provided she could see the educator and his facial expression and the volume was loud enough. Repetition, however,

[5] Her attempt was unsuccessful and a boy was called forward to help her. Sarah only struggled to finish the top arch of the circle on the board. It might be that the board compass was awkward to handle, as Sarah herself was a very small girl.

does not ensure comprehension. The researcher's personal notes reflected: "*The amount of repetition in this class is amazing. It baffles me that so many learners still don't know the correct answers with all the repetition. Perhaps it goes to show that mere repetition is not the way to teach learners content*."

Extra opportunities for support included being available to the learners during the class period: "*If you have any problems, please don't hesitate to call me*." The educator also told the class to practice the drawing of circles at home by doing as many as they could. It is doubted whether all the learners would be able to heed to his call, as many of them did not own a compass and shared compasses in the class. The doing of corrections was emphasised in the lessons. The educator apparently presented a lesson, gave the learners homework, and then did the homework answers on the chalkboard the following day. The learners had time to do corrections. Corrections could be an effective way to facilitate learning; however, the effect on the learners if they continually had to do corrections might well have been demotivating. It is possible that the educator was extra critical of their work because of the presence of the researcher. Rote learning was done to learn the theorems regarding triangles. The whole class had to say the theorems out aloud.

Two points of concern in respect of the observations in the mathematics class unfortunately have to be voiced, possibly influencing the trustworthiness of the observations. The first concern relates to the influence the presence of the researcher appeared to have on the educator. Not only did the presence of the researcher apparently influence his way of dealing with learners with impairment, it also seemed to have made him prepare differently for lessons. According to him, it was '*nice*' to have the observers in his classroom and a very good experience.

> "*So the change that you brought here is to really, you know, to look at learners' problems, moreover that I'm dealing with … (unclear) … So before you came we were not aware on how to, you know, to pay attention on her. So you came up with, you know, some sort of regime on how to attend to her.*"

This might have been a way of subtly indicating his own feelings of incompetence, thereby setting the stage for interpreting the observations in his class: he did what he did because he did not know of any better. The researcher, however, had never made any recommendations regarding teaching or dealing with learners with impairment. The only recommendations were made during the second interview, which occurred weeks after the last observations were completed, and then only because the report from the audiologist, containing her recommendations for classroom practice, was discussed.

> "*Ja, when you came to class, in the classroom, you made it possible for us to, you know, to come up to teaching aids, paying attention to her, you know. Giving individual attention, even giving ourselves time to attend after school hours. So your presence here made a great change to other learners like Sarah.*"

He proceeded to explain that most of the educators, most of the time, took advantage of the fact that no one visited their classes.

> "*But in the presence of the SBST or people like yourself, it becomes, you know, important to prepare. You want the preparations. I mean, you want us to impress you on how to deal, how do we deal with learners like Sarah. So now we prepare the teaching aids, you know. But in your absence we just teach. But, you know, I propose that in future they should, you know, visit the class time and again, you see?*"

From a different angle, the openness of the educator in acknowledging the influence of the researcher might actually have contributed to the trustworthiness of the observations. Although the observations were of his changed classroom practice, the classroom practice is still assumed to have had an effect on the learners. At least the presence of the researcher might have made a constructive contribution to his future classroom practice.

The second concern relates to the credibility of the observations themselves. During an incidental observation at the school, which took place during the first quarter of the following year and was not included in the data, it was observed that the smooth running of the lesson and the participation of the learners had been practiced beforehand. The learners were not supposed to have opened their exercise books, but one or two books were open, and the same word sum problem and answers that were being explained in the class was visible. The lesson being observed did not seem to be an expansion of the word sum in the books, but a repetition of it. It is clear that teaching involves much repetition.

With hindsight, two observations during the data collection were identified which might have been rehearsed before the time. The second observation session was on different ways of representing data: bar graphs, line graphs, frequency tables, pie charts *et cetera*. The learners knew the different forms of data representation although they did not have textbooks to refer to. When the educator asked the learners what other forms of data representation could be used, they had answers ready. In all fairness, it might be possible that the learners had acquired this knowledge during a previous year, or in another learning area such as economics and business science. The fifth observation session took place 13 days after the fourth observation, and the class was still busy with the different types of triangles, as they had been during the fourth observation. Triangles were once again classified according to

the angles and the lengths of the sides. Much repetition took place and the educator implemented his customary style of repeating facts. The learners were given homework to submit the day after the next, because the next day they were to write a test on triangles. The soundness of the educational practice of writing a test before the work was marked, was doubted. Once again, one should wonder whether the lesson had been repeated for the benefit of the researcher. Sarah's participation, in contrast to her usual reluctance, might also have been evidence that she knew the lesson content and was not afraid to participate. The big time lapse between the two observation sessions might have contributed to the educator forgetting that he had already presented this lesson. In fairness, another explanation should be considered. It might be possible that the lesson had indeed been for revision purposes. It was noticeable that some of the learners (still) did not know the correct answers, and could benefit from the repetition.

If the lesson(s) during the second and/or fifth observation sessions had indeed been repetitions of earlier lessons, the fragility of the teaching self-concepts of the educator(s) requires investigation. Their discomfort about the opinion of outsiders might reflect a need for acceptance and keeping up good appearances. As the observations during the study had been unannounced, the educators were probably on tenterhooks for the whole third quarter. It might explain why the Sepedi educator was so often absent from her class on observation days. When she saw the researcher was there, she either did not turn up, or arrived late possibly to minimise the remaining class time to be observed. The disciplinary measures might also have been a way to further decrease teaching time.

Although not bearing directly on the ASC of Sarah, a group member of Sarah's group probably confirmed the phenomenon of collective consciousness (refer to Kotzé, 1993:1-20; Markus & Kitayama, 1991:224-230; Mwamwenda, 1995:424; Stevens & Lockhat, 1997:254; Triandis, 1989:509-510; and Venter, 1999:26-28, 31 in 3.7) operant in their mathematics classroom, and possibly in the other classes as well. She started by saying that she and her friend worked together in class and discussed the work. Apparently not all the group members wanted to share in the discussion, but then the two friends would give them some mathematics, so that they would not be left behind: " *… they must be with us in the same queue*." The collective consciousness was visible in remarks made by this girl concerning the learners who were noisy when they should have been discussing work, as the following extract shows:

Interviewer : *What do you do then?*
Girl : *Who, me and Mapula?*

Interviewer : *Hmm.*

Girl : *Start discussing.*

Interviewer : *OK.*

Girl : *To give them some maths. But that maths we are not going to say to the teacher it is for me and Mapula, I want to say it is for the whole group, to help them.*

Interviewer : *OK. So actually then you and Mapula do the work and the other children share in your hard work?*

Girl : *Yes.*

5.6.2 Special school (School 3)

(1) Background of the school

School 3 was a school primarily for learners with HI and included a preschool with 50 learners, a primary school with 170 learners and a secondary school with 130 learners, totalling 350 learners. The primary school constituted, therefore, about half of the school. There were 45 educators for the primary and secondary school, that is, for 300 learners. The educators taught across the boundaries of primary and secondary school, except for the Grade One to Three educators who taught exclusively in those grades. The school worked on an average of one educator for every nine to ten learners. In practice, the ratio varied with class sizes from three to sixteen learners. Often the classes of the younger learners were bigger than the classes of the older learners. The reasons for the varying class sizes were at least twofold. At the end of Grade Seven and Grade Nine, learners who had developed sufficient language and other skills necessary to deal with their HI, left to attend regular schools. Also, sometimes the school did not offer courses of the learners' choice, and the learners left to attend school elsewhere. According to the principal, a weight factor of five was involved in special schools when comparing the number of learners in the class with the number of learners in a regular school class. The level of complexity in teaching learners with impairment was estimated to be five times that of teaching learners with no impairment. Learners with learning impairment, including learners with severe attention impairment, at-risk learners and slow learners were also enrolled in the school. The mathematics educator was concerned that regular schools increasingly sent learners with behavioural problems to the special school, which could not refuse admitting these learners, complicating the task of the educators and putting the education of the learners with HI at risk.

The school was situated in an average to below-average income area. Learners from all over Pretoria, however, attended the school. Nearly 60 of the 350 learners could not afford any school fees. Many of these received milk and bread daily to take home, as there was no food at home. According to the principal, the school was, however, regarded as an affluent school, because it was not situated in an informal settlement; and therefore the poverty index could not be applied to it. Resources for the school were limited, but available and the educators and parents mostly raised additional funds, with the help of outside organisations.

The school was a double medium parallel school, in the sense that Afrikaans and English were catered for in the school. The school was in the process of adding some of the black languages to its range of languages. The school did not use sign language, on mutual agreement that another special school in Pretoria would cater for users of sign language.

The school offered several services to the learners. Academically, the following were available: a preschool which admitted learners from the age of three years, a primary school from Grade Naught to Grade Seven, a secondary school from Grade Eight to Grade Twelve which ended with the same Grade Twelve examination as in regular schools, and N-courses, namely business studies and building technology, equivalent to Grade Ten to Twelve, which were affiliated at the technical colleges. Learners could elect to acquire skill qualifications, instead of academic qualifications. The school provided training in welding and metalwork, panel beating, woodwork, building, cooking, needlework, interior decorating, art and pottery. The skills training started from a level equivalent to Grade One. If there were indications that a learner could not progress academically, the learner started as soon as possible learning a skill. So learners did not fail *per se*, but were placed where their ability could be utilised to their advantage. The school had staff who could give learning support ('remedial' education), which is generally not found in regular schools. The school also provided a hostel service, where learners could stay during the school quarter. There were health services, with a nurse and visiting medical doctors, specifically a paediatrician and an ENT specialist who delivered a service free of charge once a week. There was a hearing aid technician who repaired hearing aids. The school also had speech therapists, audiologists and psychologists. If some of the learners required therapy not available at the school, the school would arrange for a therapist, such as a physiotherapist, to use the facilities at the school and provide therapy to the learner. Even if learners left school to attend regular schools, they were allowed to attend speech therapy. The school provided an afterschool centre. There was also a social worker. The social services raised funds to buy necessities for some learners. The school also had a bus service that transported learners from all over

Pretoria to and from the school. All together, there were about 50 individuals, in addition to the educators, involved in all aspects of service delivery at the school.

Because of all the support activities, the principal said that the extramural activities, such as sport, suffered. The learners had access to full participation in sport, but the sport was not intense or focused on competition. The school provided for athletics, rugby, netball and softball, and cultural activities, such as participation in eisteddfods. The special schools participated in the same softball league as other schools, because softball did not require hearing or adaptations. Rugby, for example, could not be played in the same league, because the learners with HI wore expensive hearing aids.

The school also had a parent support group with compulsory membership. Parents had to come to the school on a regular basis for interviews and even for training from the educators on how to help their children to read. The school also arranged functions for the parents to attend on a quarterly basis concerning issues at school, such as discipline or dealing with hearing aids.

Internal support for the educators was provided by structures which the school created. Heads of department, senior educators and vice-principals provided support. The school arranged courses for its educators. The Ear Institute often presented courses which members of the staff could attend. The outcomes-based education (OBE) training for regular school educators was shortly to be presented for the school's educators. Some members of its staff were going to participate as presenters. The special schools also relied on one another for support. The educators of the different clusters came together to share and learn from one another.

Monday and Thursday afternoons were set aside for learner support. Monday afternoons were usually reserved for multi-disciplinary meetings, often including the parents. Thursday afternoons were set aside for therapy for the older learners. The learners up to Grade Three received such support continually during the school day. The therapist either pulled the learner from the class of helped the learner in the class. The educators gave learning support, under the auspices of a learning support committee.

According to the principal, the aim of the school was to offer 'normal' education to 'normal' learners who had to contend with a barrier. All learners in the school were considered to be 'normal'. The learners were not considered to be different from learners in other schools. "*This is not a dumb school, and that you must write in capital letters*." He emphasised that

his school operated like any other school. The school merely had additional services to address the barriers of the learners. There were many other learners with many other 'problems' who were in regular schools. The principal was of the strong opinion that a learner with HI could be in any school in Pretoria, and the parents could arrange speech therapy in the afternoons, and it would be exactly the same as in his school.

The principal held the view that inclusive education was currently only applied in one direction. Many people understood inclusion as including learners who experienced barriers in regular schools, but, according to the principal, inclusion should work in all directions: "… *include all children in all schools*". Inclusion was then about much more than merely about learners with impairment. He emphasised that people argued about where to help learners who were already being helped; in the meantime, there were 300 000 learners outside the education system who were not receiving any form of education.

The school, according to the principal, already practised inclusive education. He regarded his school as a full-service school because of all the services available at the school. Simultaneously, the school could also reach out to other schools. The school could fulfil the requirements of the EWP 6. He added his personal opinion that he could not understand the meaning and reasons why existing schools had to be transformed to full-service schools when his school, and other special schools, could already be regarded as full-service schools. He regarded a resource centre to be part of a full-service school. The principal questioned what being a resource school for schools in the area would entail. He was concerned that a learner would be enrolled in a neighbouring school and the special school would be called upon to service the learner. He feared he could be left with an empty school. He would be willing to service or help full-service schools if it meant all schools for all learners. The learners with more severe degrees of impairment who required more specialised support could be serviced in a school such as his.

Except for the speciality impairments, he believed that all schools could deal with all kinds of impairment. With *speciality impairments* he referred, for example, to visual impairment, calling for learning material in Braille, which required very expensive equipment that could not be duplicated at every school. Regular schools sometimes asked his school for assistance if there was a learner with HI enrolled in their schools. The psychologists of the special school then went to such schools to address the staff, do in-service training and present ways to deal with HI.

According to the principal, the implementation of the EWP 6 had progressed well in his school. In his view, the biggest challenge was the great uncertainty associated with the overall implementation. He felt no policy was clear. There were adaptations and postponement of time lines, which frustrated him as principal and created uncertainty among his staff. He received circulars, shared them with his staff, only to receive a subsequent circular nullifying the previous one.

He was of the opinion that inclusion was not feasible in a developing country, as the infrastructure and money required were unavailable. He stated that special schools were expensive and he was concerned about people wanting to duplicate special schools at each and every other school. According to him, inclusion could work if schools collaborated. He gave an example: His school was situated on a bus route. Instead of having one learner with HI in a class in a school in the area, that learner could be transported to his school where he/she could be effectively supported. Instead of building or adapting costly facilities to accommodate individual learners, an already existing facility was available. He made a call for optimal use of available facilities and resources.

The two Grade Seven learning areas in the school which were observed occupied similar classrooms. The classrooms were small, containing two rows of desks, each with no more than seven desks, facing a chalkboard, a desk for the educator at the side, and cupboards at the back. The floors were carpeted and the cupboards and roofs were covered with sound absorbing material to improve the acoustics of the classrooms.

(2) Brief background of the learners with HI

The Grade Seven class in School 3 that participated in the study had 11 learners: nine boys and two girls. There were six learners with HI in the class: five boys and one girl.

(a) Isaac – Learner 59

Isaac, one of the boys in the class, experienced a slight hearing loss in the left ear and a moderate hearing loss in the right ear, but did not rely on speech reading. His speech was articulate and easily understandable. He struggled with attention, poor concentration, impulsiveness and talkativeness, and was referred to a medical doctor for the possibility of medication to improve his attention and impulse control. The school considered placement in the front of the class to be beneficial for him.

He started at the special school when he was in Grade Five and he was a hostel learner. Although his reading performance was reported as reasonable, his spelling was reported as poor and he had been referred for remedial education [*sic*] in respect of his spelling. His

social adaptation and self-confidence were described as being good, but his motivation apparently needed to improve. He participated in sports.

Isaac was 14 years and 11 months old at the time of the study, which was five months older than the mean age of the boys in his class (14 years 6 months), and 1 year and 3 months older than the mean age of all the learners participating in the study (13 years 8 months).

(b) James - Learner 60

James, a boy in the class, had experienced a profound hearing loss in both ears since birth. He relied on two hearing aids and speech reading. The special school considered placement in the front of the class to be beneficial for him. His attention was described as inadequate, but it had improved with the use of Ritalin.

He started school in 1994 at a regular school in another province. He had to repeat Grade One and Grade Four. He continued at the regular school until Grade Six, when he moved to the special school, repeating Grade Six. He was admitted to the special school on the grounds of his severe hearing loss, serious underachievement and socio-emotional problems at home. He did not always talk in full sentences and one often struggled to make sense of what he said. His pronunciation was also poor, which added to the difficulty in understanding him. He had received private speech therapy while in regular school.

A school report noted that his progress was slow because of the seriousness of his hearing loss. He had poor vocabulary, sentence construction, reading comprehension and pronunciation, but read rather fluently. Twice weekly sessions on the Morag Clarke programme[6] to improve his command of Afrikaans was recommended and carried out by his Afrikaans educator. He had a serious backlog in English as he had apparently been exposed to English only in the special school; therefore, his mother had requested extra English classes. His mathematics was rated as reasonable, although he could not work independently. His attitude towards school and learning was considered to be good. Socially he had adapted well, and had made a few friends. Emotionally he had learnt to act more independently and to make his own decisions. His behaviour, however, was regarded as immature for his age.

[6] Morag Clarke was a programme followed by the school where the learner with HI learnt language in a natural way. Instead of teaching the learner to look at the lips of the educators, the educators continued teaching in a normal way, repeating where necessary. The educators would just not look away if a learner with HI looked at them. The learners taught themselves to speechread.

James was 15 years and 5 months old at the time of the study, which was 11 months older than the mean age of the boys in his class (14 years 6 months), and 1 year and 9 months older than the mean age of all the learners participating in the study (13 years 8 months). James's age is attributed to his repetition of Grades One, Four and Six.

(c) Odette – Learner 64

Odette, the only girl with HI in the class, had a moderate hearing loss in the left ear. She had a degenerative hearing loss which had probably followed a virus infection when she was five years old. The hearing loss had apparently been sudden, but had only been established when she was seven years old. Learners who experience sudden hearing loss apparently adjust with more difficulty to their impairment. Odette wore inner ear hearing aids, and relied on speech reading. Her speech was clear and easy to understand.

She had attended the special school since 1999 when she was in Grade Three, and had been staying in the hostel since 2000. School reports cited good verbal and written language, including spelling. She read well and had reasonable comprehension. An under-age vocabulary sometimes contributed to poor comprehension. She struggled with problem solving and number concept in mathematics. She participated in sports and eisteddfods. Her self-confidence was rated as good.

Odette was 13 years 0 months old at the time of the study, which was 1 year and 1 month younger than the mean age of the girls in her class (14 years 1 month). Since she was the only girl with HI in the class, it would be more appropriate to compare her age with that of all the girls in the study, which was 13 years and 6 months. Odette's age was in the expected age range for Grade Seven learners participating in the study (12 years 9 months to 13 years and 9 months).

(d) Adrian – Learner 66

Not much was known about Adrian, a boy. One ear canal was closed, which caused hearing loss in the one ear. According to the Afrikaans educator, Adrian neglected his work and did not learn for tests. Apparently Adrian's mother wanted to take him to a regular school, perhaps for financial reasons. He was 14 years and 1 month old at the time of the study, which was 5 months younger than the mean age of the boys in his class (14 years 6 months) and five months older than the mean age of all learners participating in the study (13 years 8 months).

(e) Claus – Learner 67

Claus, a boy, experienced a moderate hearing loss (cause unknown) in both ears, and used speech reading. Although he had to wear hearing aids, he seldom did, as he disliked them. His speech was articulate and easily understandable. No preferential class placement was considered important for him, provided that he attended the special school.

He had been enrolled as a day learner in Grade Naught in the special school in 1996 and continued with Grade One in 1997. Initially his mother had not wanted him to attend the special school. According to school reports, he was more interested in his sports participation, in which he excelled, than in academic work and apparently did only the minimum amount of work necessary. According to the reports, his reading showed room for improvement and he lacked vocabulary. Socially he was adapted very well and his self-confidence was good, but he sometimes showed annoyance with educators.

He was 14 years and 1 month old at the time of the study, which was five months younger than the mean age of the boys in his class (14 years 6 months) and five months older than the mean age of all learners participating in the study (13 years 8 months).

(f) Paul – Learner 69

Paul experienced severe hearing loss in his left ear and a profound hearing loss in the right ear. He was dependent on speech reading and hearing aids. Paul's speech was difficult to understand. His attention was at times inadequate. Placement in the front of the class was considered to be beneficial to him.

He stayed in the hostel. He had a history of poor school achievement in the special school. According to the school reports, his reading ability was reasonable, but showed room for improvement. His vocabulary and sentence construction, however, were described as poor. His mathematics was good, but he needed encouragement. The school felt that he regarded his participation in sport as more important than academics, and academically he did no more than was necessary. His social adaptation was described as good and his self-confidence as reasonable.

Paul was 14 years and 4 months old at the time of the study, which was two months younger than the mean age of the boys in his class (14 years 6 months) and eight months older than the mean age of all learners participating in the study (13 years 8 months).

(3) ASC of the learners in School 3

Figure 5.8 depicts the actual GASC, LASC and MASC of all the learners with HI, as well as the mean GASC, LASC and MASC of the learners with no HI. In 5.4.6 it was already established that there were statistically significant differences in the ASC means of the eight learners with HI compared with the means for those learners with no HI (Wilks' Lambda = 0.898, Mult.F=5.63, df=3, 141, p=0.002). The ASC of the learners with HI will be addressed in this section, but comparisons and explanations for the similarities and differences in ASC across the schools and learners will be considered in 5.7, that is, once all the contexts and schools have been described. The learner numbers involved in the special school are 59, 60, 64, 66, 67 and 69. All the graphs belonging to learners in the special school consist of dotted lines.

The ASC of learners with HI will be discussed focusing on the widely distributed range of the GASC, the general decrease of LASC and the general increase in MASC.

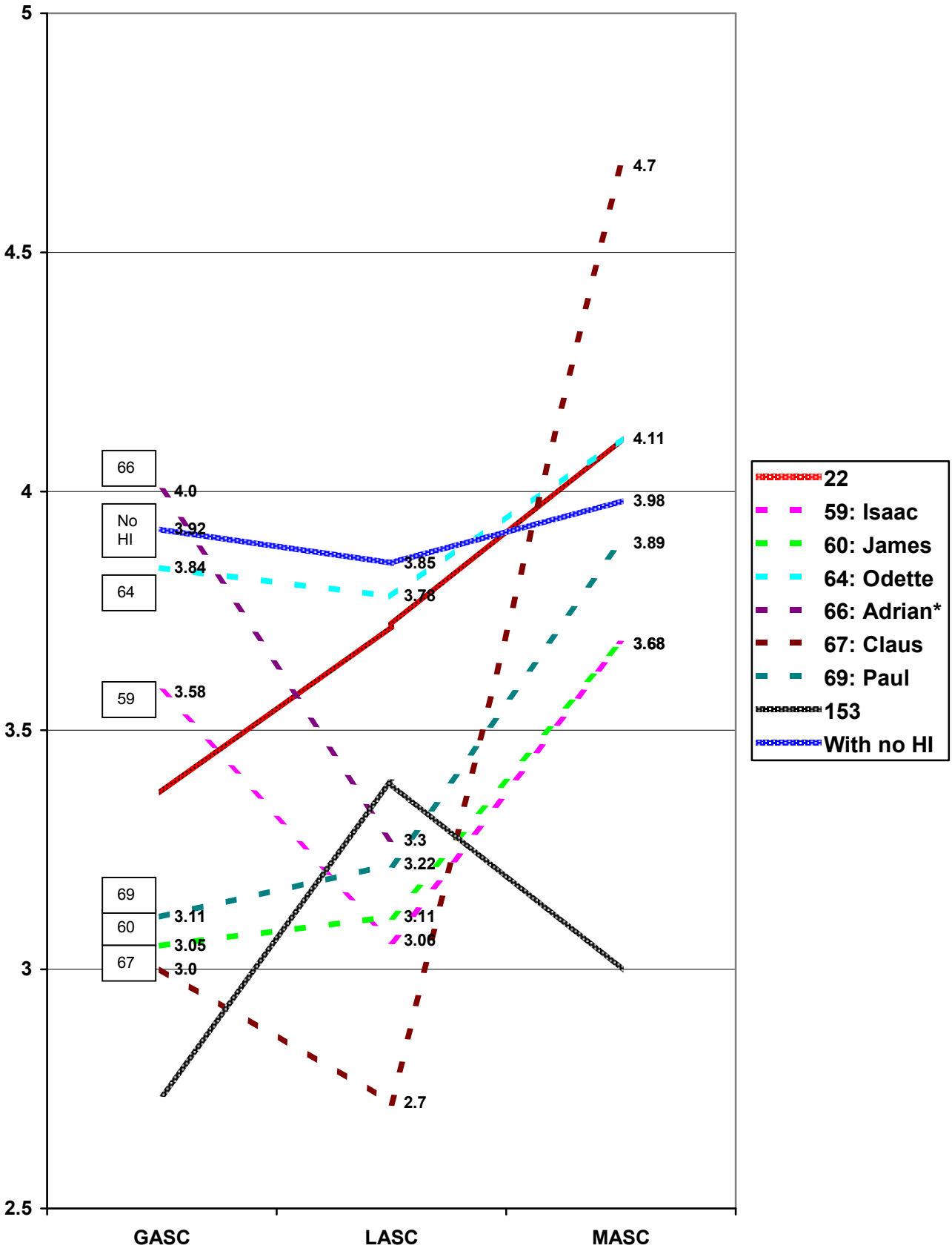
(a) The wide distribution of the GASC

All the GASCs of the learners with HI (3.84, 3.58, 3.11, 3.05 and 3.0), except one (4.0), are lower than the GASC of the learners with no HI (3.92). Two of the GASCs compare fairly well (4.0 and 3.84) with the GASC of learners with no HI (3.92) and three GASCs (3.11, 3.05 and 3.0) cluster far below the GASC of learners with no HI (3.92).

When his high mean for all the learning areas during the second quarter (64.5%) is compared to the class mean of 49.00%, the high GASC (4.0) of Adrian is understandable. According to the Afrikaans and mathematics educators, however, he neglected his work and did not learn for tests. He appeared to be unmotivated, but it seemed as if his mother had seen his potential and, therefore, wanted to place him in a regular school. The high GASC of Odette (3.84) is less understandable: her mean for all the learning areas during the second quarter (45.44%) was actually slightly lower than the class mean of 49.00%. The fact that she was the only girl in the class with HI, and that she did not associate with the only other girl in the class, might have contributed to her inflated GASC: she did not evaluate herself against the rest of the class, and was, borrowing a metaphor from Marsh, a very big fish in a very small pond[7]. The Afrikaans educator was of the opinion that the learners in the special school were often not realistic about their own abilities, especially those who were not

[7] Her identification of gender during the administration of the projective pictures could support this notion. She was handed the projective pictures with a girl in the centre; however, she consistently referred to the girl as 'the boy'. One reason might be that she was one of only two girls in the class, and was used to being surrounded by boys. Another reason might be, in line with a high level of self-confidence, that she was attributing the suggestion of problems in the projective pictures to the boys.

Figure 5.8 Actual GASC, LASC and MASC of learners with HI (in School 3) and mean GASC, LASC and MASC of learners with no HI



* Adrian (Learner 66) did not complete the MASC section of the ASCQ.

academically strong. These learners tended to overestimate their abilities, because they did not have insight in themselves. As a consequence, they had more self-confidence than other learners and a good self-concept, albeit unrealistic. The academically strong learners had more insight in themselves, and often a poorer self-concept, which was equally unrealistic. The mathematics educator supported the statement and said many of the learners had an inflated sense of themselves, especially if they did not have exposure to the 'world outside'. Considering Odette's low mean and marks, it might be that she had overestimated her abilities, not only in respect of the GASC, but also in respect of the LASC and MASC. Her profile of ASC actually closely resembles that of learners with no HI. According to the records, both Adrian and Odette had a hearing loss in only one ear. Their speech was good and communication did not appear to be a problem. Neither learner struggled with attention. It appears that these two learners could function well in the class, which might have further contributed to their high GASCs. Odette was in the norm-age range and Adrian was only four months older than expected in Grade Seven.

It appears as if degree of hearing loss, age and motivation, and not school marks, can contribute to understanding the low GASCs of Paul (3.11), James (3.05) and Claus (3.0). Paul's mean performance for all the learning areas during the second quarter was 51.22%, slightly higher than the class mean of 49%. Similarly, Claus's mean performance for all the learning areas during the second quarter was 55.11%, notably higher than the class mean of 49%. James's mean performance, however, for all the learning areas during the second quarter was 38%, much lower than the class mean of 49%. It must be remembered that James had had profound hearing loss in both ears since birth and had only received specialised support since the previous year when he enrolled in the special school. His marks, although improving, were then understandably low. On the projective pictures he said that the boy felt good about school in general. Paul had severe and profound hearing loss, but managed marks above the class mean (51.22%). Similarly, Claus had moderate hearing loss in both ears, but did not wear his hearing aids. Although he probably missed much of the lesson content, his marks (55.11%) were still above the class mean. On the projective picture relating to school in general, he described a boy who had been called to do work on the board but was worried because he did not know what to do then. It is interesting to note that the learners with serious hearing losses had lower GASCs than the other learners, although hearing loss did not appear to be strongly related to their achievement relative to their classmates. The low GASCs might then be influenced by the age of the learners. Table 5.17 indicated a statistically significant difference at the 1% level among the under-, norm- and over-age groups regarding GASC. As James (15 years and 5 months) was 1 year 8 months older than the oldest of the norm-aged learners (13 years 9 months),

Claus (14 years and 1 month) 4 months older and Paul (14 years and 4 months) 7 months older, age might contribute to the explanation of the low GASCs. Adrian, however, was also 4 months older than the norm-age, but registered the highest mean score on the GASC. It must be considered that it is not age in years and months *per se* which contribute to the GASC, but what had happened in the past (repetition of grades, failure to understand work *et cetera*). According to the school reports, the educators were of the opinion that both Claus and Paul were not interested in academic work, but only in sports. Both were said to be able to achieve better marks if they would work harder. Although their marks were above-average, they might have evaluated themselves according to their perceived abilities and therefore evaluated themselves to have low GASCs. This explanation concurs with the view of the Afrikaans educator mentioned previously that academically stronger learners often have more insight in themselves, resulting in poorer ASCs.

The GASC of Isaac (3.58) lay between the high and low GASCs. His mean performance in all the learning areas was 39.89%. In his projective pictures, Isaac repeatedly described a learner who was afraid to do work on the chalkboard. In his first description, he described a boy who had been called to do work on the chalkboard, but was shy and afraid. The educator relented and told him he could sit down, as she would ask someone else. On the other projective pictures, the boy was not so fortunate and had to deal with doing work on the chalkboard.

(b) The general decrease of LASC

The general decrease from the GASC to the LASC can be noted for four of the six learners with HI, namely Adrian (4.0 to 3.30), Odette (3.84 to 3.78), Isaac (3.58 to 3.06) and Claus (3.0 to 2.7). Two learners showed a very slight increase from their GASC to their LASC, namely Paul (3.11 to 3.22) and James (3.05 to 3.11). Overall, the LASC of the learners with HI was low.

Adrian was not available when projection pictures were administered; therefore his thoughts and feelings on Afrikaans could not be used to explain his low LASC. He achieved 67% for Afrikaans during the second school quarter and the educator commented that his Afrikaans had improved. The class mean for Afrikaans was only 51.91%. It might be that classroom factors relating to the educator, the content and/or himself, and/or home factors contributed to his lower LASC (by 0.7). The decrease for Odette was actually slight (0.06). She appeared to like the Afrikaans educator and the learning area. In the projective pictures she felt that the educator trusted the learner, thought the learner was not naughty and that the learner listened in the class. The learner felt happy about his marks, only if he had learnt.

He learnt sometimes, but not always. Odette achieved 49% for Afrikaans. During the administration of the projective pictures, Isaac (LASC lower by 0.52) said that the Afrikaans educator was a good educator who helped one well. When one was naughty, one was punished with work to write out. He also described a situation where a learner had to do questions on the board, but was scared and nervous to do the questions in front of the class, in case the educator scolded him and said: "*Oh no, why are you doing it wrong?*" The learner decided to tell the educator about his fear. The feedback from the educator was that he should stop being afraid, believe in himself, concentrate and then he would get the questions right. The outcome was (perhaps overly) positive: he succeeded and got all the questions correct. The learner decided that in future he would do the questions without fear. If he made a mistake, he would correct it, and if he did not see the mistake, the educator would tell him. Whichever way, the educator would be happy and proud of him. He also described a situation where the learner did not know answers to questions about a storybook the learner had read. The educator was 'unhappy' and, much to the learner's joy, offered to help him individually and privately. The other learners might feel it was unfair of the educator to help and like only one learner. Perhaps the situation construed a wish of Isaac's for individual and private attention away from the class and/or to be liked (a similar theme cropped up in the projective pictures relating to mathematics). He achieved 46% for Afrikaans. During observations, he remarked that the work was too difficult. It might be that fear of mistakes, lack of individual support, a perception that he was not liked by the educator and/or a perception that the work was too difficult contributed to his lower LASC. Claus was decidedly less positive, but very clear, about the educator and Afrikaans as learning area, which might explain his low LASC (2.7, and lower than his GASC by 0.3). During the administration of the projective pictures, a learner in the Afrikaans class misbehaved and was called by the educator, and " … *now she probably moans with him*". The learner was reprimanded once or twice a day. When asked what the learner thought or felt about Afrikaans, Claus fell into a circular argument trying to explain why the learner did not like Afrikaans. The learner did not like Afrikaans, because he did not do his homework anymore, he did not listen anymore, and he became naughty in class. The learner did these things because he did not like Afrikaans, and perhaps because the teacher had been nasty with him. In a second round of explanations of the same situation, Claus said the learner did not like Afrikaans because the educator fought with him every time, because he did not do homework and always forgot his book at home. She reprimanded him, but he did not listen anymore, and back chatted her. The result was that the rest of the class did not like the learner, because he was nasty with the educator. The learner sometimes felt he was innocent. It did not appear as if Claus's marks directly contributed to a low LASC: he achieved 58% for Afrikaans, with the remark on his report that he could do better if he

worked harder. It might be, however, that he perceived himself to be much better in Afrikaans, and was disappointed by the 'low' mark; hence the low LASC.

Paul and James showed slight increases from their GASC to their LASC (3.11 to 3.22 and 3.05 to 3.11 respectively). Still, the LASCs were rather low. In the projective pictures, Paul described a boy who felt unhappy about Afrikaans because his work was poor. Paul did, however, achieve 65% for Afrikaans during the second school quarter. Paul described the conflict before a test: he knew he had to learn to improve his work, but sometimes he did not learn and still did very well on a test. Paul described a kind educator in the projective picture who helped the learners to correct all their mistakes and was available for questions. The way he explained the projective picture portrayed a will to do well, but that his spelling seriously hampered his efforts. He explained that a learner was doing answers on the chalkboard. If an answer was wrong, marks got deducted. For every spelling mistake, the learner lost half a mark. The educator and the other learners helped the learner to correct all his spelling mistakes. The learner got 20 out of 60. If the learner had not made the spelling mistakes, he would have had 52 out of 60. The learner did not always like spelling. If the learners in the picture did not do well on a test, the teacher was going to punish them. The next time the learners did not do well, she was going to phone their parents. When she phoned their parents, their parents would beat them severely. James, who struggled with sentence construction, said the following:

Interviewer : *Does this boy like Afrikaans?*
James : *But not much. Our class does not like Afrikaans at all.*
Interviewer : *Is that so? Tell me why not?*
James : *Because teacher scolds too much. I struggle confuse to write. I like Afrikaans but I do not like language, but I like comprehend*[8].

James, however, said later: "*Afrikaans is easy for the children. They like Afrikaans*." He achieved 45% for Afrikaans, with the note on his report that he had worked well.

The learners appeared divided in their opinion of the Afrikaans educator and Afrikaans as learning area. It is important to remember that their thoughts and feelings regarding the Afrikaans educator and Afrikaans as learning area were compounded by their difficulty in acquiring language – receptive and expressive levels - and maintaining communication. The lower LASC should not and could not be attributed only to the role the Afrikaans educator played.

[8] The translation attempts to reflect the grammatical distortions in James's responses.

According to the Afrikaans educator, she did more than the prescribed OBE curriculum, because she looked at the problems of the learners and specifically addressed those. She tried to assist or accommodate the learners in several ways: she gave individual support in the classroom to many learners; she often repeated work; learners with HI sat in the front of the class; she tried to keep her mouth at their eye level, because if it was higher or lower, it was bothersome to them to speechread; she made sure the lighting was good; she never talked with her back to the learners; in the afternoons she followed the Morag Clarke programme with some learners; she made sure she had the attention of the learners before she spoke; she tried to arrange optimal class placement for every learner; and she did not over- or under-enunciate sounds. The classroom observations confirmed that the educator consistently assisted and accommodated the learners in many ways. According to the Afrikaans educator, the behaviour of the learners improved slightly on the occasions when the researcher observed the class.

The Afrikaans educator demanded tidiness, precision, originality and hard work from the learners: certain pieces of work were done in rough before being written neatly for assessment; she told a learner that torn pages looked bad; to another she said his work was disordered; she told the learners to pack up neatly and to clean underneath their desks before they could leave; she reminded them of things such as writing the date at the top of the page; when Isaac read a story, she interrupted him because he had not read the title of the story; when reading the story, the learners were instructed to use their voices to imitate the people 'speaking'; the learners had to make their own ending to the story, but when Isaac read his, he was told that although the educator liked the ending, he could have made it more interesting; when a learner completed an impromptu 'speech', the educator said although it had been nice, his speech had not been worth much more than 30%–40% and that she wanted to know lots more from them.

The conflicting situations of work being good, but not good enough as portrayed in the final two examples above, might have discouraged some of the learners. It appeared as if work could never be just right. Claus had done an outstanding project on stamps, admittedly with the help of his mother, but the educator wanted to reduce his work, considering parts of it unnecessary, so that it would fit more easily into the plastic bags of his portfolio. She remarked that his mother had helped him fantastically, and asked how many marks did he think she should give his mother. He replied '*100*'. The history behind the incident was unknown: had the learner perhaps been reprimanded before for relying too much on the help

of his mother, or did he repeatedly do much more than he was required to do. Whichever way, incidences like these might have contributed to Claus's low LASC.

The Afrikaans educator gave the learners practical tips to improve their work. She told them to write as briefly as possible, as they made unnecessary mistakes when they wrote long sentences. When working on a project, she made general suggestions on what to do: paste in the envelope, read it at home. Once a learner wanted to do a memory map on the back of the notes. She told them that they had to turn the page each time they wanted to write something down. She said that they would not be able to remember what to write and that they would be making spelling mistakes.

The educator helped the learners to expand their vocabulary. She asked Odette whether she had heard the difference between '*geskryf*' and '*beskryf*'. She asked, and explained to the class, words such as '*compare*', '*kermisbed* (Afrikaans)' and '*sardines in a tin*'. A learner struggled to pronounce '*personification*'. She helped by showing him how to break up the word into syllables.

The learners were spontaneous in her class. They were called to the front to enact the story they had read. The learners participated enthusiastically. She wanted the learner who had completed a memory map first, to tell them about the work. A learner who had not finished, volunteered. The educator had to tell the class, specifically one girl, not to interrupt him, even if he was wrong. Apparently the learners were spontaneous in their remarks, as well.

She addressed individual learners to make sure they had understood. While the learners were working, she explained the instructions individually where necessary. She also helped learners individually. When helping a learner to compile a portfolio, she said that some of his work was too untidy to be included and should rather be left out. She showed him other work which looked good, and which they could include. They searched a lot to find all the pieces to put into the portfolio. She made suggestions as to where he could improve his work, such as pasting in stamps.

The patience with which the educator repeated instructions in class was commendable. Between the first and the second run of instructions she had to be patient while each learner said or asked something, and others had not heard. It took a few minutes before the class was settled and she could continue. Once she had given her explanation of the work, she was barraged with questions and comments, to verify her explanations, complain about a lack of pencils, confirm where to do the work, and deny guilt for squabbles.

The educator was (sometimes) flexible in her expectations of learners. Once she wanted one of the learners who had completed a memory map, to tell them about the work. The learner did not want to, even though he had had time to go through his work. She merely extended her invitation for explanation to someone else. She also had to be flexible in executing her lesson, mainly because of the large variations in speed of work. When the first learner had completed his memory map, Odette was still looking for the notes to start the work. The educator suggested that she borrow someone's notes in order to keep up with the rest of the class. While Odette and others were finishing the work, the educator kept the first learner to finish occupied by asking him to revise his speech to tell the rest of the class about the memory map.

Although generally demanding in her style, the educator complimented and praised learners where appropriate. She praised their efforts: "*Beautiful. There it is.*" She told a learner how much he had improved towards the end of the year. (But he just had to learn to be neat.) She indicated to him work of which she was proud. To another learner she said she was proud of him because he was so quick with his work.

Finally, two unrelated incidents shed some light on having to live with HI. Firstly, several interesting remarks were heard when the educator once wanted the learners to listen carefully. She told them their ears should go like 'this', making waving movements with her hands. Three of the remarks were: "*My ears can't*"; "*My ears are not …*"; "*I am not a baboon*". Secondly, during a lesson, Isaac once called James while simultaneously waving his hand. It was notable that he combined a visual and oral mode of communication.

To summarise the situation in the Afrikaans classes that one could have expected to contribute to a favourable LASC, it could be said that the Afrikaans educator demanded tidiness, precision, originality and hard work from the learners, gave practical tips to the learners to improve their work, helped the learners to expand their vocabulary, allowed learners to be spontaneous, addressed individual learners to make sure they had understood, repeated instructions, was flexible, and complimented and praised them where necessary.

(c) The marked increase in MASC

The MASCs of all the learners with HI were much higher than both their GASCs and LASCs. Two MASCs were higher than the MASC of the learners with no HI (3.98): Claus (4.7) and

Odette (4.11). Paul had a MASC of 3.89, and Isaac and James both had a MASC of 3.68. Adrian was absent when the MASC section was administered.

Most of the learners gave favourable responses on the projective pictures in respect of mathematics as a learning area. Surprisingly, the most negative comments came from Claus who had the highest MASC (4.7). His high MASC seemed to correlate with his mark in mathematics, namely 83%, which was much higher than the mean performance of the class of 49.18% for mathematics. Claus was reluctant to respond to the projective picture in respect of mathematics. He described a learner who paged through the book to get to the right page or had forgotten his book at home. In both cases the educator complained about him. The learner did not know what he thought about mathematics. Claus further described a boy who did not understand the work and the educator who wanted to explain the work to him. Claus did not know whether the boy would be able to do the work after her explanation. Claus also described a boy who did not want to work and stubbornly refused to do a sum on the board despite the encouragement from the rest of the class and the instruction of the educator. The situation would make the learner feel bad, as the other learners would not like him anymore, because he did not listen to them. The learner did not want to listen to the educator. Claus said the boy thought nothing of the mathematics educator; however, bearing the language difficulties of learners with HI in mind, this answer could either imply that the learner's opinion of her was low, or that he literally had no thoughts about her. Odette with a MASC of 4.11 achieved 40% for mathematics, considerably below the class mean of 49.18%. Odette said the boy on the projective pictures felt good about his marks and that it was nice being in the mathematics class. Odette's MASC might be inflated, because of her small frame of reference - the same reason why her GASC might be inflated. One could also consider that her ability to self-evaluate might be limited. Her projections on the projective pictures were ambivalent about mathematics. Mathematics could be good or bad. One learner liked mathematics; another did not. One learner thought the educator was nasty with him; another thought the educator was nice. The educator shouted, or helped. If one knew the tables, one liked mathematics. If one did not know the tables, one would fail and not like mathematics anymore. Odette described a disobedient boy who did not worry about the educator. The boy did not listen to her, cursed her and became naughty. Finally, the educator took the boy to the principal. It is possible that Odette was describing one of her classmates.

Paul had a MASC of 3.89 and achieved 50% for mathematics. He had a stoical approach to mathematics on the projective pictures, which tended to be (perhaps overly) positive at times. Paul described a boy who liked mathematics because he knew he would be using

mathematics one day when he was working. If his answers were wrong, he merely corrected them. The educator was good, because all the learners listened to her and everyone worked together. Paul thought the learners were going to have all the answers correct. When the boy, or other learners, asked the educator to explain work, she did so because she said that was her job. After her explanation, the learners knew what to do. If they did not do well, they started again, even though they felt bad. Some of the mathematics was sometimes easy; some was difficult. Paul described the context of the learner as one who was in the special school for his first year. This stood in contrast with himself who had been at the school for many years. Paul explained that other learners did better than the particular boy, because it was his first year at the school. The learner remembered what he had done in the old school, but the work they did in the new (special) school was different. The new schoolbooks were different from the old books and contained more difficult work. Paul was sure that after a year, or a month, the learner would know what to do. Paul might have been referring to the transition from Grade Six to Grade Seven, or to James.

Isaac and James both had a MASC of 3.68, and mathematics marks of 37% and 40% respectively. On the mathematics projective picture Isaac described a similar situation as on the Afrikaans projective picture, namely of a boy who had been called to do sums on the board. The boy said he could not do the sums, because he was scared everyone would ridicule and hit him when he did them incorrectly, and then they would not want to be friends with him anymore. Isaac mentioned that if the boy had sat at his desk, he would have been able to do some of the sums, but on the board he was nervous and then was not able to do it. It seemed as if the educator was aware of the fears of the learners to do sums on the board. She told them not to be afraid, as she would make sure that the learners did not laugh at whoever was doing the sums. Sometimes she managed to prevent them from laughing at the boy. She was strict and told them they had to do the sums. All in all, Isaac said the boy was a little bit scared to do mathematics, in case he did it incorrectly. He knew, however, that the educator would not scold him if he did sums incorrectly, but would correct him. Again, the despair of having everything wrong and the desire to stay behind to be helped individually and privately by the educator surfaced. The consequences were the same as in the Afrikaans class: some of the other learners would be angry, because they also struggled, but the educator did not help them, but only the one boy. The change projected in the effect of the individual attention was remarkable: the boy would be glad for the help, for then his sums would be correct again; he was going to understand and begin to do his homework. It seemed as if the change brought about by the individual attention even had effect on the rest of Isaac's projections. In a further questioning on the picture, Isaac described a boy coming forward to do sums on the board. The children told the boy that he

need not be scared, as the educator would not do anything. The boy was advised to believe in himself and think "*I will have everything right*". The boy was happy and not scared. The boy acknowledged that he was sometimes naughty in class: he did not do his work, he did not listen to the educator and he played. James spontaneously said that the learners loved mathematics and that they were able to do sums. He contrasted them with a boy in the centre who was unhappy because he was unable to do mathematics. The boy would be happy if the educator taught him. So the boy explained to the educator how he felt and asked the educator to help him. The educator told the boy not to worry, as she would teach him to "*become clever, to get a good mark*". What was interesting in the projections, was the explanation of why the boy could not do mathematics. James explained that the boy had 'head or brain problems'; therefore he could not think well and therefore was unable to know how to do the sums. "*And what does one call a problem inside? … Cancer.*". It seemed as if James wanted to say that the boy could not think well because he had brain cancer, or a serious ailment. The following statement explains much of how James, who spoke extremely poorly, thought about his situation: "*I saw that many children who cannot talk, cannot think, cannot write.*" It appeared as if his lack of proper speech was the beginning point of his reasoning as to why he struggled at school[9]. James also told about a boy who got into trouble, for forgetting his book at home. Additionally, the educator was going to phone his mother who would scold him as well. James apparently had an almost childlike, or irrational, fear of being scolded and taken to the principal, as this theme often emerged in his projections.

As all the learners with HI had average to high MASCs, the role of the mathematics educator as one contributing factor to the MASC, was investigated. The mathematics educator explained how she accommodated the learners with HI in her classes: her approach was very visual – whatever was said, was written on the chalkboard as well; she used basic

[9] At the end of the session on projective pictures, I asked James whether he wanted to ask me anything. He asked whether I could teach him to spell. He also struggled to speak in sentences, but he wanted to speak right. The teachers could teach him well, but … "*I am worried about myself, how I talk.*" He was worried because he wanted to get his sentences right, but was unable to do it. I proceeded to explain that unfortunately I would not be able to do it, but that we could consult his mother and the school. He explained that he had gone to 'another lady' (that is, a speech therapist) in XXX, not the educator, to help him to improve his speech. But now he was in Pretoria. He was 'OK' with being in Pretoria; he just struggled still. (At the special school the Afrikaans educator followed the Morag Clarke programme twice weekly with him, together with a girl.) Phone numbers were exchanged so that I could contact James's mother. After negotiations with the school and the university, it was possible to arrange support sessions for James with an educational psychology student at the University of Pretoria, who has HI herself, and wanted to help learners with HI. She is currently working under the supervision of a qualified educational psychologist to support this learner, as part of her training.

language in explaining work and giving instructions; she limited her explanations to the basics, so as not to confuse the learner with HI; she only told the learners what to do and not what not to do; her speed of work was slower than when she had taught at a regular school; she did not spice up her lessons with history or interesting facts, as that merely confused the learners, because they could not relate that to the mathematics they were doing or got stuck with the facts and forgot the sums (she had found that even intelligent learners could not deal with extra facts); she repeated instructions, examples and content often in class to make sure everyone had understood; she created her own worksheets from textbooks by copying, cutting and pasting, as many of the books had only a few sums per exercise, but the learners with HI needed to do 10 or 20 sums; and she limited the writing on the worksheets - the less writing, the better. The classroom observations confirmed that the mathematics educator accommodated the learners as she had described.

She emphasised the importance of basic and clear language in written and oral instructions. She had found that the learners with HI disliked reading. An instruction such as "*Measure every angle of the triangle*" was often only read up to the word 'measure', and the learners would then proceed to measure the lengths of the sides of the triangle instead of the angles. Once she gave them a puzzle, which only discouraged them instead of being met as a challenge. Their difficulty with puzzles did not relate to ability, but to the language factor which was difficult for them. They did not like language to be put to mathematics. By teaching them to recognise symbols, such as %, reading was reduced. Since much mathematics could be done by recognising symbols, the nature of the learning area might, therefore, also have contributed to the high MASC.

Although repetition had a definite function in the class for learners with HI, the mathematics educator was of the opinion that repetition also made the learners lazy: they did not always attend well as they knew statements and instructions would be repeated. They also knew that she would have time to attend to them individually. Had they not listened in the first place, the educator would explain to them individually later on. A related barrier to optimal learning was that the mathematics educator felt that some parents did too much for their children with HI, thereby contributing to learned helplessness. By the time they were in Grade Seven, they had not yet learnt to work by themselves and they did not want to learn to work independently anymore.

She tried to make everyone progress at the same, reasonable pace. She estimated in advance that a portion of work would take a certain length of time. If too many learners still failed to understand by the end of the time, she would extend it. Inevitably, some learners

were left behind, but as the others became bored, she had to move on. When planning her lessons, she looked at the learners' abilities, considered what she wanted them to do and asked herself what she needed to do to accommodate the learners. She did not stick rigorously to a uniform presentation. Even in one class, she differentiated her *modus operandi*. Some learners were, for example, required to complete all 20 sums, others only 10. According to her, the learners accepted that. The younger the learners, the more they sought equal attention. As they grew older, they were able to work more independently. Her style of teaching the Grade Sevens usually entailed doing an example on the board and then letting the learners do another example. The learners then continued on their own with exercises. While they were busy, she went to them individually to render support or monitor work. The way she taught, learners were allowed to make mistakes. She was not very quick tempered or perfectionist about the books. She tried to do things that they would like, such as playing games; however, playing games *et cetera* often pu t stress on the learners who did not have the ability and struggled. Some learners quickly caught on, shouted out the answers and were excited. The learners who struggled just sat, because they were too scared to ask again, as the others might say: "*Oh, did you not understand, again?*". She sometimes felt discouraged when she had taught the learners something, and the next day they came in class and said: "*What's that?*".

The learners were sometimes mean with one another. According to the mathematics educator, they knew exactly who was 'clever' and who not. Some were rude and would say things like, "*Oh, don't ask again! In any case, you know nothing*." She was strict when learners made nasty remarks. (She was less strict when they were harmlessly misbehaving or playing.) When a learner was nasty, she would sometimes retort and mention all his/her own weaker points. Then she would ask: "*OK, how do feel now? This is how that guy feels. So don't make me do it again.*" She was of the opinion that if they did not feel the consequences of their remarks, they would continue being hurtful. The others would also know if they were going to do something similar, the educator was going to punish them. It was interesting to note that the fear of having to face ridicule often cropped up in the responses to the projective pictures in respect of both the Afrikaans and mathematics classes, and as such, was an issue to be dealt with in the classes.

In explaining content, the educator used concrete metaphors from real life to explain concepts and used concrete line drawings to further enhance clarity. It should be noted that the metaphors were not necessarily mathematically correct, but served as a memory aid to guide the learners to the next step. Deciding on a common denominator in adding fractions could be a problem for some learners. Her solution, relating to real life, was the following: "*If*

the little one can become the big one, then we give the little one steroids, then we make him bigger. So, what do we give the little one?" A learner answered correctly. The next step also came from the world of the learners: "*Remember, I multiply both with the same number. It is like children. Can I give her a bigger piece of chocolate than you?*" and "*Fractions are like your children: if I divide the top by three, I must divide the bottom by three as well*." She explained the meaning of a fraction by using an example of a pizza. "*The bottom one* [denominator] *tells you in how many pieces the pizza has been cut, how many parts there are; if the pieces are big or small. The top one tells you how many you can eat.*" She drew diagrams of circles representing pizzas cut in quarters on the board as she was explaining. She explained again that if the denominators were not the same, the "*one was given steroids so that the children did not argue*". Once she spoke about the denominator staying the same and the numerator changing. She likened it to the learners' school uniform, where the trousers stayed the same from primary school to secondary school, but they wore different shirts.

When a learner wanted to know what equivalent fractions were, she asked the class to help with the word *equivalent*. She received an answer: "*You multiply it*." Only then did she proceed to explain, once again using a visual cue, the moon. "*If you multiply the top …*" and she drew an arch between the two numerators of the two fractions "*… you also multiply the bottom …*". She drew another arch between the two denominators of the fractions, and the two arches resembled a crescent moon. Once, when a learner posed a question, she said: "*No, top and top are friends, and bottom and bottom are friends.*" She proceeded to explain the 'moon principle' by using the sum at hand.

She used a party as a memory aid when explaining the multiplication of fractions. With multiplication, it did not matter whether the fractions were of the same type: everyone could party together. The boys wanted to dance with the girls. She said that when they danced, they put their hands together and their feet worked together. She continued by multiplying the top numbers (their hands) and the bottom numbers (their feet) of the fractions. A concern with the use of multiple metaphors is that the metaphors could confuse some of the learners: when should they use the children, the moon, the steroids or the party?

The learners were also allowed to use concrete methods of calculation: they used their fingers to determine multiples of numbers, when they did not know the tables by heart. Eventually, most of them arrived at the correct answer. The absence of pocket calculators was noticeable. By using their fingers, the learners showed clear understanding of the concept of multiplication tables, which might have been lost with the use of pocket

calculators. The educator once scolded a girl for not knowing the multiplication tables and said that was the reason why she struggled so much.

The mathematics educator tried to involve all the learners alternately in her lesson. She often addressed questions to learners by name, rarely posing general questions. By asking questions randomly, she ensured participation and improved attention, as anyone could be asked the next question. From the answers, she could also determine whether the learners had understood her. By letting most, if not all, learners participate, the work became a communal project: everyone was helping everyone else. The following is a paraphrased version of how she involved the learners:

She finished a sum and proceeded to the next. Bruce was asked to do the sum. She followed a question and answer format, guiding him towards the next steps and answers. She asked Harry whether he understood the explanation. (Previously, she had found that he had not understood.) She asked for a volunteer to do number seven on the board and selected Adrian … She showed them another way to do the sums by converting the mixed fraction to an improper fraction. She asked Murray to do the conversion while she wrote it on the board … Thomas wanted to know what equivalent fractions were, and she asked the class to help with the word *equivalent*. She received an answer: "*You multiply it*", and used that answer as the basis of her explanation (cf. the previous pages).

The educator asked guiding questions to prompt the learners from one step to the next in doing the sums. It appeared, however, as if she often functioned as the vanguard of the thinking and left the answering to the learners. Even if the learners did not have to think about the sequence of the operations, her questions had good value in modelling good mathematical problem solving strategies. It was, however, uncertain whether the learners had caught on and applied the same strategies when they worked independently. An example of how she asked guiding questions is illustrated in the following extract:

Educator	:	*You say one up to six. How do I do that? How can a one become a six? Think, must it become bigger or smaller?*
Learner	:	*Bigger.*
Educator	:	*Bigger. What is making bigger? Multiply or divide?*
Learner	:	*Multiply.*
Educator	:	*Multiply. One times what is six?*
Learner	:	Six.
Educator	:	*Now? One times six. And what is …*

She then proceeded to show them another way to do the sum. Once again she guided them with questions. The learners answered: sometimes wrongly, sometimes correctly. She explained why the wrong answers were wrong and occasionally praised the correct answers. A section of the sum took at least five interactions between educator and learner. Once they had to divide 120 by 15. She guided them by starting to count in multiples of 15. Gradually the learners took over, until they reached 120.

She also applied her question guiding strategy in a slightly different way in dealing with instructions. She started by asking whether they understood a particular word from the instructions. They did not. She proceeded by asking them to explain the rest of the sentence. In doing that, one learner inferred the meaning of the word in question and said it. It was right.

The educator encouraged learners to ask her questions. They were not shy to ask her questions during the lesson time or when they were working individually. Once, Isaac had asked a friend at the hostel for explanations, written down answers, and got them wrong. The educator saw that he had struggled and reminded him that if he did not understand, he should come and ask her. Another time, Harry did not know something and asked her. She said that it was right that he had asked.

The educator rendered individual support to the learners while she was teaching, but also while the learners were doing exercises on the new work. While she was teaching, her questioning often discovered learners who did not understand and whom she could help immediately. Once she saw Harry frowning. She told him she could see in his eyes that he had not done the previous day's homework. He admitted that he had not understood the work and she explained to him, using the chalkboard and asking him guiding questions.

While the learners were doing exercises, she was available for individual assistance, which she provided at each learner's desk. She stopped at every learner and helped where necessary. Often she gave them two sums to do, which she first wanted to check before they could continue with the rest of the exercise. She helped them by asking guiding questions in the same way that she did sums on the board, explaining content again and/or by repeating concepts. She often had to repeat explanations on the same sums, but each explanation was tailored to suit each learner individually. When the learners encountered too many problems, or she saw a serious mathematical error, she did the sum on the board. Sometimes the learners asked her to explain sums they had not even tried or they said the work was difficult. She told them to try first, if they wanted to, in pencil, even if it was wrong.

She would be on her way to help. When marking work, she said that, if they had it wrong, they just had to mark it wrong, she would come and look.

Support not only comprised class work, but was also tailored to address general barriers to participation in the work. Support, therefore, often entailed also admonishing a learner who was noisy, or attracting the attention of another before continuing her explanation. When she addressed James, she did not give the required information before he indicated that he was listening. This learner, having profound HI, was also tutored on how to use his voice when he spoke. He did as she told him, and she praised him. In the course of her support to individual learners, she scolded, threatened, encouraged and praised.

It was clear that the learners relied strongly on the educator for support. Some waited for the educator before they continued. At times it appeared as if the learners were too lazy to think, and learned helplessness merits consideration. It is, however, difficult to judge if the impairment is kept in mind.

Repetition of work was initiated by the educator, but was also required from the learners' side of apparent necessity. For example, she explained the concept of the denominator having to be the same by using the example of the pizza. Four similar questions concerning the nature of the denominator followed, and four times she gave a similar answer. Other times, she repeated statements, but used other words. The repetition was usually bound to examples, and not merely repeating the same phrase. Even before starting a task, she sometimes quickly did the first item or two with the learners. It familiarised them with the task, and they had to repeat what they had heard when they started working by themselves.

Direct instruction took place mostly. The learners were not required to explore or investigate the nature of mathematics. Content was explained using basic language and simple concepts. For example, a common fraction was remembered as "*Small one top, big one bottom*." Sometimes she gave them tips: if there were two zeros (top and bottom), they could be cancelled; if there were a number ending in a zero at the top and a five below, then they could divide by five; the next thing they should look at was whether the numbers could both be divided by two. Work was carefully structured to increase in complexity.

In summary, it could be said that, from the observations, it appeared that a concrete approach to learning, involvement of the learners in the lesson, guidance to the correct answers, ample opportunities for asking questions, individual attention, repetition and direct instruction contributed to the high MASC of the learners with HI.

A paraphrase from the first observation session illustrates how the mathematics educator integrated various aspects of her teaching, as highlighted in the summary above:
They were doing a sum. She told the class that they had to help Marc. She warned them that it did not mean that the rest did not all have to work together. If he got stuck with a problem, they had to help him. She started by supporting Marc, prompting him with the question: "*What do we do first? We count the …*". He answered, and she asked the next question: "*OK, how much is …?*". He answered, and she prompted with the next question. She interrupted Marc's answer to address Isaac. She posed the question to Isaac. Isaac gave an answer, which she said was wrong. She referred Isaac to where she had written something in big letters on the chalkboard and asked for a learner to help him. James gave an answer but she said there was an easier way. James then gave the 'easier' way: "*The big one on the little one, and if the little one can't get big, then we give him steroids.*" She repeated, correcting him: "*If the little one can become the big one, then we give the little one steroids, then we make him bigger. So, what do we give the four?*" A learner answered correctly. She returned to Marc and told him why it was not necessary to do what Isaac had proposed to do. Her explanation contained a short summary of what to do: "*Your first test is: can the little one become the bigger one? If your answer is 'yes', then you simply make the little one bigger. If my answer is 'no', I change both.*'' She involved another learner in asking whether he understood and continued to do the next step of the sum. She prompted the learner at the next step. She interrupted her explanation to address a boy who seemed worried and was scratching and digging around. It turned out that the boy was still not on the right page and was looking for where they were busy now in the papers. She gave him the page number and continued. She gave another short summary of what to do: "*If it is small and big, it is a common fraction, then we leave it like that.*" A learner checked his work with her and she told him it was wrong. "*Remember, I multiply both with the same number. It is like children. Can I give her a bigger piece of chocolate than you?*" The learner's subsequent answers showed that he now understood. She proceeded with the next sum, starting with a question to a learner not involved earlier.

Summary of the observations contributing to the MASC would not be complete without mentioning the class atmosphere. The class atmosphere was relaxed. Learners volunteered to answer questions, even sometimes shouting out (even wrong) answers. The class was not silent when working: the learners talked to one another. Sometimes there was friendly bantering between the educator and one or more of the learners. During the last observation, which occurred after a school show the previous evening, the learners were more distractible than usual and casual conversation ensued (about an educator who had to

go to the doctor for a head injury and an educator's bad luck with theft). It was interesting to note that the educator did not want conversation about a non-mathematics topic, but probably realised that the sooner she addressed it, the sooner the learners would be able to focus on the mathematics again.

5.7 DISCUSSION OF THE RESULTS: THE ASC OF LEARNERS WITH HI

The discussion will, firstly, compare the similarities and differences in ASC of learners with HI across the schools, and with learners with no HI, and will, secondly, look at explanations and factors which might have influenced the ASC of learners with HI. Since Chapter 1, the ASC has been regarded as the product of different factors in various systems and, as such, it has been regarded as an indicator of the 'health' or wellness of a system, especially the individual, class, school and education systems. Before comparison and explanation of differences in ASC can be linked conclusively to school context, the key issue of the thesis, as stated in Chapter 1, must be considered: *How does ASC reflect the practices of inclusive education and participation in different school contexts*? Subsequently, the issue at stake will not be whether inclusive education should be implemented, or not, but rather, as the EWP 6 is already in place (although not by far fully implemented), what could be done to ensure that all schools become effective learning environments for learners with HI.

To facilitate the discussion of the ASC of learners with HI, Table 5.19 shows the means for the GASC, LASC and MASC of the learners with HI in School 1, 2 and 3, as well the means for the GASC, LASC and MASC for learners with no HI in School 1, 2, 3, 4 and 5, and Figure 5.9 shows the actual GASC, LASC and MASC of learners with HI and the mean GASC, LASC and MASC of learners with no HI.

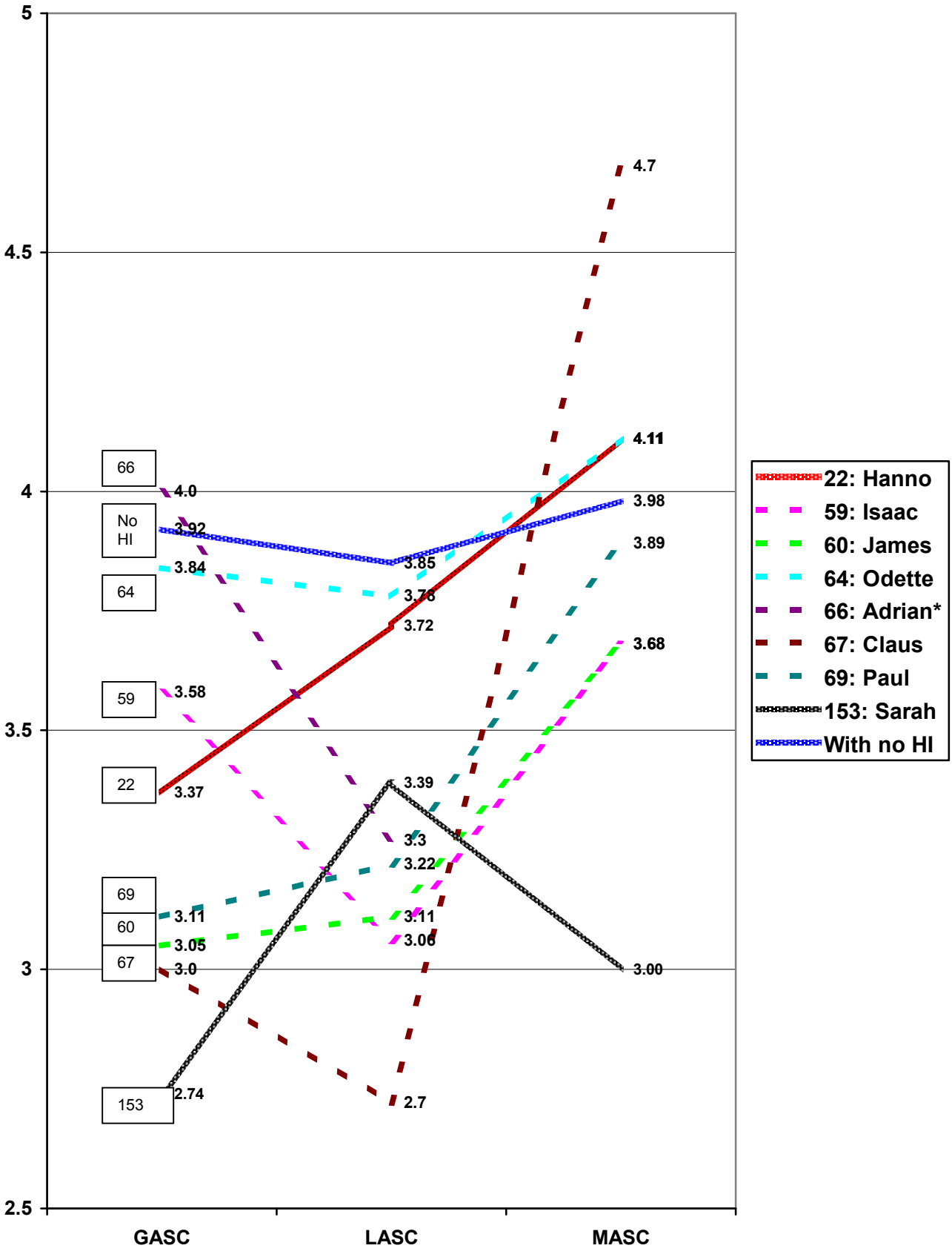
Table 5.19 Means for the GASC, LASC and MASC for learners with HI and no HI and for schools

School		**1**	**2**	**3**						**4**	**5**
School type		Inclusive	Inclusive	Special						Regular	Regular
Learner number & name		22 Hanno	153 Sarah	59 Isaac	60 James	64 Odette	66 Adrian	67 Claus	69 Paul	-	-
GASC	No HI	3.92	3.92	-	-	-	-	-	-	3.92	3.92
	Learner	3.37	2.74	3.58[1]	**3.05[2]**	3.84	4.0	**3.0**	**3.11**	-	-
	School	3.81	3.95	3.47						3.70	4.22
LASC	No HI	3.85	3.85	-	-	-	-	-		3.85	3.85
	Learner	3.72	3.39	**3.06**	**3.11**	3.78	**3.30**	**2.7**	**3.22**	-	-
	School	3.81	3.95	3.27						3.64	4.03
MASC	No HI	3.98	3.98	-	-	-	-	-	-	3.98	3.98
	Learner	4.11	3.00	**3.68**	**3.68**	4.11	absent	4.7	**3.89**	-	-
	School	4.15	3.72	4.06						3.99	4.20

[1] Underlined means indicate means in the special school higher than Sarah's (Learner 153) means in School 2.

[2] Means in **bold** indicate means in the special school lower than Hanno's (Learner 22) means in School 1.

Figure 5.9 Actual GASC, LASC and MASC of learners with HI and mean GASC, LASC and MASC of learners with no HI



* Adrian (Learner 66) did not complete the MASC section of the ASCQ.

Firstly, when the different dimensions of ASC are examined in Figure 5.9, three somewhat arbitrary levels of GASC, LASC and MASC (relatively high, moderate and low) can be distinguished. This distribution is shown in Figure 5.10.

Figure 5.10 Distribution of ASCs in terms of relative level

ASC dimension	Level	School 1	School 2	School 3	Learners with no HI
GASC	Relatively High			Adrian (4.0) Odette (3.84)	3.92
	Relatively Moderate	Hanno (3.37)		Isaac (3.58)	
	Relatively Low		Sarah (2.74)	Paul (3.11) James (3.05) Claus (3.0)	
LASC	Relatively High	Hanno (3.72)		Odette (3.78)	3.85
	Relatively Moderate		Sarah (3.39)	Adrian (3.3) Paul (3.22) James (3.11) Isaac (3.06)	
	Relatively Low			Claus (2.7)	
MASC	Relatively High	Hanno (4.11)		Claus (4.7) Odette (4.11) Paul (3.89)	3.98
	Relatively Moderate			Isaac (3.68) James (3.68)	
	Relatively Low		Sarah (3.0)		

As the wide distribution of the GASC scores of the learners in School 3 has already been discussed in 5.6.2 3(a), only the GASC of Hanno (3.37) in School 1 and Sarah (2.74) in School 2 will be discussed here. Considering that both Hanno and Sarah were in full-service inclusion schools, the differences in GASC scores suggest that not all full-service schools are equally beneficial to the GASC of learners with HI. Before implying that School 2 had failed as a full-service school, the differences in socio-economic contexts between the schools and the historicity of the learners must be kept in mind, and this will be discussed later in this section. But it does seem as if the GASC at least reflects educational practices generally, if

not practices of inclusive education and participation specifically, in different schools and classrooms.

Except for the high LASC of Odette (3.78) in School 3, which might be an unrealistically high LASC as suggested in 5.6.2 3(a), the learners from School 3 scored themselves as having moderate and low LASCs, whereas Hanno from School 1 and even Sarah from School 2 scored themselves as having high and moderate LASCs respectively, although Sarah's moderate LASC might also have been an unrealistic self-assessment as suggested in 5.6.1 2(c). What becomes noticeable, is that Hanno's LASC in the full-service school surpasses the LASCs of the learners in the special school. Despite the specialised support in the form of a first language educator trained to work with learners with HI and the various other support facilities available, the learners in the special school only had moderate or low regard for their Afrikaans language abilities and performances. Hanno's moderate and profound hearing losses and his socio-economic context make him comparable to the learners in the special school, suggesting that the full-service school placement had been advantageous for him in respect of his LASC. It is argued that the Afrikaans educator played a role in Hanno's high LASC, as will be seen when the role of the educators in ASC is discussed, and that exposure to a language rich environment could have contributed to Hanno's high LASC. Again, it seems as if the LASC at least reflects educational practices generally, if not practices of inclusive education and participation specifically, in different schools and classrooms.

All the learners with HI scored themselves as having high or moderate MASCs, except for Sarah (3.0) in School 2. Similar to the GASC, the differences in MASC scores suggest that not all full-service schools are equally beneficial to the MASC of learners with HI. Again, differences in socio-economic contexts between the schools and the historicity of the learners probably contributed to the differences, and this will be discussed later in this section. What becomes noticeable, is that apparently the learners with HI, whether in a full-service school such as Hanno, or in the special school, evaluated their MASCs to be higher or similar to the learners with no HI. The data, therefore, suggest that placement *per se* in the special school or a full-service school, such as School 1, did not seem to influence the MASC of learners with HI significantly, but that the mathematics educators and/or the nature of mathematics as learning area played a role in the way the learners with HI evaluated themselves in the mathematics classes.

Another possible reason for the high MASC of the learners with HI might be located in the I/E model of Marsh (1986b: 132-133), as explained in 3.8.1. The I/E model predicts a negative

direct effect of mathematics achievement on verbal self-concept, and of verbal achievement on mathematics self-concept. For example, a high MASC is more probable when the learner's mathematics achievements are good and when mathematics achievements are better than the verbal achievements. It is then the difference between mathematics and verbal achievements which is predictive of MASC. High verbal achievements can essentially depress a high MASC (Marsh, 1986b: 134), since the difference between the achievements would then be smaller. This line of reasoning would have been applicable to Table 5.19 and Figure 5.9 had the learners with HI achieved poorer marks in the first language than mathematics, but according to Table 5.16, the learners in School 3 had slightly better marks for the first language than mathematics, which should then have had a negative effect on the MASC. One could argue that the difference in marks was too small, or that the already high MASC might have been even higher, or that other factors also contributed to the high MASC, such as the role of the mathematics educators and the nature of the learning content. Similarly, the low LASC of learners with HI should be considered as reflecting more than the comparison of learners' perceived language and mathematics achievements. Again, the role of the educators, the effect of the HI on acquiring and learning the first language, and the nature of the learning area should be taken into account.

Compared to the ASCs of learners in the special school and learners with no HI, Hanno's ASCs appear to epitomise the success of inclusive education and Sarah's ASCs the failure of inclusive education. Hanno's ASCs moreover appear to disprove the BFLPE of Marsh and Parker (1984) and Marsh (1987) (refer to 3.8.1), whereas Sarah's ASCs appear to support the BFLPE. Briefly, the BFLPE predicts that, for two learners with the same abilities, the learner in the academically better school will have a lower ASC than the other learner (Strein, 1993:280), since the learners of the academically better school, with whom the learner compares his or her academic abilities, do work of the same or higher standard than he or she does. The inclusion of a learner in a school where ability and/or performance is generally higher than in another school, could lead to a lower ASC (Marsh, 1991:470). An assumption based on the BFLPE is that transfer of a learner with HI from a special school to a regular (or full-service) school, would lead to a lower ASC.

The underlined means in Table 5.19 show that Sarah's GASC and MASC are lower than the mean GASC and MASC in the special school, and, therefore, appear to provide evidence of the BFLPE: being placed in a full-service school contributes to a lower ASC. The controversy surrounding Sarah's moderate LASC has already been discussed. It must be kept in mind that Sarah was stated to experience moderate intellectual impairment. Additionally, she had had no previous support in the school, received little support at the time

of the study and had no hearing aids. These factors might have contributed further to her low GASC and MASC.

The means in bold print in Table 5.19 show that Hanno's GASC is higher than the GASC of three of the six learners in the special school, that his LASC is higher than the LASC of five of the six learners in the special school, and that his MASC is higher than the MASC of three of the five learners in the special school[10], and as such do not support the BFLPE: being placed in a full-service school does not necessarily contribute to a lower ASC. As his GASC, LASC and MASC moreover compare well with the mean GASC, LASC and MASC of his class, it can be concluded that he had been able to participate in a classroom of learners with full hearing, as can be supported by classroom observations and interviews. His enrolment in a special school for learners with HI (providing him with the necessary support for the development of sufficient language and coping skills) until early in Grade Three, before then transferring him to the full-service school, and the supportive and accommodative nature of his education in the full-service school probably contributed to his high ASCs.

Odette consistently scored herself as having higher ASCs than Hanno, but her high means might reflect an unrealistic self-evaluation, as discussed previously. As suggested in 3.8.1, the basic assumption of the BFLPE, that learners form their academic self-concepts only by comparing their academic achievements with those of other learners in their class or school, is too simplistic and other influences, such as feedback from educators, parents and peers, previous experiences, and expectations of the learners, parents and educators, should also be taken into account.

Secondly, explanations and factors which might have influenced the ASC of learners will therefore now be discussed, focusing on factors operant in the social, economic, education, school, class and individual systems. As some of the factors operate across more than one system, the systems *per se* will not be discussed, but only used as a guideline in the discussion.

Starting with a broad perspective on the ASC of learners with HI and looking at the role of the Department of Education, staff members from the full-service schools and the special school differed in their opinions regarding the support rendered by the Department of Education to the schools and educators in implementing inclusive education policy. The principal of

[10] Adrian did not complete the MASC; therefore, only five learners in the special school can be involved in the comparison.

School 1 was of the opinion that School 1 had moved beyond the stipulations of the EWP 6 in implementing inclusive education and that the school had managed to create its own workable solutions in respect of inclusive education. At least two of the educators on his staff remarked that educators were not being equipped to deal with learners with impairment generally, nor learners with HI specifically. Looking at Hanno's ASCs, it appears as if School 1 had done well in interpreting and implementing inclusive education policy, regardless of the perceived lack of departmental support. As School 2 was actually a pilot school for the implementation of inclusive education and participation policy, the school should expectedly have been ahead of the EWP 6 in respect of many aspects of inclusive education. According to the principal, the Department of Education had arranged meetings and workshops for the school staff regarding inclusive education and dealing with more than one learner with impairment in the class, and had built ramps; however, the existence and attendance of workshops such as these were not mentioned by any of the three educators at School 2 during interviews. The Department still only had to provide assistive devices. Despite the meetings, workshops and ramps, Sarah's ASCs (except for her relatively moderate LASC, which might have been inflated) were the lowest of all the learners with HI participating in the study. Her low ASCs could imply that the meetings and workshops had not provided sufficient guidance to the educators to support her, or that the well-intended support rendered by the Department was off-target in that she still lacked the one crucial tool to function in a hearing school, namely hearing aids. Her own apparent lack of ability, however difficult to establish reliably, might of course also have contributed to her low achievement and, consequently, her low ASC. The data available on this school strongly suggest that learners with HI need specific support if they are to be successful at schools other than special schools for learners with HI. General support appears to be too non-specific to have positive effects. School 3 relied on internal support and support from other special schools. The support they received from the Department was limited to those additional services they could render because of the nature of the school. The principal of School 3 expressed the opinion that courses offered by the Department for educators in regular schools were often not appropriate for the teaching conditions of his educators, and had to be adapted.

From the data, it did not seem as if the type of school, full-service or special, as designated by the Department of Education, had an influence on the ASC of learners with HI, as the one full-service school apparently included a learner with HI more successfully than the other full-service school, and the ASCs of the learners with HI in the special school are spread somewhat randomly among the ASCs of the learners with HI in the full-service schools. The mere designation of regular schools as full-service schools does not bring about the desired changes in educational practice: from the data, it appears that Sarah was an unhappy

learner in a full-service school context. Being designated as a full-service school, then must link with the specific role that the Department of Education should play in supporting the school to implement inclusive education policy.

Shifting the perspective of the discussion to schools, the roles that the *principal* and the *social and economic contexts* play become apparent. As both principals of the full-service inclusion schools declared themselves committed to inclusive education and acceptance of all learners, yet had different ASC results in respect of the learners with HI involved in the study, the principals' commitment to inclusive education *per se* did not appear to facilitate effective learning environments. The *resources* the principals had access to, and were able to mobilise, and the *resourcefulness* of the principals themselves, probably contributed more to facilitating effective/ineffective learning environments and sound/poor ASCs of learners with HI. Access to resources are linked to the social and economic systems operant in the schools.

With access to additional resources, the principal in School 1 was able to reduce class size to 28-32 learners, compared to the 60 learners per class in School 2, which had access to limited resources and had to apply these where the need was greatest. Additionally, the principal in School 1 was able to reduce class size even further for classes containing a learner with an impairment. From the data, it would seem that smaller class sizes might contribute to higher ASCs of learners with HI, but the data do not imply that the highest ASC can always be found in the smallest classes. The class in School 3 were the smallest (N=11), but the ASCs were by and large not the highest. The ASCs of Sarah, however, were generally the lowest of all the learners participating in the study, and her class size was the biggest (N=53).

The principal in School 1 tried to select educators most suitable for dealing with impairment, and prepare and motivate them before installing a learner with an impairment in their classes. According to the educators, he facilitated the sharing of knowledge by requiring educators who had learners with impairment in their classes to consult with educators who had had those learners during the previous year. School 2 had an elaborate support system for educators and learners in the form of the SBST, but at least one of the educators was disappointed by the lack of feedback received from the SBST, especially in respect of feedback on courses attended by the SBST. The principal of School 1 mentioned that professionals and businesses were approached to address challenges which occurred in the school. Challenges could relate to general educational challenges such as a lack of computers and finances, to educators who required support in dealing with specific

impairments, or to learners who might require support services of a psychological or other nature. School 2, however, had to contend with issues of a more basic nature: learners needed to be provided with meals, clothes and/or basic childcare. In School 3, according to the principal, the school had to make provision for basic amenities for some learners, but various forms of specialised support were available on the school premises because of the nature of the special school.

Again shifting the perspective of the discussion - this time to classrooms - the role of the *educators*, the *learning areas* and the *peers* in the ASCs of the learners with HI comes under scrutiny. It is argued that the educators play a pivotal role in the ASC of the learners with HI, and their role will be discussed last. The lower GASC and LASC of learners with HI compared to those of learners with no HI would seem to confirm that learners with HI are linguistically challenged. From the virtually similar MASC of learners with HI and learners with no HI it may be inferred, on the other hand, that learners with HI are fairly well able to access mathematics. Specific learning areas, therefore, would appear to be more, or less, accessible to learners with HI.

In School 1, especially in the mathematics class, Hanno relied heavily on the support of his friend, Pete. The support he received was arguably one of the contributing factors to his high MASC. In contrast, Sarah, in School 2, relied on more than one friend to help her, but apparently with less effect in respect of her MASC than her LASC, suggesting that peer support can be helpful, but is not necessarily vital for improving or maintaining a high ASC. The learners in School 3, in contrast, relied solely on the educators for support during the classes. Their ASCs ranged from high to moderate to low across the different learning areas, adding 'proof' to the notion that peer support can be used in a supportive way, but is not vital to improve ASC.

When shifting the perspective on the ASC of learners with HI to the individual system, access to resources by the learners with HI individually, personal historicity of each learner, involvement of parents and disposition come under discussion. The parents of Hanno in School 1 were able to *access financial and/or medical resources* and were, therefore, able to afford audiological assessment and suitable hearing aids for Hanno at an early age. The parents of Sarah in School 2, however, struggled to make a living. Free or cheap treatment provided by the rural clinic and local hospital failed to prevent HI and/or support Sarah in respect of her HI. Once in Pretoria, she relied on free public healthcare, which, although effective, took time in taking place. The learners with HI in School 3 had the advantage that once they had entered the school, basic amenities and technical support could be provided

to them. Further, from the data it appears that the learners with HI in School 1 and 3 could readily access educational resources by asking the educators questions and were then supported effectively. Sarah in School 2 seemed unable to access the educational resources available, although she did use peer support. She might not have accessed the knowledge of the educators because she was too shy or lacked communication skills, or she might have tried to ask for support in the past but had been disappointed with the results.

Early identification of HI and appropriate steps taken to support the learners with HI seem to be crucial to their ASC. Hanno's HI was identified at an early age (2½ years) and he was enrolled at the special school at an early age (3½ years), where he received appropriate stimulation and technical support in the form of hearing aids. Only in his Grade Three year was he enrolled in the regular school, which later became a full-service inclusion school. Similarly, all but one of the learners of School 3 were identified as having HI at an early age and were then supported appropriately. The only learner in School 3 who stood out as being different (based on speech, behaviour and academic progress), was James, who had profound hearing loss, but had been enrolled in a regular school with private speech therapy, until placed in the special school for his second year in Grade Six. Similar to James is Sarah, in School 2, whose HI was only identified at a late age in her life and who was enrolled in a regular school, later becoming a full-service inclusion school. Although Sarah's HI was less severe than both Hanno's and James's, her ASCs were lower than theirs, except for a slightly higher LASC than James's. It appears that early identification of HI, appropriate technical support in the form of hearing aids and/or operations, and specialised learning support during the early years are crucial for academic progress and consequently for a healthy ASC. As Hanno's ASCs were in general comparable to those of learners with no HI, the important role that a special school can play in giving learners with HI a springboard for the rest of their school career, cannot be denied. Hanno's adaptability and his good pronunciation probably contributed much to his successful inclusion.

The role *parents* might have played in the ASC of their children with HI is uncertain. Hanno's parents were reportedly divorced, and not very involved in his schoolwork and activities; however, his paternal grandmother took an interest in his schoolwork. Sarah's parents, especially her mother, left no stone unturned in her efforts to find help for Sarah. Because of limited resources, including limited access to knowledge about Sarah's HI, her efforts were not very effective. Furthermore, she continually found herself a virtual victim of inclusive education policy, as attempts to arrange for placement at other schools were not always supported by the school and/or the Department, even though Sarah was not making progress scholastically. The educators in School 3 mentioned that few of the parents of the

learners were really supportive of their children and that the learners were more often than not spoiled. From the data it would seem that a supportive adult in the life of the learner with HI, combined with access to knowledgeable ways of support, might contribute to better ASCs.

In the special school, many learners feared being ridiculed when they had to do work on the chalkboard. It appears as if complete *acceptance* of the learners with HI by the other learners had taken place in the full-service schools, as no such incidences could be found. Hanno, apparently, had been the target of aggression when he first enrolled in the full-service school, but no similar incidents of aggression were still occurring. It might be that the learners in the full-service schools were exposed to a diversity of impairments and that respect and acceptance of people as they are was being taught and modelled consciously, whereas the ethos in the special school appeared to be expressly problem-focused. Also, the learners in the special school might have had feelings of inferiority because they had struggled to cope in regular schools or had been regarded as 'stupid' by some people; ridicule, in their perception, might then have become a socially acceptable form of assertive behaviour.

Hanno was described by his mathematics educator as someone who was *motivated* to do the best he could, whereas some of the learners in the special school were described as lacking motivation for academic work. Sarah apparently appeared to be motivated as well, although her motivation did not seem to be enough in contributing to a high ASC. Disposition, therefore, seems to relate inconsistently to a healthy ASC.

It appears that the Department of Education, the type of school, the principal's commitment to inclusive education, the learning area, peer and adult support, and personal disposition contribute indecisively to the ASC of learners with HI, whereas the resources available to a school and the resourcefulness of principals probably contribute to the ASC of learners with HI somewhat consistently, and early identification of HI, appropriate technical support and early specialised learning support appear to contribute to the ASC of learners with HI decisively. Educators were mentioned as a resource or asset that the learners with HI could tap into, and this will now be looked at in more detail.

In the school context, the *educators* have daily and direct con tact with the learners with HI. Considering that feedback is one of the ways in which ASC is formed, educators potentially play a major role in influencing the ASC of all the learners, including those with HI. Additionally, educators facilitate learning by presenting content and making appropriate

accommodations. Educators also contribute to class atmosphere, monitor progress, facilitate peer support and are in a position to render timely support to learners with HI. Therefore, it is argued that in addition to the factors mentioned in the previous paragraph, educators contribute much, if not the most, to the ASCs of learners with HI.

Since the learning areas other than the first language and mathematics were not focused on in the study, not much can be said about the way these educators may have contributed to the GASC. Hanno's responses as well as Pete's responses with regard to the projection pictures can perhaps give the best idea of what it was like for Hanno in the full-service school: he sometimes did not understand work and/or the instructions; when he asked questions, the answers were not always satisfactory; some educators sometimes talked too fast and he could not keep up with them, especially if he had to follow in a book or on a page; some learners talked too much in class, stood up too often and talked with friends; he was sometimes busy with other things while the educators were teaching; and he sometimes failed to hear the words, especially difficult words. Sarah, on the other hand, had to contend with a multilingual teaching situation; non-preferential seating; lack of interaction with and individual attention from the educators because of *inter alia* overcrowding; difficulty in communication because of HI and unclear speech; and incidences of failing to hear the educator and the educator not hearing (understanding) her.

Accommodations in the Afrikaans class in School 1 entailed practical arrangements (preferential seating, using gestures to catch his attention or convey instructions), accommodations in teaching and assessment (individual repetition of instructions, reduction in the volume of the exercises, indication of where answers in the text lay or where on the page they were reading or working, substantial accommodations with oral and listening exercises, deviation from the expected outcomes for the learners with no HI, allowing question-asking behaviour), and involvement in class activities (ensuring successful participation by asking Hanno easier questions). Accommodations in the Sepedi class in School 2 entailed practical arrangements (the educator spoke loudly), accommodations in teaching (additional support in the form of worksheets to be completed), involvement in class activities (effort made by the educator to involve Sarah) and reliance on peer support (Sarah was supported by some of her group members). In School 3, accommodations in the Afrikaans class entailed practical arrangements (preferential seating, ensuring speech reading by favourable positioning, obtaining the attention of the learners before speaking), accommodations in teaching and assessment (individual support and explanation of instructions, repetition of work and instructions, practical tips, expansion of vocabulary, flexibility) and involvement in class activities (allowing spontaneity in class).

When the categories of accommodations in the first language classes and the quality and quantity of accommodations are considered, it can be seen that the least accommodations were being made in School 2. In School 1 and 3, accommodations in teaching and assessment, particularly, were numerous and appeared to effectively support the learners with HI to participate in learning the first language.

Accommodations in the mathematics class in School 1 entailed practical arrangements (preferential seating, an educator who spoke more loudly), accommodations in teaching and assessment (an educator who consistently checked whether Hanno had heard and understood, an educator who usually asked Hanno to do an example to ensure that he had understood new content, repetition of facts, availability and accessibility of the educator to be asked questions on the work, individual assistance, one new mathematical principle per day, written instructions, structured presentation of lessons) and peer support (Pete supported Hanno). Accommodations in the mathematics class in School 2 entailed accommodations in teaching and assessment (repetition, facilitation of extra opportunities for support which were ineffective, availability of the educator for support which was not used by Sarah and therefore ineffective in supporting her), involvement in class activities (the educator asked Sarah easy questions) and peer support. Accommodations in the mathematics class in School 3 entailed practical arrangements (preferential seating), accommodations in teaching and assessment (following a visual approach, using basic and clear language in explaining and giving instructions, limiting explanations to the basics, reducing speed of work, keeping lessons to the content only, often repeating instructions and examples and content, making appropriate worksheets, rendering individual support - also at each learner's desk, using a concrete approach to learning, allowing the learners to be concrete, ensuring active involvement of all the learners in the class, giving guidance to the correct answer, providing ample opportunities to ask questions, addressing general barriers to participation in the work, employing direct instruction methods) and ensuring a relaxed classroom atmosphere.

Again, when the categories of accommodations in the mathematics classes and the quality and quantity of accommodations are considered, it can be seen that the least accommodations were being made in School 2. In School 1 and 3, accommodations in teaching and assessment, particularly, were numerous and appeared to effectively support the learners with HI to participate in learning mathematics. It is important to remember that, although the accommodations in respect of teaching and assessment were few and appeared to be ineffective in School 2, there was a wholehearted acceptance of Sarah as learner in the class, with all the educators actively trying to involve her in classroom activities

by asking easier questions and/or by using the group she was a member of. Much was done for social acceptance of Sarah, but considerably less for academic progress.

The effect of some of the accommodations differed across the schools. Although repetition was an accommodation frequently made in teaching and assessment, the type and function of repetition in the schools differed. Repetition of instructions, explanations and content, as in School 3, seemed to have more value than repeating singular statements or answers, as often happened in School 2. The mathematics educator of School 3, however, emphasised that learners with HI needed much repetition, as they were sometimes unable to follow the first instruction, explanation or exposition of content and, as such, the repetition in School 2 probably was not completely without effect. Yet the mathematics educator in School 3 was also of the opinion that much repetition made the learners lazy to listen and pay attention, as they knew that if they had not heard the first time, the task would be repeated.

In School 1, Hanno often asked questions, which usually centred on confirmation that he had heard correctly, or a repeated explanation because he had not understood. Sarah did not direct questions to the educators, and only sometimes to her peers. The learners with HI in School 3 continually asked questions, but the questions demonstrated a need for individual attention, or dependence, rather than a need for support with the work.

Related to the question-asking behaviour in the various schools, it is interesting to note that Hanno appeared to be working independently in the mathematics class, but was more dependent on the educator for guidance in the Afrikaans class. In the special school, all the learners with HI appeared to depend on the educators in the Afrikaans and mathematics classes. The nature of the learning area and/or the educators might have contributed to the dependence or learned helplessness. Afrikaans being a language and, as already explained, more difficult to access for learners with HI, might explain why the learners with HI were notably more dependent on the Afrikaans educator in both the full-service and the special school. In contrast, Hanno was able to work independently in the mathematics class, suggesting that the learners with HI in the special school were perhaps becoming too reliant on the mathematics educator. Sarah appeared to work independently from the educator, using her peers for support where necessary, but without having much academic success. The role of the educators in contributing to (learned) dependence and independence of learners with HI should not be underestimated.

It was more notable in the mathematics classes in School 1 and 3 than in the first language classes in School 1 and 3, that visual explanation of content was considered an important

way of introducing new content. In School 2, there was a bigger emphasis on oral exposition of content because of the educator's teaching style and/or the lack of learning support materials; however, when Sarah's HI is taken into consideration, it becomes clearer why she progressed slowly in a class where she was not enabled visually to access the content.

Once, in the special school, the learners had to dramatise a short story they had read and discussed. It was interesting to note how easily these learners complied with the task. They were spontaneous in their dramatisation, and included acting with their lines. When Hanno had to do an unprepared speech, he was uncomfortable, and completely lacked spontaneity. Acknowledging that the learners in School 3 knew the text when dramatising the story, whereas Hanno's speech was unprepared, the question yet arises whether Hanno would have felt more comfortable when making a speech in front of other learners with HI.

A question which merits consideration is why the educators in School 2 were apparently unable to support Sarah to participate in learning. Ironically, the educators in School 2 had apparently been exposed to the principles of implementing inclusive education. Figure 5.11 indicates the educators participating in the research, in respect of their gender, learning area and language of instruction, and Figure 5.12 summarises additional information regarding the educators.

Figure 5.11 Educators participating in the research

School	Educator	Gender	Learning area	Language of instruction
1	1	Female	Class educator	Afrikaans
	2	Female	Afrikaans First Language	Afrikaans
	3	Male	Mathematics	Afrikaans
2	1	Male	Class educator	English, Sepedi,
	2	Female	Sepedi First Language	Sepedi
	3	Male	Mathematics	English, Sepedi
3	1*	Female	Class educator	Afrikaans
	2*	Female	Afrikaans First Language	Afrikaans
	3	Female	Mathematics	Afrikaans

* The bracket indicates that Educator 1 and 2 was the same person, that is, the class educator was the Afrikaans first language educator as well.

Figure 5.12 Educator information

	School 1 Educators			School 2 Educators			School 3 Educators	
	1	2	3	1	2	3	1 & 2	3
Initial Training	Pretoria College of Education: Junior Primary	BPrimEd BA with History & Afrikaans	HED: Biblical studies, Remedial Education. Mathematics (UNISA)	N3 Motor mechanics; Senior Primary Teacher's Diploma	Mokopane College of Education: Diploma in Education	Groblersdal College of Education: Primary Teachers Diploma	BA HED DSE (UNISA) BS BEd	College of Education: Remedial Education
Years of experience	6	15	27	6	7	7	22	16 or 17
Further courses	Department of Education courses: ADD Emotional problems Speech therapy Dyslexia	FDE Gifted children Singing Choir Computer	OBE courses		OBE courses Handball Volleyball Cricket	Several OBE courses with certificates	Courses presented internally by the school: hearing & OBE	Diploma in Computer Science Courses presented internally by the school

According to Figure 5.12 the training of the educators varied from three years' teaching courses at colleges of education to post-graduate courses at universities. Educators in the historically advantaged schools had university and/or college training, whereas the educators in the historically disadvantaged school had training only at colleges, probably also historically disadvantaged tertiary institutions. It might be that the training of the educators in School 2 did not adequately prepare them to deal with new challenging teaching situations which may arise, contributing to the ineffectiveness of the accommodations for Sarah.

The number of years' teaching experience of the educators in the historically advantaged schools was considerably greater than that of the educators in the historically disadvantaged school. Except for Educator 1 in School 1, the educators in School 1 and 3 all had 15 years or more of experience. The educators in School 2 had six, seven and seven years of teaching experience respectively. When considering the accommodations made for the learners with HI in School 1 and 3, the data suggest that increased teaching experience might contribute to enabling educators increasingly to deal with learners with HI in their classes. Why there is such a discrepancy in years of teaching experience merits consideration. One possible reason obviously concerns the small sample size, which might have increased the idiosyncratic characteristics of the participants selected. Another possible reason relates to the policy of affirmative action implemented since 1994 in South Africa where historically disadvantaged employees have been enjoying preference when applying for jobs. It might be that some educators in the historically disadvantaged schools with many years' experience have been appointed in administrative and executive positions, thereby creating a vacuum of valuable experience in the historically disadvantaged schools. The obverse might be that the cohort of educators with long years of experience in historically disadvantaged schools chiefly consisted of seriously under-qualified personnel who, in the new educational dispensation, have had to make way for better qualified educators through a number of right-sizing exercises.

What is especially notable from Figure 5.12 is that not one of the educators had attended courses on inclusive education, raising serious questions indeed. Not having received appropriate training means that their knowledge about inclusive education policy and practice was gleaned from departmental and/or school meetings, conversation with lay people and/or peers, the media and/or personal reading on the matter. It is not probable that their initial training had made provision for inclusive education, as it had been completed before the inclusive education and participation policy was finalised. Their teaching skills were possibly honed by initial training, peer input and lessons learnt from experience. The educators of School 3 had extensive additional training and experience in dealing with learners with HI,

but the educators of School 1 had had no such exposure. Nevertheless, they were able to make appropriate accommodations for Hanno, suggesting that their training (both had university training) and/or their years of experience contributed to the effective learning support they succeeded in giving.

In conclusion, when trying to illuminate the key issue of the thesis, the data suggest that ASC can reflect the practices of inclusive education and participation as expressed in specific classrooms by specific educators, and not necessarily in schools or school contexts generally. *ASC can then indeed be regarded as a way to determine the 'health' or wellness of the individual in the classroom and of classroom practices.* The classroom practices in especially School 1 and 3 add valuable suggestions as to how effective learning environments can be created for learners with HI, whether in full-service or special schools. The crucial role educators play, as facilitators of classroom practices, in the ASC of learners with HI cannot be denied.

Chapter 6 contains a summary of the thesis, including the literature review and research results and findings, and attempts to answer the research questions as posed in Chapter 1, before discussing limitations of the research and making recommendations for future research.