

As the above quote indicates, corporal punishment as a method of discipline in schools was both sanctioned by law and actively encouraged in apartheid South Africa. Indeed, the reliance on corporal punishment in schools was so heavy that teachers came to understand 'discipline' and 'physical or psychological punishment' as synonymous (Porteus et al., 2001).

During that era, corporal punishment was limited by law, in addition to being sanctioned by it. Regulations set in 1981 by the Department of Education and Training (the government department responsible for regulating black education), for example, stipulated that corporal punishment could only be administered by the principal of a school (unless the principal gave consent for another staff member to do so). They also stipulated that corporal punishment could only be "administered on the buttocks with a cane not exceeding 75cm in length, and 1,2cm in diameter or a leather strap not less than 2,5cm in width" (Poswa, 1995:3).

However corporal punishment in South Africa "often exceed[ed] the limitations imposed by the regulations" (Newell, 1997: 188). Indeed a remarkable array of body parts were assaulted by a remarkable range of instruments in instances of corporal punishment in apartheid South Africa:

The site chosen for inflicting the pain ranges from the ears, face, the side and back of the head to the chest, legs, the backs of the knees, calves, thighs, the back, hands, knuckles and even feet.... The weapons used to inflict pain include...riding crops, planks, sticks, quince canes, open hands, balled fists, fan belts, ordinary belts, sjamboks, rulers, chalkboard dusters, window openers, leather thongs, aerals, hosepipes, strips of tyres and water pipes (Holdstock in Mkhize, 1999: 7).

And this list is not exhaustive. Teachers in South Africa under apartheid were extremely creative with the forms of corporal punishment they administered.

It is not only the range of corporal punishment methods used that is surprising in the South African context, but also the variety of misdemeanours for which corporal punishment was imposed. Not only was it imposed for behaviours like disobedience, truancy and stealing, but also for incidents of lateness, lack of neatness, bad exam performance, mistakes in homework or class work, not wearing school uniform and not writing properly (Mkhize, 1999:48; Mlombo, 1997:17, 22; Poswa, 1995: 4).

This level of corporal punishment is not unexpected, considering both the history of authoritarianism in South African schooling and society, and the extent to which South Africa developed a culture of violence during the apartheid years. But it can't be denied that corporal punishment has been used to an excessive extent in this country, which has a number of implications for this study. Firstly, this study involves teachers who have been subjected to this kind of punishment in their own years of schooling and who may carry consequences of this. Secondly, the extent to which corporal punishment has been entrenched in this society means that teachers now struggle to leave it behind and to have faith in other methods of discipline. Even though corporal punishment was outlawed in the National Education Policy Act of 1996, "a large number of South African educators still see corporal punishment as a necessary classroom tool" (Porteus et al., 2001: 6), and its use is still widespread. Considering that the use of corporal punishment is anathema to peace education, South Africa's history of the extreme use of corporal punishment may complicate the ability of teachers in this country to adapt to more peace education-appropriate methods of discipline, and certainly underlined the need for a specific focus on alternatives to corporal punishment in the intervention developed in this study.

The MCSA request for a peace education intervention, then, located this study in a context in which violence had reached critical levels. It necessitated working with teachers who had themselves been exposed to violence, who were undereducated, and who were used to operating in an authoritarian educational environment in which corporal punishment was an acceptable form of discipline. In this complex context, where does the process of educating for peace begin?

4.3 INFORMATION GATHERING & SYNTHESIS: IDENTIFYING EXISTING MODELS

The unique challenges of the South African context called for a peace education programme specifically developed for this context. As highlighted in Chapter Two, however, there are few examples of comprehensive peace education programmes that have been developed for South Africa. And there are no such programmes that have been developed at pre-school level.

In responding to the request for a peace education programme in Central District pre-schools, the dearth of suitable existing programmes was obviously cause for

concern. It did not seem helpful to simply transplant an existing programme developed for another context. Adapting an existing programme developed for another context was another option. But there was a more obvious starting point.

In 1993 and 1994, the researcher had developed a peace education framework for a programme to be implemented in a Methodist pre-school in inner-city Johannesburg. The content areas of this programme were predominantly taken from existing peace education programmes which had been reviewed (Hadley, 1974; Jim & Langie, 1989; Judson, 1984; Masheder, 1991; NSW Department of Education, 1988; Peace Studies Working Group of Women against Violence, 1984; South Australian Education Department, no date; Victorian Ministry of Education, 1989; Wichert, 1989; Women's International League for Peace & Freedom, 1979; Yawkey & Jones, 1982).

These content areas were:

- Self-esteem
- Acceptance of difference
- Getting along with others
- Effective communication
- Co-operation
- Conflict resolution
- Caring for the environment
- What is peace?

To this list was added a further content area, which was important in the context of the political violence that South Africa was still experiencing during its time of transition:

- Healing the wounds

The need for this additional focus, identified by the researcher in 1993, was echoed four years later by Eagle and Michelson (1997: 245), when they wrote of the importance of teachers providing "...opportunities for children to express their fears and their experiences of trauma." Later, Harris (2002: 8) identified a trend in the early '90s for peace educators to "try to heal some of the wounds of their pupils who have been raised in violent cultures", which served as another confirmation of the relevance of this additional focus.

Further details of this overall framework can be found in Appendix 6. (Looking back, it is interesting to note how specifically this framework acts as a response to the

emotional and behavioural consequences of children's exposure to violence, identified by Stavrou, 1992:13-14, and detailed in Chapter Two.)

4.4 DESIGN: FORMING THE FRAMEWORK OF THE INTERVENTION

The choice being faced in 1998, then, was between working to build on a framework developed specifically for this context, and adapting an existing programme developed for a different context.

Using the existing South African framework offered more obvious scope for creativity and the development of something uniquely South African. It also seemed likely that the significant level of educational change required by the introduction of a peace education programme in this context would be more possible if teachers could be "deeply involved" in the process (Skillbeck, 1990: 72). It seemed possible that educators would be more excited by and committed to a programme they felt to be their own. The involvement of teachers in the design and development of peace education programmes was also one of Dovey's (1996: 144) recommendations for the further development of peace education in the South African context, discussed in Chapter Two. And so it was decided to utilise the existing South African framework (retaining "healing the wounds" as a content area, as South Africa's political violence had by that stage receded to reveal high levels of community violence), to facilitate the educators' development of appropriate activities.

This may seem to have been ambitious, considering that very few of the educators had had previous exposure to peace education. (Three of these educators had worked on the 1993/1994 peace education project.) However, many of the content areas of peace education at this level are already central aspects of pre-school education, being concerned, as pre-school education is, with children at the "most active phase of their awakening to the world about them...a stage of rapid learning about social behaviour and relationships" (Van den Berg & Vergani, 1986: 12). Thus the educators were not being asked primarily to develop entirely new activities for a programme of which they had no previous experience. Rather, they were encouraged to incorporate a number of their existing activities into this new framework; to organise much of what they were already doing (with some additions) into a conscious, comprehensive attempt to educate for peace.

4.5 EARLY DEVELOPMENT & PILOT TESTING: THE CURRICULUM

The process of actually developing the curriculum was begun at a workshop, held first with the district pre-school educators in the greater Johannesburg region, and then with those in the western region of the district.

The aims of this initial workshop were to:

- Explore the educators' understanding of peace;
- Highlight the issues in the areas served by each school which stood in the way of achieving peace;
- Introduce educators to the concept of peace education, and the nine content areas;
- Give educators the opportunity in groups to develop pre-school-appropriate activities in the nine content areas.
- Establish a curriculum development team who would do further work on developing activities.

At this workshop an interim curriculum containing pre-school activities from a variety of sources, covering the nine content areas, was distributed to the educators. This was for use in the classroom while the new curriculum was being developed.

At this initial workshop, the teachers expressed interest in peace education, and a strong sense of the need for it in the South African context. And thus the process could move forward.

Following this initial workshop, the activities developed by the educators were compiled into a draft curriculum, which then underwent a lengthy editing process by the Sakha Ukuthula staff, and an editing committee comprising five of the educators and the MCSA Central District Director of Education.

Uppermost in the minds of the editing committee was the development of a uniquely South African peace education curriculum. The first step towards achieving this was using a framework developed specifically for the South African context. Gathering activities from a diverse group of South African educators was the next step. A final step was ensuring during the editing process that the activities chosen to go into the

draft curriculum were relevant to the South African context and, specifically, that they were representative of all the major culture and language groups that constitute this country.

By the end of 1999, the draft curriculum was ready. It incorporated the following:

- **An introduction**, including a rationale for peace education, guidelines on the importance of a holistic approach to peace education, acknowledgements and motivation.
- **A note to educators**, outlining the process for the use and refinement of this draft curriculum.
- **Guidelines** on including the content areas of peace education in common pre-school themes.
- **Chapters** covering each of the **content areas** outlined above¹⁰. In each of these chapters, the activities were divided into the following categories, in accordance with the different activity slots ("rings", in South African preschool parlance) being used by the pre-schools concerned:
 - ❑ Discussion points
 - ❑ Art
 - ❑ Perception
 - ❑ Music
 - ❑ Movement
 - ❑ Science
 - ❑ Stories
- **Parent handouts**, covering each of the content areas outlined above, giving information on how parents could 'parent for peace', extending the reach of the programme into the children's homes.

The draft curriculum was given to the educators at the beginning of 2000, in a workshop designed to familiarise them with the curriculum and to give them opportunity to practice using it.

¹⁰ Some of these content areas were renamed in line with developments in the field, or because of preferences expressed by participants in the curriculum development process. The names and order of content areas as they appeared in the curriculum are as follows: Self-esteem, Celebration of Difference, Conflict Handling, Communication, Co-operation, Friendship Skills, Healing the Wounds, What is Peace? Our Environment.

In this development process, the first three of the four phases of planned curriculum change defined by Marsh (1992: 137-138) can be clearly identified: the orientation or needs phase, the initiation or adoption phase, and the implementation or initial use phase. Marsh's fourth phase – institutionalisation / continuation – is the phase that follows the completion of this study.

Developing the curriculum in conjunction with the educators was an important part of making sure that they were "deeply involved" in the process. But would it involve them deeply enough – particularly considering the complicating factors of the South African context, explored earlier in this chapter – to ensure the success of the intervention? It seemed likely that more would be required.

4.6 EARLY DEVELOPMENT & PILOT TESTING: THE TEACHER DEVELOPMENT PROGRAMME

It was noted in Chapter Two that "Peace education for the teachers of the world is a necessary parallel development to peace education for the young" (Heywood, 1986:195). Explaining this, Bar-Tal (2002) reflects on the fact that "the success of peace education is more dependent on the views, motivations and abilities of teachers than traditional subjects are", because teachers who teach peace education must themselves be in line with its objectives, in terms of values, attitudes and behavioural tendencies. (This assertion is echoed in Evans, et al., 1999: 7.)

And peace education for teachers is certainly crucial when peace education is a very new concept for educators, as is the case in South Africa, and when the educators themselves have been, and are immersed in South Africa's violent history and violent current reality. Addressing peace education in the South African context, Dovey (1996: 144) emphasised the importance of in-service training in the process of equipping teachers to be educators for peace.

Indeed the need for a teacher development programme to accompany the development of the curriculum was underlined in a number of theories. Generally in education the need for ongoing teacher development is understood – particularly in times of rapid change (Craft, 1996: 5). In fact, "if we are interested in a theory of 'changing' – in identifying those factors most possible to alter and most instrumental in bringing about change at the level of practice – professional development would be at the very top of the list" (Fullan in Craft, 1996: 19).

In addition, South Africa's teachers are largely undereducated. In this context it is important to remain conscious that, "the quality of teaching and learning can only be improved if the knowledge foundations of teachers are systematically built.... In-service programmes must teach and deepen conceptual knowledge and higher order skills in all learning areas" (Taylor & Vinjevold, 2000: 177).

Finally, in line with the quotation that opened this chapter, it was important that the educators were "deeply involved" in the peace education process, and that they were "continuously supported" in their endeavours to educate for peace in their schools. A teacher development programme could (at least partially) fill both of these functions.

Thus it was clear that this peace education programme needed a teacher development component. An obvious starting point for such a programme was to cover the content areas included in the pre-school programme, but at adult level. This starting point was built on as the programme progressed by asking the teachers themselves at the end of each workshop what topics they would like covered at future workshops.

The teacher development component of this peace education programme emerged as illustrated overleaf.

Table 4.1: The teacher development programme

<u>Year</u>	<u>Title</u>	<u>Aim</u>	<u>Anticipated outcomes</u>
1998	Introduction to peace education	To: - provide teachers with an overview of peace education; - explore teachers' understandings of peace, and the particular issues of violence in their communities - begin the development of the curriculum	Teachers will: - Share their understanding of peace; - Highlight the issues in the area served by each school which stand in the way of achieving peace; - Learn about the concept of peace education, and the nine content areas; - Develop (in groups) pre-school-appropriate activities in the nine content areas.
	Self-esteem	To: Affirm teachers and encourage their exploration of who they are.	Teachers will: - Take part in a bible study dealing with each person being created in the image of God; - Participate in a guided meditation on the wonder of each human being; - Create a collage expressing something of who they are, and share this with the group.
1999	Discipline	To: Introduce teachers to a range of alternatives to corporal punishment.	Educators will: - Explore the implications of peace education for discipline; - Discuss peace-education-appropriate methods of discipline; - Practice using these methods in role play situations.
	Conflict management	To: Introduce teachers to some of the skills of conflict management.	Educators will: - Explore their own conflict styles; - Practice two communication skills – active listening and "I statements"; - Be exposed to and practice a model for conflict mapping.
	Healing the wounds	To: Enable teachers to explore, in a safe environment, some of the hurts they carry with them.	Educators will: - Reflect on and share about someone who has had a strong influence on their lives; - Reflect on and share about their life's journey thus far.
2000	Launching the curriculum	To: Introduce teachers to the draft curriculum and give them opportunity to familiarise themselves with the document.	Educators will: - Receive copies of the draft curriculum; - Familiarise themselves with the document; - Plan a week's programme using the curriculum.
	Healing the wounds II	To: Enable teachers to explore further some of the hurts they carry with them.	Educators will: - Explore and discuss emotions; - Reflect on their experiences of their own school teachers; - Make peace education posters for their classrooms.

Facilitator timetables for each of these workshops, including some details of the activities undertaken, can be found in Appendix 7.

Thus, a teacher development programme emerged to accompany the pre-school curriculum that the teachers had been involved in developing. This teacher development programme aimed to educate the teachers themselves for peace, facilitating their development in the same content areas as were covered in the children's curriculum. It also intended to instruct the teachers in the use of the pre-school curriculum with the children in their respective schools.

4.7 CONCLUSION

Through the first phases of Intervention Design and Development a draft peace education curriculum was developed, together with a teacher development programme which began the process of equipping the teachers as educators for peace. Once the curriculum was being implemented it was time to try and measure its impact – and the impact of the teacher development programme - on the schools. Having described the evaluation process in Chapter Three, the next chapter focuses on the results of the various evaluation methods used.

CHAPTER FIVE: RESULTS

5.1 INTRODUCTION

In a study of this nature, there will inevitably be a large number of independent variables. These were explored in Chapter Three. Many of these were controlled for with the data gathering and analysis techniques used (particularly with the multiple regression analysis applied to the naturalistic observation data). Because it was impossible to control for some of these variables, a variety of techniques were used to gather data. This chapter presents the results of the data analysis applied to data collected through the four different collection methods applied. In reading this chapter, it should be remembered that the true value of these results lies in them being considered together, rather than discretely. For ease of reading, however, they are presented sequentially.

5.2 RESULTS OF NATURALISTIC OBSERVATIONS

The quantitative data produced through the process of naturalistic observation was complex, involving a number of variables that complicated the process of determining the impact, if any, of the intervention on the aggressive and pro-social behaviour of children in the study group. This complexity was managed by the choice of multiple regression as the primary analysis technique, as outlined in Section 3.6.1.

5.2.1 Limitations

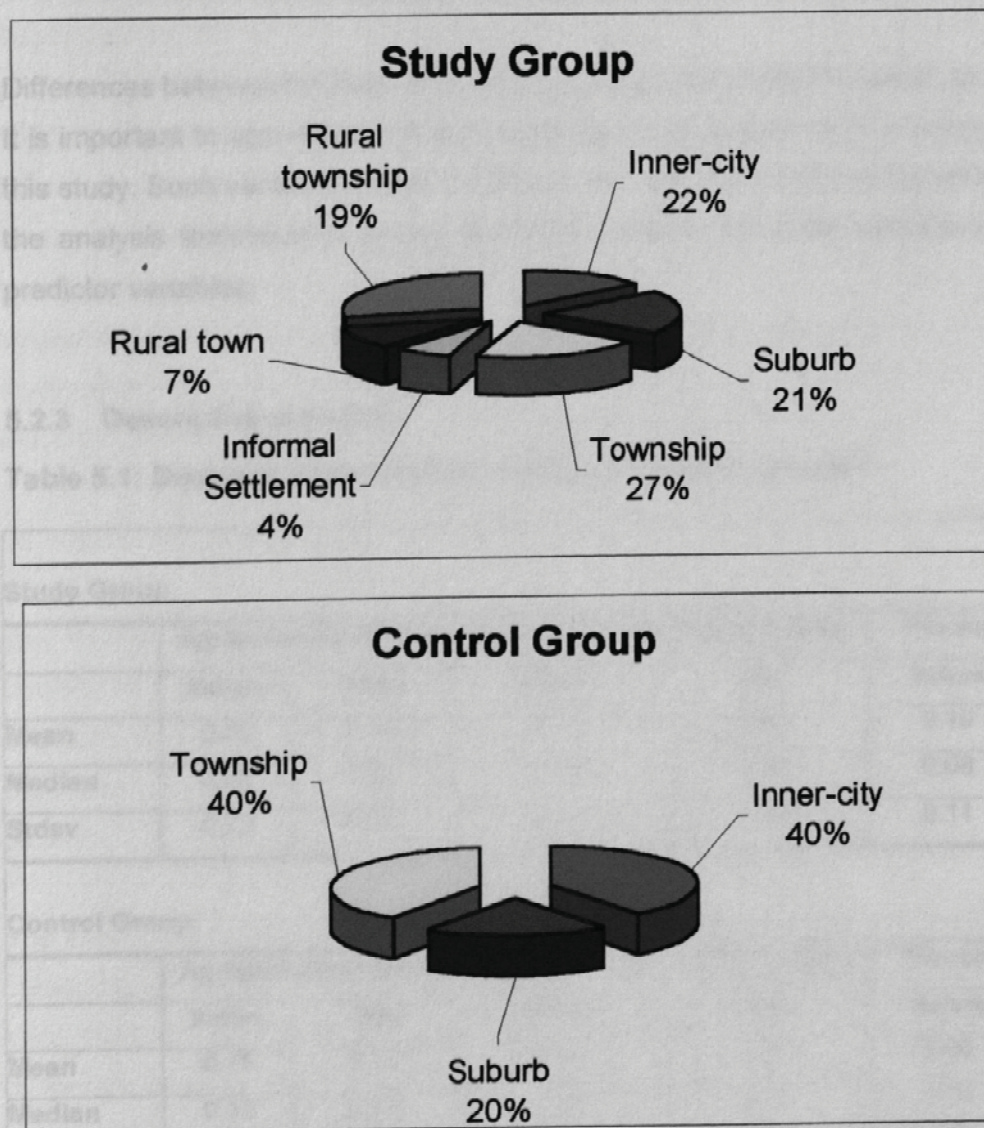
It should be noted that the researcher did not find the observational technique employed entirely satisfactory for observing the frequency of pro-social behaviours. An attempt was made to record the incidences that were observed, but it became clear during the observations that much behaviour that might be classified as pro-social was too complex to be able to categorised without detailed observation of the whole interaction – which was not possible when the room of children was simply being scanned. The results of the analysis of pro-social behaviour that was observed will be presented, but the above limitation will be taken into consideration in the interpretation of these results.

The chosen method of observation proved more suitable for observing aggressive behaviours, which were much easier to identify and record by simply scanning the room. What the method did not allow for, however, was differentiation between distinct kinds of aggressive behaviour (e.g. the distinction between reactive, bullying and instrumental aggression proposed by Strassberg et al., 1994: 445). This kind of differentiation would also have required observation of the whole interaction. The aggregation of different types of aggression that was recorded in this study still yields valuable information, however, and the limitation expressed in this paragraph relates more to guidelines for future studies than it impacts on interpretation of the results of this study.

It is important to note one final issue before moving to the actual results. The data gathering method whose results are explored in section 5.2 and its sub-points was initially intended to measure the impact of the pre-school programme's curriculum, rather than the programme in its entirety (i.e. curriculum plus teacher development component). That is why the 'before' observations were timed to occur at the beginning of 2000, just before the implementation of the curriculum - even though the teacher development component had begun at the end of 1998. The teacher training workshops continued throughout 2000, however, and thus it is actually not possible to determine whether the change that emerges in the study schools was attributable to the curriculum, the teacher training workshops, or both. Information on the relative contributions of the two components will be found in the results of data gathered using methods other than naturalistic observation. In the naturalistic observation results, the whole peace education programme – curriculum and workshops – should be seen as a unitary construct.

5.2.2 Demographic information

Figure 5.1: Contexts of study and control schools



The charts illustrated in Figure 5.1 indicate the respective contexts of schools in the study group and schools in the control group. It is clear from this visual representation that the schools in the control group covered the three main contexts represented in the study group (inner-city, suburban and township), but that the control group did not contain any rural or informal settlement schools, while the study group did.

Chi² tests that were undertaken to explore possible relationships between independent variables indicated further differences between the group of study schools and the group of control schools. These are detailed in Appendix 8.

Differences between the study and control groups were difficult to avoid, as noted in 3.5.1. It is important to acknowledge them, but they do not appear to be a serious limitation for this study. Such variation merely confirmed the need for the use of multiple regression as the analysis technique of choice, as this technique allows for variance in a number of predictor variables.

5.2.3 Descriptive statistics

Table 5.1: Descriptive statistics for study and control groups¹¹

Study Group						
	Agressive incidents		Aggression excluding fantasy		Pro-social incidents	
	Before	After	Before	After	Before	After
Mean	0.30	0.14	0.23	0.08	0.10	0.17
Median	0.22	0.12	0.18	0.06	0.08	0.13
Stdev	0.23	0.10	0.22	0.08	0.11	0.20
Control Group						
	Agressive incidents		Aggression excluding fantasy		Pro-social incidents	
	Before	After	Before	After	Before	After
Mean	0.15	0.16	0.12	0.12	0.06	0.14
Median	0.12	0.17	0.09	0.10	0.04	0.12
Stdev	0.15	0.11	0.14	0.11	0.08	0.12

All figures indicate the number of incidents per child.

¹¹ In the study group results, "before" refers to the observations undertaken before implementation of the curriculum, and "after" refers to the observations undertaken approximately seven months after implementation of the curriculum. In the control group, the intervention was obviously not implemented at all. In control group results, then, "before" and "after" refer to observations undertaken to correlate with the same time of year indicated by "before" and "after" in the study group.

The simple descriptive statistics illustrated in Table 5.1 provide initial information about the data set, which encourages further analysis of the data. For this table, the dependent variables used (aggression, aggression minus fantasy play, pro-social behaviour) were each divided by the number of children in each respective observation, to give final dependent variables of aggression per child, aggression minus fantasy play per child and pro-social incidents per child. The figures in these tables indicate that total aggression per child and aggression minus fantasy play per child both declined in the study schools following the intervention, while these factors both increased slightly (although this increase might be insignificant, and may be better reflected as maintenance of the same level) in the corresponding data for the control schools. This implies that the peace education intervention could have had a positive impact on reducing aggressive behaviour in the study schools, provided that the other predictor variables were not responsible for this change (which is what will be explored using multiple regression).

In both cases incidents of pro-social behaviour increased in the second round of observations. This may imply a number of things. It may, for example, imply that the intervention did not have a particular impact on children's pro-social behaviour, but that involvement in general pre-school programme does have a positive impact. However the concerns expressed under point 5.2 about the accuracy of the record of pro-social behaviours should be remembered here, and this preliminary result be treated with caution.

It is interesting to note that the control group started from a much lower base in both categories of aggressive behaviour than the study group. It is not clear why this was the case. Certainly there was no intention of choosing particularly aggressive schools as the study school. It would be of interest to explore this further, but given the available data, it would only be possible to engage in conjecture about why this big difference existed.

5.2.4 Tests of integrity

As reported in section 3.6.1 a number of analysis procedures were undertaken in preparation for the application of multiple regression techniques to this data. The full results of these procedures appear in Appendix 8. Below is a summary of these results.

5.2.4.1 Correlation matrix

A correlation matrix was used to discover the correlations that existed between independent variables. The main information gained from generating the correlation matrix was an indication of which variables probably should not be combined in the regression model. There were differences between the correlations seen in the study group compared with the control group, but these would not affect the comparability of the data, as regression allows for such variance in predictor variables. A strong positive correlation emerged between aggression and the before and after variable in the study group. Since the coding for 'before' was 1 and 'after' was 0, this indicated that the numbers of aggressive incidents in the study group were higher before the intervention than after it. While there were not yet controls in place to explore the possible influence of other variables, and this result could not therefore prove that the intervention caused this drop in aggression, it was encouraging that this analysis indicated that such a relationship was a possibility. A weak negative correlation existed between aggression and before and after in the control group. This again supported the possibility that it was the intervention that caused the strong positive correlation between aggression and the before and after variable in the study group.

5.2.4.2 Scatter plots

Scatter plots drawn for the study and control groups indicated that the relationships in each case were likely to be linear, and thus suitable for analysis using multiple regression. The fourth pair of scatter plots generated indicated that in the study group there were fewer aggressions after the intervention, while there was no such drop in the control group. This provided another early indication of the role the intervention had played in reducing aggressive behaviour in the study group.

5.2.4.3 Stepwise regression

The results of the stepwise regression analysis indicated which independent variables from the total number of variables available should be included in the multiple regression model to predict aggression, aggression minus fantasy play and pro-social behaviour for the study and control groups respectively. In the case of the study group, the following variables were identified:

- **As predictors of aggression:**
 - Implementation of the intervention (before / after)
 - Number of children
 - Number of adults
 - Free play
- **As predictors of aggression minus fantasy play:**
 - Implementation of the intervention (before / after)
 - Number of adults
 - Number of children
 - Township
- **As predictors of pro-social behaviour:**
 - Implementation of the intervention (before / after)
 - Late afternoon
 - Children younger than 4

Before/after emerged as a strongly predictive variable in relation to both aggression and aggression minus fantasy play.

In the case of the control group, the following variables were identified:

- **As predictors of aggression:**
 - Number of children
 - Number of adults
- **As predictors of aggression minus fantasy play:**
 - Suburban location
 - Free play
- **As predictors of pro-social behaviour:**
 - Free play

The fact that before/after emerged as a predictive variable in the study group, and not in the control group, was a further strong indication that the intervention had had a significant impact on the dependent variables.

5.2.4.4 Multivariate variable selection

Stepwise regression is able to consider only one dependent variable at a time. To determine an optimal set of variables for the estimation of more than one dependent variable (aggression minus fantasy play, fantasy play and pro-social behaviour) simultaneously, a multivariate variable selection technique was used. The result indicated that the three best predictors of the set of dependent variables in the case of the study group were the intervention (before/after), the number of adults present and the number of children present. In the control group, the three best predictors of the set of dependent variables were the number of children, the number of boys, and whether or not the school was in a suburb. The before/after variable again did not emerge at all as a predictor in the control group, whereas it is the strongest predictor in the study group. This strengthens again the argument that the intervention has significantly affected the study group results.

The results of the multivariate variable selection technique, together with those for stepwise regression, gave a strong indication of which variables should be included in the multiple regression analysis.

5.2.5 Multiple regression

Table 5.2: Results of multiple regression for study and control groups

Study Group				
Dependent Variable: Aggression				
Regression Equation Section				
Independent Variable	Regression Coefficient	Statistic (T, F) (Ho: B=0)	Prob Level	Decision
Intercept	1.306	1.724	0.087	Accept Ho
Bef/aft	3.020	6.082	0.000	Reject Ho
fp	1.338	2.254	0.026	Reject Ho
Chn.	0.112	5.351	0.000	Reject Ho
Adults	-1.278	-3.821	0.000	Reject Ho
Model (Anova – F-Ratio)		19.669	0.000	Reject Ho
R-Squared	0.406			

Study Group				
Dependent Variable: Aggression less fantasy				
Regression Equation Section				
Independent Variable	Regression Coefficient	Statistic (T, F) (Ho: B=0)	Prob Level	Decision
Intercept	2.402	4.918	0.000	Reject Ho
twm	-1.027	-2.030	0.045	Reject Ho
Bef/aft	2.931	7.166	0.000	Reject Ho
Chn.	0.080	4.765	0.000	Reject Ho
Adults	-1.639	-6.078	0.000	Reject Ho
Model (Anova – F-Ratio)		28.096	0.000	Reject Ho
R-Squared	0.494			

Study Group				
Dependent Variable: Pro Social behaviour				
Regression Equation Section				
Independent Variable	Regression Coefficient	Statistic (T, F) (Ho: B=0)	Prob Level	Decision
Intercept	3.489	11.882	0.000	Reject Ho
Bef/aft	-1.430	-3.503	0.001	Reject Ho
la	-2.858	-3.161	0.002	Reject Ho
4-	1.179	2.056	0.042	Reject Ho
Model (Anova – F-Ratio)		6.190	0.001	Reject Ho
R-Squared	0.138			

Control Group				
Dependent Variable: Aggression				
Regression Equation Section				
Independent Variable	Regression Coefficient	Statistic (T, F) (Ho: B=0)	Prob Level	Decision
Intercept	3.365	2.910	0.005	Reject Ho
Chn.	0.124	4.428	0.000	Reject Ho
Adults	-1.838	-3.346	0.001	Reject Ho
Model (Anova – F-Ratio)		15.910	0.000	Reject Ho
R-Squared	0.358			

Control Group				
Dependent variable: Aggression less fantasy				
Regression Equation Section				
Independent Variable	Regression Coefficient	Statistic (T, F) (Ho: B=0)	Prob Level	Decision
Intercept	4.787	6.927	0.000	Reject Ho
sub	-3.029	-4.292	0.000	Reject Ho
fp	-1.571	-2.228	0.030	Reject Ho
Model (Anova – F-Ratio)		9.212	0.000	Reject Ho
R-Squared	0.244			

Control Group				
Dependent variable: Pro-social behaviour				
Regression Equation Section				
Independent Variable	Regression Coefficient	Statistic (T, F) (Ho: B=0)	Prob Level	Decision
Intercept	0.692	0.905	0.369	Accept Ho
fp	2.563	2.964	0.004	Reject Ho
Model (Anova – F-Ratio)		8.784	0.004	Reject Ho
R-Squared	0.132			

Each output illustrated in Table 5.2 records the value of the regression coefficients in the model in the first column.

The regression coefficients for the study group when aggression is the dependent variable shows that before/after is a strong predictor of aggressive behaviour in this group. As 'before' was represented by the number 1, and 'after' by 0 in the model, the result indicates that aggression is likely to be significantly higher before the introduction of the peace education intervention and significantly lower after the introduction of the peace

education intervention. The results for aggression minus fantasy play in the study group indicate the same outcome. The two other factors that emerge as predictive variables are the number of children and the number of adults. It is not surprising that more children should be a predictor of more incidents of aggression, or that more adults present should be a predictor of fewer incidents of aggression. It is interesting that the second regression result for the study group should indicate that a township location is a predictor of lower aggression. This certainly contradicts some of the stereotypes of township children and township schools, and would be interesting to explore further.

In regression analysis a common measure of the success that could be attained by using the regression model to predict the dependent variable is the R^2 value. This represents the percentage improvement that could be obtained in the prediction of the dependent variable if the model is used instead of the simple average of past values of the dependent variable. A weakness of this measure of success is that the inclusion of more independent variables will never reduce the predictive power of the model. This means that a model with more predictors will always perform better than a model with fewer predictors, and the tendency would be to include even the independent variables that have no significant relationship with the dependent variable. The adjusted R^2 value corrects for this effect by considering the number of degrees of freedom in the model (based on the number of independent variables included), and is frequently used instead.

The adjusted R^2 values in the study group results relating to both aggression and aggression minus fantasy play indicate that each respective model is a powerful predictor of the dependent variable it deals with. This underlines the impact of the intervention on aggressive behaviour.

The results for the control group indicate that the predictors of aggression in control schools were the number of children and the number of adults. This result, paired with the corresponding one for the study group, indicates that in the absence of the intervention, the two best predictors of aggressive behaviour are the numbers of children present (a positive relationship) and the number of adults present (a negative relationship). Interestingly, the results for the control group when looking at aggression minus fantasy play give a completely different result from the study group result. The indication that free play ("fp") should predict that there will be fewer aggressions than if children were

engaged in more structured play is surprising, and would be interesting to explore further. This result also indicates that suburban location predicts that there would be fewer incidents of aggression. This is easier to accept, in terms of prevailing stereotypes, than the study group finding, but because it contradicts the study group finding that township children are less likely to be aggressive, this is certainly an area that would benefit from further investigation.

While the interpretation of the multiple regression model is largely a function of the regression coefficients and the adjusted R^2 value, there are a number of other outputs designed to give confidence that the coefficients differ significantly from zero, and that the results of the significance tests can be reported with confidence.

In the four multiple regression outputs discussed above, the t-value was calculated to confirm that the regression coefficient is significantly different from zero, and therefore a valid inclusion in the model. Normality tests presented in Appendix 8 indicate in each case that the assumptions of normality are not seriously violated¹², and therefore the t-values are valid. The probability levels reported in the four outputs indicate in each case that the variables are a valuable predictor of the dependent variable. The F-ratio in each of the above cases indicates that the model as a whole is a good predictor of the dependent variable. The Durban Watson value indicates in each of these cases that serial autocorrelation has not adversely affected the accuracy of the significance tests. Multi-collinearity has been mentioned before, and in all regressions tests were run to see if there was evidence of it being present. The results indicated that it was not present.

In terms of the results relating to pro-social behaviour, the study group results indicate that the intervention ("before/after"), late afternoon ("la") and children younger than four ("4-") are predictors of more incidents of pro-social behaviour, while the control group indicates that free-play is a predictor of more incidents of pro-social behaviour. Perhaps the F and T tests for the pro-social variable are problematic on the strength of the violation of the normality test results, and so these regression outputs are likely to be indicative of the direction of the result, rather than conclusively supportive of it. This proviso, coupled with the concern expressed about the reliability of the pro-social observation data expressed

¹² In the case of the control group model for aggression, the assumption of normality is violated, but not to the extent that the T and F tests should not be trusted.

under point 5.2.1, strengthen the argument that the outputs relating to pro-social behaviour should be treated with caution, and that further research would be required to give a more conclusive indication of the factors that impact on pro-social behaviour. Thus, the results relating to pro-social behaviour will not be explored further.

5.2.6 Synthesis

Multiple regression results indicate correlation rather than causation. These results therefore do not provide conclusive evidence that the intervention caused the drop in aggressive behaviour¹³ in the study schools, but rather that there was a correlation between the intervention and the drop in aggression. However there was a significant decline in aggression in the study schools and not in the control schools. And the multiple regression technique enabled the elimination of all other known variables as possible causes of this decline. Thus the series of analysis techniques applied to the data on aggressive and pro-social behaviour provide a strong indication that the implementation of the curriculum (indicated by the "before and after" variable) in the study schools brought about the significant drop in incidents of aggression, while any variation in the number of incidents of aggression in the control group was unrelated to whether the observation was undertaken to correspond with the 'before' or the 'after' observations in the study group. This means that in the control group there was not a significant change in the number of incidents of aggression by the end of the year, indicating that any change that occurred in the study group was likely to be related to the intervention, and not the result of natural maturation in the children (which, as the literature review revealed, may be expected to be accompanied by a reduction in aggressive behaviour [DeBord, 2000: 3]), or by exposure to a general pre-school programme. It is clearly impossible to claim that implementation of the peace education curriculum in the study schools was the only factor that changed between the "before" observations and the "after" observations, considering that there were variables outside of the researcher's control. But the curriculum is the only factor that was known not to be present in either category of school at the time of the "before"

¹³ In the study schools, the intervention was related to a decline in both general aggressive behaviour and aggression minus fantasy play. Thus these two different conceptualisations of aggression will no longer be considered separately.

observations, and to be present only in the study schools at the time of the "after" observations.

The results pertaining to pro-social behaviour in both groups are problematic, both because of the difficulties associated with the accurate recording of pro-social behaviour discussed in 5.2.1, and the violation of the normality test discussed in 5.2.5. Thus, the results pertaining to pro-social behaviour should not be taken as definite indicators of any of the relationships that emerged during the analysis.

5.3 TEACHERS' JOURNALS

5.3.1 Limitations

Twenty teachers were requested to undertake observations and keep journals as described in point 3.5.2. Only seven of these teachers submitted journals involving more than the initial observation sheet. This low level of response was probably due to a number of factors: some teachers left the employ of the Chain of Hope during the period of the study, or had extended absences due to pregnancy or illness; a number of teachers had no experience of this kind of child observation, and were not able to complete the task without more support than was possible from the researcher; a number of teachers simply did not make time to fit the observation and formal reporting into an already-busy teaching schedule.

Of the seven teachers who submitted journals recording ongoing observation of one month or more, one did not seem to understand the task, or to be able to complete it, and her observations were not detailed enough to be used. The other six submitted detailed journals recording observations that ranged from a duration of one month following the initial observation period to seven months following this initial observation. This variation can be explained in similar ways to the lack of response by other teachers.

5.3.2 Demographic information

Details of the teachers undertaking the observations appear in Table 5.3 below:

Table 5.3: Details of teachers undertaking observations

Teacher's name	School	Context	Level of training	Duration of observation
Solly	Nehemiah, Ivory Park	Informal settlement	Primary diploma	1 month
Mercy	Boichoko, Jouberton	Rural township	NGO educare	2 months
Elana	Heidi, Colerige	Rural township	NGO educare	2 months
Johanna	Heidi, Colerige	Rural township	NGO educare	2 months
Zamakile	Nehemiah, Ivory Park	Informal settlement	Primary diploma	3 months
Rene	Happyland, Klerksdorp	Rural town	Pre-school / junior primary diploma	7 months

Altogether, these teachers undertook observations of 11 children they classified as aggressive, 6 they classified as shy/withdrawn and 5 they classified as rejected, giving a total of 22 children

5.3.3 Aggressive children

Of the 11 aggressive children observed, 10 showed some decrease in their aggression over the duration of the study. Below is a table showing details of these children and their recorded behaviour change.

Table 5.4: Change in aggressive behaviour recorded in teacher observations

Child's age in years	Child's gender	Location of child's school	Was there behaviour change?	What was the pattern of change
6	male	Informal settlement	Yes – fair improvement	1 month of observation only
6	male	Informal settlement	Yes – slight improvement	1 month of observation only
4	female	Rural township	No	No change over 2 months
3	male	Rural township	Yes – slight improvement	Gradual improvement over 2 months
5	male	Rural township	Yes – fair improvement	Signs of improvement only 2 months into observation
6	male	Rural township	Yes – slight improvement	Signs of improvement only 2 months into observation
6	male	Rural township	Yes – fair improvement	Gradual improvement over 2 months
4	female	Informal settlement	Yes – significant improvement	Gradual improvement over 3 months
5	male	Informal settlement	Yes – significant improvement	Gradual improvement over 3 months
5	male	Rural town	Yes – fair improvement	Gradual improvement over 7 months, with some regression following holiday periods.
5	male	Rural town	Yes – significant change	Gradual improvement over 7 months, with some regression following holiday periods.

Where there was change in behaviour¹⁴, the chapters of the peace education curriculum that had been used (in order of frequency of use, from most frequent to least frequent) are as follows:

- Self-esteem
- Conflict handling
- Friendship skills
- Communication skills
- What is peace?

Where there was a decrease in aggressive behaviour, the other techniques employed by the teachers (in order of frequency of use, from most frequent to least frequent) are as follows:

- Talking with parents/caregivers about the child's behaviour
- Spending extra time with the child, including affirming and giving affection
- Giving the child special tasks
- Placing the child with friendly children
- Exploring the child's reasons for aggression with him/her

In the single case in which there was no change in aggressive behaviour, the teacher described the child as "not normal like the others". The teacher was of the opinion that this child needed special attention, outside that which could be offered in a mainstream classroom.

In the case in which there was "fair improvement" during seven months of observation, the teacher felt that the child had a hearing problem that was causing the child frustration and consequent aggression, and thus limiting the scope of improvement in the child's aggressive behaviour.

¹⁴ While this section is dealing with the results related to aggressive behaviour, the same curriculum material was used with all children in the class – and thus this list is standard for aggressive, shy/withdrawn and rejected children.

5.3.4 Shy / withdrawn children

All 6 shy/withdrawn children observed showed some improvement in their ability to integrate with their peers over the duration of the study. Below is a table showing details of these children and their behaviour change.

Table 5.5: Change in shy/withdrawn behaviour recorded in teacher observations

Child's age in years	Child's gender	Location of child's school	Was there behaviour change?	What was the pattern of change
5	female	Informal settlement	Yes – slight improvement	1 month of observation only
3	female	Rural township	Yes – slight improvement	Sustained improvement over 2 months
5	male	Rural township	Yes – slight improvement	Signs of improvement only 2 months into observation
6	female	Rural township	Yes – slight improvement	Sustained improvement over 2 months
4	male	Informal settlement	Yes – fair improvement	Sustained improvement over 3 months
5	female	Rural town	Yes – very slow improvement	Gradual improvement over 7 months

Where there was improvement in shy/withdrawn behaviour, the other techniques employed by the teachers (in order of frequency of use, from most frequent to least frequent) are as follows:

- Talking with parents/caregivers about the child's behaviour
- Spending extra time with the child, including affirming and giving affection
- Giving the child special tasks
- Placing the child with friendly children
- Encouraging the child

5.3.5 Rejected children

All 5 rejected children observed showed some improvement in their ability to integrate with their peers over the duration of the study. Below is a table showing details of these children and their behaviour change.

Table 5.6: Change in rejected behaviour recorded in teacher observations

Child's age in years	Child's gender	Location of child's school	Was there behaviour change?	What was the pattern of change
6	male	Informal settlement	Yes – slight improvement	1 month of observation only
2	female	Rural township	Yes – slight improvement	Signs of improvement only 2 months into observation
6	male	Rural township	Yes – slight improvement	Sustained improvement over 2 months
4	male	Informal settlement	Yes – fair improvement	Sustained improvement over 3 months
5	female	Rural township	Yes – fair improvement	Signs of improvement only 4 months into observation, and sustained for remaining 3 months

Where there was improvement in behaviour of rejected children, the other techniques employed by the teachers (in order of frequency of use, from most frequent to least frequent) are as follows:

- Spending extra time with the child, including affirming and giving affection
- Giving the child special tasks
- Encouraging the child
- Trying to understand the child's background
- Encouraging other children to involve this child – focussing on friendship skills in the classroom (incidental teaching in addition to curriculum use)
- Speaking with the child's parents

5.3.6 Synthesis

The analysis of data gathered through teacher observation and journal keeping indicated a positive change in all three categories of behaviour. This kind of analysis cannot show a causal relationship, but it is clear from the teachers' appropriate use of the curriculum, and the other techniques they chose to employ (most of which had been discussed in teacher training workshops), that at the very least the peace education curriculum and workshops provided important support for teachers in their task of assisting these children.

The results of this analysis reinforce the results of the previous quantitative analysis in terms of the peace education programme's impact on reducing aggressive behaviour. These results also indicate that the programme has assisted with the development of pro-social skills, which could not be proved by the previous quantitative data analysis.

Some of the teachers in this component of the study focussed strongly on the importance of the child's home environment. Teachers indicated that the child's home environment significantly impacts on behaviour at school, particularly aggressive behaviour, and underlined the need for co-operation between parents and teachers/caregivers in improving children's behaviour. In cases where co-operation of this kind was not achieved, there were indications that the school environment can offer a viable alternative behaviour pattern for children, although this was much harder to sustain.

Finally, the intensity of the focus in each child that this process encouraged, the care with which teachers responded to the specific needs of each child, and the behaviour transformation thus effected, suggest that this kind of guided observation process may in itself be a helpful component of a peace education process.