CHAPTER NINE

RESULTS OF THE OUTCOME EVALUATION

9.1 Introduction

The outcomes of the intervention are evaluated by means of two main instruments, a questionnaire and an opinion poll, together with a subsidiary instrument, namely the project documentation. A self-administered questionnaire is used containing five psychological and social research variables. This instrument is analysed by means of a quasi-experimental research design applied to the intervention group (IG) and (quasi-)control group (CG)[30], with four test phases. The project documentation, as the third instrument presented in this chapter, is strictly recognised as an example of specific learning outcomes of particular segments of the model. These results are meant to derive additional information on the level of knowledge, attitudes and skills development among children in the intervention group. These paragraphs start with a description of already existing unsafe health intentions, for instance regarding pregnancy, and are followed by an explanation of possible steps that need to be taken to implement sessions on HIV/AIDS and sex education in order to meet parents' educational requirements and to ensure the emotional safety of the children. The preceding is followed by results of active learning tests regarding attitudes towards a fictitious HIV-positive child and the level of knowledge on HIV/AIDS in Intervention (X)[31] II. The last part of this chapter deals with results from the opinion poll (part 1) conveying long-term attitudes among children in the intervention group towards the programme.

9.2 Effects of the Programme Regarding Individual Protective Variables

In the following section the results of the quantitative instrument, the self-administered questionnaire, are presented in four parts: (a) presentation of sociodemographic variables, (b) outcomes regarding psychological and social competencies variables, (c) investigation of particular outcomes surrounding children's knowledge of HIV/AIDS, and (d) fine adjustment of particular messages conveyed in Intervention (X) I and (X) II.

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[30] As the control group unexpectedly turned into a quasi-control group after being subjected to the governmental life skills programme on AIDS, most of the presented results cover results from the intervention group participating in the non-governmental programme the Child Mind Project.
[31] 'X' refers to the non-governmental intervention.

9.2.1 Comparison between Intervention Group and Control Group regarding Sociodemographic Variables

In this paragraph sociodemographic variables that were being used in the quantitative instrument, the questionnaire (part A), are presented. The variables are age and gender composition, ethnic heritage and family background. The family composition in particular is presented to provide guidelines to: (a) identify existing family units, and (b) examine possible influences on the mounting psychological and social variables in the sociodemographic background of children in the intervention and control group.

As already explained in chapter 6 and here repeated for the sake of clarity, a total number of 80 children, grade 4 level, were asked to participate in the questionnaire. Forty-one children were from to the intervention group (Ikaya Primary School) and 39 children from the control group (Nomlinganiselo Primary School). The gender distribution was balanced with 40 girls and 40 boys. The ages of participants ranged from eight to 14 years. More than three quarters of the children (77.5%) were nine to 11 years old; five children (6.3%) eight years old and 11 children (13.8%) 12 years and older. The participating boys and girls were all of African ancestry and lived in disadvantaged settings. The ethnic distribution among learners was predominantly Xhosa; the minority of the samples were Tswana and Sotho.

According to the reports by the *children in the intervention group* (*N* = 41), as illustrated in Figure 9.1[32], the most common type of family unit was single-headed family units (44%), with the majority of families headed by women (98%). Thirty-seven percent of the children of the intervention group reported that they lived with both parents and with or without other siblings in so-called nuclear families. In addition, almost 9% of the children reported that they lived with one biological parent and one stepparent with or without other siblings ('nuclear & stepparent'). Finally, 10% of the children seemed to grow up without their biological parents in family units composed of other siblings, aunts and uncles or other legal guardians ('special'). 'Extended' or 'extended with stepparents' family units were not listed by children in the intervention group.

The *children in the control group* (*N* = 39) mentioned a greater variety of family units than those in the intervention group. The most common family unit in the control group is the nuclear family unit (28%).

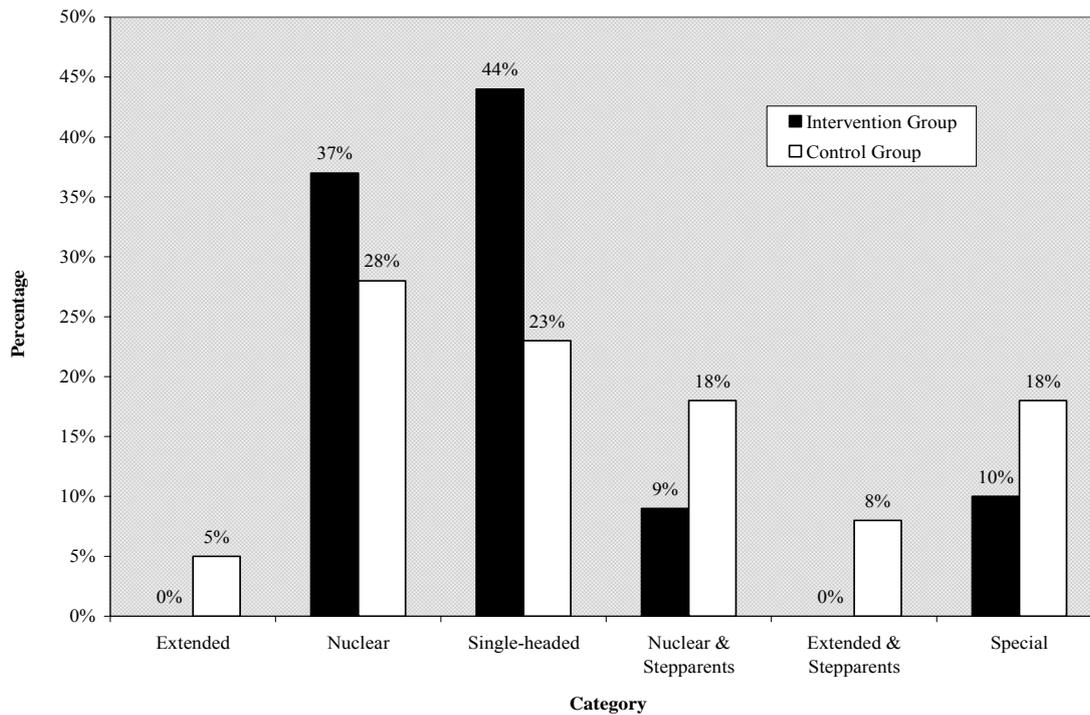[32] All results were rounded up following mathematical procedures.

Figure 9.1. Responses on "Who do you live with at the moment?" Eleven Responses Clustered in Six Categories – Existing Family Units in the Intervention and Control Group at Pretest (March 2003).

The second most common family type is the single-headed family unit (23%), and again the majority of these units are headed by women (98%). Eighteen percent of the children of the control group reported that they lived with one biological parent and one stepparent with or without other siblings (nuclear & stepparents). The same number of children (18%) stated that they lived in family units with siblings and with/without grandparents (special). Half of these special family units were exclusively headed by other children, and can consequently be defined as child-headed households. Almost 8% of the children of the control group reported that they lived in extended family units with stepparents and only 5% of the children stated that they lived in a multigenerational family unit. According to the reports, grandparents were present in half of the extended family units.

According to the statements by the children, the findings illustrate that the intervention group, who live in a semi-urban area and the control group, who live in an urban area, experience different family structures. Although the majority of the children in both groups grow up in nuclear and single female-headed family units, more children in the control group than in the intervention group live with stepparents and grandparents, and in so-called special family units headed by siblings or other relatives due to the absence of biological parents.

Regarding the second objective, to examine possible statistical correlations between the variable 'family' and five dependent psychological (self-esteem, self-efficacy, knowledge)

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and social (gender communication, social responsibility) variables, no statistically significant interaction was found either among children in the intervention group or among children in the control group.

9.2.2 Changes of the Psychological and Social Research Variables

Unfortunately, the results regarding the psychological variables were disappointing in terms of the formulated hypotheses because none of the expected changes over the four test phases occurred, neither among the samples who attended the non-governmental intervention (X), nor among the samples who attended the governmental intervention (Y)[33]. This means the factorial ANOVA of the four psychological and social variables could not reveal a significant correlation between the variables 'group' and specific 'test phase'. In other words, no effects could be detected, not in the non-governmental intervention (X) I or in the governmental intervention (Y). For a better understanding Figure 9.2 and 9.3 display the means for the intervention and control group of the used psychological and social variables over the four test phases.
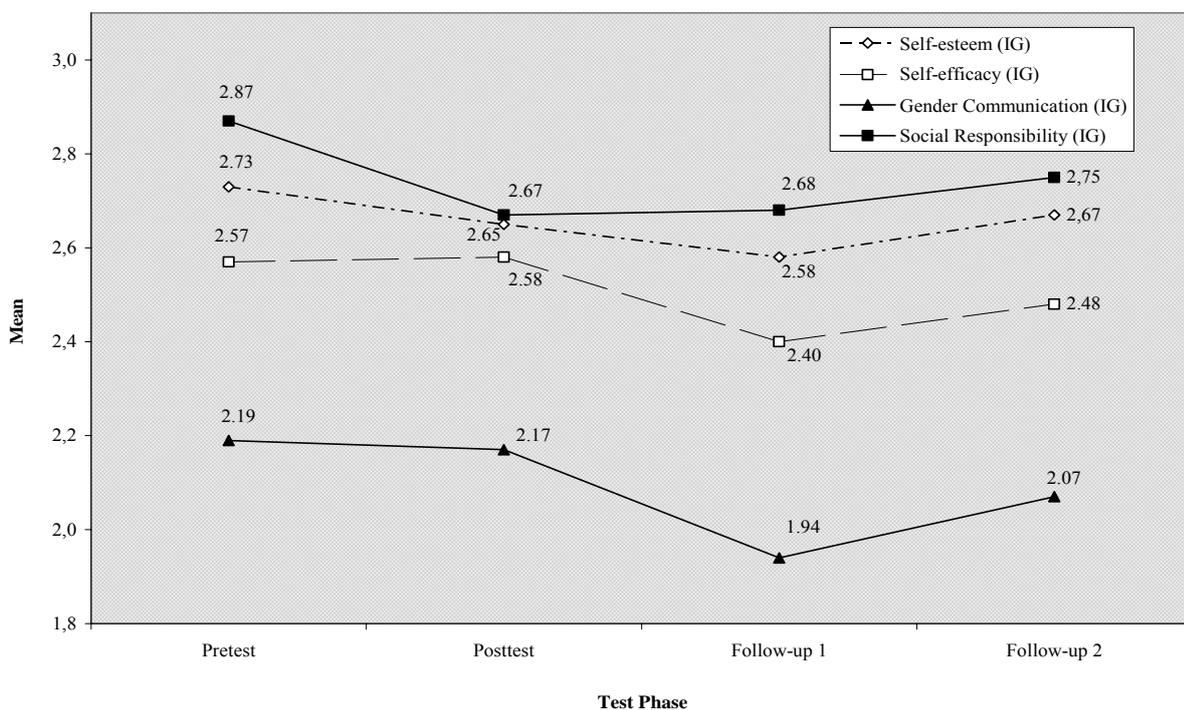

Figure 9.2. Means of the Psychological and Social Variables for the Intervention Group (IG) over four test phases.

For closer examination, means of the dependent variables with regard to the variable gender (male and female) in the intervention and control group are presented over four test phases in

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[33] 'Y' refers to the non-governmental intervention.

Appendix H. Only two gender-specific effects in gender communication and social responsibility were detected in the intervention group due to the ceiling effect. In test phases 1 to 3, the boys have significantly higher results regarding intergender communication than the girls. With regard to the variable social responsibility girls reach significantly higher results in test phases 2 to 4 (Appendix I).
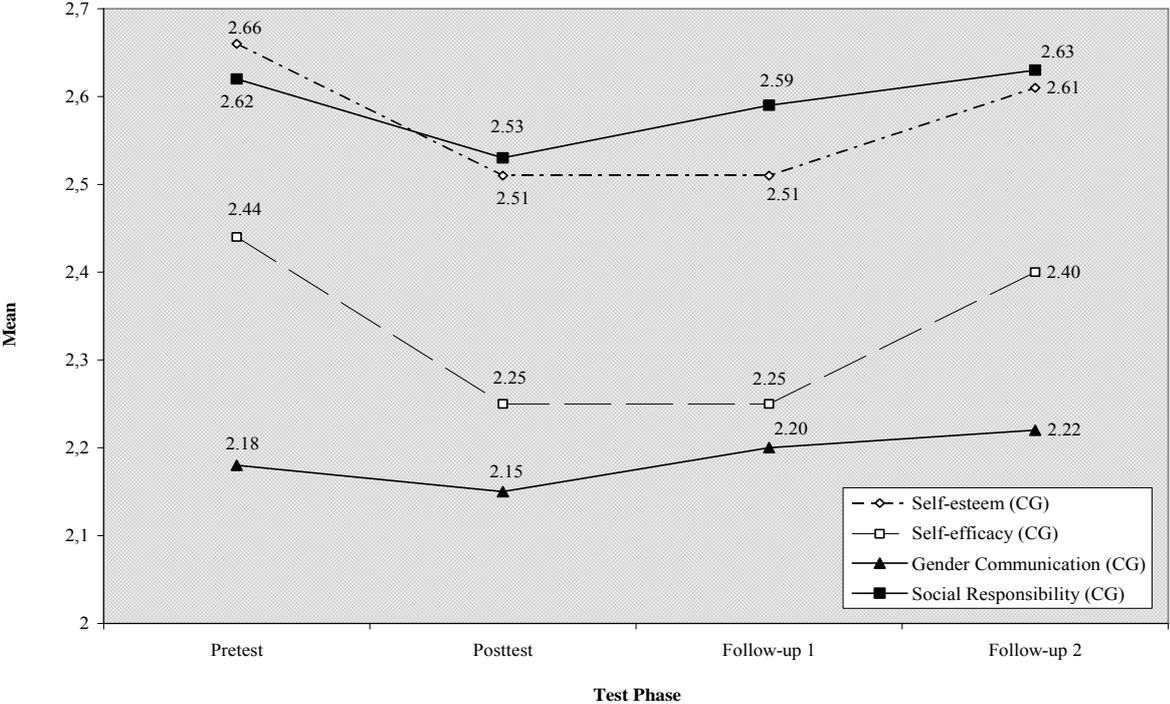

Figure 9.3. Means of the Psychological and Social Variables for the Control Group (CG) over four test phases.

Of the four test phases the intervention group reached the highest scores in the scales of self-esteem, gender communication and social responsibility already at pretest level. Between 44,3% and 50% of the learners had already reached the maximum of the scale during the pretest phase regarding the variables of self-esteem and social responsibility, whilst between 87,3% and 97,4% of the learners assessed gender communication and self-efficacy with the highest possible scores.

At this point a detailed description of the scales will be omitted, because these results can be regarded as a sign of the inability of the instrument to detect possible changes within these variables over time. An explanation for this can be that the 3-point scales applied are not detailed enough to detect more specific changes throughout the intervention. However, it was not possible to use a 4-point or 5-point scale, since the children were not able to understand that kind of questionnaire format due to their early developmental phase and inadequate reading and writing skills. This was a great dilemma to which this study was exposed. A

possible strategy to avoid such difficulties in further similar studies may be to consider long-term training with this target group to teach them how to fill in a 4-point rating scale. In addition, the designed items should implement more specific learning goals which are adjusted with the contents of the learning modules so that the children can make connections between the theoretical instrument (questionnaire) and the practical training sessions.

9.2.3 Examining the Variable 'Knowledge of HIV/AIDS'

Despite the fact that the changes in the psychological and social research variables were not convincing, the more convincing results were nevertheless derived from knowledge scales 1 and 2, which recorded the samples' level of knowledge of HIV/AIDS. The factorial ANOVA of knowledge scale 1, examining general knowledge of HIV/AIDS, found significant main effects for the variables 'test phase' ($F_{(2.7, 186.4)}$ = 22.45; $p < .001$; Partial-ε^2 = .246) and a significant 'interaction' ($F_{(2.7, 186.4)}$ = 14.72; $p < .001$; Partial-ε^2 = .176) (Table 9.1). The 'group' variable is not significant ($p =.121$), which can be ascribed to the descriptively low starting point of the intervention group during the pretest phase. The probability values, as well as the following factorial ANOVA, are measured in accordance with the Greenhouse-Geisser corrected degree of freedom for the assessment of critical coincidence of the F values. Figure 9.4 gives an overview of all means of knowledge scale 1 for the intervention group (IG) and control group (CG) in the four test phases.

Table 9.1.

Results of the Factorial ANOVA of Knowledge Scale 1 with A (group variable) and B (repeated measurement variable).

	SS	*df*		*MS*	*F*	*p*	Partial-ε^2
A	0.17	1		0.17	2.46	.121	0.034
in S	4.90	69		0.07			
B	1.68	3	(2.7)	0.56	22.45	.000 (.000)	0.246
A x B	1.10	3	(2.7)	0.37	14.72	.000 (.000)	0.176
B X N	5.16	207	(186.4)	0.02			

Note. A = group variable, in S = differences between *N* among both Groups, B = repeated measurement variable, *N* = number of subjects, A x B = interaction between variables, B x N = interaction between test phase and *N*, SS = sum of squares, *df* = degree of freedom, *MS*= mean square, *F* = *F* value, *p* = probability of *F* value, Partial-ε^2 = Partial Eta square, values in brackets = Greenhouse-Geisser corrected *df* and *p* values.
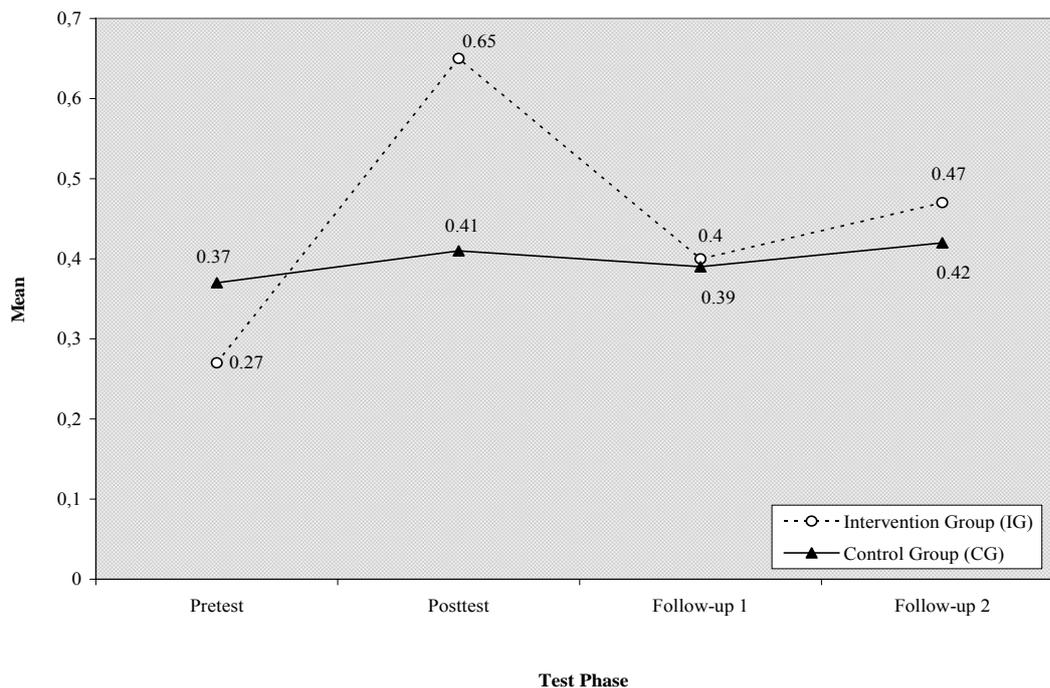
Figure 9.4. Means for Knowledge Scale 1 for Intervention Group (IG) and Control Group (CG) over four test phases.

With regard to the research questions, the interpretation of the 'interaction' is of special interest. Therefore a Scheffé-test for the comparison of pairs was measured (measurement by hand in accordance with Bortz, 1999). The evaluation of the variances of error was also done with a Greenhouse-Geisser corrected degree of freedom. Table 9.2 shows the absolute values. The significant differences between the means are marked with ** and * in accordance with the Scheffé-test on a 1% or 5% interval. The indication of means in Table 9.2 is equivalent to the research design with one intervention and one control group (factorial ANOVA) with repeated testing. The six differences in italics on the upper left side of the matrix show the means of the intervention group and the six differences in italics on the lower right side of the matrix show the means of the control group. The differences in bold print illustrate the differences in comparison with all means of the intervention and control group at the four test phases. The result in bold print of -.10 in the middle of the first line in Table 9.2 is the difference between $\bar{x}_{11}$ - $\bar{x}_{21}$, that is the difference between the means of both groups at the first test phase.

Table 9.2.

Differences between Means with regard to Knowledge 1 between Intervention Group (IG) and Control Group (CG) over four test phases.

	$\overline{x}_{12}$	$\overline{x}_{13}$	$\overline{x}_{14}$	$\overline{x}_{21}$	$\overline{x}_{22}$	$\overline{x}_{23}$	$\overline{x}_{24}$
$\overline{x}_{11}$	-.38**	-.13	-.20**	**-.10**	-.14	-.12	-.16
$\overline{x}_{12}$		.25**	.18*	.28**	**.24****	.26**	.23**
$\overline{x}_{13}$			-.07	.03	-.01	**.01**	-.02
$\overline{x}_{14}$				.10	.06	.08	**.04**
$\overline{x}_{21}$					-.04	-.02	-.05
$\overline{x}_{22}$						.02	-.02
$\overline{x}_{23}$							-.04

Note. $\overline{x}_{11}$ = difference of means; first number refers to group (1= intervention group, 2 = control group), second number refers to test phase (1 = Pretest, 2 = Posttest, 3 = Follow-up 2, 4 = Follow-up 2).

At the pretest phase no statistical significant difference between the intervention group and the control group was detected. The two groups only differ regarding their level of knowledge of HIV/AIDS. While the intervention group displays a strong increase in values in knowledge scale 1, the control group does not show a significant change in knowledge scale 1 from pretest to posttest; this means the intervention group has significantly higher values than the control group at the posttest. With regard to the knowledge presented in knowledge scale 1, the intervention (X) shows an effect. The intervention group shows a significantly higher mean of knowledge scale 1 from pretest to follow-up test 2; however, the sustainability of this increase is less clear. When compared with the posttest results, the means of knowledge scale 1 significantly decrease in the intervention group from test phase three to four. In other words, the means of the intervention group in test phases three and four are not significantly different from the means of the control group at all four test phases.

In summary, the intervention group, in comparison with the control group, starts at a descriptively lower point at the pretest, reaches significantly higher values at posttest, and falls back to the same level as the control group in test phases three and four. A sustainable effect of the intervention (X) can only be found to a limited extent. However, the governmental intervention (Y) does not show any significant effect, which means that all paired differences within the control group are insignificant.

The factorial ANOVA on knowledge scale 2, examining HIV transmission and protection, revealed two significant main effects in the variable 'test phase' (variable test phase: $F_{(2.53; 172)}$=12.44; p < .001; Partial-ε^2=.155 / variable group: $F_{(1; 68)}$=16.62; p < .001; Partial-

ε^2=.196) and revealed a significant interaction between both variables ($F_{(2.53;\ 172)}$=4.44; p <

.01; Partial-ε^2 =.061) presented in Table 9.3. The underlying means are presented in Figure

9.5.

Table 9.3.

Results of the Factorial ANOVA of Knowledge Scale 2 with A (group variable) and B

(repeated measurement variable).

	SS	df		MS	F	p		Partial-ε^2
A	2.11	1		2.11	16.62	.000		0.196
in S	8.61	68		0.13				
B	1.24	3	(2.53)	0.41	12.44	.000	(.000)	0.155
A x B	0.44	3	(2.53)	0.15	4.44	.005	(.008)	0.061
B X N	6.80	204	(172)	0.03				

Note. A = group variable, in S = differences between *N* among both groups, B = repeated measurement variable, *N* = number of subjects, A x B = interaction between variables, B x N = interaction between test phase and *N*, SS = sum of squares, *df* = degree of freedom, *MS* = mean square, *F* = *F* value, *p* = probability of *F* value, Partial-ε^2 = Partial Eta square, values in brackets are Greenhouse-Geisser corrected *df* and *p* values.
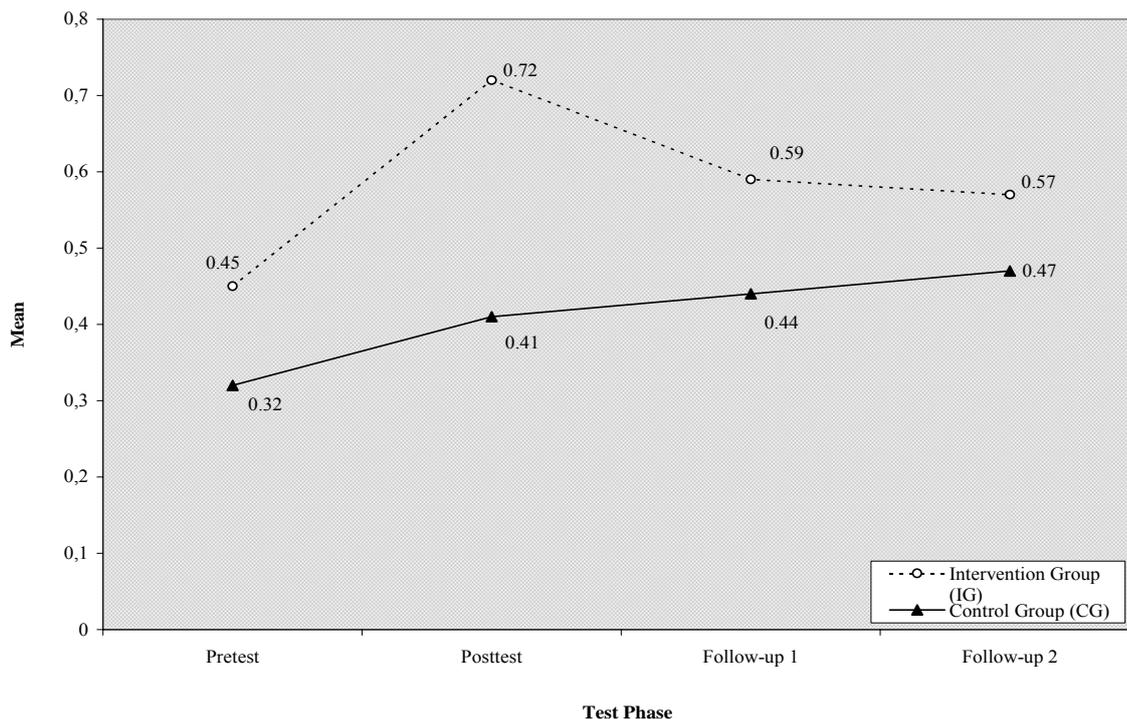

Figure 9.5. Means of Knowledge Scale 2 of the Intervention (IG) and Control Group (CG) over all four test phases.

Again, at the centre of the interpretative presentation of the results is the interaction effect. Table 9.4 shows the statistically significant differences between means on the 1% to 5% interval. No significant difference exists at the pretest phase between the intervention and control group, although the value of the intervention group is descriptively higher than the value of the control group.

Within the intervention group a highly significant increase in the knowledge scale 2 values occurred from pretest to posttest phase, whereas within the control group no significant changes could be detected. Thus, the Intervention (X) shows the predicted effect from pre- to posttest. However, from posttest to follow-up test 2 the means of knowledge scale 2 within the intervention group decreased, though not significantly, and no significant difference to the pretest can be detected. Again, the success of the Intervention (X) is not sustainable

This result is confirmed when the values in both groups are compared. Although the means of the intervention group in the third and fourth test phases are different from the means of the control group at pretest phase, they are similar at posttest and both follow-up tests phases. The sustainability of the effect of the Intervention (X) exceeds the effects of practice and maturation in the control group, which possibly took place between the first two test phases, but in a non-significant manner.

Table 9.4.

Differences between Means in Knowledge Scale 2 between Intervention Group (IG) and Control Group (CG) in the four test phases.

	$\bar{x}_{12}$	$\bar{x}_{13}$	$\bar{x}_{14}$	$\bar{x}_{21}$	$\bar{x}_{22}$	$\bar{x}_{23}$	$\bar{x}_{24}$
$\bar{x}_{11}$	-.27**	-.14	-.12	**.13**	.04	.01	-.02
$\bar{x}_{12}$		.13	.14	.40**	**.31****	.28**	.25*
$\bar{x}_{13}$			.02	.27**	.18	**.15**	.12
$\bar{x}_{14}$				.25*	.16	.13	**.10**
$\bar{x}_{21}$					-.09	-.12	-.15
$\bar{x}_{22}$						-.03	-.06
$\bar{x}_{23}$							-.03

Note. $\bar{x}_{11}$ = difference of means; first number refers to group (1= intervention group, 2 = control group), second number refers to test phase (1 = Pretest, 2 = Posttest, 3 = Follow-up 2, 4 = Follow-up 2).

The assessment of the governmental Intervention (Y) is unproblematic because no two-tailed significant means exist within the control group. In other words, the values in knowledge scale 2 increased within the control group from one test phase to another, but the changes are non-statistically significant. On the whole, the governmental intervention (Y) did not increase the knowledge on HIV/AIDS among the children in the control group. Thus, the following investigation of results from knowledge scales 1 and 2 will only present results from the variable of knowledge of HIV/AIDS from the intervention group Interventions (X) I and (X) II.

Tables 9.5 and 9.6 show the changes of knowledge of HIV/AIDS in the intervention group in the course of the four test phases. To carry out a full investigation into each item a McNemar-test was done between the values at pretest and the values at the three subsequent test phases. Tables 9.5 and 9.6 show whether the values of the posttest and both follow-up tests are significantly different from the pretest (** p < .01; * p < .05) in knowledge scale 1 and 2. All results in Tables 9.5 and 9.6 were rounded up following mathematical procedures. All significant differences display an increase in knowledge. With regard to knowledge scale 1, 12 of the 16 items are significantly different between pretest and posttest. This means 75% of the items contained significantly more right answers at posttest. The corresponding number of significant differences is reduced to three between pretest and follow-up test 1 and increased to seven between pretest and follow-up test 2. This is surprising, but can most likely be attributed to the developmental stage of the target group, as the intervention group did not receive further intervention in this field of knowledge between follow-up test 1 and follow-up test 2.

Table 9.5.

Percentage of Right Answers in Knowledge Scale 1 in the four test phases and Significant Changes in the Number of Right Answers compared to Pretest Results of the Intervention Group (IG)

Knowledge Scale 1	Right answer	Pre-test	Post-test	Follow-up-1	Follow-up-2
Is AIDS a disease where the immune system of a human being is destroyed and infections make the body weak against other infections?	Yes	28.9	71.1**	78.9**	60.5*
Did the HI-Virus come from the USA?	No	15.8	23.7	21.1	15.8
Is the origin of AIDS unknown?	Yes	28.9	18.4	42.1	31.6
Can the HI-Virus survive outside the body for a few minutes?	Yes	15.8	23.7	21.1	7.9
Can the HI-Virus survive outside the body for some hours?	No	15.8	42.1*	31.6	15.8
Is safer sex a method to prevent pregnancy?	Yes	23.7	42.1	15.8	21.1
Does safer sex mean using a condom during sexual intercourse?	Yes	28.9	68.4**	47.4	50.0
Does safer sex mean practising abstinence from sex?	Yes	21.1	57.9**	52.6*	34.2
Can a policeman get an HIV infection?	Yes	13.2	81.6**	15.8	55.3**
Can a prostitute get an HIV infection?	Yes	52.6	89.5**	63.2	68.4
Can everyone (people) get an HIV infection?	Yes	28.9	84.2**	31.6	57.9*
Can women get an HIV infection?	Yes	23.7	84.2**	31.6	86.8**
Can men get an HIV infection?	Yes	21.1	89.5**	34.2	71.1**
Can you do an HIV-test at an office of public health?	Yes	18.4	86.8**	47.4*	44.7*
Can you do an HIV-test at a doctor?	Yes	63.2	89.5*	65.8	65.8
Can you do an HIV-test at a community clinic?	Yes	26.3	89.5**	39.5	63.2**

The analogue analysis of the 10 items defining the knowledge scale 2 revealed five significant differences from pretest to posttest. Three items significantly changed from pretest to follow-up test 1 and only one changed significantly from pretest to follow-up test 2 (Table 9.6). The analysis of the items from knowledge scale 2 also shows that there exists an insufficient sustainability of the intervention effect (X): merely the preventive effect of the condom use is known to more children at the follow-up test 2 than at the pretest.

Table 9.6.

Percentage of Right Answers in Knowledge Scale 2 in all four test phases and Significant Changes in the Number of Right Answers Compared to Pretest Results of the Intervention Group (IG).

Knowledge Scale 2	Right answer	Pre-test	Posttest	Follow-up-1	Follow-up-2
Can you get the HI-Virus from unprotected sexual intercourse?	Yes	50.0	65.8	57.9	63.2
Does saliva/spittle carry the HI-Virus?[1]	No	34.2	81.6**	44.7	52.6
Does semen carry the HI-Virus?	Yes	42.1	60.5	44.7	34.2
Do tears carry the HI-Virus?	No	47.4	86.8**	73.7*	63.2
Does blood carry the HI-Virus?	Yes	63.2	84.2	78.9	71.1
Does urine carry the HI-Virus?	No	36.8	73.7**	36.8	42.1
Does sweat carry the HI-Virus?	No	44.7	81.6**	73.7*	55.3
Does secretion of the vagina carry the HI-Virus?	Yes	47.4	71.1*	47.4	50.0
Does watching TV with your friend without sleeping with him or her protect you against the HI-Virus?	Yes	44.7	47.4	65.8	55.3
Does using condoms during sexual intercourse protect you against the HI-Virus?	Yes	42.1	65.8	68.4*	86.8**

Note. [1] Due to the young age of children it was well-considered to avoid teaching knowledge that are deeply rooted in medical knowledge, thus, all presented items are to be understood in their dangerous and non-dangerous context. For example, it is medical knowledge that tears carry the HI-Virus (Which liquid of the body includes the HI-Virus? Do tears carry the HI-Virus?), however, not to an extent that can be easily infectious for human beings in everyday situations.

In summary, at follow-up test 2, compared with the pretest, more children know (a) what AIDS is, (b) who can be infected (police officers, human beings, women, men), (c) where you can go for an HIV-test (Office of Public Health, Community Clinic), and (d) that the use of condoms protects you against HIV infection. Finally, no significant differences between gender regarding knowledge could be detected. Only one age-specific effect regarding knowledge of HIV/AIDS was found in the intervention group. In follow-up test 2 in knowledge scale 2 it was found that older children (13 years) learned more than younger children (10 years) (see also Appendix J, K).

9.2.4 Selected Quantitative Learning Results of Knowledge of HIV/AIDS

From the above illustrated statistical results of the knowledge scales, six key messages are presented to investigate the outcome of the intervention (X) with regard to HIV transmission and protection. The items are clustered in the following questions: (a) What is AIDS?, (b) What body liquids carry (transmit) the HI-Virus on an infectious level?, (c) What safer sex

strategies exist to protect myself against an HIV infection?, (d) Who is vulnerable to infection with the HI-Virus?, (e) What do I have to do if I have sex and I want to avoid HIV infection?, and (f) Where can I go for an HIV-test and medical advice? All presented results in Figures 9.6 to 9.11 are rounded up according to mathematical procedures and significances are marked with an ** ($p < .01$) and * ($p < .05$) on the beams.

At pretest, 29% of the learners knew that AIDS is a disease that weakens the immune system of a human being (Figure 9.6). The intervention (X) succeeded in increasing the understanding of what AIDS is among 71% of learners after Intervention (X) I. After Intervention (X) II at follow-up test 1, the knowledge increases to 79%, but decreases (61%) again at follow-up test 2 without any intervention. This result is particularly interesting, as the used formula is difficult and explains the disease as a strictly medical term; it is the only item that shows a significant increase in right answers from posttest to follow-up test 2.
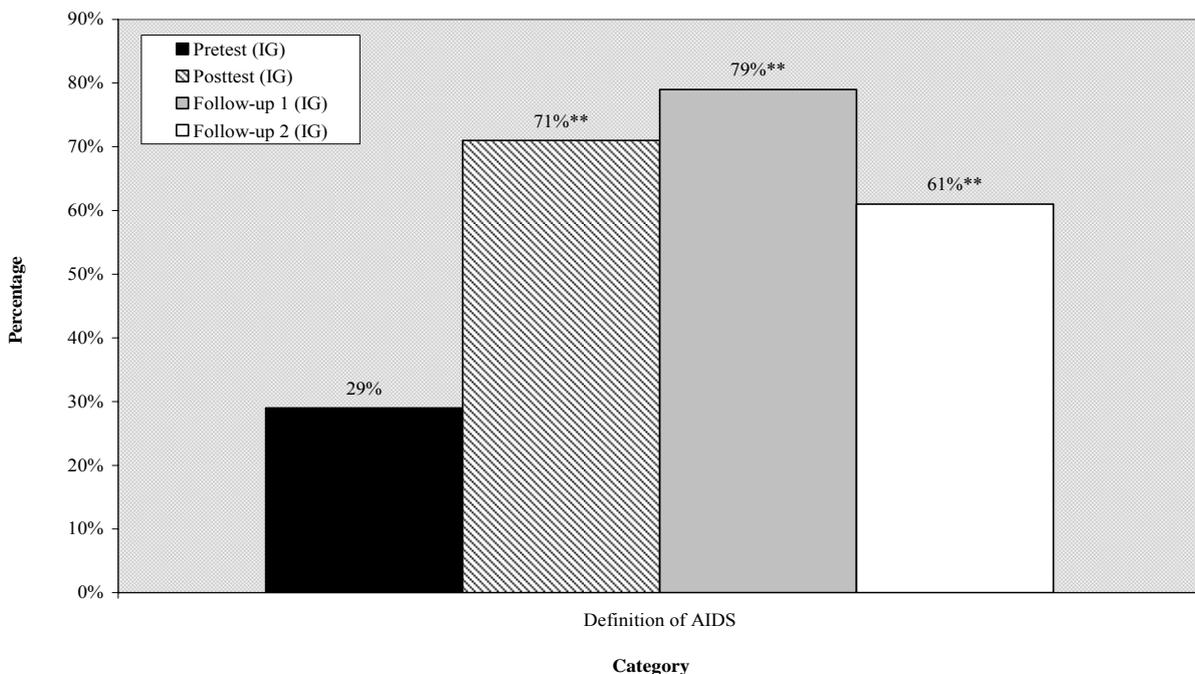

Figure 9.6. Response by the Intervention Group on what is AIDS over four test phases illustrated by Results from the Explanation that AIDS Weakens and Destroys the Immune Systems.

Figure 9.7 presents results on question (b) (What body liquids carry (transmit) the HI-Virus on an infectious level?). At pretest, the children in the intervention group already had a high level of knowledge about semen (42%), blood (63%), and secretion of the vagina (47%) as body liquids which carry (transmit) the HI-Virus on an infectious level from one human being to another. At posttest the levels in all three categories increased, however, only one item,

secretion of the vagina (71%), has significantly changed at posttest after Intervention (X) I with no other significant changes regarding semen or blood over test phases three and four.
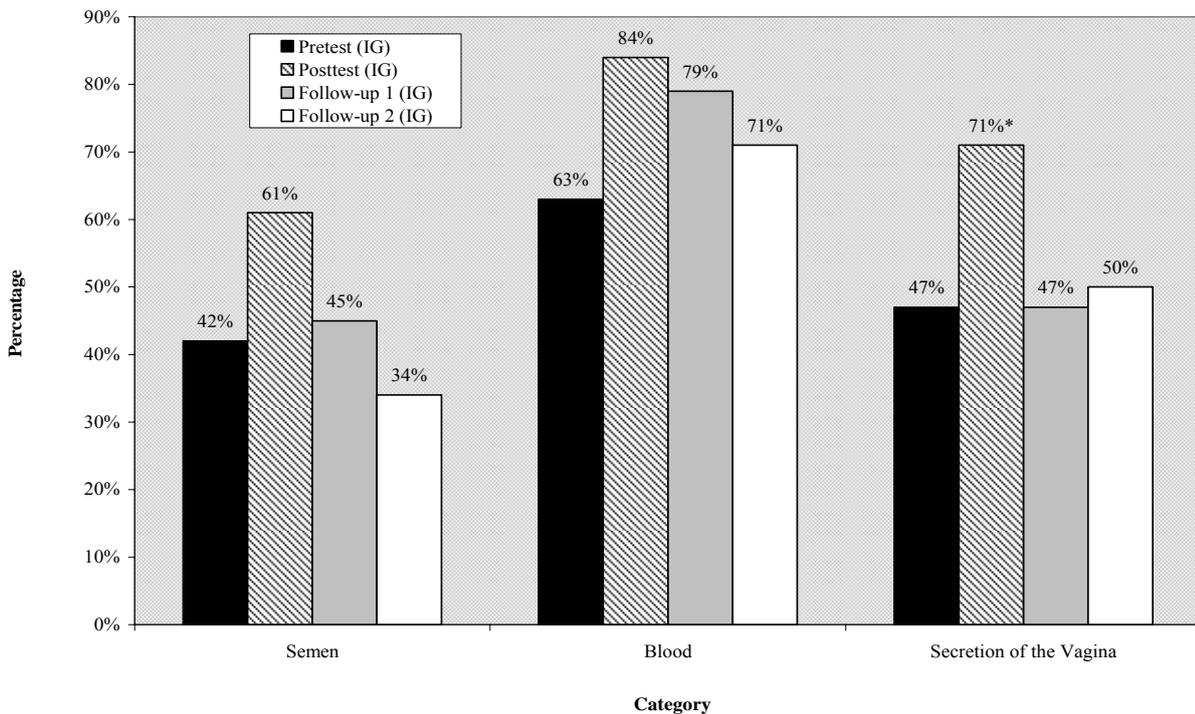

Figure 9.7. Responses by the Intervention Group on Body Liquids transmitting the HI-Virus on Infectious Level from one person to another Illustrated by the Categories Semen, Blood, and Secretion of Vagina over four test phases.

Question (c) (What are safer sex methods?) is of special importance when it comes to possible strategies to protect oneself against an HIV infection. Safer sex strategies that have been implemented in Intervention (X) I and (X) II, were condom use, delaying sexual debut and being faithful to one's partner. Only the two most articulated preventive strategies – abstinence and condom use – shall be introduced at this point (Figure 9.8). Abstinence is seen as a safer sex method in the African context. This can be confusing viewed from a middle European context because abstinence is defined as a non-sexual encounter and is consequently not part of preventive approaches regarding HIV. However, the South African national standards for these kinds of HIV preventive approaches for young people strongly recommend this strategy.

Knowledge on the safer sex strategy and the use of condoms during sexual intercourse as a preventive barrier, promoted in one of the sessions on HIV/AIDS, significantly increased at posttest (68%), gradually decreased from posttest to follow-up test 1 (47%) and slightly increased again at follow-up test 2 (50%). The strategy of abstinence starts off with 21% at pretest and significantly increases to posttest (53%). This level remains high (53%) until

follow-up test 1 (Figure 9.8), but decreases again at follow-up test 2 (34%). Thus, the intervention succeeded as it revealed significantly more right answers on condom use (68%) and abstinence (58%) at posttest phase; however, these messages on safer sex are not reflected in the knowledge of the children in later phases.
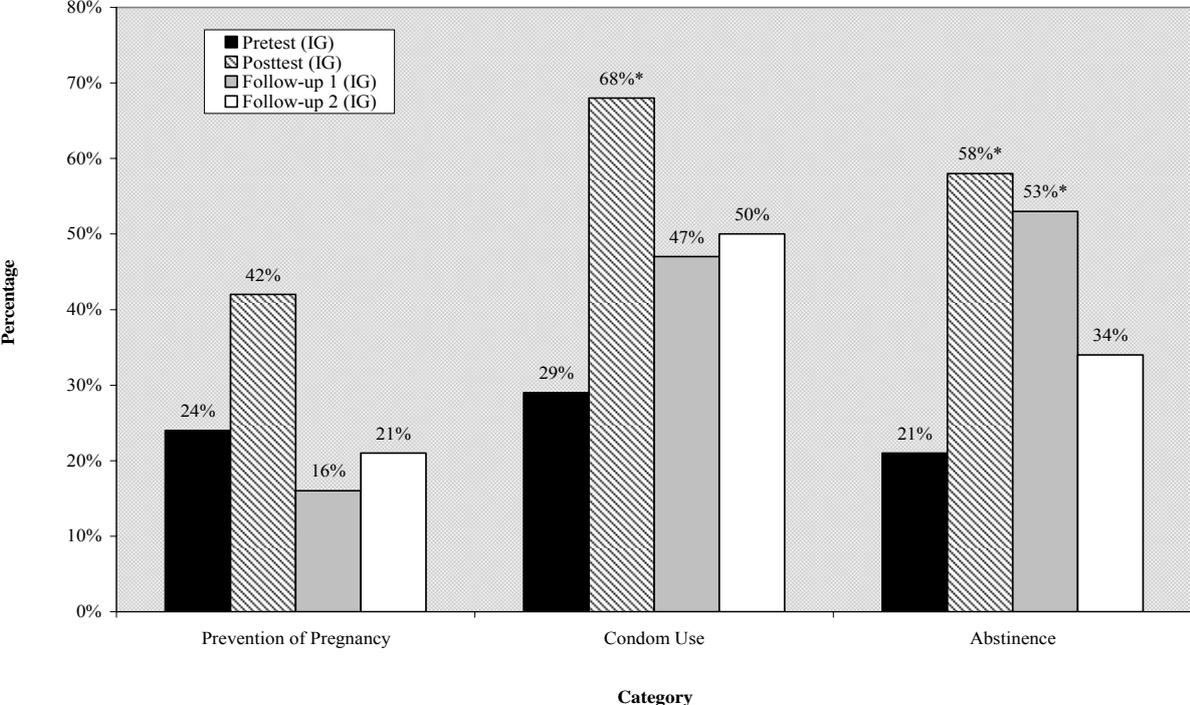

Figure 9.8. Responses by the Intervention Group on "What does safer sex mean?" illustrated by the categories Prevention of Pregnancy, Condom Use and Abstinence over four test phases.

Another safer sex strategy promoted in Intervention (X) I and (X) II predominantly refers to the prevention of pregnancy (Figure 9.8). The category 'prevention of pregnancy' revealed no significant changes in any of the test phases. These results most likely reflect the demand to strengthen the understanding among the children in the intervention group that pregnancy can only occur during unprotected sexual intercourse, and that this in turn exposes human beings to HIV infection. This message should possibly be more evident in Intervention (X) as the children live in a community with a high teenage pregnancy rate even at primary school level.

Question (d) (Who can be infected with the HI-Virus?) examined whether children developed the understanding that every human being, without differentiating between gender, profession or social status, can be infected with the virus. More than half of the children (53%) answered that prostitutes could be infected with the HI-Virus; other groups of people were less likely linked with an HIV infection at pretest. At posttest, children associated all the listed groups of human beings with HIV infection, with statistically significant results. The

results (Figure 9.9) show that the number of right answers decreased at follow-up test 1, except for results on prostitutes (63%), although not significantly. The number of right answers increases again at follow-up test 2 without any intervention being carried out before. Here, the results significantly increased in the categories 'policemen' (55%), 'women' (87%) and 'men' (71%). In short, Intervention (X) I has been successful in establishing in children the conviction that everyone can become HIV infected, albeit in a non-sustainable manner, as the result of the follow-up test 1 shows.
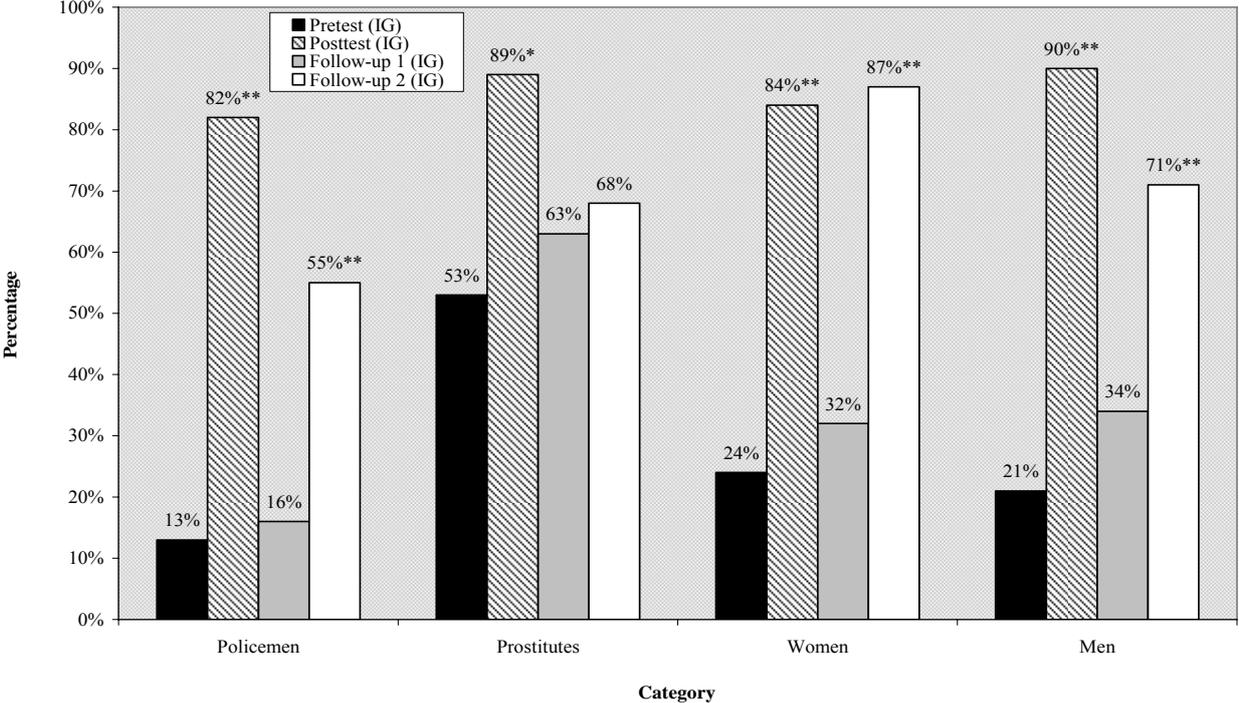

Figure 9.9. Responses by the Intervention Group on "Who can be become infected with HIV?" Illustrated by the categories of Policemen, Prostitutes, Women and Men over four test phases.

In Figure 9.10 items on the transmission of the HI-Virus through sex and the protection against HIV infection by condoms clarify the children's level of knowledge about the way the HI-Virus is transmitted, sexual intercourse, and the only way of protection during sex, namely the use of condoms. Half of the children (50%) in the intervention group already knew at pretest that the virus is transmitted through unprotected sex. As is evident, Intervention (X) I could not substantially increase the level of knowledge about the transmission of the HI-Virus through sex – at posttest, 66% of the children (16% more than in pretest) in the intervention group were convinced that the virus is transmitted by sexual intercourse. Knowledge levels decreased at follow-up test 1 (58%), after the booster session on HIV/AIDS, but increased again at follow-up test 2 (63%) to almost the same level as at posttest. With regard to the use

of condoms during sexual intercourse in order to avoid HIV infection, 42% of the children knew at pretest that condoms protect them against HIV infection and 66% at posttest. At follow-up test 1 more children reported that condoms protect them (68%); this number had significantly increased (87%) by follow-up test 2.
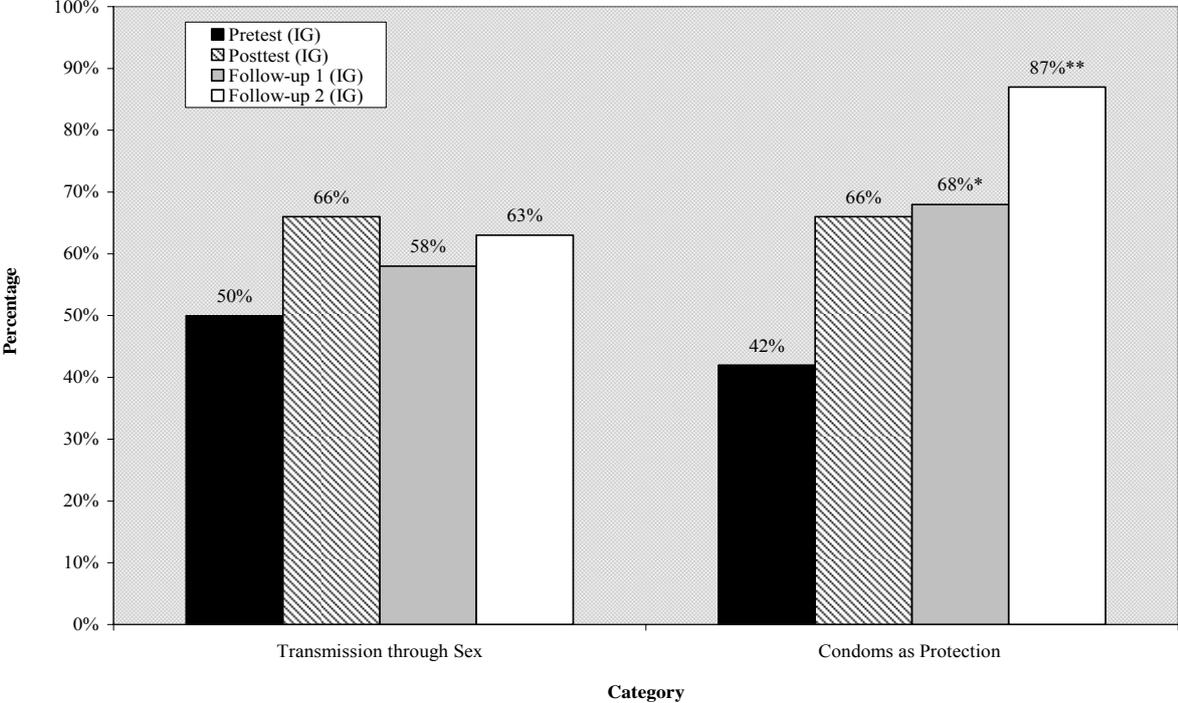

Figure 9.10. Responses by the Intervention Group on the Understanding of the Way of Transmission of and Protection against HIV Infection during Sexual Intercourse over four test phases.

In summary, at pretest more children knew that the virus is transmitted by sexual intercourse and fewer children knew that condoms protect them. At posttest the same number of children knew that the HI-Virus is transmitted by sexual intercourse and that condoms protect them against HIV infection. The children consequently linked both events. Knowledge of transmission through sex stabilised over time, whilst the conviction that condoms protect you against HIV infections increased.

Figure 9.11 illustrates the results of question (e) (Where can I go for an HIV-test and medical advice?). At pretest more than 63% of the children knew that they had to visit a doctor to receive medical help. Only 18% of children knew that a community clinic or an office of public health[34] (24%) provide advice on STIs, such as HIV. Intervention (X) I has succeeded at posttest; after the visit to the community clinic a significant increase in knowledge regarding medical support institutions was found.

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[34] An office of public health with a health counsellor trained in STI counselling is normally located within a community clinic or town clinic in South Africa.
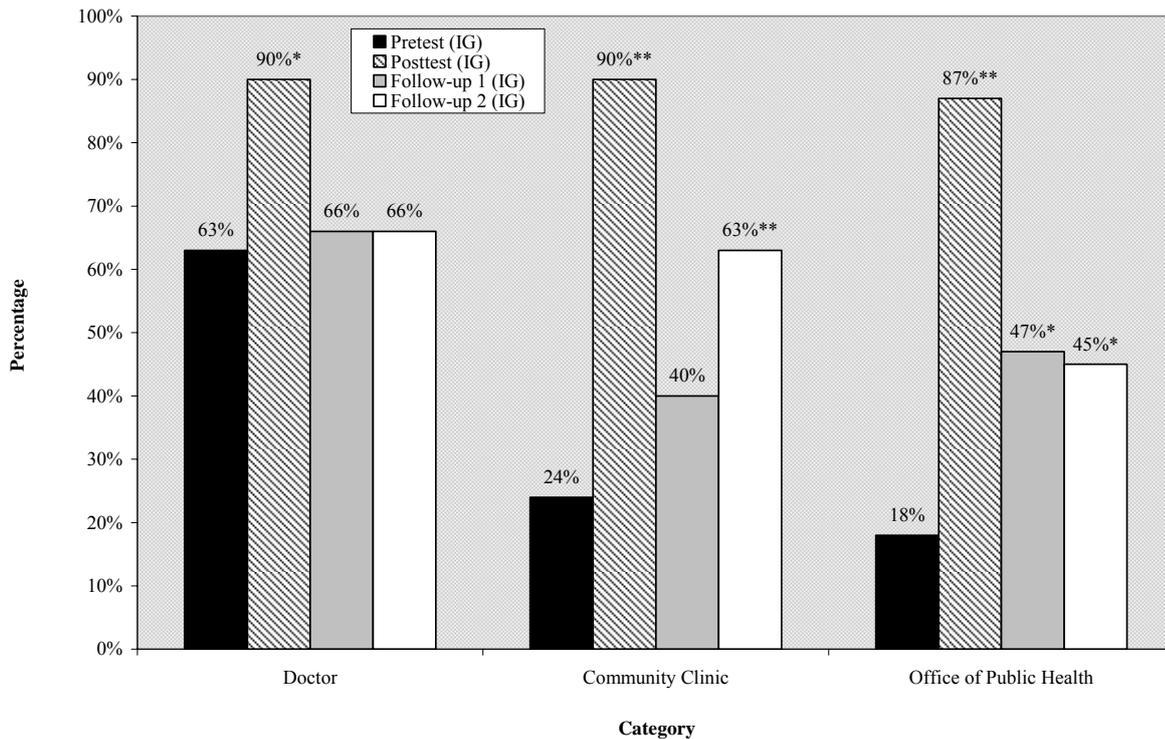
Figure 9.11. Responses by the Intervention Group on the Facilities for HIV Testing and further Medical Support over four test phases.

A similar knowledge level at follow-up test 1 and 2 was found in the category 'doctor' (66%), although this level was lower in the pretest phase. Knowledge levels on the community clinic were low at follow-up test 1 (40%), but significantly increased at follow-up test 2 (47%). Knowledge levels on the support offered at public health offices significantly increased at posttest, but decreased again in follow-up tests 1 and 2.

9.3 A Descriptive Analysis of particular Segments of the Learning Model and Outcomes Regarding HIV/AIDS

Bandura (1986) assumes in his social cognitive theory that every social learning process is based on the individual's need to experience attention, retention, reproduction and motivation in order to demonstrate certain behaviours. The following examples should allow the child to observe, as a result of above listed observational learning processes, and practise personal actions in specific modelled and health-related situations. These examples further describe existing health-related intentions and role allocations among pre-adolescent children, followed by the presentation of particular segments of HIV/AIDS and sex education. These segments illustrate the way to the acquisition of knowledge (level and gaps) regarding HIV/AIDS and attitudes towards an HIV-positive child as a representative of any human. The

data are taken from the descriptive project documentation of the sessions on relationships with family and friends, sex education, HIV/AIDS, and the booster session on self-esteem.

9.3.1 Findings of Health related Intentions

As already outlined in chapter 7, a secret box was introduced to encourage learners to ask any question they had on the programme, specific sessions or topics. Several of the questions asked dealt with three fields: sex education, HIV/AIDS and pregnancy. The first field included questions on sex and HIV/AIDS and related issues, for example what happens during or after sexual intercourse, abstinence, and condom use:

> If you have sex without a condom what happens?
> You can't sleep with a girl when you are not 16.
> First, he has to be a man.
> Why is the vagina wet and the penis erect?
> If you sleep with a boy what happens afterwards?

The second field contained questions on HIV/AIDS. Related questions were about the definitions of the term AIDS, the origin of the virus, or whether people can live with the virus. These questions are most probably related to public discussions in the media and immediate surroundings which are obviously picked up by children at this young age. Examples of questions are:

> If I have HIV, will I live?
> Where does AIDS come from?
> Why do you have/get HIV/STD?
> Is AIDS a killer disease?/And when are you going to teach us about it?

The last field of interest was pregnancy and (early) motherhood. Especially the girls expressed great interest in pregnancy-related topics such as the prevention of pregnancy and a few of the girls, aged 10 – 12 years even expressed that they wished to have a baby. Questions and statements included the following:

> If you do not want to have a baby, how can you prevent it?
> When can I have a baby?
> I want a baby.

In sum, all three listed fields of interest illustrate that children in this pre-adolescent stage express their need for information on topics that target HIV/AIDS and sex education, and their susceptibility to stigmas and messages that surround these 'taboo' topics. Another finding is that the questions and statements on pregnancy in particular most probably reflect a vulnerability to unsafe (sexual) behaviour, especially among girls.

As a second example of health-related intentions among participants, the understanding of the term 'relationships' is described with regard to role allocations of boys (men) and girls (women) in 'intimate' relations. At the beginning of the session children were asked to define role allocations between the father and the mother in a family. They explained that while men work outside of the house (e.g. paid work/occupation) mothers organise the household. According to these statements the composition of a family was defined in a generally traditional way. These understandings of male and female roles seem to be encouraged by socialisation processes children in the intervention group are exposed to in the position they hold in their families. For example, in one session learners were asked to complete a 'body map' (self-esteem) to list physical activities. Whereas girls tended to list household activities, such as washing clothes or the body, cleaning, cooking, or sensitive physical contacts with other human beings such as hugging or touching, boys recorded mainly activities to their own doings, such as sport activities, eating, washing, and hanging around with friends.

After this activity children were asked how they would define the word 'relationship'. They stated that it is merely a traditional unity of a man and a woman, functioning by economical means and glued together by sex and reproduction, parallel to above role allocations of men and women in relationships. This is in itself a concerning finding because the children's conviction was that *all* relationships between the two genders are mainly sexual relations and aimed at reproduction. They defined non-relationships as, for example friendships and relations within a family (e.g. parents). In the light of this definition manifold relations between same and other gender, whether non- or sexually based, can be recognised as fruitful for their emotional state and social life. Campbell (2003) found in her study with learners at secondary school level that the young people clearly distinguished between friendship and sex and defined them as being mutually exclusive territories. In both these relationships between boys and girls she found communication to be generally low (Campbell 2003); this reduced the ability between genders to use communication as a health preventive act. In interventions, special attention must be paid to those symbols that define different kinds of relationships to avoid misinterpretation and confusion about the different qualities of emotions to and relations with people, including family or friends, and/or emotions for and activities with each

other. In addition, interventions should strive to support the establishment of a social network outside of the family system for when those children reach adolescence.

9.3.2 HIV/AIDS and Sex Education: Potential Steps and Findings

In the planning phase of the programme it was considered that various steps be taken to sensitise and prepare children to be taught on personally demanding topics such as sex education and HIV/AIDS in order to avoid any emotional overload or negative stimulus. Thus, the topics of sex education and HIV/AIDS prevention were integrated in a cluster of several steps outlined over a period of more than four weeks: (a) internal and external organs, (b) sex education by way of story telling and the introduction of the secret box, (c) a visit to the Community Clinic, (d) a brief preparation session on HIV/AIDS associated with a healthy diet to stabilise the immune system, and finally (e) a session on HIV/AIDS by means of contraceptive modelling.

Special emphasis was placed on the final session on HIV/AIDS where different contraceptives for men and women were presented and a contraceptive kit was used. During the presentation of the condoms, each learner received one condom. Only the trainers illustrated the appropriate use of a condom in front of the class using the wooden model of a penis and a real condom. The children were not allowed to open or keep their condoms. The reason for the strict and serious instruction not to open the condom was, on the one hand, to encourage responsible behaviour towards this preventive method (in other words dealing with condoms is not fun but life protecting), on the other hand, to calm the parents' worries that a condom in their children's hands would be an encouragement to have sex.

Findings that arose from the session on sex education and HIV/AIDS were the following. First, both genders were very interested in seeing how a condom is used. However, while girls showed a greater interest in the various contraceptives for women, the boys were more interested in the use of a condom. Children behaved in a serious manner during this session but it is believed that the protective environment and the clear guidance by HPTs through this sensitive learning process encouraged this 'responsible' behaviour. Second, there were no complaints from parents or any other authority to the HPTs after the session regarding sex education or condom 'distribution' to children at this young age. Parents reported in the parent meetings that they checked all information papers and talked with their children about learned knowledge in the sessions. Third, some of the mothers stated in the mothers' meeting that their children obviously responded to the topics, sometimes in different ways than they had expected. One mother reported that her daughter explained that she could protect her from

being infected with HIV, because she knew now how to identify HIV-positive people. Although this statement emphasises the false belief that HIV status is visible, the child expressed that she felt capable to perform a specific protective action towards her mother as part of developing self-efficacy regarding this disease. Finally, the discourse between parents and children encouraged by these sessions put children in the position to be educators for their parents, of whom many were illiterate or have left school at primary school level. One mother explained in the mothers' meeting that she was very surprised when her child came home to explain the inner and reproductive organs to her – she had given birth to many children in her life without being aware of these bodily functions.

9.3.3 Selected Outcomes regarding Attitudes towards and Knowledge of HIV/AIDS

After the first session on HIV/AIDS, the children in the intervention group were asked to represent their knowledge by putting certain descriptions of HIV transmission and protection that they have acquired in the phases of attention and retention into a specific action, namely a 'decision-making process'. The following two examples illustrate results of undertaken tasks during sessions which should have encouraged systematic thinking and activated their problem-solving competency regarding the issue of dealing with problematic situations. These tasks were interpreted as assessments on attitudes and knowledge.

9.3.3.1 Testing Attitudes towards an HIV-positive Child

Six groups were formed on a voluntary basis; three groups of boys, two groups of girls and one mixed group. In their groups the learners were asked to decide on the following task: "Would you, as a principal of a primary school allow an HIV-positive child to attend your school?" The groups had to make a YES or NO decision and were asked to substantiate their decision.

The groups made the following decisions: The male groups decided against the child's participation at the primary school. The listed reasons were, for example: He/she will infect other children; He/she behaves badly towards others and thinks dirty thoughts; The mothers won't like their children to come and study at this school and no one would like to be part of it; He/she will have sores, broken skin and infect other children with AIDS. The female groups decided in favour of the participation of the child. They did, however, ask for intimate information, for instance, "How did the child get the infection?" They also wanted to take preventive measures for all other non-infected human beings: "How can we avoid

transmission in the school?"; or felt responsible to take care of the child: "What must he/she eat now that he/she has HIV + (AIDS)?" The mixed group reacted similarly, tending to consider all possibilities for the child and for the protection of others. However, they felt unable to make a decision: "Yes – she must be educated, must tell what AIDS is, people must look after her. No – can infect others through blood, through sores and cuts." It seems, therefore that male learners tended to refuse the attendance of the HIV-positive child more than the female groups or mixed groups. Female groups tended to consider the general well-being of everyone and showed higher social responsibility to deal with this problem. For the only mixed gender group it turned out to be impossible to come to an agreement on this task.

In conclusion, the decisions of the children illustrate that their knowledge on protection and transmission of HIV/AIDS contained incorrect facts which consequently influenced the final decision-making process on whether an HIV-positive child should attend the primary school. This part of the session also revealed that learners in the intervention group already expressed specific personal fears, attitudinal constructs and gender tendencies towards a fictitious HIV-positive child (human being). The aspect of human rights, namely that everyone has the right to education, has to be more fully and intensely explained in order to break through the surface of fear and to prevent the development of prejudice patterns within the children of the intervention group.

9.3.3.2 Testing Knowledge on HIV/AIDS in Booster Session

In the booster session on HIV/AIDS, Intervention (X) II, a mixed gender group task was done where learners had to do self-study with material on HIV/AIDS. The questions which had to be answered were: (a) What protects you against HIV?, (b) How is HIV spread?, (c) What does AIDS mean?, (d) What does HIV mean?, and (e) What does it mean if an HIV-test is 'negative'? Each of the five groups had to answer three questions. This session was meant to prove how much knowledge the participants of the intervention group still had of HIV/AIDS.

With regard to question (a) ('What protects you against HIV?'), the groups listed condoms ("Use a condom if you sleep with your boyfriend"), abstinent behaviour ("You cannot sleep with your boyfriend"/"Don't sleep with other people if you are HIV+"), or hygiene in medical terms ("Don't touch blood of your friends"/"Don't use same condom today and tomorrow") as protection methods. Some other options that contained false knowledge were: testing protects ("Go to the clinic to test your blood"), or kissing ("Don't kiss your girlfriend in stretch"; referring to French kissing). Children tended to shift between transmission and protection methods.

Question (b) ('How is HIV spread?') was answered with the following statements: transmission by sexual intercourse ("HIV is spread by sexual intercourse with an infected person"); sexual intercourse without a condom ("By not using any condoms"); mother to child transmission ("From an infected mother to her unborn child"). For the majority of the groups it was clear that sexual intercourse is the main way of becoming infected with the HI-Virus. Although question (c) ('What does AIDS mean?') was complicated, children found the appropriate description in the pamphlets. One group wrote: "A sexually transmitted infection which attacks the immune system destroying the mechanism. Over a period of time the virus enters the blood stream … symptoms ... an infected person can feel healthy for infection/progress to the disease called AIDS the virus."

Question (d) ('What does HIV mean?') was answered in three ways: Some groups correctly copied the explanation from the pamphlets, other groups decided that HIV was AIDS and another group stated that 'HIV means if you have HIV you must use a condom' and 'must tell it to your mother that you have HIV.' The last question (e) ('What does it mean if an HIV-test is negative?') was answered correctly by three of the six groups who knew that a person does not have the HI-Virus if the test result is negative.

According to the results, knowledge of HIV/AIDS was fragmentary seven months after the first session on this topic. The self-study in group work seems to have had an effect on the level of knowledge in follow-up test 1, which was done three weeks after this booster session, because the answers to questions regarding the definition of AIDS, protection against HIV by condoms and abstinence, or testing have significantly improved. However, false knowledge of the ways of transmission (i.e. blood over open wounds or saliva (kissing)) could not be averted, as quantitative results in the follow-up test 1 show. The instabilities in the knowledge of HIV/AIDS are favourable for a long-term, and consequently, repeated form of intervention among this young age group in order for them to progress and acquire knowledge in this learning field.

9.4   Results of the Opinion Poll

The opinion poll among learners of the intervention group was intended to activate long-term memory in regard to Intervention I and II. The poll was done eight months after Intervention II and five months after follow-up test 2. Four questions were asked: (a) Did you like or did you not like the life skills programme?, (b) Do you think other children should receive the same life skills programme?, (c) What made you happy or smile in the life skills programme?, and (d) What made you sad in the life skills programme?.

Most children responded positively to the first two questions. Ninety-five percent of the children said that they liked the programme and that they would recommend the programme for other children. The last two questions, which were answered in groups, revealed that all events, topics and elements of the programme were regarded as positive experiences by the six groups: outdoor trips to Cape Town and the clinic, the drama in the youth centre, the food event, talking about HIV/AIDS, sex and abuse, games such as soccer, learning about life skills and bodily changes as well as about the family and community. Even the video and the implemented rules and confidence sentence were listed as positive experiences. The most frequently listed topics learners liked were HIV/AIDS, which was listed by five of the six groups, abuse, and sex education, listed by four of the six groups. With regard to relations within the class, the HPTs and working in groups were also considered positive.

The groups decided to name four experiences that were demanding to them. First, the bus trip to Cape Town turned out to be difficult because the bus was not roadworthy and had a small accident on the way back to Kayamandi. Second, the sessions on sex and abuse were still strongly remembered by the children even eight months after the end of Intervention II. This could be an indicator that those topics have to be implemented with great sensitivity to the target group's age. Lastly, the death of one of the HPTs was remembered as a very sad event.

9.5   Conclusion

The presented results, gained by means of quantitative (questionnaire) and the combined qualitative-quantitative instruments (opinion poll) evaluated the outcomes of the intervention on the personal and interpersonal domains. Results from the qualitative instrument have to be strictly taken as supportive data in an attempt to close the gaps on knowledge and attitudes regarding HIV/AIDS which were not specifically considered in the questionnaire.

Starting with the results of the quantitative instrument, the analysis of the sociodemographic variable 'family', as the main socialisation column, revealed in the comparison of the intervention and control groups that family units within the control group were more varied than in the intervention group. For example, more children in the intervention group than in the control group live in either single female-headed family units or nuclear family units without an older generation like grandparents. In contrast, many more children in the control group than in the intervention group live in family units with stepparents or in so-called special family units, mainly without their biological parents and under the supervision of older siblings. Although the intervention and control group lived in different structural

surroundings, no significant difference between the groups regarding psychological and social variables was detected.

Due to the ceiling effect, the results on the psychological indicators do not say much about whether the project managed, for instance, to encourage self-confidence in the children and/or to improve their self-efficacy. During the pretesting of the instrument with a small number of children from the target group, no high scoring, which is not uncommon during ratings, was noticed (see also Bortz & Döring, 2001). It is probable that this effect is the consequence of inappropriate procedures for pretesting the instrument (see also 5.6.2), resulting in uncovered cultural barriers that affected psychological and social variables. For example, it could be proposed that the children gave socially acceptable answers, as the socio-cultural environment demands that children follow the instructions given by an authority. To question or even refuse to follow is considered disrespectful and will be punished. On the whole, the insufficient performance of the psychological variables turned out to be a problem in the evaluation of the CMP project, as the reference to the knowledge acquired during the project cannot be sufficiently evaluated. Only three significant interactions within the intervention group over the four test phases were found: (a) girls expressed a higher social responsibility from posttest to follow-up test 2, (b) boys expressed a greater gender-communication competency from pre- to follow-up test 1, and (c) older (13-year-old) children knew more than younger (10-year-old) children in the knowledge scale 2 in follow-up test 2.

However, the results of the evaluation of the knowledge indicators are, of course, of interest for the preparation of individual prevention efforts in the field of HIV/AIDS. The first and most intensive part of the CMP Intervention (X) I was successful regarding the transfer of knowledge in the field of HIV/AIDS: The intervention group showed the predicted increase in knowledge from pretest to posttest phase, while the control group did not show a similar change. The governmental intervention programme, which started after the posttest, did not result in any significant increase in knowledge. Unfortunately, the success of the CMP intervention was not sustainable in the long run. The success of the programme was mainly that at follow-up test 2 more children knew: (a) what AIDS was, (b) who could become infected, (c) that specific body liquids transmit the virus, (d) where to go for an HIV-test, and (e) that the use of condoms protects them against HIV infection during sexual intercourse. This is to be interpreted as a positive result regarding knowledge of the children in the intervention group.

As the analysis of the psychological variables was not sufficient, the description of the segments of the model on self-esteem, family and friendship, HIV/AIDS and sex education

provided further information on knowledge, attitude and skills development of the children of the intervention group. The session on family and friendship relations, as well as the booster session on self-esteem revealed that defined relationships between the genders are predominantly related to sexual encounters between men and women with the goal of reproduction. It is not only alarming that, according to the children, those relationships do not require any preventive measures; what is even more concerning is that children exclude the idea of friendship and other fruitful interpersonal relations between the same and the other gender that are important for establishing a strong safety-net in times of crisis. These findings are a possible indication of unsafe health intentions among children in the intervention group and, most probably, favourable for planning preventive initiatives with this target group at an early stage before they become sexually active.

The assessment of a decision-making process regarding the attendance of a fictitious HIV-positive child at school illustrate the already existing fear of confrontation as well as a gender-based tendency of how the participating girls and boys make decisions regarding a problematic situation. For example, while male groups tended to express negative attitudes towards the fictitious child and denied him/her access to the educational facility, the female groups showed positive attitudes but took into account the protection of other people. In regard to knowledge of HIV/AIDS, in Intervention II a revision session of HIV/AIDS was held and questions were asked on the definition of the disease and the ways of transmission and protection. The results show that knowledge among children in the intervention group is fragmentary and unstable seven months after the first intervention. This result proves that any preventive intervention has to be planned on a long-term basis.

Lastly, the opinion poll undertaken eight months after the booster session revealed that the implemented Child Mind Project was still regarded by the children as a predominantly positive experience. Ninety-five percent of the children in the intervention group recommended the programme to other children. With regard to the relationship between the HPTs and learners and between male and female learners, the actions in the classroom were described as predominantly positive.