

**Assessing schoolchildren's subjective well-being**  
**and how it is affected by being bullied**

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**REFERENCE ONLY**

### **Abstract**

A Subjective Well-Being (SWB) of schoolchildren measure was developed to assess how SWB is affected by being bullied. The design involved concurrent and longitudinal studies.

The sample for the concurrent design consisted of 390 pupils age 8-15 years. The repeated measures (longitudinal) study was carried out with 97 pupils, age 8-11 years, after a 10-month interval. The SWB questionnaire was delivered alongside pupil perception measures of being physically and verbally/indirectly bullied.

The results show that levels of SWB were lower in the 'Bullied' as opposed to the 'Not Bullied' group,  $t(378) = 7.76, p = <.00$ . Within the Bullied group, increased levels of being bullied predicted lower SWB,  $r(300) = .32, p = .05$ .

In the longitudinal study, Pupil's SWB was most strongly influenced by the degree and the recurrence of being bullied. Past experiences of being bullied, if not repeated, had little effect on current SWB. The nature of these relationships remained substantially unchanged when the covariates: Gender, Age, Ethnicity, Lie/Social Desirability, negative Control Beliefs about being bullied and past SWB, were included. Negative Control Beliefs refer to helpless and hopeless beliefs about being bullied.

In conclusion, pupil SWB was inversely related to recent and repeated experiences of being bullied. Where the experience of being bullied was not repeated, the effect on a pupil's SWB lessened over time. Repeatedly bullied pupils are most likely to experience lower SWB.

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## **Introduction**

### **Definition of the research problem**

The research problem is defined as: how is children's Subjective Well-Being affected by being bullied?

### **Background**

Over the last thirty years, there has been an expansion of research into Subjective Well-Being, (SWB) its meaning, measurement and constituents (Diener, Suh, Lucas, & Smith, 1999). This research has almost exclusively been carried out with adults and especially with college students.

SWB measures have been developed and used to evaluate the happiness and satisfaction with life, of individuals, groups and nations (Diener et al., 1999 and Strack, Argyle, & Schwarz, (Eds.), 1991). SWB measures have also been used as part of Quality of Life (QoL) evaluations amongst medical patients, in an attempt to find out the individuals' functional and affective experiences in relation to treatment (Titman, Smith, & Graham, 1997). However, the use of the SWB construct with children has been limited and rather broadly defined to include measures of self-esteem (Sharp, 1995) or measures have been used that were developed for other purposes (Rigby, 1994, Rigby, 1999, Rigby & Slee, 1993). In contrast, in areas such as Quality of Life research, there has been an increasing tendency to create measures for specific groups reflecting their particular circumstances, (P.Titman, personal communication, November 1998).

This interest in considering personality variables in constrained situations (Mischel, 1973, Mischel, & Shoda, 1995) includes a person's disposition in a dynamic setting; how someone feels or reacts, given a particular set of circumstances. Through developing measures for specific circumstances, it may be possible to investigate the individual's experience in a particular setting.

### **SWB and schoolchildren**

One such particular setting for children is school. Most children experience school, and although schools differ, they share common attributes in organisation, structure and curriculum content. This shared context allows a closer consideration of the individual within a particular social dynamic, especially when the subject is one that seeks to find out aspects of the child's experience of that context.

In addition to considering a specific setting in developing an SWB measure, it is also relevant to include constraints on the time period under review. For SWB, recent events may be the most salient whilst past events may stand in contrast (Schwarz & Strack, 1991, Tversky, & Griffin, 1991). In addition, the influence of past events on current SWB, either negative or positive, is likely to decay unless reinforced. This suggests that a reliable measure might be constrained to cover recent events in a shared setting.

### **SWB measurement and being bullied**

A situational, school-based measure of SWB needed to be developed and validated. One option would be to view the school as a shared setting and introduce an intervention likely to effect a change in SWB. Though desirable on experimental grounds, it would be likely to be unethical and may lose its value as a measure of naturally occurring phenomena. However, being bullied stands out as an already existing phenomenon in schools and one that, in face valid terms, is likely to have a negative effect on an individual's level of SWB as shown by Miller, Verhoek-Miller, Ceminsky & Nugent, (2000). If the degree of being bullied and SWB were measured in the shared context of the school, in a shared time frame, it may be possible to explore further the nature of each variable and their relationship with each other.

### **The assessment of being bullied and SWB in the school setting**

The following considerations appear cogent:

- 1) Though both measures share the same context, they should also share the same time frame, which should be recent.
- 2) Differences between the nature of the being bullied and SWB constructs should be acknowledged. Being bullied is a unipolar variable; it either happens to some degree or not at all, whereas SWB has been operationally defined as a bipolar, normally distributed variable (Diener, Suh, Lucas, & Smith, 1999, Laurent et al., 1999, Mackinnon et al., 1998). It is possible to be happy or unhappy, but the contrasting

pole to being bullied is not 'unbullied', but not bullied. These differences will need to be considered before data are analysed.

- 3) Being bullied/bullying research has suggested that self-report measures are valid and reliable (Besag, 1989, Rigby, 1999). Self-report is favoured with SWB, which, by definition, must include the individual's experience. Therefore, both should be based primarily on self-reports.
- 4) Being bullied measures should incorporate behaviour-related items and secondly, items that directly refer to "bullying" by name. This should be done as: firstly, it would help to counter the effects of verbal cueing through an initial use of "bullying", an emotionally laden word (Arora, 1999, Bennetto, 2000, Wolke, Woods, Bloomfield, & Karstadt, 2000), and secondly, including a measure that defined bullying, might avoid the incorporation of aggressive and antisocial behaviour that is not bullying, such as fighting or disagreement between equals (Smith, 2000). It may also help to test whether younger children tend to conflate all aggression with bullying as suggested in Smith, Madsen, & Moody (1999). By using both types of measures in a structural equation modeling analysis, the measurement error inherent in both measures would be controlled, (Bentler, 1995) providing a more reliable estimate of the true effect of being bullied on SWB.
- 5) Measures of bullying should incorporate separate "direct" or physical, "indirect" or social, (Olweus, 1994) and verbal (Crozier & Dimmock, 1999) bullying items. This may allow a finer analysis, after appropriate data transformation, of how being directly and indirectly bullied are correlated and their relationships with SWB.
- 6) An established and related measure should be included for completion by someone who knows the child in the setting. This may help control for the possibility that variation in both constructs is a result of some unknown variable, or that the association is affected by shared method variance (Hawker & Boulton, 1999). In this study, the child's teacher takes that role.
- 7) It would be useful to include a measure of the child's beliefs about control when exposed to bullying. Sharp (1995), found that improvements in the self-esteem of bullied children followed assertiveness training. Sharp proposed that some children might be more resilient or have more hardiness (Kobasa, 1979, Kobasa, Maddi & Kahn, 1982). A measure, administered concurrently, might assess how the effect of being bullied is moderated by an individual's control beliefs (Mynard, Joseph, & Alexander, 2000, Skinner, Chapman, & Baltes, 1998 and Taylor, Kemeny, Reed,

Bower, & Gruenwald, 2000) and their ability to determine what happens to them (Ryan & Deci, 2000, Schwartz, B., 2000 and Seligman, & Csikszentmihalyi, 2000b).

- 8) The effects of social desirability and of lying are taken into account. Social desirability has been found to have an association with the related measures of Life Satisfaction (Huebner, 1998). Bullies were found to have relatively low results on the Eysenck Lie scale (Mynard & Joseph, 1997). An explanation for this association may be that younger children especially, conflate being good with being happy. An alternative hypothesis is that, when asked, people tend to respond with a socially expected “alright”, when asked how well (or happy in this case) they are, whatever they are feeling.
- 9) Demographic variables should be included for gender and age, both known covariates of being bullied (Olweus, 1994). Ethnicity should be included to explore the validity of the measures across groups and whether ethnic groups have a differential experience of SWB and of being bullied.
- 10) Measures of bullying behaviour should be included, both self-report and teacher-based, in order to check the effect of shared method variance and in assessing the experience of groups comprising: not bullying or bullied; bullied; bullying/bullied; and bullies.

To summarise, research was planned on the measured effects of being bullied on schoolchildren’s Subjective Well-Being, taking into account covariates for: time, control beliefs about being bullied, lie/social desirability, age, gender and ethnicity.

Following these considerations the following hypotheses were generated:

#### **Central Hypotheses**

- 1) A schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied;
  - 1i) The SWB of schoolchildren who report not being bullied, is higher than the SWB of schoolchildren who report being bullied.”
  - 1ii) That the inverse relationship between SWB and being bullied is supported in both boys and in girls.
- 2) The effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated.

### **Subsidiary and supportive hypotheses**

include:

- a) That schoolchildren's self-reports of being physically bullied are associated with their self-reports of being verbally/indirectly bullied;
- b) That the effects of being bullied on Subjective Well-Being remain significant when covariates for the schoolchild's Control Beliefs about being bullied, Lie/Social Desirability, Age, and Gender are accounted for;
- c) That a schoolchild's self-reports of being bullied and of bullying, are associated with teacher-reports of problem behaviour.
- d) That the variance in SWB that is unaccounted for by being bullied is associated with pupils' Control Beliefs about being bullied.
- e) That pupil-based and teacher-based measures of bullying should correlate.
- f) That pupil-identified low SWB and pupil identified bullying behaviour are associated with high teacher-identified, problem behaviour.
- g) That pupils' perceptions of being bullied, where the term bullying is used in questioning, are partially independent of self-reported behavioural interactions that are typically associated with being bullied.

### **Potential value of the research**

The research is seen as useful as it involves:

- 1) An examination of the effect of being bullied on schoolchildren's happiness (SWB), through the production and analysis of psychometrically valid and reliable measures.
- 2) The development of a measure for schoolchildren's SWB as an original development intended for further application.
- 3) The development of a measure for school-children's experience of being Verbally/Indirectly Bullied, as an adaptation and extension of an existing measure, intended for further application.
- 4) An examination of the lasting effects of being bullied on SWB through analysis of the differential experience of children who were bullied but who are no longer bullied, with repeatedly bullied schoolchildren.



## **The research**

A concurrent and longitudinal design was used to test the hypotheses, taking into account covariates for: time; control beliefs about being bullied; lie/social desirability; age; gender and ethnicity.

In order to accurately measure the effects, measures were chosen and developed over several pilot studies to ensure their psychometric reliability and validity (see Appendix A). The being bullied measures were broadened with the inclusion of a verbally/indirectly bullied variable, and with the simplified and adapted, self-perceived bullied measure. This ensured breadth of coverage and internal checks on the measurement of being bullied.

Having established the psychometric quality of the measures, the next step was to consider theoretically relevant covariates. These were chosen according to their mention, or implication in the existing literature. Some of the covariates: age, gender, ethnicity, were simple to record. Other, construct-based covariates, lie/social desirability and control beliefs about being bullied, required the development of new measures for the purpose.

The selection of a shared context, both time and place, for the being bullied and subjective well-being variables helped to avoid the influence of confounding effects such as the impact of external-to-school events and the known contrast effect of past events on current well-being. Contrast effects (Schwarz & Strack, 1991, Tversky, & Griffin, 1991) describe the paradoxical influence of past events on an individual's current state. If bad things happened in the past, and if they are not repeated, then the present may seem better by comparison. This avoidance of unnecessary confounds, is likely to reduce distortions in the relationships between variables.

The inclusion, with a subset of the sample, of a teacher-based measure, the Strengths and Difficulties Questionnaire, (Goodman, 1997) allowed a check on the "shared method variance" effect, (Hawker & Boulton, 2000) likely to result in an exaggeration of the relationships based on solely within-child measures.

The longitudinal study allowed for an examination of the stability of the effect across time, and to assess the impact of contrast effects; being bullied in the past only, on current SWB.

## Literature Review

### **Structure of the Literature Review**

This literature review is constructed using the three main sections implicit in the title: the first on subjective well-being; the second on being bullied/bullying; a third section looks at the existing literature on the effect of being bullied on children's subjective well-being.

### **First Section - Subjective Well-Being**

This section of the literature review is divided into two parts:

1. Concepts and constructs
2. Measures of Subjective Well-Being and measures of related constructs

The first section is a consideration of relevant psychological and philosophical views of Subjective Well-Being (SWB) and of related constructs such as happiness, Life Satisfaction and Quality of Life (QoL). It is essentially a description of what SWB means in the context of this research. Appendix B contains a glossary of acronyms used in this study.

In this section a concept is referred to as being,

“...an abstraction formed by generalization from particulars.”

(Kerlinger, 1986, p. 26)

A construct is,

“.. a concept. It has the added meaning, however, of having been deliberately and consciously invented or adopted for a special scientific purpose.” (ibid. p. 27)

Subjective Well-Being is in many ways a construct evolving from a concept. A concept at the root of Subjective Well-Being is happiness; an individual experience. Subjective

Well-Being is one of the constructs that attempt to define, operationally, aspects of happiness that are accessible to research.

The second section considers how the construct of Subjective Well-Being and related constructs are defined operationally. In addition, consideration is given to the evolution of particular methodologies and their rationale. Of particular note, is the gathering abundance of work in developing and researching Subjective Well-Being with adults, but that relatively little has been done with children.

### **Definitions, Concepts and constructs used in Subjective Well-Being research**

Happiness, is one of the components of Subjective Well-Being. However, it would be simplistic to assume that happiness does not have a diversity of meanings, some personal, and some comparative. In this study, the emphasis is on the personal, subjective meaning of happiness or well-being rather than the material and comparative sense inherent in such constructs as Life Satisfaction. This results in more of a focus on ‘how are you feeling’, rather than on ‘how are you doing’.

Schoolchildren’s SWB is considered as a personal judgement about primarily affective and associated physical states within a particular setting (school) during a fixed and recent time period.

SWB is not, in this research, about value judgements (Barrow, 1980) such as those implicit in Aristotle’s eudaimonia, a variety of happiness, in which,

“... eudaimonia refers not so much to a psychological state as to the objective character of a person’s life” (Norman, 1995, p.332).

The term eudaimonia, describes the condition of happiness, but not the individual’s experience. This is not a meaning of happiness or well being that will be followed in this study, though it forms a significant part of the related “Life Satisfaction” and “Quality of Life” constructs, based on self and other evaluations. DeNeve & Cooper, describe happiness, as involving “an overall affective appraisal” and that Life Satisfaction,

“...is primarily a cognitive evaluation of the quality of one’s experiences spanning an individual’s entire life.” (DeNeve & Cooper, 1998, p. 198)

Barrow (1980) writes about the conditions that are related to happiness,

“Certain correlations seem reasonably well established: unhappiness repeatedly shows a significant correlation with alienation, depression, anxiety and anomie. Happiness shows a significant correlation with self-esteem, successful involvement with other people and social adjustment.”

(Barrow, 1980, p. 12)

Thus, to be happy may imply the relative absence of negative feeling, the presence of positive affect within a benign environment that meets our individual and social needs; a position supported in research with adults, (Hills & Argyle, 2001).

The experience of happiness may depend on the interaction between individuals, their personalities, and with the subjective interpretation of their circumstances.

The condition of happiness as outlined by J.S. Mill, quoted in Barrow (1980, p. 43), is ‘...pleasure and the absence of pain; (and, by contrast) unhappiness (is) pain and the absence of pleasure’. Hence, the absence of pain is seen as a necessary condition for happiness but not sufficient. It is possible to be well without feeling particularly happy. From this it can be assumed that positive affect (pleasure), is associated with, but not the antithesis of negative affect (pain). This forms the basis for Mills’ ‘hedonic calculus’, whereby happiness is a product of painful and pleasurable experience (Honderich, 1995).

From these observations, it appears difficult to observe and confirm the experience of happiness in another person, although we might assume happiness or satisfaction based upon their circumstances or behaviour.

It is difficult to access the temperament, mood or emotion in another person without resorting to questioning and having the individual reflect on their experience. In researching others’ happiness, we may only be able to access what they evaluate to be their experience, rather than their experience directly. In research it may, unless physiological corollaries can be found, be necessary to ask how happy someone is, whilst checking the veracity and coherence of their responses.

Veenhoven, (1991) provides a taxonomy of Well-Being concepts in which there are between-individual or exogenous, and within-individual, or endogenous categories. These are labelled Objective Well-Being and Subjective Well-Being.

Using this taxonomy in the context of the current research SWB is focused on subjective affective judgements rather than personally comparative (Life Satisfaction) or objectively comparative (Quality of Life). In Veenhoven's terms, SWB is based on endogenous affective judgements.

This discussion of what is meant by SWB and by related concepts has been necessary, as these terms are used interchangeably and without acknowledgement in much of the research.

### **The structure and content of SWB**

The time-frame and context have been found to be important considerations when measuring SWB. This is of especial importance where SWB is a dependent measure, used in assessing the effect of particular experiences.

Problems with assessing happiness, or Well-Being, are raised in Schwarz & Strack (1991). They describe how temporal and environmental factors can have a paradoxical effect on an individual's judgement of happiness. For instance, a sad event will have a different effect on one's current perception of happiness depending on whether it is recent or long past. If recent, it may reduce happiness levels. If long past, it may serve as a nadir from which today is seen as an improvement. Tversky & Griffin (1991) note that events can sometimes have this conflicting effect:

“In other words, a salient hedonic event (positive or negative) influences later evaluations of Well-Being in two ways; through an *endowment* effect and a *contrast* effect. The endowment effect of an event represents its direct contribution to one's happiness or satisfaction...Events also exercise an indirect contrast effect on the evaluation of subsequent events. A positive experience makes us happy, but it also renders similar experiences less exciting. A negative experience makes us unhappy, but it also helps us appreciate subsequent experiences that are less bad.” (Tversky & Griffin, 1991, p.101)

The implications for research might include a need to restrict the time-frame and context to which questions refer, to avoid an implicit regression to the individual's mean level of SWB. This is especially important where SWB is used as a dependent variable. No to do so would be likely to weaken the association of any predictor variable on SWB. Ideally, any design should incorporate repeated measures, in order to control for these temporal influences on SWB.

Headey & Wearing's (1991) model of Subjective Well-Being attempts to explain why many measures show Well-Being to be a relatively stable trait. They point out that personality variables may not only influence Subjective Well-Being, but they also affect the individual's life experiences; happy people may be more likely to do happy things than unhappy people. However, when an individual is asked about their level of happiness they are likely to compare themselves to their own previous experiences. Headey & Wearing produce an equation to explain the effects of life experiences on an individual's current assessment of their Well-Being:

“recent events = normal events + deviation from normal events.”

(Headey & Wearing, 1991, p. 64)

In this equation, the effect of the event on Subjective Well-Being is proportional to the individual's range of positive and negative experiences and their personal norms. Therefore, past events continue to provide a baseline against which the individual assesses their current SWB. Diener, (2000) writes that,

“People do react strongly to good and bad events, but they then tend to adapt over time and return to their original level of happiness.” (Diener, 2000, p.37)

Beyond considering temporal influences on an individual's SWB, context is also important. When investigating any emotion it is necessary to consider the individual and their environment. Lazarus writes that:

“A proper view of (whole) persons as organized systems living in and adapting to their environments also invites-even requires-an ipsative or intraindividual perspective (which describes the multiple facets that comprise person and synthesize a portrait of how these facets are organized and how the same individual behaves in diverse settings) as well as a normative perspective. In our research designs we should not only

compare people with each other, which is normative, we should also study the same persons from one moment to another and across environmental settings, which is intraindividual.” (Lazarus, 1991, p. 7)

This emphasises the need to account for individual, contextual and temporal variables when using SWB as a potential dependent variable.

Diener, a major researcher and writer in the area of Subjective Well-Being, defines the construct, for adults as,

“...how people evaluate their lives, and includes variables such as Life Satisfaction and marital satisfaction, lack of depression and anxiety, and positive moods and emotions.” (Diener, Suh & Oishi, 1997, p. 1)

Diener’s definition includes three components, satisfaction, pleasant affect and unpleasant affect. Satisfaction is associated with various life domains such as “recreation, love, marriage and friendship” (Diener et al., 1997, p. 3). Pleasant affect is associated with emotions such as “joy, affection and pride” (ibid. p. 3). Unpleasant affect included, “shame, guilt, sadness and anger” (ibid. p. 3). These are areas that Diener suggests can be aggregated, in the case of a single measure, or investigated at more discrete levels, to produce a diverse measure. Lucas, Diener & Suh (1996) confirmed the discriminant validity of positive affect, negative affect and Life Satisfaction using multitrait-multimethod matrix analyses.

Diener, suggests that although self-report measures of Subjective Well-Being tend to correlate with each other, they are prone to,

“response biases, memory biases and defensiveness.” (Diener et al., 1997, p. 5)

However, measurements made using other methodologies such as frequency of smiling, ability to recall positive as opposed to negative events and others’ reports tend to,

“correlate and provide similar estimates of Well-Being because the multi-measure approach helps rule out artifactual explanations of the self-report data.” (Diener et al., 1997, p. 5)

Over time, Diener reports that measures of Subjective Well-Being are relatively stable and:

“show moderate to high temporal reliability. For example, Life Satisfaction correlates .58 over a four year period, and this correlation

remains strong (.52) when informant reports of Life Satisfaction are substituted at the second testing... In addition, pleasant affect and unpleasant affect have a degree of stability across a period of many years.”

(Diener, 1997, p. 5)

This is a finding related to Headey & Wearing’s (1991) theory of long-term temporal stability in Well-Being.

In looking at the characteristics of a happy person, Myers & Diener, (1996) refer to happy people’s cognitive styles. Happy people are described as more likely to: construe neutral events as positive; have more positive experiences; have more effective coping strategies; be optimistic; work on their problems and believe that events are within their control. Of course, these may be a consequence, as well as a cause of happiness. It is hardly surprising that someone who has experienced more positive in his or her life events is likely to be more optimistic. However, the description of a happy individual and their attributions shares aspects of Kobasa’s Hardiness construct. Kobasa, (1979) and Kobasa, Maddi & Kahn, (1982) found that individuals (in this case middle and upper managers) who tended to involve themselves (commitment) when faced with tasks, who feel in control, and who are open to change (challenge), experience less illness-inducing stress. These three constructs, challenge, commitment and control, form Kobasa’s concept of Hardiness. An individual’s level of hardiness may therefore influence the degree to which their SWB is affected by events. Those who feel less in control, avoid challenges and who feel helpless, might be expected to be more affected by adverse events. Early childhood experiences of diminished control have been suggested as predisposing children to increased anxiety and helpless expectations (Chorpita & Barlow, 1998). Such attributional styles should be controlled for when investigating the effect of environmental variables on SWB.

Diener & Suh, (1997) also review cross-cultural findings on Subjective Well-Being. Findings suggest that the range of Subjective Well-Being is larger in individualist cultures (broadly, the West) than in collectivist cultures. That is, that people in individualist cultures feel extremes of subjective misery and elation in comparison with people in “collectivist” cultures. Diener & Suh, (1997) propose that this may be due to a higher level of internal attributions in individualist cultures and their broader comparative range



in terms of the accoutrements of success and despair. Poor nations have subjective well-being scores in the neutral or slightly lower point whereas,

“countries that are wealthier possess greater freedom and human rights, and an emphasis on individualism... have citizens with higher SWB.” (Diener & Suh, 1997, p. 7)

Diener & Suh, point out that more work needs to be done on how culture affects an individual's Subjective Well-Being.

Christopher, (1999) challenges SWB as a western individualistic notion that is not universally valid, but that it is a product of 'possessive individualism'. However, Furnham & Cheng, (1999) found that the personality correlates of happiness remained stable across UK, Chinese and Japanese adult populations. Consequently, in investigating schoolchildren's SWB, it would be wise to include their ethnicity, as a proxy indicator of cultural difference. Although the measure would be used in the same school context, there may be differences between groups based on their value systems.

Diener (1996) reports that an individual's personality has a powerful effect on his or her experience of SWB, though environmental experiences, especially recent ones, are still important (Suh, Diener & Fujita, 1996). Tellegen, Lykken, Bouchard, Wilcox, Segal & Rich (1988) state that, from twin studies using the Multidimensional Personality Questionnaire,

“...it is not unreasonable to guess that not more than about 70 to 85% of the observed variance [in within individual personality and well-being measures] represents trait variance.” (Tellegen et al., 1988, p. 1036)

Clearly, longitudinal studies are potentially useful in examining the effect of the environment, as they include a way of controlling for a person's trait level of SWB.

Personality traits linked with positive affect, using the Five Factor Model, (McCrae & Costa, 1991) are extraversion, agreeableness and conscientiousness according to Diener & Lucas (1997). A meta-study by DeNeve & Cooper (1998) considered 137 personality constructs in relation to Subjective Well-Being. They found that the traits

“...most closely associated with SWB were repressive-defensiveness, trust, emotional stability, locus of control-chance, desire for control, hardiness, positive affectivity, private collective self-esteem and tension. When personality traits

were grouped according to the Big Five factors, Neuroticism was the strongest predictor of Life Satisfaction, happiness and negative affect. Positive affect was predicted equally well by Extraversion and Agreeableness.” (DeNeve & Cooper, 1998, p. 197)

Brebner, (1998) identified four personality types in relation to trait-like happiness based on their affective stability and their tendency to be either happy or unhappy. Brebner writes that,

“While people undergoing the same experiences tend to have similar positive or negative affect, it is still necessary to explain why there are individual differences in degrees of affect and particularly why some people present as characteristically happy and others as characteristically unhappy.” (Brebner, 1998, p.284)

Diener & Lucas’ (1997) review of research on Subjective Well-Being and personality found that Subjective Well-Being: (1) is consistently moderately related to personality variables; (2) is relatively stable across conditions and over time; (3) is substantially heritable; (4) is most closely linked with extraversion (positive affect) and neuroticism (negative affect); (5) is correlated with self-esteem and optimism, but that the direction of causality is unclear; (6) is affected by an individual’s temperament, how much emotion they experience and how temperament may lead a person to have more, or less, enjoyable experiences; (7) is facilitated where an individual's personality is in tune with their environment; (8) is from a cognitive perspective, affected by how an individual processes information about rewards and punishments; (9) is related to an individual's goals, how they work towards them and their relative success in achieving them.

Diener & Fujita (1995) found that there was

“...a tendency...for people to choose personal strivings for which they have relevant resources, and the degree of congruence of individual’s goals with resources was predictive of SWB.” (Diener & Fujita, 1995, p. 926)

Diener & Lucas, (1997) suggest that SWB is affected by early classical conditioning; babies learn from their carers how acceptable, and to what degree, pleasant and unpleasant emotional displays are tolerated.

Diener & Lucas (1997) conclude that,

"Happiness is not determined solely by the resources one has or by the circumstances in which one lives. Changes in the environment, although important for short-term Well-Being, lose salience over time through processes of adaptation and have small effects on long-term SWB." (Diener & Lucas, 1997, p. 19)

This has implications for research in that there is an attempt to find out how far an environmental variable has an effect on Subjective Well-Being. Research may be affected by: Subjective Well-Being being considered largely as a trait, in which case environmental effects may not register strongly; and, an individual's level of Subjective Well-Being becoming adapted to the environment; a regression to the individual's norm despite the conditions they habitually experience.

Both influences would be likely to dampen any association between environmental variables (in the case of this research, bullying) and a measure of Subjective Well-Being. Conversely, these effects could be seen as related to how individuals manage adversity through their own resources and by adaptation.

In terms of studies that relate personality variables to Subjective Well-Being, it is not always clear to what extent the measures are instrumental in producing associations, through unacknowledged shared factors, and uncontrolled acquiescence in their methods (Everitt & Wykes, 1999).

Russell & Carroll, (1999a) & Russell & Carroll, (1999b) looked at the independence of positive and negative affect that has been largely accepted by Diener (1984) and Watson & Tellegen (1999). Diener acknowledged that the independence of positive and negative affect might be due to: non-affective content in items; positive affect having a differential effect on the participants arousal; that scales may be affected by acquiescence – response bias as well as ceiling and floor effects; and that measures may include simple occurrence, but not measures of intensity or frequency.

Yet Diener (1984) concluded that positive and negative affect were independent of each other. Diener alluded to the effect of time sampling on the independence of positive and

negative affect. It is not possible to feel happy and unhappy at the same time. Diener writes:

“...whenever one uses a scale that taps frequency of affect, positive and negative affect will be strongly inversely correlated, [it is not possible to feel happy and unhappy at the same time] “If one uses a scale that has both intensity and frequency items, one is more likely to show near independence between positive and negative affect.” (Diener, 1984, p. 549)

Russell & Carroll, (1999a) and Russell & Carroll, (1999b) challenge this view, asserting that the supposed independence of negative and positive affect is a spurious result of the methods used.

“The predicted correlation varies with the time frame, response format, and items selected to define PA [positive affect] and NA [negative affect]...When the actual predictions for the bipolar model are considered and error is taken into account, there is little evidence for independence of what were traditionally thought opposites. Bipolarity provides a parsimonious fit to existing data.” (Russell & Carroll, 1999b, p. 3)

Russell & Carroll (1999b) indicate that:

- 1) An acquiescent response style can also mask bipolarity by shifting the correlation in a positive direction. “Acquiescence refers to individual differences in the tendency to agree or disagree with an item regardless of its content” (Russell & Carroll, 1999b, p. 4).
- 2) As with Diener, (1984), time is considered a confounding factor, especially where large time scales are implicit in the format.
- 3) Semantic differences may exist between items, not only on the affective dimension, but on the degree of arousal to which they refer, e.g., “I am upset” is both high arousal and negative, whilst “I am calm”, is both positive and low arousal. These two items are opposites on both dimensions. However, if the opposite of “I am upset” is given as “I am elated”, then both are similar on the arousal dimension, but polar opposites on the affective dimension. Such a distorting effect is described by Russell & Carroll (1999b) in relation to the PANAS scales (Watson, Clark & Tellegen, 1988). This measure is claimed by Russell & Carroll, (1999b) to have largely ignored the arousal effect, in the semantic construction of the items.

- 4) The response format has an effect on the relationships derived from it. Russell & Carroll (1999b) accept that a bipolar construct cannot logically be derived from a strictly bipolar response format. They accept that the best that can be achieved is to use an ambiguous response format. An example of this format is one that allows the individual to rate themselves in relation to a statement – “I Agree or I Disagree.” It is ambiguous, in that, for example, with the statement “I am happy”, to agree is to say, “I am happy”, but to disagree is to either mean “I am unhappy”, or “I am not happy and feel neutral.” The use of such a format introduces a degree of error and inevitable spurious correlation, but this is less critical where the intention is to uncover an overall measure of Well-Being rather than uncovering the relationship between positive and negative affect.

From these comments it would appear advisable to construct a measure that: refers to a short time-frame and shared context; is balanced with equal numbers of positive and negative items and that the arousal valency of the items is acknowledged alongside alternative semantic groupings; is in Russell & Carroll’s “ambiguous likely bipolar” format, (Russell & Carroll, 1999b).

The following SWB related measures will be examined using these criteria.

### **Measures of Subjective Well-Being and measures of related constructs**

Measures of SWB have focused on adults. There is increasing interest in developing SWB measures (Vaillant, 2000), and to a lesser extent on measures for children (Bender, 1997).

Subjective Well-Being may overlap semantically and conceptually with several existing psychological variables. In terms of face validity, developing a measure for Subjective Well-Being appears credible as an assessment of happiness, as this is not central concept in other constructs.

What of its discriminant validity, the degree to which it identifies something different, qualitatively and quantitatively from other constructs. Bender, (1997) in a review of children’s Subjective Well-Being, says that:

“A great deal of research has been published regarding students’ self-concepts and self-esteem. However, these constructs are not the same as

Subjective Well-Being. All three reflect something about students' perceptions of his or her identifying characteristics. Self-esteem, or self-worth, reflects the students' evaluative response to those characteristics. Subjective Well-Being refers to a students affective and cognitive assessment of life in general." Bender (1997, p. 199-200)

For Bender, Subjective Well-Being includes the essentially comparative component inherent in Life Satisfaction. Even when Life Satisfaction is included, Bender's review covers only three measures that are felt cogent. In conclusion, Bender writes:

"The most immediate goal for continued research is the development of instruments to measure students' happiness and Life Satisfaction. The three instruments discussed in this chapter were designed to measure only Life Satisfaction. No instruments were found that assessed the affective component of students' Subjective Well-Being." (Bender, 1997, p.222)

Bender's criteria for selecting measures of Subjective Well-Being included:

"...that the instrument must have been designed specifically to assess Life Satisfaction or affect or both. The second criterion was that any instruments designed to assess students' affect must have included both positive and negative affect." (Bender, 1997, p. 211)

Bender, referring to Harter, (1982) advises against the development of self-report tools for children under the age of eight years.

"A student's ability to judge his or her Life Satisfaction and assess his or her happiness also requires the ability to express self-evaluations. Therefore, it also will be difficult to assess the Subjective Well-Being of students under eight years of age." Bender (1997, p. 208)

This, in the current author's opinion, holds true in his clinical work with children and it has been born in mind in developing the SWB measure.

Measures covered in Bender's review include:

**The Global Self-Worth Subscale of the Harter Self-Perception Profile for Children (Harter, 1982)**

This elegantly constructed scale, with its implicit bipolar construction contains a self-evaluative and comparative set of six items that focus on a degree of self-satisfaction. Harter is reported to have predicted changes in children's self-worth that may be dependent on increasing developmental sophistication and differentiation; that children come to see themselves and the world in an increasingly complex and reflective way as they get older (Bender, 1997).

The initial group used to research the Harter scales consisted of 2471 students, third to ninth grade. Global self-worth had an internal reliability of .73. Test-retest reliability was .69 and .7 on two samples. This scale was included in the review, as a measure of well-being self-concept.

**The Perceived Life Satisfaction Scale (Adelman, Taylor, & Nelson, 1989)**

This measure consists of nineteen items rated on a six point Likert-type scale. The scores are then summed to yield a result for each student. All the items are positively worded. The authors recommend that the questions and directions are read to the pupils. The age range researched for the measure was from seven to sixteen years of age. Internal reliability (Alpha) is reported as ranging from .74 to .89. The test-retest reliability is reported at .63 for special education students and at .72 for mainstream. The sample included 110 males and 111 females. The sample was not chosen as representative of any area but was opportunistic; it consisted of students in the schools that were approached. Information was gathered on the students' ethnicity and socio-economic background. No effect was found for sex, ethnicity or socio-economic variables. A moderate correlation with the Children's Depression Inventory (Kovacs, 1980) was found at .55 (Spearman).

The measure used mainly social-comparative rather than affective items and the time span under consideration was open.

**The Student's Life Satisfaction Scale (SLSS) (Huebner, 1991b)**

This measure consists of seven items that refer to the student's satisfaction with life; an evaluative, rather than affective measure. The time scale is over the,

“past several weeks.” (Huebner, 1991a, p. 233)

The student is asked to respond on a four-point scale ranging from “never” to “always.” Two of the items are negatively worded, and so they are reverse scored.

The sample size in the measure's development consisted of 79 students, 50 males and 29 females, age seven to fourteen years. Another study included 165 males and the same number of females. From the initial study,

“Students who reported high Life Satisfaction tended to rate themselves higher on measures of self-esteem, internal locus of control and extraversion and lower on measures of anxiety and neuroticism.” (Huebner 1991c, p. 103)

Reliability (Alpha) range from .82 - .85. Test-retest reliability is reported at .74 over a period of two weeks (Bender, 1997, p. 216). Bender (1997, p. 214) says that the SLSS “is moderately effective in its ability to distinguish between different populations of students, who would logically be expected to differ in Life Satisfaction.” Terry & Huebner (1995) claim that Life Satisfaction, as measured by the SLSS is a different variable when compared to self-concept. However, Huebner, (1994) found that the SLSS overlapped in a principal components analysis with the Happiness and Satisfaction subscales of the Peers-Harris Self-Concept scale.

An effect due to gender or race were shown in, Huebner & Dew, (1996). White female adolescents reported higher scores than black female adolescents, the effect was reversed for boys.

This measure is very short, though intended to be a uni-dimensional measure of Life Satisfaction. It is an unbalanced measure, having five positive and two negatively worded items, and so it is likely to be affected by acquiescence. However, it is reported to be independent of social desirability effects (Bender, 1997, p. 217). The time scale used is only specified broadly and so it is open to individual interpretation and to the potential confounding influence of past events on current evaluation.

Huebner & Dew, (1996) found that Life satisfaction was discriminated from positive and negative affect using factor analyses. Positive and negative affect were assessed using PANAS (Positive and Negative Affect Schedule, Watson, Clark & Tellegen, 1988), whilst Life Satisfaction was measured using the SLSS. The three factors extracted



correspond to these variables. This would seem to suggest that the SLSS is not a measure of SWB.

### **Multidimensional Students' Life Satisfaction Scale (MSLSS) (Huebner, 1996)**

This was designed as a multidimensional measure. It assessed children from grade 3 to grade 8, in five areas of Life Satisfaction: family, friends, school, living environment and self. The scale consists of forty items on a six-point scale ranging from strongly agree, to strongly disagree, as with the SLSS. Some items, unspecified in Huebner, Laughlin, Ash & Gilman, (1998) are negatively worded. Administration includes the items being read to the students.

Validation studies (Huebner et al. 1998) included 291 children from grade 6 to grade 8. Reliability (Alpha) is .92 for the whole scale and between .82 and .85 for the individual scales. Test-retest reliability over a four week period range from .7 to .8. (Huebner et al. 1998, p. 121). Claims are made for,

”..convergent and discriminant validity [that] have been demonstrated through patterns of relationships with other Well-Being indexes.” (Huebner et al., 1998, p. 120)

No effects on this study were shown on the results due to gender or race, though they were on another study (Huebner, 1998). Low correlations were found between the MSLSS and a measure of social desirability. The

“internal consistency coefficients for the MSLSS domains were found to be acceptable for research purposes, although not for clinical purposes. Huebner et al. , 1998, p. 129)

The measure has been found to meet reliability and validity criteria for older pupils, grades 6-8, (Huebner, Gilman, & Laughlin, 1999), and with adolescents (Gilman, Huebner, & Laughlin, 2000).

Consideration of the items presented in Huebner et al. (1998, p.124), suggest that eleven out of the forty items refer to affective judgements.

The MSLSS is another unbalanced scale, and so prone to acquiescence effects. It is essentially a Life Satisfaction scale and appears to have an unclear time scale of reference.

Bender states that the Huebner scales,

“appear to have most promise, ...having good internal consistency and acceptable convergent and discriminant validity.” (Bender, 1997, p. 220-221)

However, Bender criticises the exclusion of positive and negative affect and the absence of group norms.

The constructs of self-esteem and self-concept have been used as proxy constructs for SWB, i.e., Rigby & Slee, (1993). In a review of self-esteem and self-concept measures, Marsh & Craven (1997),

“use the term self-esteem to mean general (or global) self-concept and distinguish between this and specific components of self-concept (e.g., physical, social, academic).” (Marsh & Craven, 1997, p. 133)

Central to the issues discussed in this self-concept/esteem review are the comparative aspects of this construct; how the internal model the child has of him or her self, relates to the external world and how comparison affects self-concept (the “Big Fish, Little Pond Effect: BFLPE, Marsh & Craven, 1997, p. 168). The authors conclude that single measure self-concept models are not very useful and that to be useful, self-concept has to be related to specific comparative physical, social and academic domains. It might be expected that measures of an individual’s self-concept would be related to his or her Subjective Well-Being, but that they are not synonymous.

Other measures using the term “Well-Being” in the title include one from Wiklund, Wiren, Erling, Karlberg & Albertson-Wikland (1994). This is a self-assessment questionnaire designed to measure Well-Being in children, particularly those of short stature. It uses a “visual analogue” (a semantic differential on a line) using pairs of adjectival antonyms. Five factors: physical, emotions, talent, family, social, and a total scale are derived from the measure.

The measure was researched with 342 children from an age of nine years. Reliability (Alpha) ranged from .88 (whole scale) to .63-.81 for the subscales. The nature of the scale appears promising, though it is unclear as to how Well-Being is defined and to what degree affective items are included. No mention is made of controlling for social desirability. The scale does have the benefit of being implicitly balanced through its use of semantic differential item type.

Francis, Brown, Lester, & Philipchalk, (1998) used the Oxford Happiness Inventory (Argyle, Martin, & Crossland, 1988) with undergraduate students. The measure reverses the 21 items from the Beck Depression Inventory (Beck, Ward, Mendelson, Hock, & Erbaugh, 1961) and adds 9 others, all on a four-point scale. The measure is found to have an internal reliability of .9 and a two-week test-retest reliability of .78. The measure correlates with the Beck Depression Inventory at  $r = -.52$ .

Item examples include:

“I am incredibly happy”

and,

“I am constantly in a state of joy and elation” (Francis et al. 1988, p.169).

The items are all positively framed, and therefore likely to be subject to the effects of acquiescence. There is no clear reference to a context or time-frame. Despite these caveats, the positive items from the Oxford Happiness Inventory coupled with the parallel items from the Beck Depression Inventory, might form the basis for a generalised adult measure of SWB.

### **The “Child Well-Being Scales” (Gaudin, Plannsky & Kilpatrick, 1992)**

These are Well-Being scales for a different purpose, that of measuring the

“physical and psychological care of children...an outcome measure for evaluating programs in child welfare services. (Gaudin et al., 1992, p. 319).

Essentially, they are an exogenous measure of well-being.

In social services and medical contexts, Well-Being is sometimes used as a synonym for Quality of Life (QoL). Quality of Life is described by Titman, Smith, & Graham, (1997) quoting Walker & Rosser, as,

“a concept encompassing a broad range of physical and psychological characteristics and limitations which describes an individual’s ability to function and derive satisfaction from doing so” (Titman et al.,1997, p. 598)

The concept is largely used to describe the functional aspects of a child’s life and their response to health-related disabilities.

**The Child Health-Related Quality of Life (CQOL) (Graham, Stevenson & Flynn, 1997)**

This example covers issues such as mobility, toileting, school, family relationships, discomfort, worries, depression, sight, eating, sleeping and appearance. Although some of these are pertinent to Subjective Well-Being, the measure includes objective criteria as well as the affective experience of the child. Consequently, some items are answered by the child and others by the main carer.

**The Quality of Well-Being Scale (Bradlyn, Harris, Warner, Ritchey & Zaboy, 1993)**

This is another QoL measure, is designed to measure the quality of life of post-operative (adult) cancer patients; it assesses physical functioning, social/role functioning and mobility. This has a strong objective dimension, not central to the SWB construct as defined in the current study.

**Strengths and Difficulties Questionnaire (Goodman, 1994, 1997)**

This is a development of the earlier Rutter (1967) questionnaires. The Strengths and Difficulties Questionnaire (S&D) contains emotional, conduct, hyperactivity, peer-related and pro-social behaviour subscales. This allows unusually, parallel forms to be completed by the child, the parents/carers and the child's teacher. It also has an optional impact scale, this is intended to aid in judging how important the reported behaviours are for the child and for others. The questionnaire is intended to,

“...categorise children as likely psychiatric ‘cases or ‘non-cases’ according to whether their total deviance score is equal to, or greater than the standard cut-off.”

Goodman, 1997, p. 584).

Although not intended as an SWB measure, the Strengths and Difficulties Questionnaire (S&D) assesses reported difficulties on measures that could be expected to covary with a child's SWB.

The S&D questionnaire is unbalanced, and so is likely to suffer from acquiescence effects. These effects may also be partially responsible for the sorting of items into factors, with positive items correlating with positive and negative items vice versa.

That there can be valid measures of Subjective Well-Being is supported by Andrews & Crandall (1976). They used structural equation modelling on six measures with 222 adults to examine,

“how well do the indicators measure what they are intended to indicate?”

(Andrews & Crandall, 1976, p. 1)

Four of the six measures had,

“...validities in the range .7 to .8.”, (ibid. p. 1).

The measures were relatively simple, and those found to be most effective were visually presented with spoken instructions. Two of these measures include a faces-scale and a ‘Terrible-Delighted’ scale. The seven faces ranged through a smiley face to a sad face, with the instruction,

“Which face comes closest to expressing how you feel about your life as a whole?” (Myers, 2000, p.57)

### **The ‘Terrible-Delighted’ scale (Andrews & Crandall, 1976)**

This is a verbal version of the faces-scale with anchors at ‘Terrible’ and ‘Delighted’. A combination of the two scales was used by Rigby (1999) with Australian secondary school students.

Single item measures have the benefit of being brief, but unless supplemented by further questions, may yield little qualitative information. Neither is it possible to examine internal reliability.

### **The Psychological General Well-Being Schedule (PGWB) (Dupuy, 1984)**

Another measure used by Rigby (1999) This 22-item scale, for participants age 14 to 75 years, includes anxiety, depressed mood, positive well-being, self-control, general health and vitality subscales, focusing on the last month, though not in any specific context. The scale has a high internal reliability, .94, and it has a balanced number of positive to negatively framed items. However the scale was designed to assess well-being in relation to medical interventions, and so has some items that might be considered unsuitable for children, such as,

“Have you had any reason to wonder if you were losing your mind...[and] I was emotionally stable and sure of myself.” (Wenger, Mattson, Furberg, & Elinson, (Eds.), 1984)

### **Self-Esteem scale (Rosenberg, 1986)**

Rigby & Slee (1993) used this measure of psychological well-being. The scale was developed using high school students, it showed a two week test-retest stability of .85 and .89 in two studies. This ten-item scale focuses on,

“global self-attitude.” (Rosenberg, 1986, p292).

Sample items include:

“On the whole, I am satisfied with myself...[and] All in all, I am inclined to think I am a failure.” (Rosenberg, 1986, p291)

The results are likely to be related to SWB, but not necessarily equivalent.

### **The Sixty Second Index of Happiness and Mental Health (Fordyce, 1987)**

This single measure of happiness claims to have,

“good reliability, exceptional stability, and a record of convergent, construct, and discriminative validity unparalleled in the field.” (Fordyce, 1987, p. 355)

It combines an eleven-point happiness/unhappiness scale and a question asking the time spent in “happy”, “unhappy” and “neutral” moods. It is therefore described as having a measure of intensity and frequency. It has a test-retest reliability of .86 over a two day period and .67 over four months (N = 111). However, the measure requires that individuals rate the percentage of the time that they feel happy or unhappy. This introduces an additional cognitive demand, which makes the measure unsuitable potentially for many young children.

### **Subjective Happiness Scale (Lyubomirsky & Lepper, 1999)**

This was found to have a reasonable one year test-retest stability, at .55 and a mean internal validity alpha .86, with 2732 adults. However, the measure is very short, four items, and has no time or contextual constraints. It focuses on the individual’s self-evaluation as a happy or unhappy person; emphasising happiness as a personality construct.

### **The PANAS (Watson, Clark & Tellegen, 1988)**

Laurent et al., (1999), produced a child version of this measure of positive and negative affect. This was intended to explore the relationship between anxiety in depression in children. It was expected that anxious and depressed children would have a high level of negative affect, but that depressed children should have a lower positive affect than

anxious children. Example items include 'Proud', 'Happy', 'Mad' and 'Scared'. The measure consists of 15 negative items and 12 positive items. The items consist of affect-related adjectives with anchors at 'Very slightly or not at all' to 'Extremely', on a five point scale. The time-frame given is 'the past few weeks'. Reliabilities for each scale equalled or exceeded .89.

The PANAS-C (C for Children), is a useful tool though its lack of a clear time and contextual frame, rule it out from being used in this study. Also, the scale is unbalanced; it has more negative than positive items, leading to potential acquiescence effects.

### **Desirable qualities in a measure of children's Subjective Well-Being in this study**

From an analysis of the strengths and weaknesses of existing measures the schoolchildren's SWB measure should:

- 1) be simple and clear;
- 2) be relatively short;
- 3) contain equal numbers of positive and negatively framed affect-related items;
- 4) have sufficient items of varied content to yield qualitative information; yet,
- 5) be internally valid in the correlation of the items to the overall measure and to any subscale;
- 6) be congruent with established measures of related constructs;
- 7) refer to a relatively recent time-frame;
- 8) have the same time frame as any predictor variables;
- 9) avoid comparatively framed items that may be skewed by the student's cultural background and value system;
- 10) be constructed using an "ambiguous likely-bipolar" response format (Russell & Carroll, 1999b); and,
- 11) be administered alongside a measure of social desirability.

## Second section - Bullying

The literature on bullying of school children will be considered under these headings:

1. Definitions used in Bullying Research
2. Theory & Research,
3. Measures & Methodologies

### Definitions, concepts and constructs used in Bullying Research

#### Linguistic and lexical issues

This will review the definitions and usage of the terms “bully” and “bullying”, as they have been applied to research with schoolchildren.

The dictionary definitions of the words bully and bullying appear to have an ambiguous history. The Concise Oxford English dictionary, 9<sup>th</sup> Edition (CD Edition, Thompson, 1995) defines a bully as:

“bully1 // noun). & verb. a person who uses strength or power to coerce others by fear.

(verb transitive). (-ies, -ied)

1 persecute or oppress by force or threats.

2 (followed by into + verbal noun) pressure or coerce (a person) to do something (bullied him into agreeing).

[originally as a term of endearment, probably from Middle Dutch boele ‘lover’]”

and,

“adjective & colloquial.

especially. North. American. very good; first-rate.

(followed by for) expressing admiration or approval (often ironic: bully for them!).

[perhaps from bully1]”

The term bully, when used as both a verb and as a noun, may not have an equivalent in other languages, or where it does, these may have subtly different meanings. There



appears to be no direct equivalent in French. In Spanish the translated equivalents are ‘abuser’ or ‘troublemaker’, for bully and, ‘intimidating’ or ‘frightening’ for bullying, (Simon and Schuster 1973). In Smith et al. (1999), bullying terms were described across 21 countries. In the non-English-speaking countries there were no easy equivalents for bully and bullying, most languages had separate and subtly different terms for ‘bully’ and ‘bullying’.

In the Scandinavian countries, where the most influential initial research on bullying took place, Olweus (1989) described how the term ‘mobbing’ was adopted and adapted, following the Swedish translation of “On Aggression” (Lorenz, 1968). This term is used to describe group and individual bullying,

“...loosely implying relatively systematic, repetitive harassment of an individual (or possibly a group) by one or more other individuals (usually but not necessarily by a peer/peers. This new meaning of the word is now well established in Norway, Sweden and Denmark.” Olweus, in Smith et al. (1999, p. 10)

In Scandinavia, the construction of the concept came before its widespread usage. In research, the concept had to be defined and explained in order that the children could relate to the behaviours under consideration. This model, of defining the concept operationally to participants, has been used in English-speaking and non English-speaking countries in order that pupils could understand jointly what was being talked about.

It is as if the concept of bullying, as differentiated from aggression and violence, did not exist in many language cultures such as: Sweden, Norway, Denmark, Finland, France, Italy, Spain, Portugal, Belgium, Germany, Switzerland and Poland, (Smith et al. 1999) as well as in Israel (Gumpel & Meadan, 2000). Consequently, there was no related word to define a bully in these languages without recourse to a different and not wholly equivalent word. It appears that English is unusual in having a word for this subspecies of aggression. English may also be unusual in that the word can be used as a transitive verb (requiring an object i.e. ”I bully you”) and as a noun i.e., “He is a bully.” In English, this results with the act of bullying being directly associated with the actor. This may lead to the implicit pathologising of individuals or groups when examining their behaviour

(Sutton & Keogh, 2000) rather than viewing bullying as part of a normative set of behaviours (Smith & Brain, 2000). A focus on the latter would imply a shift of focus from categorising individuals to examining the behaviour in a population.

The implication for research of this lexical particularity exists at a practical and theoretical level. Much of the research has relied on questionnaire methods with children as the main participants. For children in non English-speaking cultures the concept of bullying had to be operationalised before a questionnaire could be administered. This ensured that the children would understand what some of the items referred to; especially the case in the adaptations of the widely used Olweus questionnaire, which refers to ‘bullying’ in several items (Smith, 1998). Without an adequate understanding of the bullying term, the items could not be reliably responded to. In languages other than English, the meaning of bullying would focus on the shared definition given by the researchers.

In English-speaking countries, the researchers’ definition of the concept would be given to children who were already exposed to the concept of bullying as a significant literary, social and cultural term. Harachi, Catalano & Hawkins, (1999) write that,

“...there appears to be no one standard definition of bullying either in the popular or research literature within the US.” (Harachi et al., 1999, p. 279)

This is likely to be the common case in English-speaking countries.

The terms “bully”, and “bullying”, in English are not neutral terms. They have their own literary and social history, peculiar to the context and language (Hughes, 1949). Where there is an existing term in another language, it is likely to have a subtly different value and meaning, an issue clearly outlined by Morita, Soeda, Soeda & Taki (1999). They comment on the Japanese word “Ijime” as having parallels, but also culturally specific differences, with the word bullying. In Japan, it refers to a predominantly female, as opposed to a male problem. Rios-Ellis, Bellamy, & Shoji, (2000) found that children were subject to ijime for being different from the group norms, and that it is usual for the bullied, rather than the bully to move schools.

The use of the Olweus 1989 questionnaire, in its many translations, may describe the term for the first time in non English-speaking countries, whereas using the same definitions in

English-speaking countries may mean re-defining and over-laying an existing term. This may have implications for definition, measurement and comparison of data.

This problem of operationalising a value-laden concept is not peculiar to bullying, but it may have especial implications for research. The absence of parallel terms in many languages suggests that there is a strong cultural and contextual influence at work in English in relation to “bully” and “bullying.” This issue can be highlighted using the Sapir-Whorf hypothesis (Chandler, 1995). This hypothesis stresses that language meanings are based on interpretation; differing between individuals, social groups and language cultures.

"Meaning does not reside *in* a text but arises in its *interpretation*, and interpretation is shaped by sociocultural contexts...In every subculture, the dominant conventions regarding appropriate usage tend to exert a conservative influence on the framing of phenomena...the sociolects of sub-cultures and the idiolects of individuals represent a subtly selective view of the world: tending to support certain kinds of observations and to restrict others. And this transformative power goes largely unnoticed, retreating to transparency." (Chandler, 1995 p.2)

When working with children, the power of adults to determine language meanings is apparent. However, there appears to be little in the literature that acknowledges the meanings and emotion that children may already associate with the terms used.

Attempts to circumvent this language issue are being developed using an accepted definition of bullying behaviour alongside cartoon tasks that represent corresponding situations (Almeida et al., 1999, Smith, Cowie, Olafsson, & Liefoghe, 1999).

A further issue related to meaning rather than pure definition, is the influence of developmental factors; whether meaning changes and develops with age. Smith & Levan, (1995), found that young children, (Year 2, 5 - 6 years old), have an over-extensive definition of bullying that includes other forms of aggression. Smith & Levan, suggest that this might result in a failure to differentiate, so skewing their results. The age differences in perceptions of bullying, social skills and the likely consequence of being smaller were further explored in Smith, Madsen & Moody, (1999), in relation to developmental delay in Nabuzoka & Smith, (1999) and in relation to teachers by Boulton, (1997).

In summary, the meaning of bully and bullying may vary due to age, language and culture. Understanding may be influenced by developmental factors affecting self-perception, comprehension and sophistication. The existence, or not, of a language concept for bullying may have implications on any construct used to measure it. This raises the following issues: construct definition, measurement, and how the construct is operationalised.

This review will attempt to outline the paths taken by research so far and the difficulties implicit in the approaches.

### **Defining the bullying construct**

In the UK, interest in school-based bullying increased from the mid to late 1980's. At this time, large-scale longitudinal research had been underway in Norway and Sweden for at least a decade (Olweus, 1989). The major studies of bullying in UK schools over the last decade borrowed initially from the Scandinavian research methodology. Therefore, in many projects, the Scandinavian definitions of bullying have become adapted and incorporated into much of the UK research.

Duncan (1996) gives a useful overview of some definitions of bullying:

“Scandinavian researchers (Heinemann, 1973; Pikas, 1989) distinguish between ‘mobbing’ and ‘bullying’. ‘Mobbing’ denotes group violence against one victim and is taken from the animal behaviourist writings of Konrad Lorenz. ‘Bullying is an English term which is used to denote a single bully attacking an individual or group and also a gang of bullies (with or without a leader) attacking an individual or group. Later definitions have included psychological attack and have also added the element of repetition over time. This widening of the definition has allowed more female behaviour to be included. There are established sex differences in the types of bullying (Roland, 1989; Sharp, 1995), Roland defines bullying as,

‘...longstanding violence, physical or psychological, conducted by an individual or a group and directed against an individual who is

not able to defend himself in the actual situation.’ (Roland,1989, p.21)

Differences of definition are of more than just academic interest since they have led to differing perspectives on intervention. They have also made it virtually impossible to generate any comparative data not only between countries but within Britain as well. Recent British studies have tended to weaken Roland’s criteria of ‘long term and systematic’ and include what might be considered semi-random, power-assertive acts between peers.

Tattum & Herbert 1990, used the very wide definition of ‘the wilful, conscious desire to hurt, threaten or frighten.’ This is an attempt to take into account the motivation and intention of the bully, considered of key importance by some researchers, Lane, 1988; Stephenson & Smith, 1989. However the resulting definition is too broad and all-encompassing to be useful for the practitioner who is seeking to intervene.” (Duncan, 1996, p. 94)

Duncan implies that UK definitions of bullying include more of an emphasis on intentional and motivational component. As a contrast, Roland, from a Norwegian perspective, defines bullying as:

”..long standing violence, physical or psychological, conducted by an individual or a group and directed against an individual who is not able to defend himself in the actual situation.” (Roland, 1993, p. 6)

Olweus, (1994) defines bullying as follows:

“I define bullying or victimization in the following general way: A student is being bullied or victimized when she or he is exposed, repeatedly and over time, to negative actions on the part of one or more other students. It is a negative action when someone intentionally inflicts, or attempts to inflict, injury or discomfort upon another - basically what is implied in the definition of aggressive behaviour. Negative actions can be carried out by physical contact, by words, or in other ways, such as making faces or obscene gestures, and intentional exclusion from a group.

In order to use the term bullying, there should also be an imbalance in strength (an asymmetric power relationship): the student who is exposed to the negative actions has difficulty in defending him/herself and is somewhat helpless against the student or students who harass.

Bullying can be carried out by a single individual - the bully - or by the group. The target of bullying can also be the single individual - the victim - or a group. In the context of school bullying, the target has usually been a single student.

...In my definition, the phenomenon of bullying is thus characterized by the following three criteria:

- (a) It is aggressive behaviour or intentional “harmdoing”
- (b) which is carried out “repeatedly and over time”
- (c) in an interpersonal relationship characterized by an imbalance of power.

One might add that the bullying behaviour often occurs without apparent provocation. This definition makes it clear that bullying can be considered a form of abuse, and I sometimes use the term peer abuse as a label for the phenomenon. What sets it apart from other forms of abuse such as child abuse is the context in which it occurs and the relationship characteristics of the interacting parties.

It is useful to distinguish between direct bullying/victimization - with relatively open attacks on the victim - and indirect bullying/victimization in the form of social isolation and intentional exclusion from the group.”  
(Olweus, 1994, p. 1173)

Aspects of this definition are quoted extensively, as Olweus has probably been the most influential writer on bullying in schoolchildren. Olweus has also used data from a longitudinal study, started in 1970, to track the life experiences of bullies and victims (Olweus, 1994).

The definitions are clearly stated, yet there is potential difficulty and ambiguity in Olweus' first criteria, '...aggressive behaviour or intentional harming'. This term conflates behaviour with the intention. This relies on the identification of intention. In part, investigation must rely on the bullies to identify their intentions after the event. The methodology, devised by Olweus, relies on young pupils identifying their intentions in retrospect. In the Olweus' survey, the pupils are asked to remember and reflect on their experiences over the previous term, quite a long period in which to remember intention.

The second criteria, 'repeatedly and over time', is open to interpretation. Elliott (1998) based a study on the experience of having been bullied at some point during childhood, when recalled in adulthood. Olweus (in Smith et al., 1999, p. 30) reports that his questionnaire's response options included, 'about once a week and several times a week'. Smith (1998) has similar response options in the translation of the Olweus questionnaire including time periods from '...this term', to '...the last five days in school'. In the summary of the 1990 Sheffield study, which used an adapted version of the 1989 Olweus questionnaire, the bullying data are reported under the categories of 'at least sometimes' and 'at least once a week' (Smith, 1994, p. 25). In contrast, a constrained period is given in Arora's questionnaire, the "Life in School Checklist", (Sharp & Smith (Eds.), 1994), this measure focuses on the previous week in school.

The time period under consideration has an obvious influence on the data that results, both in the quality of recall and the quantity of recorded bullying. It is not clear when occasional violence is deemed to become bullying, using the 'repeatedly and over time' criteria. The criteria appear to vary within and between measures.

The third criteria, 'imbalance of power', is clear to the participants and observers in the case of a group bullying an individual, or where size and strength are clearly one-sided. However, it is harder for observers or children to reflect on power imbalance in subtler forms of indirect bullying. A psychological 'imbalance of power' may also exist between individuals, though this would be much harder to know.

Smith & Sharp, (1994) two of the most prolific and influential UK based researchers, define bullying in terms of the forms it takes:

“physical - hitting, kicking, taking or damaging belongings;  
verbal - name-calling, insulting, repeated teasing, racist remarks;  
indirect - spreading nasty rumors; excluding someone from social groups.” [Bullying is] ...a form of aggressive behaviour which is usually hurtful and deliberate; it is often persistent... and it is difficult for those being bullied to defend themselves. Underlying most bullying behaviour is an abuse of power and a desire to intimidate and dominate.“ Smith & Sharp (1994, p. 7)

The effects of bullying are described in Sharp & Smith (1994):

“When pupils are bullied, their lives are made miserable. They may suffer injury. They may be unhappy about coming to school. Over time, they are likely to lose self-confidence and self-esteem, blaming themselves for inviting the bullying behaviour. This unhappiness is likely to affect their concentration and learning. Some children may experience stress-related symptoms: stomach-aches and headaches; nightmares or anxiety attacks. Some become afraid to leave the safety of their own home. In secondary schools, pupils may be making subject choices because they want to avoid particular individuals rather than being interested in or successful at that subject. In the long term, persistently bullied pupils are more likely to become depressed as adults. For a small number of pupils, bullying behaviour can actually endanger their lives, possibly leading to serious injury or even death.

If unchallenged, other pupils can learn that bullying is a quick and effective way of getting what they want. Bullying can pervade the relationships of pupils and become accepted as normal.

Pupils who are persistently involved in bullying others are much more likely as young adults to be convicted of anti-social behaviour offences. Unless challenged, they may continue to use bullying tactics in their relationships with other people.” (Sharp & Smith, 1994, p. 2)



This extends the definition to include its moral and social effects. The difficulty here is evaluating how variations in power imbalance and intention relate to the scale of effects described. Further considerations include whether these effects are an inevitable consequence of being bullied and whether the effects are a function of the degree of bullying experienced.

An additional form of bullying, relational bullying, is described in Hawker & Boulton's (2000) meta-analytic review of research. Relational bullying is differentiated from other forms as being focused on damaging children's relationships and their acceptance by their peers, (Crick & Bigbee, 1998). However, it is not always clear how this form of bullying is differentiated from other forms, as it appears to share a conceptual base with social exclusion (Stanley & Arora, 1998) and with Olweus' 'indirect bullying'. In Crick & Bigbee (1998) and in Wolke, Woods, Bloomfield & Karstadt, (2000) relational bullying was used as a counterpart to physical bullying. In content, the Wolke et al. questionnaire items appear contain elements found in indirect and verbal bullying measures. It might be that relational bullying emphasises the intentional aspects of verbal and indirect bullying. The term may prove useful in elucidating the 'theory of mind' of bullies, (Smorti et al., 1999, Sutton & Keogh, 2000, Sutton, Smith, & Swettenham, 1999a, Sutton, Smith, & Swettenham, 1999b) where there is a focus on the bully's social understanding.

Rigby, (1997) an Australian researcher on bullying and interventions defines bullying as:

“... the repeated oppression, psychological or physical, of a less powerful person by a more powerful person or group of persons.” Rigby (1997, p. 15)

He further categorises bullying as:

‘Malign’, with intentional exploitation of power differences.

‘Non-malign’ - unintentional, based on group norms, mindless.

‘Educational’ - bullying of pupils by teachers, characterised by criticism, and the exposure of a child's limitations, humiliation.

‘Harassment’ - a form of social exclusion based on group membership and individual difference.

Malign bullying comprises, as Rigby defines it, a desire to hurt that is acted out upon a weaker person/persons. It is without justification, repeated and enjoyed.

The emphasis in Rigby's typography is strongly geared towards describing the intentions and motivations of the bully.

This emphasis on the intentions of the bully is reflected in Besag's (1989) definition:

"... bullying is a behaviour which can be defined as the repeated attack - physical, psychological, social or verbal - by those in a position of power, which is formally or situationally defined, on those who are powerless to resist, with the intention of causing distress for their own gain or gratification." (Besag, 1989, p.4)

La Fontaine, (1991) in a study of 'phone calls to a Bullying Line and Boarding School Line, described how children,

"... emphasised the effects of bullying rather than the intentions of the bullies. What they were concerned about were the actions or words and the feelings they generated." La Fontaine, (1991, p.12)

In summary, definitions of forms of bullying share features based on frequency, power imbalance and intention. Some definitions emphasise the intentional feature of bullying and its immorality. Some definitions focus on the bully, some on the bullied. Some definitions focus on the physical, social and verbal aspects of bullying.

Problems arise with researching constructs that seek to differentiate social behaviours based on one of the participants' motivations and intentions. It is difficult to infer another's motivations and intentions unless they are asked directly.

With all the above definitions there are inherent difficulties in devising a methodology that reliably records or measures: abuse over time – temporal issues; power imbalance; and different forms of bullying.

### Selected findings from research on bullying

Olweus (1994) reporting on the large-scale Scandinavian research showed that: being bullied declines as children get older; boys are more often bullied, and are more likely to be bullies than girls; and, boys are more involved in direct, aggressive bullying, girls in indirect bullying.

Negative findings include that: school size and class size were not implicated; bullying was unrelated to failure or frustration in school; physical characteristics (“deviant” features as assessed by a teacher) were not associated with being a victim; bullies are not especially anxious or insecure; and, bullying is unrelated to socio-economic indicators.

The following table outlines the features that Olweus associated with children who were victims or bullies.

TABLE 1 - OLWEUS’ DESCRIPTIONS, FROM HIS RESEARCH OF BULLIES AND VICTIMS

Victims		Bullies
Passive or Submissive	Provocative	Aggressive reaction pattern
Low self-esteem	Combined anxious and aggressive reaction patterns	Bully for power and domination
Signal that they will not retaliate	Problems with concentration and hyperactive – annoying to others	Instrumental payoff- bullies get rewards in goods and services
Overprotective mothers		Negative emotional parental responses at an early age, physical punishment and indulgence towards aggression
Anxious		“Hot-headed” temperament.
Physically weak		Physically strong
Long term low self-esteem and tendency to depression at follow up age 23		Linked with later criminal records as a young adult

Some of Olweus' descriptions are born out by further research. Bowers, Smith, & Binney, (1992), found that bullies' families were hierarchically structured and not so cohesive as victims' families, who tended to show more diffuse or 'enmeshed' relationships. Smith & Myron-Wilson, (1998) using attachment theory, (Bowlby, 1973) suggest that,

“intergenerational transmission of attachment may be a key to explaining the intergenerational transmission of the ‘cycle of violence.’” (Smith & Myron-Wilson, 1998, p. 412)

A category of anxious bullies is suggested by Stephenson & Smith, (1989), these bullies are 'oafish', less able, less popular and less intelligent than others are. 'These children appear to have other difficulties such as problems at home or educational failure'. Stephenson & Smith (1989), suggest that they account for 18% of bullies.

For Bijttebier & Vertommen (1998) the effects of,

“..victimisation and social neglect are shown to be related to internalising coping, whereas bullying is associated with externalising coping and with a lack of problem-solving.” (Bijttebier & Vertommen, 1998, p. 392)

Sutton, Smith, & Swettenham, (1998) put a contrasting opinion, suggesting that some bullies are clever at 'mind-reading' and so are more effective at being psychologically cruel.

Perceptions about control beliefs, whether the individual feels that they can do something that will positively affect a situation, (Skinner, Chapman, Baltes, 1988) and how they may moderate the effects of being bullied, are rare in the literature. Mynard, Joseph & Alexander, (2000) found that repeatedly bullied pupils tended to have an external locus of control; they had a diminished belief in their capacity to affect events. Stanley & Arora, (1998) found that socially excluded girls had an external locus of control, felt helpless and had lower self-esteem. These girls tended to adopt passive responses to being bullied. Wilton & Craig, (2000) found that pupils who actively adopted problem-solving strategies when bullied were better at de-escalating the bullying behaviour that they faced. It is not clear from this limited research whether an individual's control beliefs are a cause or a consequence, or both, of being bullied.

Individual characteristics are found to be the most important in determining aggressive and victim behaviour in pupils by Mooij (1998), who suggests that the order of influence on these behaviours is, most important first:

Personal>Environmental> (School) Class> School, in a study of 3<sup>rd</sup> and 4<sup>th</sup> year Dutch students.

Personality difference between bullies and victims were investigated using the Eysenck personality dimensions (Mynard & Joseph, 1997). Bullies tended to be lower on the lie scale, victims lower on extraversion scale and bully/victims higher on neuroticism and psychoticism scale. Bully/victims, were defined as a group (15% of the total) who reported being both a bully and a victim at times. Bully/victims were found to be a group who wanted social acceptance but did not have it. They may be related to a group proposed by Besag (1989) of colluding victims: children who accept a degree of bullying to gain acceptance and popularity as the 'class clown'.

In discussing gender issues, Besag (1989) agrees with Olweus in that: boys are more physical in their bullying; girls more indirect; boys, bully boys and girls; girls tend to bully other girls; and, girls tend to bully within their own social group.

Besag (1989) reports that boys are three times more involved in incidences of bullying than girls, with the possibility of greater undiscovered girl-related bullying.

Besag (1989), referring to a personal communication from Erling Roland, a Norwegian bullying researcher, suggests that boys bully for power, girls for affiliation and reassurance.

Besag mentions race in relation to the relative lack of research in connection with being bullied, at that time, 1989. There have been some studies since then, though they are relatively rare. Smith & Sharp (1994) relate an incident of racist bullying that resulted in a child's death. Moran, Smith, Thompson, & Whitney (1993) describe the experience of Asian children in relation to racist name-calling, though not in overall bullying levels. Eslea, & Mukhtar, (2000) studied the bullied/bullying experiences of Asian children, though without apparent controls.

Loach & Bloor, (1995) criticise the concept of bullying, describing how it may mask racism. Hepburn, (1997) criticises modernist frameworks that locate the problem in pupils as traits, or as an aspect of children's interpersonal relations. Hepburn, sees current research as reifying concepts to support existing power relations.

These selected findings have implications for research methodologies that seeks to disentangle the effects of being bullied on SWB from those of personality, perception, gender, ethnicity and age difference.

### **Prevalence of being bullied/bullying**

Research on the prevalence of bullying reflects differences in research method, definition and the time period chosen. Olweus, in Besag (1989, p. 11), says that 10% are victims and 8% are bullies. Besag (1989, p. 11) gives the figure as 10% at any one time as bully or victim. Smith & Myron-Wilson (1998, p. 406) write that '1 in 5 children are involved in bully-victim problems, and similar incidences are reported in other countries.' Smith (2000) quotes a Scottish Office study, which found that,

“6 per cent of pupils said that they had been bullied recently, ‘sometimes or more often’, and 4 per cent said that they had bullied others.” (Smith, 2000, p.1)

A higher figure, 75% report having been bullied over the last year, in Glover, Gough, Johnson & Cartwright, (2000). Besag, (1989), mentions that bully and victim status may be relatively stable over time. Chesson, (1999) quotes a range of 5-35 percent. Without shared definitions, time scales and methodologies, it is unclear if quantification of being bullied/bullying can be compared meaningfully.

### **Measures & Methodologies**

Rigby, (1996) describes the three basic methods of assessment:

“observe what is happening directly;  
ask questions of people who have observed it happening to others; and  
ask students what is happening to them.” (Rigby, 1996, p. 25)

Rigby points out the weaknesses of the first two, in that they are open to mistaken perceptions, missed observations and misrepresentation. Rigby, using children's drawings depicting bullying situations, shows that the drawings reveal children's implicit

understanding of an imbalance of power and verbal as well as physical bullying. Almeida et al., (1999) report the development of a cartoon based technique to assess children's, "...cognitions, emotions and coping strategies in bullying situations" (Almeida et al. 1999, p.1)

Rigby uses his evidence to support the idea that children have a clear and shared understanding of what bullying means. Therefore the question for Rigby, is how to obtain reliable information from children on bullying, with the child as respondent. He objects to peer nomination techniques on ethical and labelling grounds – the effect of asking members of a class to nominate who is a bully and he suggests that children may be reluctant to be identified as respondents. His solution is to use the anonymous questionnaire. Rigby claims that problems of false responses can be countered through questionnaire construction and that responses from the Rigby & Slee, "Peer Relations Questionnaire" (1995) agree with results from peer nominations.

Besag, (1989) criticises the reliance of research on anonymous questionnaires. Besag is concerned about the potential contamination of the questionnaires and that they many not effectively represent reality. Yet, Besag writes that:

"Both Olweus and Roland, however, have used parent and teacher interviews and peer ratings to confirm their findings, and a surprisingly good correlation has been found between results, so that pupils' responses do appear to constitute reliable data. Teacher responses alone have been found to be an unreliable means of identifying victims and bullies. ...teachers tended to confuse bullying with aggression and disruption, putting the behaviours on the same continuum." (Besag, 1989, p. 9)

The Olweus questionnaire, referred to in Smith et al. (1999, p. 30) is noted by Ortega et al., (1999) to be much used in international research. It contains: a clear definition of what is meant by the term; a clear focus on 'bullying' (the word is used in every item); references to specific time periods; and, questions about how others react to bullying. The questionnaire is designed for children age 7-16 years old.

Ortega et al., (1999) consider questionnaire techniques to be relatively cheap, providing informative and anonymous first-hand reports that can be simply administered and adapted to the child's age. However, questionnaires are also seen demanding close attention, as being potentially superficial, and prone to cultural and memory bias.

Ortega et al. (1999) consider nominations methods, where information from children about themselves or about others and nominations from teachers are used to provide information about the children involved in bullying and being bullied.

Interview methods described by del Barrio, Gutierrez, Hoyos, Barrios, van der Meulen, & Smorti, (1999) have been used in bullying/bullied research to examine the dynamics and roles within bullying situations with a relatively small sample of 36. Torrance, (2000) used structured and semi-structured interviews to research bullying in a special school, involving 30 children, their parents/carers and teachers.

The use of interviews allows a more flexible approach suitable to gathering qualitative information from small numbers and in generating hypotheses. However, it is relatively resource intensive, and so may be prohibitive to use with medium to large-scale sample sizes.

Nomination techniques are described as being relatively quick to administer, identifying those involved with a degree of reliability through several informants. However, they are also criticised as providing superficial information that may be distorted through ignorance or through respondents giving desirable responses. Criticisms about the reliability of these sociometric techniques has been given by Frederickson, & Furnham, (1998) especially in relation to between, and within, gender nominations.

Some studies have sought to include multiple methods, including observation, questionnaires or interviews (Boulton, 1995, Boulton, 1999, Pellegrini & Bartini, 2000, Torrance, 2000, Wilton, & Craig, 2000, Wolke, Woods, Bloomfield, & Karstadt, 2000) in an attempt to overcome over reliance on single sources of information that may result in distorted,

“shared method variance.” (Hawker & Boulton, 2000)

In having more than one source of information, error due to method can be controlled, allowing a truer analysis of the relationships between the participant groups or variables under study.

Crick & Bigbee, (1998) used self and peer reports in an assessment of the effects of victimization on,



“current sociopsychological adjustment problems.” (Crick & Bigbee, 1999, p.337)  
The research focused on overt aggression and on ‘relational aggression’ described as the,  
“...hurtful manipulation of their peer relationships or friendships.” (Crick & Bigbee,  
1999, p.337)

Such a ‘multiinformant’, (Crick & Bigbee, 1999, p.337) approach provides a check on the veracity of individually sourced measures as well as giving different levels of information.

Longitudinal research is quite scarce on bullying/being bullied. Rigby, (2000a) reports on several studies, including:

- (1) Olweus, (1992) followed up middle school children when they were young adults, finding them prone to depression and low self-esteem;
- (2) Kochenderfer & Ladd, (1996) followed up 5-6 year old children starting school after one term using self-reports of victimisation and school maladjustment;
- (3) Egan & Perry (1998) followed up the effects of victimisation on primary school pupils, finding a link with low self-esteem; and,
- (4) Rigby, (1999) in a three year follow-up of secondary school pupils, using self-reports.

Sourander, Helstelä, Helenius, & Piha, (2000), carried out an 8 year follow-up on bullying and victimised children using similar measures at both time points. These included parental and self-reports. Such a methodology allows a considerable freedom in hypothesis testing, coupled with two sources of information.

Schäfer et al., (1999) reviewed adult retrospective studies of being bullied at school. The studies used questionnaire methods mainly. Schäfer et al. (1999) conclude that a retrospective measure should include a definition of bullying, differentiate forms of bullying, and clarify participant roles (what role the individual took in being bullied/bullying).

Juvonen, Nishina & Graham, (2000) carried out a longitudinal study of 106 middle school students. Juvonen et al., (2000) used structural equation modelling in an examination of concurrent data, implicitly controlling for measurement error, though this was not carried over to analysing the longitudinal data, where it would have permitted further error-controlled hypothesis testing.

Boulton, Trueman, Chau, Whitehand & Amatya, (1999) looked at the potential buffering effect of friendship against the effects of victimisation at two time points amongst young adolescents. Both peer and self-reports were used.

Clearly, as in most research, information from a variety of sources and at different time points, is likely to provide data that can test causal hypotheses whilst reducing sources of error. The choice of method depends on the nature of the variables under study, whether within person (SWB, self-esteem, health) or social (participant roles, bully/bullied group identification). The choice also depends on resources, personnel, time and sample size. In some forms of prospective analysis, for instance structural equation modelling, the need for a relatively large sample size may militate against certain high time/cost per participant methods. At the same time, where research relies on single informant reports/measures, there needs to be appropriate analysis of their reliability and validity. This information is quite rare in the literature.

Questionnaire methods have been found to be relatively robust and reliable measures of bullying bullied behaviour in medium to large sample sized research (Ortega et al. 1999, Pellegrini & Batrini, 2000)

Austin & Joseph (1996) were concerned to develop a questionnaire format that reduced the saliency of the bullying items. They were concerned to reduce the focus on what may be a contentious subject within a class. Their answer was to embed a 6-item 'Peer Victimization Scale' and a six item 'Bullying Behaviour Scale' within the SPPC (Harter 1985, Self-Perception Profile for Children). This measure was used in the Juvonen et al. (2000) study. The measure is intended for children age 8 years plus. Findings from the Austin & Joseph research with 425 children suggest that victims had low scores on the social acceptance, athletic competence, physical appearance and global self-worth scales, and higher on the behavioural conduct scale of the SPPC. Victims also had high depression scores on the Birleson Depression Inventory.

Austin & Joseph (1996), conclude that,

“...the Peer Victimization and the Bullying-Behaviour Scales were developed to address a gap in the assessment literature for a subtle measure of direct bully/victim problems.” (Austin & Joseph, 1996, p. 455)

Arora, (in Sharp, Arora, Smith, & Whitney, 1994) developed the “Life in School” checklist to enable schools to ascertain the levels of aggression and bullying over the preceding week. The questionnaire is open to adaptation, providing that six salient items are included. These items refer directly to bullying related behaviours, rather than to bullying by name. The instructions, read to the class before the checklist is administered, do not mention bullying, but say,

“we would like to know what happens to people in school. In this booklet are various things that might have happened to you during the last week.” (Sharp & Smith, 1994, p. 10)

The checklist: is flexible in construction; provides an indirect measure of bullying; includes positive items; minimises errors due to events that are further away than the previous week; and, is intended as a baseline measure from which intervention effects can be assessed. (Arora, 1999).

An adapted form of the Life in School checklist was used by Harris (2000), including a ‘verbal’ bullying index from existing items in the Arora version. This new index was intended, as an addition to the physically bullied focus of the existing measure, to assess the prevalence of physical, “...verbal and emotional bullying,” (Harris, 2000, p15) in primary and secondary schools.

Current questionnaires used in research into bullying vary in: the time frame they refer to; how directly they define bullying; how explicitly items refer to bullying or to associated behaviours; item content; are they bullying/bullied only balanced or do they include positive items; and, whether additional measures are included from other informants or whether measures are repeated.

### **Third Section - A review of research that has linked the effects of Bullying on Children’s Subjective Well-Being or related constructs**

Research in this area is expanding rapidly. Hawker & Boulton, (2000) titled a meta-review, “Research on peer victimisation and psychosocial maladjustment.” Psychosocial adjustment included such SWB-related variables as: depression (10 studies); loneliness (4 studies); anxiety (8 studies) and self-esteem (16 studies). Victimisation was

found to be most strongly associated with depression. In general, victims of being bullied were likely to,

“...feel more anxious, depressed lonely and worse about themselves than non-victims. The evidence suggests that these feelings occur among victims of both sexes, of all age groups, and of all subtypes of aggression.” (Hawker & Boulton, 2000, p.453)

Hawker & Boulton called for further research, to include measures of victimisation and research that will acknowledge the variation of experience across cultures. More longitudinal and multi-informant research is implicitly recommended. Rigby, (2000a) echoes the call for more longitudinal research on the harmful effects of being bullied.

Boulton & Smith (1995) and Boulton (1995) used the Harter (1982) self-concept scale to study of the effects of bullying. Smith (1999) reporting the research, showed that bullied children,

“...scored lower on several dimensions of self-esteem.” (Smith et al., 1999, p. 76)

Sharp, (1995) developed a measure of bullying that,

“incorporated the list of specific bully behaviours from the questionnaire used in the Sheffield study (Whitney & Smith, 1993).” (Sharp, 1995, p. 82)

The questionnaire included information on,

“self image, self-esteem and sociability.” (ibid. p. 82)

Internal reliability is reported as .9 and test-retest stability at .8 with a sample of 100 pupils over an unspecified interval. 723 pupils from three Sheffield secondary schools from Years 8 – 11 provided the results (340 boys and 363 girls). Seven percent of the sample,

“classed themselves as non-European in background.” (ibid. p. 83)

The time-frame for the survey included the previous year. Findings include that,

“43 percent of students reported being bullied in the year leading up to the survey,” (ibid. p. 83) [and that]...eleven percent of participants reported finding bullying extremely stressful. Most students merely felt irritable as a result of being bullied but approximately one third continued to feel panicky or nervous in school, experienced recurring memories of the incident and reported impaired concentration in school.” (ibid. p. 81).

With such a broad time span and the lack of details of the measure used, it is difficult to comment further. However, the time scale may have been a confounding factor as the impact and association of bullying events with consequent self-esteem may be uncertain.

Williams, Chambers, Logan & Robinson (1996), used a semi-structured health interview conducted by school nurses with 2,962 schoolchildren, who were 7.6-10 years old. The psychometric properties of the measure used are not reported. Bullying frequency was assessed using a range between “nearly every day” to “never bullied.” Those who reported being bullied showed also reported problems with: not sleeping well; bed wetting; feeling sad; headaches; and, tummy aches.

“A significant trend for increasing risk of symptoms with increased frequency of bullying was shown for all reported health symptoms ( $p < 0.001$ ).” (ibid. p. 17)

In administering the survey, the nurses,

“...asked if the child knew what bullying was. The nurse then offered an explanation of bullying, asked if the child understood this explanation, and then asked if he or she was bullied.” (ibid. p. 17)

The authors report that there may have been problems with the design due to the absence of a standardised administration. No other psychometric data were provided in the article.

Forero, McClellan, Rissel & Bauman, (1999) examined the association of being bullied/bullying with psychological and psychosomatic health amongst 3918 Australian Year 6 –10 pupils. Pupils were grouped according to their responses, into four categories: bullies; bullied; both bullies and bullied; and, neither bullies nor bullied. It was found that pupils who bullied and who were bullied, had the greatest number of psychological and psychosomatic symptoms. The measures consisted statements with dichotomous responses on the following subjects: bullying; psychosomatic symptoms; smoking; mental health; social contact; and, reactions to school. The Psychosomatic symptoms scale had an alpha reliability of .81; no other psychometric data are given. The study is large scale, though the measures are of limited range and there is no consistent time period across the measures.

Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, (1999) in a study of 16410 Finnish adolescents, age 14-16 years, found that both bullies and bullied had higher depression scores. However, the depression measure, the Beck Depression inventory, and the bullied/bullying measure did not share the same time scale. No reference was given in the article for the Beck inventory. In addition, being a concurrent study, it is not possible to assess the direction of causality. No psychometric data for the measures in the study were given.

Smith et al. (1999) report a study which showed that pupils,

“... report fear of being bullied at school (which may not actually mean being bullied).” (Smith et al. 1999, p.77)

The sample, of 11,535 pupils from England and Wales, age 13-15 years, had,

“higher neuroticism and lie scale scores, and lower psychoticism and extraversion scores on the Junior Eysenck Personality Questionnaire.” (ibid. p. 77)

This study suggests that the underlying variable of fear or anxiety, may account for an association between bullying and self-esteem.

Quinn, (1996) reported on 25 adolescent attendees at an Adolescent Psychiatric Out-Patient Service. A questionnaire asked about frequency of bullying, ranging from one year to more than once a week. 64 percent of the sample reported having been bullied.

“Analysis of the respondents’ subjective experiences does not suggest that they, however, felt the problem to be trivial. Six of the nine (who reported being bullied once or twice in the last six months) reported feeling helpless and defenceless and many experienced somatic symptoms of anxiety.” (ibid. p. 143)

This small-scale study, using a questionnaire developed for the purpose again implies the possibility that there may be an external variable, such as a predisposition to anxiety and feelings of little control, that may account for some of the variance in the dependent measures.

Stanley & Arora, (1998) studied the effects of social exclusion, the exclusion of adolescent girls from friendship groups, on self-esteem. The authors point out that this is

an under-researched area, and one that is pertinent to the kind of bullying carried out by girls. Social exclusion is defined, using Munthe's definition, as:

“...the act in which a pupil is first led to believe that there is a possibility of his/her joining a particular group, but then being excluded from its activities after all.” (Munthe, 1989, p.68)

Stanley & Arora, (1998) note that,

“social exclusion may be particularly stressful to girls and that there may be a strong link with their feelings of self-worth and self-esteem.” (ibid. p. 96)

Stanley & Arora modified an existing questionnaire, the Battle Self-Esteem Inventory (Battle, 1981). The sample size was 105 Year 9 and 10 girls. No further psychometric details were provided about the measure. Of the sample, 32 percent reported being socially excluded. Of the whole sample, 18 were further interviewed, of this sub-sample the association between social exclusion and self-esteem was found to be significant ( $p < 0.01$  for a one tailed test).

This study included a small sample and lacks detail about the properties of the measures used. However, it does raise the effect of indirect bullying on pupils' self-esteem.

The Austin & Joseph paper (1996), reported in the section on Bullying, consisted of the Harter (1982) scales plus two sub-scales inserted to assess bullying behaviour and victimisation. The study included 204 boys and 221 girls age 8 to 11 years. Internal reliability of the sub-scales was .83 and .82. The authors report that the joint measure,

“...may be useful...in screening large groups of children for bully/victim problems, although further research is needed to confirm what are the most appropriate cut-off scores for classification purposes.” (Austin & Joseph, 1996, p. 454)

Results showed that the victim group scored significantly lower on all the Harter scales.

The measure is a useful addition, and builds on an established and well-constructed test. However, there is no apparent time-frame for the scales and the questionable value of the Harter scales as a measure of Subjective Well-Being has already been discussed.

A further use of this measure (Mynard & Joseph, 1997), with the Eysenck Junior Personality Questionnaire (Eysenck & Eysenck, 1970) showed, as other studies confirm, that victims had lower scores on extraversion.

Rigby, Cox, & Black (1997) studied cooperativeness amongst 939 secondary school pupils in Australia. Subscales of the Rigby & Slee, Peer Relations Questionnaire (1993), were used to measure bullying and peer victimisation. Happiness was measured using “a pictorial representation of seven faces with expressions ranging from a very broad smile to a heavy frown...as a further measure of Subjective Well-Being, we included a 10 item measure of self-esteem.” (Rigby et al., 1997, p.360)

In this study, the Rosenberg (self-esteem) scale had a reliability (Alpha) of .86. The Bully and Victim subscales of the Peer Relations Scale had an Alpha reliability of .85. The five-item victim subscale included responses to frequency of being bullied that range from “every day” to “never.” No information is provided on the association of bullying/victimisation and well being/self esteem, as the focus of the article is on 'cooperativeness'.

Rigby & Slee, (1993) outline the relationship between bullying, self-esteem, Well-Being and liking school. The authors conclude that more work needs to be done.

Similar methods for assessing happiness and self-esteem were used as in the Rigby & Slee (1997). A 20-item questionnaire was developed, consisting of three scales covering: a tendency to bully; a tendency to be victimised; and, a prosocial scale. The internal reliability (alpha) of the measures were: self-esteem .87; the tendency to bully scale .75; the tendency to be victimised scale .86; and, the prosocial scale .71. Rigby & Slee, report that,

“...the correlations ...did not indicate any strong relationship between independent and dependent variables, in nearly all cases accounting for less than 10% of the variance in psychological Well-Being... students who tended to be victimised...had a relatively low self-esteem and tended to be slightly less happy than others; unexpectedly, they did not show greater dislike for school than others did.” (Rigby & Slee, 1993, p. 38-39)



A further study using the similar happiness, self-esteem and bullying related measures was used by Rigby & Cox, in 1996. With a group of 763, 13-17 year old High school students, the findings included that girls, but not boys, who had low self-esteem were more likely to report bullying others.

The Rigby et al. scales have been used in several Australian studies alongside measures of happiness and self-esteem. They have a consistently acceptable level of internal reliability. However, they use of a relatively fluid time-frame and the unbalanced nature of the items may introduce confounding factors into the results, especially when using correlational forms of analysis. It may also not be appropriate statistical practice to use solely correlational techniques on factors that are normally distributed (happiness and self-esteem) with those that are not and which are not transformed (bullying and victimisation).

The effect of victimisation on secondary pupils in relation to their physical and mental health, was the subject of two other studies (Rigby, 1999, Rigby, 2000b). The 1999 study used measures with a range of time-frames to examine general health, somatic complaints, happiness and well-being. The measures were given at two time points, three years apart. Victimisation at point one was associated with poor health and relatively low well-being at point two. Rigby concluded that,

“Relatively poor health was characteristic of students reporting frequent victimisation by peers in early secondary schooling and also of senior students who reported being bullied frequently three years earlier, suggesting a causal connection.” (Rigby, 1999, p.95)

The study is one of the few to link specifically the effects of being bullied on well-being. However, the variation in the time-frame used in each measure, from over the last year to the current time, is likely to distort and weaken the repeated measures design. The measures used, apart from the bullying/victimisation scales, were drawn from a range of pre-existing scales designed for a variety of purposes. For instance, the well-being measure was drawn from a Quality of Life assessment designed for clinical trials of cardiovascular therapies (Wenger, Mattson, Furberg, & Elinson, 1984).

Kochendorfer & Ladd, (1996) used self-reports from 200, 5-6 year old children to examine the causal effect of victimisation on loneliness and school avoidance, in a

longitudinal design. Tools used included: a victimisation measure; a school liking and avoidance measure; loneliness; and, an academic achievement measure on the second session only. Alpha reliability for these measures ranged from .74- .91. By assessing the children on their entry into school and at one term onwards, the authors were able to partial out each child's baseline scores, and so focus on the likely within-school effects.

Juvonen et al., (2000) in their repeated measures design, (n106) grouped middle school pupils according to whether they were bullied at one, both, or neither time point. Findings included that the effects of being bullied on measures of psychological adjustment, declined over time. Past victimisation, if not repeated, had a non-significant effect on self-worth, loneliness and depressive symptoms at time 2. The measures used had alpha reliabilities ranging from .79- .87. No effects for sex and ethnicity were found, beyond boys reporting higher levels of victimisation. This study is important in being one of the first to assess the influence of time on the effects of being bullied (victimisation). An opportunity was missed in not normalising the data and using SEM in the analysis of the longitudinal data, as had been done with the concurrent data, allowing an analysis of the temporal effects after removing measurement error.

The Sourander, Helstelä, Helenius, & Piha, (2000) 8-year longitudinal study (n898) showed a link between depression, emotional or behavioural problems at time 1 (8 years old), with both bullying and victimisation at time 2 (16 years old). Both parent/teacher and pupil reports were used; implicitly controlling for shared method variance. No association between victimisation and sex, and socioeconomic variables was found. Bullying was associated with externalising behaviour problems and victimisation was associated with self-reported internalising problems. No report is given for the psychometric properties of the measures as used in the study, some of which were different at time 2. The study is important in identifying the chronic nature of being bullied/bullying and the association with other behaviour difficulties over a long period.

There remains a gap in the research, identifying the effects of being bullied on SWB over time, using measures that refer to a shared time frame and context, that are reliable, valid and analysed appropriately in a longitudinal study.

## Method

### **Choice of design and method**

#### **Central Hypotheses**

A correlational and a test-retest (longitudinal) design were chosen to address the central hypotheses that:

- 1) A schoolchild's Subjective Well-Being (SWB) is inversely associated with being bullied;
  - 1i) The SWB of schoolchildren who report not being bullied is higher than the SWB of schoolchildren who report being bullied
  - 1ii) That the inverse relationship between SWB and being bullied is supported in both boys and in girls
- 2) The effect of being bullied on a schoolchild's SWB covaries with time; that the effects of being bullied diminish unless repeated.

#### **Subsidiary and supportive hypotheses**

These include:

- a) That schoolchildren's self-reports of being physically bullied are associated with their self-reports of being verbally/indirectly bullied;
- b) That the effects of being bullied on Subjective Well-Being remain significant when the covariates: Control Beliefs about being bullied; Lie/Social Desirability; Age; and, Gender are accounted for;
- c) That schoolchildren's self-reports of Subjective Well-Being and being bullied are associated with matched teacher-reports.
- d) That the variance in SWB that is unaccounted for by being bullied is associated with pupils' Control Beliefs about being bullied.
- e) That pupil-based and teacher-based measures of bullying should correlate.
- f) That pupil-identified low SWB and pupil identified bullying behaviour are associated with high teacher-identified, problem behaviour.
- g) That pupils' perceptions of being bullied, where the term bullying is used in questioning, are partially independent of self-reported behavioural interactions that are typically associated with being bullied.

### **Measurement issues**

The foci of the concurrent and longitudinal studies are to examine the relationships between being bullied and SWB. This requires that all measures be tested first for their validity and reliability. This is especially necessary, where the measures are adapted or new, or where they are related to constructs developed for a new population. The measure of schoolchildren's SWB is new, both as a measure, and as a construct applied to a new population. By contrast, in these studies the "bullying" and "being bullied" measures are adaptations of existing measures.

Where appropriate, all measures were developed, or transformed for use in parametric statistical analysis.

### **Covariate measurement issues**

The inclusion of relevant covariates is important to ensure that any correlational or temporal/structural relationships, between the bullied/bullying and SWB variables, are not a consequence of shared variance with demographic or other psychological constructs. For example, if the relationship between being bullied and SWB is, in part, a consequence of an unaccounted for factor, such as age.

The relationship between the being bullied/bullying variables with SWB will be carried out firstly without covariates, and then repeated, with covariates. Some of the covariates consist of self-reports of status or group, such as age, gender, and ethnicity. Other covariates are measures, including Lie/Social Desirability, Control Beliefs and the teacher-completed Strengths and Difficulties questionnaire. Copies of the measures used are contained in Appendix C – a sample primary pupil form, and in Appendix D, the Strengths and Difficulties questionnaire.

Where covariates are continuous measures, their psychometric properties will be examined and reported.

In order to test the hypotheses, it is necessary to complete several paths of research to ensure that the variables used are valid and reliable.

These paths include:

- 1) Development and psychometric assessment of the SWB measure;

- 2) Development, adaptation and psychometric assessment of the Bullied/Bullying variables;
- 3) Development and psychometric assessment of the Control Beliefs and Lie/Social Desirability, measures.

These paths are integral to the investigation of the hypotheses. They form the prerequisite for any analysis of the hypotheses.

## Design

To test these hypotheses the design includes:

- 1) A concurrent design in which questionnaires and scales were administered to schoolchildren age 8-15 and;
  - a) a sub-sample, who had matched responses from their teachers on an established measure – the Strengths and Difficulties (S&D) questionnaire (Goodman, 1997).
- 2) A repeated-measures (treated as longitudinal in this study) design in which the bullied and SWB measures were re-administered to a group of schoolchildren, age 8-11, after a 10-month interval.

The Concurrent design tests:

- Central hypotheses 1
- Subsidiary hypotheses a, b & c.

The Repeated-Measures (longitudinal) design tests:

- Central hypotheses 1 & 2;
- Subsidiary hypotheses a & b.
- 

These studies and the pilot studies are enumerated in Table?

TABLE 2 PILOT, CONCURRENT AND LONGITUDINAL STUDIES

<b>Pilot Studies</b>	<b>N</b>	<b>Participants</b>
1	99	Secondary girl students 11-15 years
2	841	Primary & Secondary school students, 8-15 years
3	37	Primary & Secondary school students, 8-15 years
4	89	Primary school students 8-11 years
5	785	5 Primary schools. 2 Secondary schools, 8-15 years
<b>Concurrent Studies</b>	440	Primary & Secondary school students, 8-15 years
	127	Primary school students, 8-11 years (a subset of the N440 sample)
<b>Longitudinal Study</b>	97	Primary school students, 8-11 years (the shared subset from the N785 pilot study and the N440 concurrent study)

The inclusion of the established teacher-based Strengths and Difficulties questionnaire is intended to address some of the concerns raised by Hawker & Boulton in relation to shared method variance on the amplification of effect sizes in related research (Hawker & Boulton, 2000).

Pupil-based peer nomination methods were not selected due to concern over the follow-on effects that such questioning may have on pupil social groups. Asking pupils to nominate or rate each other on bullied/bullying and SWB variables may inadvertently act as an intervention. Children may 'compare notes' following such a procedure, the method having the potential effect of sanctioning pupils' views. Such concerns were raised by Williams & Gilmour, (1994) in their study of sociometry and peer relationships. Williams & Gilmour advise that pupil-pupil confidentiality should be encouraged (p. 1001), however it could prove difficult to enforce in practice. A further concern was the poor inter and intra measure reliability in sociometric peer group (including peer nomination) methodologies (Frederickson & Furnham, 1998).

## **Participants**

### **Background to the research and sample: Concurrent design**

The population consists of a convenience sample of N440, 8-15 year old children in local education authority primary and secondary schools in Lewisham, an ethnically diverse and relatively poor inner-London borough. The schools were approached as part of the local education authority's Emotional and Behavioural Difficulties Team project, aimed at helping schools reduce the level of bullying; see Appendix E, for a sample initial contact letter. The study provided feedback to each school on levels and types of bullying; where it happened and how schoolchildren thought their schools might improve e.g., Appendix F.

The project has been running since 1997, with the majority of schools requesting yearly follow-ups. The sample used in the study comes from the schools involved in the project over the 1999-2000 academic year. With the exception of the school involved in the longitudinal study there was an attempt to include schools not previously involved, thus minimising any confounding effects due to previous interventions.

Four primary and one mixed secondary comprehensive school took part in the 2000 study. Three of the schools and the secondary school were new to the project.

89% of the total sample were used in the main analyses, as outlined in the results section. An extensive and rigorous analysis of the 11% data excluded from the main analyses, was carried out according to the advice given in Wilkinson, (1999) and this is presented at the end of the results section.

The sample size was chosen according to the analysis planned, taking into account potential attrition, the number of variables, and the relationship found between the variables from the pilot studies (see Appendix A).

### **Background to the research and sample: Longitudinal design**

One of the primary schools had been involved in the previous academic year in the pilot development of the bullied/bullying and SWB measures. This school provided anonymous (n105), but matched participant data from the 1999, as part of the planned longitudinal study. 92% of the sample had sufficient data for inclusion in the analyses. Amongst the 8% of missing data were children who moved schools, or who were absent on one of the occasions on which the survey was administered.

### **Determination of population size**

The population size for the study was determined by several factors following analysis of previous research, including- for the concurrent study -:

1. The number of participants needed for a particular effect size (statistical Power) predicted from previous research. Power is defined as,  
“...the long-term probability, given the population ES [effect size],  $\alpha$ , [significance,  $p = \leq .05$ , in this research] and N [sample size] of rejecting  $H_0$  [the null hypothesis], (Cohen, 1992, p. 156).

In the same paper, Cohen specified a desirable level for Power to be  $\geq .8$ . To determine the necessary sample size, for this largely correlational research design, the appropriate figures for the reported effect size taken from pilot studies, were entered into the UCLA online Power Calculator (<http://www.stat.ucla.edu/>). A



minimum sample size was then generated and used as a guide for the current research. Nb. All analyses in this study can be assumed to have met the  $\geq .8$  Power criteria unless otherwise stated.

2. Rigby (1999) studied the effect of victimisation on mental health as a variable in a multiple regression. The relevant effect size reported = .2 . This requires a sample size of at least  $n=194$ , for Power =  $>.8$ , 2-tailed,  $p=>0.05$ . This effect size is a conservative estimate of the relationship, as the following studies show.
3. Hawker & Boulton, (2000), in a meta-analytic review of related research, report the association between victimisation and psychosocial maladjustment as ranging from  $r = .14$  (studies avoiding shared method variance, mean  $r = .217$ ) to  $r = .45$  (for studies with shared method variance, mean,  $r = .323$ ). Psychosocial maladjustment included the variables: depression; loneliness; global self-esteem; social self-esteem; social anxiety; generalized anxiety; and, an overall anxiety construct. For this study, it is assumed that such variables are likely to be associated with SWB. Victimisation is assumed to be associated, and largely synonymous, with the being bullied variables used in this study,
4. Previous pilot studies, in this current research, show an  $r(785) = .321$ ,  $p < .000$ , 2-tailed, between Being Bullied and SWB.
5. The need to have a separate and sufficiently large, contrast group of schoolchildren, who report that they have not been bullied. Cohen *ibid.*, states that a group size of  $n=64$  is needed for a medium effect size, where the difference between group means  $\geq .5$  SD. This contrast group, though not a randomised control group, is necessary when assessing the effects of being bullied on SWB. A group who report not being bullied, (the Contrast Group) can be compared with the group who have been bullied, by using a t-test. A previous pilot study ( $n=785$ ) showed that the ratio between the two groups = 27:73 (not bullied : bullied). To generate a sufficiently sizeable contrast group would therefore require a total sample  $\geq 237$  with complete data.

6. A large enough sample size to allow for the analysis of ethnicity, as a covariate variable in the concurrent design. A large sample would be more likely to produce ethnic groups of sufficient size for analysis. According to Lewisham Education's pupil database, the DfEE category (Department for Education and Employment) ethnic group with the smallest representation was Asian, (see Appendix G). Asian pupils represent 3% of the school population. This indicated a suggested sample size, allowing for an expected degree of attrition, of at least  $n=400$ , for the concurrent study. A sample size of  $N400$  or more, would be more likely to contain adequate numbers of pupils from ethnic groups with a relatively small representation from the population being sampled.

7. Structural equation modelling (SEM) was planned for the analysis of the concurrent data. SEM allows for the hypothetical relationships between variables to be modelled and tested for fit to the data. SEM, unlike multiple regression, allows for measurement error to be controlled; important when considering issues such as shared variance, and in proposing relationships between constructs – or factors in SEM terms. This requires a reasonable sample size, depending on the complexity of the proposed model. Tabachnik & Fidell, (1996) state that,

“...instead of thinking about number of subjects per measured variable, it is probably more helpful to think about number of subjects per estimated parameter...In many cases a sample size of about 200 is adequate for small to medium sized models.” (1996, p. 715)

Pedhazur & Schmelkin, (1991) advise the same sample size, if the  $\chi^2$  criteria of fit is to be valid; that is  $\chi^2 > .05$ . This is the baseline requirement adopted for the SEM analysis of the concurrent data. The aim, in the concurrent analysis, is to have a sample size of bullied children, the focus of the SEM, of  $>200$ , requiring a complete data sample from at least  $n274$ , based on the pilot data ratio of non-bullied to bullied of 27:73.

-and in the longitudinal study –

8. SEM was also planned for the longitudinal study. A smaller sample size was planned given an assumed a degree of stability over time in the bullied factors of  $r \geq .6$ . This estimate was based on a conservative interpretation of the  $r = .78$  stability of victim status shown in a 5 month longitudinal study, of 8-9 year old children, by Boulton (1999). The stability of SWB, how far SWB at time one was correlated with SWB at time two, was estimated at  $r \geq .6$ . This was based on the mean correlation of adult studies of SWB;  $r = .64$ , over 8 month to 3 year intervals (Chamberlain & Zika, 1992). On these assumptions, a sample size with complete data of  $\geq n59$  is needed to meet Power criteria. This is based on the predicted correlation of the bullied factor at time one, through the bullied factor at time two =  $r .36$ , after measurement error has been accounted for. Clearly, a larger number of participants are preferable, given the recommendations given in point '7' above. However, small sample models can be used according to Bentler, (1995) in the manual to EQS. Bentler recommends the use of certain model fit indices, as appropriate to small sample models, including the nonnormed fit index (NNFI), which,

“ has the major advantage of reflecting model fit very well at all sample sizes.” (Bentler, 1995, p. 114).

Bentler (1995) suggests that the comparative fit index (CFI) avoids underestimation of fit in small sample sized models. The aim therefore in the longitudinal study, is to have a clear and simple model, based on multivariate normal indicator variables, validated by the concurrent study.

9. A further consideration in the longitudinal study is the need to have sufficient cases for a planned hierarchical regression analysis of the same data, with appropriate covariates entered first. This results in a potential maximum of seven predictor variables (proposed entry order - age, gender, control beliefs negative and lie/social desirability, previous SWB, previous being bullied, then lastly-current being bullied). Information from the 1999 Pilot study in which age, lie/social desirability, and being bullied were the predictor variables in a multiple regression, gave an  $R(531) = .363$ ,  $p = >.000$ . This equates to a large effect size of  $.570 (f^2)$ . This information was used in one of Tabachnick & Fidell's

recommendations for multiple regression sample sizes, based on the formula for  $n$ , of  $n \geq (8/f^2) + (m - 1)$ , where  $m$  = the number of predictor variables, (Tabachnick & Fidell, 1996, p. 133). This gives a required longitudinal sample size of  $n \geq 21$ .

### **Participant assignment to groups**

Due to the action-research nature of the study, it was not feasible, or ethical, to randomly assign participants to groups and manipulate forms of bullying as independent variables. Instead, as bullying is known to occur in schoolchildren's social groups, it was decided to define logical groupings based around the participants' reported experiences. These groupings are based on responses on the bullied/bullying variables, and allow for the examination of the within and between group differences on covariate measures and groupings, such as ethnicity, as well as with the SWB measure. The group assignment allows the bullied groups experiences to be contrasted with an otherwise potentially confounding, not-bullied group.

### **Selection of Covariate variables**

In any study where participants are not selected randomly, and where the predictor variables are not controlled, there is a potential for confounding variables to influence the relationships between the variables of interest. Several potential covariates were identified from previous research, these included:

#### **Age**

Olweus, (1994), Rigby, (1996), Smith, Madsen & Moody, (1999), Smith, (2000), Smith & Shu, (2000), identify the general decline in reports of being bullied with age. In this research, age is identified through Year Group membership.

#### **Gender**

Olweus, (1994.), Rigby, (1996), Smith, (2000), identify boys as reporting higher levels of being physically bullied than girls. In this research, pupils identified themselves as boys or girls.

#### **Ethnicity**

Several studies have explored the experience of children from different ethnic groups in relation to being bullied, including those by: Blatchford, (1993), Gilborn, (1993), Loach, & Bloor, (1995), Moran, Smith, Thompson, & Whitney, (1993). In this study, the participants self-report their ethnicity according to DfEE categories.

### **Lie/Social Desirability**

Subjective Well-Being has been shown to be associated with Social Desirability at a mean of  $r = .23$ , in a meta-analysis of studies by DeNeve & Cooper, (1998). Mynard & Joseph, (1997), found that high scores on a Bullying Behaviour Scale were inversely associated with scores on the Eysenck EPQ Lie Scale (Eysenck & Eysenck, 1997) at  $r = -.37$ . In this study a short balanced Lie/Social Desirability scale, was developed from the pilot studies.

### **Control-Beliefs-about-being-bullied**

Control Beliefs, as used by Skinner, Chapman & Baltes, (1988), comprise an individual's beliefs about whether they have the ability, and the means, to effect favourable outcomes. Wilton & Craig, (2000) note that,

“...assertive behaviour skills not only protect against victimization, but they also foster a personal sense of social mastery, facilitate peer acceptance, and act as protective factors against the negative psychological impact of stress.” (Wilton & Craig, 2000, p. 243)

It might be expected that bullied individuals who feel helpless and hopeless, have a lower SWB than bullied individuals who retain more positive control beliefs.

### **Planned treatment of missing data and data outliers**

There are two planned datagroups hereafter called **Datagroup1**, for the concurrent study, consisting of the single time-point data, and **Datagroup2** consisting of the longitudinal data.

### **Criteria used for judging whether data should be retained for particular forms of analyses**

1. Only those participants who had at least 90% complete data in each variable were to be included in the final analysis.
2. Missing values for items were to be replaced with the mean for the entire series on the SWB measure; a conservative approach, according to Tabachnick & Fidell (1996). This method substitutes the overall series mean for the item. This approach results in a slight reduction in the overall variance and, consequently, it is likely to reduce the strength of the relationship between variables. However, it avoids creating an artificial association between variables.

3. Missing values on the one-item Self-Perceived Bullied, and Self-Perceived Bully measures, would result in the participant being dropped from further analysis, as there was no intrinsic basis for interpolating a response. To use a regression model to substitute for missing data would compromise the relationship between the independently sourced, bullied variables, as a positive correlation would have been introduced between the, previously independent predictor, variables. It was decided to avoid contamination between these predictor variables.
4. Missing values for the Physically Bullied and Verbally/Indirectly Bullied variables were replaced with the lowest value, that is 1. These variables consist of statements as to whether, and to what degree, the participant had experienced a stated behaviour during the last week. A missing response was interpreted as an absence of that behaviour, and therefore coded as “1.” Only one missing datapoint was accepted per participant.
5. Missing values for Control Beliefs scales, which require a dichotomous response on each item, were substituted using the mode for the entire subset of pupils who reported being bullied. The responses of the non-bullied were excluded as being irrelevant to the analysis and having no clear meaning, as the items ask about the participants’ responses to being bullied. Only one missing datapoint was accepted per participant.
6. Up to two missing values on the Strength and Difficulties Questionnaire, per participant, were substituted, using the mode for the related subscale. In practice, only one missing datapoint was found amongst the teachers’ responses.
7. Where the SEM form of data analysis requires stringent observations of multivariate normality, data were transformed where necessary and cases dropped if found to be multivariate outliers.

### **Planned analysis of missing data groups**

Where appropriate, grouped cases were analysed using methods that had been applied to the retained datagroups, after missing data were replaced using the methods described above. Of course, the criteria for data substitution were relaxed, as all cases in this group fell outside the limits for inclusion.

The rationale for doing this was to check whether the missing data groups differed in the form that the relationships between variables, when these were compared to the analyses of the retained datagroups.

### **Measurement**

Instruments used in the study were selected or devised to yield data that could be analysed using parametric methods and which met conventional standards of validity and reliability. The use of structural equation modelling led to the requirement for each construct to be measured by at least two variables.

#### **Multi-item tests, psychometric criteria**

Minimum Psychometric criteria for multi-item measures include:

1. Item-scale correlation of  $r \geq .2$  as recommended by Rust & Golombok, (1989).
2. Items were included if there was sufficient variance in the participants' responses.

Tabachnick & Fidell, suggest

“...deleting dichotomous variables with 90-10 splits between categories both because the correlation coefficients between these and others are truncated and because the scores in the category with 10% of the cases are more influential than those in the category with 90% of the cases.” (Tabachnick & Fidell, 1996, p. 66)

Where, as with SWB, the scales consist of four points, they were treated as dichotomous and the above criterion applied. Rust & Golombok, also advise that,

“an item ...that is equal to or approaching either of the extreme scores should not be included.” (Rust & Golombok, 1999, p. 210)

3. Alpha, or Spearman-Brown Split-Half reliability of  $\geq .7$ , as noted by Kline, (1993) and Rust & Golombok, (1989).
4. Exploratory factor analysis: multi-item scales were planned to be factor-analysed using principal axis factor extraction with a Varimax rotation. The number of factors extracted was based on an examination of the “knee” in the scree slope, as explained by Everitt & Wykes, (1999). These factors should be related to the hypothesised structure of the measure, e.g., that an analysis of bullied variables should uncover the hypothesised physically and verbally/indirectly bullied factors.

### **Choice of variables used in the study and how related to goals**

The choice and development of instruments included consideration of the welfare of the participants. As has already been stated, it was decided not to use peer-based multi-informant approaches due to concerns about reliability and because such a procedure may highlight social relationships amongst the participants, creating potentially adverse unintended subsequent effects. Instead, to provide an observer measure, the class teachers/tutors completed an established measure, containing items related to the issues under examination.

Other criteria for selecting and developing measures included that they should have: simple response formats; low reading ages; clarity in presentation, to help avoid errors due to multiple or missing entries, an example included the shading of alternate items on the multiple item scales – see Appendix C; low cognitive demand; an avoidance of ambiguity; clear contextual referencing – time and place; and, low reliance on medium to long-term memory for events.

### **Test selection, external criteria**

Where appropriate, the predictive and convergent validity of measures were to be assessed using relevant criterion or related existing measures.

### **Development, modification and psychometric assessment of the Bullied and Bullying variables**

Where possible, existing instruments were used to measure variables. Where necessary, these were adapted to the purpose and their subsequent validity and reliability assessed. Two existing Bullied and Bullying measures were used: The “Life in School” checklist, Arora, (1996), and, a modified form of the Rigby questionnaire, (Rigby, 1994). Appendix H contains descriptive statistics of the bullied/bullying measures.



## **Instrumentation**

### **Bullied and Bullying variables**

#### **The Life in School checklist (LiS-C)**

Arora & Thompson developed the Life in School checklist in 1987. It is intended to provide information on

“...things that might happen to a pupil in school in the duration of one week. About half of these things are nice or neutral things, the other half are more unpleasant. This mixture is intended to draw attention away from the fact that the main interest is in those items that might be considered to be bullying.” (Arora, 1996, p. 3)

The Life in School checklist allows modifications to a basic 40-item format, according to the researcher's needs and the developmental level of the children. The Primary and Secondary versions or adaptations of them were used in this study. Within the checklist are six items, that can be used to generate a “Bullying Index” and a “General Aggression Index” for the school in which they are administered. These items for the secondary school version are:

“During the last week another pupil:”-

“Tried to kick me.”

“Threatened to hurt me.”

“Demanded money from me.”

“Tried to hurt me.”

“Tried to break something of mine”

“Tried to hit me.”

The administration allows the responses to be anonymous. Pupils are asked to report only on events,

“...during the past week. This is important because pupils' recall of events that happened more than a week ago is fairly poor and estimates based on looking further back in time are therefore more unreliable.” Arora, (1996, p. 5)

Responses to the questionnaire items are given on a three-point scale. The responses are:

“No”, “Once” [and] “More than once”.

The General Aggression Index is formed from the percentage of the participants identifying themselves as having experienced these behaviours “Once” in the previous week. The Bullying Index (essentially a bullied index) is formed in the same way from the “More than once” responses.

Arora notes that the Bullying Index items focus on physical bullying, though she suggests that,

“...physical and non-physical bullying always co-exist, so a high Bullying Index can be interpreted as indicating the likelihood of a high level of bullying all round and vice versa.” Arora, (1996, p.13)

In this study, the Aggression and Bullying indices are combined to form the LiS-C Physically Bullied variable.

#### **Adaptation of the LiS-C, to form the LiS-C Verbally/Indirectly Bullied variable**

It was decided to incorporate existing items in the Life in School checklist into a scale that represented verbal and indirect forms of being bullied. These forms of bullying have been identified and described by Smith & Sharp, (1994).

It was found that existing items from the Life in School checklist were salient to the concept of being indirectly and verbally bullied. These items were formed into a separate Verbally/Indirectly Bullied scale, scored in the same way as the General Aggression and Bullying Indices. The items for the secondary school version are:

- “Called me names”
- “Teased me about my family”
- “Teased me because I am different”
- “Was rude about the colour of my skin”
- “Made fun of me”
- “Told a lie about me”

The last two items imply a degree of third party involvement, social exclusion or ridicule. Such forms of bullying have been highlighted by Stanley & Arora, (1998) as ‘social exclusion’, and by Crick & Bigbee, (1998) as ‘relational aggression’. In this study, this

measure is labelled LiS-C Verbally/Indirectly Bullied. A similar adaptation of the LiS-C has been made by Harris, (2000) sharing five out of the six items listed above (L. Harris, personal communication, January 2000).

For the Primary and Secondary versions of the adapted Life in School measures, refer to Appendix I.

### **Modification to the scoring method for the “Life in School” checklist**

The Life in Schools, General Aggression and Bullying indices were added together to form one Physically Bullied scale. This was done to avoid the exclusion of either index in statistical analysis. Adding the index scores produces a more comprehensive picture of the participant’s experience of being physically bullied.

The same scoring method was used for the new Verbally/Indirectly Bullied index. The range of the two indices = 0-6, as each index contains 6 items for which the participant can respond with one of the following:

	<u>Score</u>
“No”	= 0
“Once”	= 1
“More than once”	= 1

As the “Life in School” checklist was only one of several measures used with the participants it was decided to shorten it, as permitted, to 22 items.

### **Adaptation of the Rigby questionnaire items to form the Self-Perceived Bullied and Self-Perceived Bullying variables**

The modified Rigby questionnaire contains the elements identified as descriptors of bullying in Olweus, (1994). These comprise

“...aggressive behaviour or intentional harmdoing...carried out repeatedly and over time [and characterised by] an imbalance of power”, Olweus, (1994, p. 1173).

The Rigby statement reads:

“Children sometimes bully weaker children at school by deliberately and repeatedly hurting or upsetting them in some way, for example by hitting or pushing them around, teasing them or leaving them out of things on purpose. It is not bullying when two people of about the same strength have the odd fight or quarrel.” (Rigby, 2000b, p. 59)

From the pilot studies, it was found that schoolchildren up to the age of 13 years, had difficulty in reading the whole questionnaire, despite its relatively low total reading ease figure of Grade 1. The administration of the questionnaire was modified so that the teachers, who administered the questionnaires, read the instructions and items aloud, while the forms were in front of the participants. Numbers for each of the statements, were read by the teachers, according to a script, so that participants need only to be able to read the item numbers and to understand the relevant response format.

When considering these revisions, the Rigby statement was found to have a relatively low reading ease figure, using the Flesch-Kincaid Grade Level score, provided in Microsoft WORD 2000, (Microsoft, 1999).

This program,

“...rates text on a U.S. grade-school level. For example, a score of 8.0 means that an eighth grader can understand the document.” (Microsoft WORD 2000 Help files, 1999)

The program suggests that the writer aims for a score of approximately 7.0 to 8.0, presumably for an adult reader. For the original Rigby statement, the equivalent Grade level is 12; much higher than recommended.

The formula given for the Flesch-Kincaid Grade Level score is:

$$“.39 \times ASL) + (11.8 \times ASW) - 15.59$$

[where]

ASL = average sentence length (the number of words divided by the number of sentences)

ASW = average number of syllables per word (the number of syllables divided by the number of words).” (Microsoft WORD 2000 Help files, 1999)

It was decided to simplify the Rigby statement to:

“Pupils sometimes bully weaker pupils by deliberately and repeatedly hurting or upsetting them in some way; for example, by hitting them, saying mean things or leaving them out on purpose. But it is not bullying when two people of about the same strength have the odd fight or argument.”

This reduced the Flesch-Kincaid Grade Level, from 12 to 9, whilst retaining the essential constructs. It was thought that to simplify the text further would risk losing its essential meaning. This modified statement was used as the description of bullying associated with the Self-Perceived Bullied, and Self-Perceived Bullying variables.

#### **Response format on the Self-Perceived Bullied variable**

After having read the modified Rigby statement, and heard it read to them, the pupils were asked “How often were you bullied at school this year?.” Six response categories, to be chosen by the participants, range from “Never” to “Every Day.”

#### **Response format on the Self-Perceived Bullying variable**

A similar, five-response scale assessed “How often did you take part in bullying another pupil at school this year?” This scale is clearly intended to pick up information on self-reported bullying behaviour.

#### **Placement of the modified Rigby item in the pupil questionnaire**

This item, with its overt use of the term “bullying”, was administered after the SWB, and modified Life in School checklist, to avoid cueing effects on the children. Arora, notes that,

“You may not wish to use the term ‘bullying’ as it is often an emotive one and therefore you may feel that pupils would not provide reliable responses to a direct question.” (Arora, 1996, p.4)

The modified Rigby questionnaire, re-named as the Self-Perceived Bullied scale, was incorporated into the 2000 data collection, though it had not been given to the 1999 sample, included in the longitudinal study. The item, labelled item 5, is contained in Appendix C, alongside the other measures.

### **Use and transformation of the “Bullied” and “Bullying” variables for the parametric statistical analysis and for use in structural equation modelling (SEM)**

Before data from the participants’ responses could be used in any parametric analysis, they had to be transformed. Data from bullied variables are usually in the form of a J-shape;

“...an extremely asymmetric distribution with its maximum frequency in the initial (or final) class and a declining or increasing frequency elsewhere.” (Everitt & Wykes, 1999, p. 95)

Such a distribution is unsuitable for parametric tests, as it breaks the requirement for the data to have a normal distribution. Bullied data are J-shaped, because although there are degrees of being bullied, there is only a single condition of not being bullied. There is no complimentary degree of not being bullied, as a contrast to the degree of being bullied.

This problem can be surmounted by transforming the data into a normal distribution using a percentile transformation yielding Z scores. Kline, (1993, p. 55) outlines such a procedure. This transformed data meet the normally distributed criterion necessary for the use of tests that have parametric assumptions, including standard structural equation models. This procedure was carried out on the bullied data variables from 1999 and 2000.

Although the LiS-C is a long established measure, there is no published information on its statistical validity or reliability. As the scoring has been modified in this study, and a new scale, LiS-C Verbally/Indirectly Bullied, introduced, it is necessary to provide this information from within the study. Data from the 1999 pilot study was used as well as that derived from the complete n390, 2000 version. The 1999 study was a pilot for the Verbally/Indirectly Bullied scale, as well as for the final SWB scale.

### **Item discrimination and reliability for the LiS-C Physically Bullied variable**

Item discrimination refers to,

“...the ability of each item to discriminate respondents according to whatever the questionnaire is measuring.” (Rust & Golombok, 1999, p. 211)

For the LiS-C Physically Bullied scale, the average item-scale correlation in the final n390 study was,  $r = .535$ . All item-scale correlations exceeded the  $r = \geq .2$  criterion, as suggested by Rust & Golombok (1999). A non-parametric measure of correlation, Spearman’s rho, was used, as the raw data were highly skewed and so unsuitable for parametric analysis.

TABLE 3 - LIS-C, PHYSICALLY BULLIED, ITEM-SCALE CORRELATION FOR THE 2000, N390 DATA

			Correlations					
			Tried to kick me	Threatened to hurt me	Demanded money from me	Tried to hurt me	Tried to break something of mine	Tried to hit me
Spearman's rho	LiS-C Physically Bullied	Correlation Coefficient	.608**	.526**	.244**	.676**	.445**	.712**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	390	390	390	390	390	390

\*\* . Correlation is significant at the .01 level (2-tailed).

Reliability of the LiS-C Physically Bullied scale in the n390, 2000 study was,  $\alpha = .799$ . Spearman-Brown Split-Half reliability =  $.825$ . The reliability exceeds the  $\geq .7$  criterion, as suggested by Rust & Golombok (1999).

### Item discrimination and reliability for the LiS-C Verbally/Indirectly Bullied variable

For the LiS-C, Verbally/Indirectly Bullied scale, the average item-scale correlation in the final n390 study was,  $r = .626$ . All item-scale correlations exceeded the  $r = .2$  criterion. A non-parametric measure of correlation, Spearman’s rho, was used, as again, the raw data were highly skewed and so unsuitable for parametric analysis.

TABLE 4 - LIS-C, VERBALLY/INDIRECTLY BULLIED, ITEM-SCALE CORRELATION FOR THE 2000, N390 DATA

			Correlations					
			Called me names	Teased me about my family	Teased me because I'm different	Was rude about the colour of my skin	Made fun of me	Told a lie about me
Spearman's rho	LiS-C Verbally/Indirectly Bullied	Correlation Coefficient	.756**	.613**	.580**	.454**	.644**	.707**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
		N	390	390	390	390	390	390

\*\* . Correlation is significant at the .01 level (2-tailed).

Reliability of the LiS-C Verbally/Indirectly Bullied scale in the n390, 2000 study was,  $\alpha = .778$ . Equal-Length, Spearman-Brown Split-Half reliability =  $.767$ . The reliability exceeds the  $\geq .7$  criterion.

**Concurrent validity of the LiS-C Verbally/Indirectly bullied scale**

The LiS-C Physically Bullied scale is an adaptation of an established measure. The new LiS-C Verbally/Indirectly Bullied scale should correlate with the LiS-C Physically Bullied scale, if it were to be measuring a shared bullied construct. To assess this, data from both measures were normalised using the percentile transformation. This was done using the 1999, and 2000 data, in separate analyses.

TABLE 5 - CORRELATION BETWEEN LIS-C PHYSICALLY BULLIED AND LIS-C VERBALLY/INDIRECTLY BULLIED VARIABLES, 2000

Correlations		Verbally/Indirectly Bullied, 2000
Physically Bullied, 2000	Pearson Correlation	.654**
	Sig. (2-tailed)	.000
	N	390

\*\* . Correlation is significant at the 0.01 level (2-tailed).

TABLE 6 - CORRELATION BETWEEN LIS-C, PHYSICALLY BULLIED AND LIS-C VERBALLY/INDIRECTLY BULLIED VARIABLES, 1999

Correlations		Verbally/Indirectly Bullied, 1999
Physically Bullied, 1999	Pearson Correlation	.594**
	Sig. (2-tailed)	.000
	N	813

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Both analyses support the concurrent validity of the new LiS-C Verbally/Indirectly Bullied scale. That is, that the two scales are moderately associated, and that this association is presumed to be based upon the common bullied construct, which both scales were designed to measure.

**Concurrent validity of the Self-Perceived Bullied scale**

A single item response is required on the Self-Perceived Bullied scale, therefore no internal reliability could be established.

Strongly related measures by Olweus, (1989) and Rigby, (1999), have established reported validity. It is therefore expected that the three bullied measures: the LiS-C



Physically Bullied; LiS-C Verbally/Indirectly Bullied; and, the Self-Perceived Bullied scales, used in the n390, 2000 study, should be correlated, although each measuring different aspects of the same bullied construct.

TABLE 7 - CORRELATION BETWEEN THE SELF-PERCEIVED BULLIED SCALE, PHYSICALLY BULLIED AND VERBALLY/INDIRECTLY BULLIED VARIABLES, 2000

**Correlations**

		Physically Bullied, 2000	Verbally/Indirectly Bullied, 2000
Self-Perceived Bullied, 2000	Pearson Correlation	.438**	.495**
	Sig. (2-tailed)	.000	.000
	N	387	387

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Before carrying out the correlation, the Self-Perceived, Bullied raw data were transformed using the percentile transformation. The result supports the concurrent validity of the Self-Perceived Bullied scale.

**Convergent validity of the LiS-C and Self-Perceived Bullied variables**

A sub-sample of the 2000 datagroup had additional information from the Strengths and Difficulties questionnaire (S&D), completed by their teachers. One item on the S&D questionnaire is:

“Picked on or bullied by other children.”

Responses on this item would be expected to correlate with the bullied variables.

TABLE 8 - CORRELATION BETWEEN THE TEACHER-COMPLETED, S&D BULLIED ITEM AND THE PHYSICALLY BULLIED, VERBALLY/INDIRECTLY BULLIED AND SELF-PERCEIVED BULLIED VARIABLES

**Correlations**

		Physically Bullied	Verbally/Indirectly Bullied	Self-Perceived Bullied
S&D Picked on or bullied by other children	Pearson Correlation	.205*	.206*	.294**
	Sig. (2-tailed)	.021	.020	.001
	N	127	127	127

\* . Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

All correlations are significant at  $p < .05$ . Post hoc power analysis shows that, for the Self-Perceived Bullied variable, the sample size for the subset of Datagroup1 (n127), for whom Strengths and Difficulties questionnaire were completed, is sufficient for this reported small to medium effect size (power = .830, for  $r = .294$   $p < .05$ , 2-tailed).

A copy of the Strengths and Difficulties questionnaire is given in Appendix D.

### Test-Retest stability of the LiS-C Bullied variables

The stability of the LiS-C bullied variables was assessed using the n97, matched data from 1999 and 2000. The stability of the measure shows how far bullying at one time point is associated with the same measure at a later time point. The Self-Perceived Bullied variable was not given in the 1999 study, and so is excluded.

TABLE 9 - TEST-RETEST STABILITY OF THE LIS-C, PHYSICALLY BULLIED VARIABLE 1999-2000

**Correlations**

		Physically Bullied 1999
Physically Bullied 2000	Pearson Correlation	.376**
	Sig. (2-tailed)	.000
	N	97

\*\* . Correlation is significant at the 0.01 level (2-tailed).

TABLE 10 - TEST-RETEST STABILITY OF THE LIS-C, VERBALLY/INDIRECTLY BULLIED VARIABLE 1999-2000

**Correlations**

		Verbally/Indirectly Bullied 1999
Verbally/Indirectly Bullied 2000	Pearson Correlation	.383**
	Sig. (2-tailed)	.000
	N	97

\*\* . Correlation is significant at the 0.01 level

Both variables show a moderate stability. Post hoc power analysis shows that the sample size, n97, is sufficient, Power = .970, for  $r = .376$   $p < .05$ , 2-tailed, for this medium effect size.

These results support the stability of the person-in-situation focused LiS-C bullied variables. It would not necessarily be expected that a high correlation between the same variables at two time points, as the variables record individual perceptions of potentially transient social and situational events, rather than measuring an individual's traits.

**Construct validity of the LiS-C variables**

Construct validity of the SWB scale was assessed using a factor analysis of the n390, 2000, data.

The 2-factor solution explained 41% of the total variance. Only two factors were extracted with an Eigen value  $> 1$ . Examination of the "scree slope" showed a distinct "knee" implying a two-factor solution. These two factors reflect largely the two variables: Verbally/Indirectly Bullied, explaining 21% of the total variance; Physically Bullied, the second factor, predicting 20% of the total variance.

TABLE 11 - ROTATED FACTOR MATRIX FOR LIS-C 2000, N390 DATA

**Rotated Factor Matrix<sup>a</sup>**

	Factor	
	1	2
Called me names	.596	
Teased me about my family	.620	
Tried to kick me		.648
Teased me because I'm different	.580	
Threatened to hurt me	.546	.500
Demanded money from me		
Tried to hurt me		.669
Was rude about the colour of my skin	.399	
Made fun of me	.560	.356
Tried to break something of mine	.355	.409
Told a lie about me	.435	.436
Tried to hit me		.705

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

There is a considerable degree of cross-loading of items between these two related factors. However, items are most strongly loaded on their predicted scales with the exception of “Threatened to hurt me”, from the original LiS-C scale. This item has a strong verbal emphasis, and might be expected to load on the Verbally/Indirectly Bullied factor.

Items with the strongest loading on Factor 1, largely consistent with the LiS-C Verbally/Indirectly Bullied variable, include:

Teased me about my family;

Called me names;

Teased me because I am different.

Items with the strongest loading on Factor 2, largely consistent with the LiS-C Physically Bullied variable, include:

Tried to hit me

Tried to hurt me

Tried to kick me

The factor analysis supports the construct validity of the LiS-C variables.

**Stability of Bullied variable scores across gender, ethnicity and Year Group (age), demographic covariates**

Analysis was made of how the three Bullied variables covaried with gender, ethnicity and Year Group, in the n390 sample.

An effect was found for gender, in an independent samples t-test:

TABLE 12 - GENDER BY BULLIED VARIABLES: GROUP STATISTICS

Group Statistics					
	Gender names	N	Mean	Std. Deviation	Std. Error Mean
LiS-C Physically Bullied	Girls	170	.4647	1.0443	8.009E-02
	Boys	215	.7581	1.3933	9.502E-02
LiS-C Verbally/Indirectly Bullied	Girls	170	1.6588	1.6538	.1268
	Boys	215	1.6279	1.6831	.1148
Self-Perceived Bullied	Girls	169	2.1361	1.4636	.1126
	Boys	213	2.0141	1.3121	8.990E-02

TABLE 13 - INDEPENDENT T-TEST RESULTS: GENDER BY BULLIED VARIABLES

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
LiS-C Physically Bullied	Equal variances assumed	16.036	.000	-2.285	383	.023	-.2934	.1284	-.5459	-4.09E-02
	Equal variances not assumed			-2.361	381.961	.019	-.2934	.1243	-.5378	-4.91E-02
LiS-C Verbally/Indirectly Bullied	Equal variances assumed	.076	.784	.180	383	.857	3.092E-02	.1714	-.3061	.3680
	Equal variances not assumed			.181	365.546	.857	3.092E-02	.1711	-.3055	.3673
Self-Perceived Bullied	Equal variances assumed	4.190	.041	.858	380	.392	.1220	.1423	-.1577	.4018
	Equal variances not assumed			.847	340.761	.398	.1220	.1441	-.1614	.4054

The analysis shows that there is no significant difference between the LiS-C Verbally/Indirectly Bullied, and Self-Perceived Bullied means and standard deviations, when grouped by gender, on this subset (n385) of the n390 Datagroup1 for whom there were complete data.

However, there is a significant difference between boys and girls on the LiS-C Physically Bullied variable. As has been reported by Olweus, (1994) and Stanley & Arora, (1998)

amongst others, boys are more likely to experience being physically bullied than girls. Raw data were used for clarity in this relatively simple analysis.

### **Ethnicity as a covariate in relation to the bullied variables**

No effect was found for ethnicity in relation to the Bullied variables in an analysis of variance, on the n390 Datagroup1. The internal composition of the ethnic groups is given in Appendix G. The groups consist of pupil self-identification as one of 23 different group descriptors. These groups were then amalgamated into the following larger groupings: Asian, Black, South East Asian, White, Mixed Race (dual heritage), Middle Eastern and Other. The standardised Bullied variables were used, as appropriate for this analysis.

TABLE 14 - ANALYSIS OF VARIANCE: STANDARDISED BULLIED VARIABLES BY ETHNICITY, N390 DATAGROUP1

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
LiS-C Physically Bullied, 2000	Between Groups	1.716	6	.286	.382	.890
	Within Groups	278.493	372	.749		
	Total	280.209	378			
LiS-C Verbally/Indirectly Bullied, 2000	Between Groups	3.919	6	.653	.825	.551
	Within Groups	294.662	372	.792		
	Total	298.581	378			
Self-Perceived Bullied, 2000	Between Groups	3.063	6	.511	.742	.616
	Within Groups	254.487	370	.688		
	Total	257.550	376			

No significant differences between groups exist in a post hoc analysis, on the (n379) subset of the n390 Datagroup1, for whom data were available on ethnicity.

## Year Group (age) as a covariate in relation to the bullied variables

TABLE 15 - ANALYSIS OF VARIANCE: STANDARDISED BULLIED VARIABLES BY YEAR GROUP, N390  
DATAGROUP1

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
LiS-C Physically Bullied, 2000	Between Groups	4.221	6	.703	.948	.461
	Within Groups	283.499	382	.742		
	Total	287.720	388			
LiS-C Verbally/Indirectly Bullied, 2000	Between Groups	2.721	6	.454	.573	.752
	Within Groups	302.204	382	.791		
	Total	304.925	388			
Self-Perceived Bullied, 2000	Between Groups	9.090	6	1.515	2.217	.041
	Within Groups	258.984	379	.683		
	Total	268.074	385			

The age of the participants was determined by their Year Group membership, ranging from Yr4 (8 years old approximately) to Yr10 (15 years old approximately). An effect was found for Year Group on the Self-Perceived Bullied variable only, in an analysis of variance, of the n390 Datagroup1, for whom complete data were available (n385). A post hoc Bonferroni correction, shows that the source of most of the variance is in an unusually high mean Year 8 response on the Self-Perceived Bullied variable. The exact location of the significant difference is between the higher Year 8 than Year 10 mean scores and variance. An analysis of the two other LiS-C bullied variables showed no similar peaks between these two year groups.

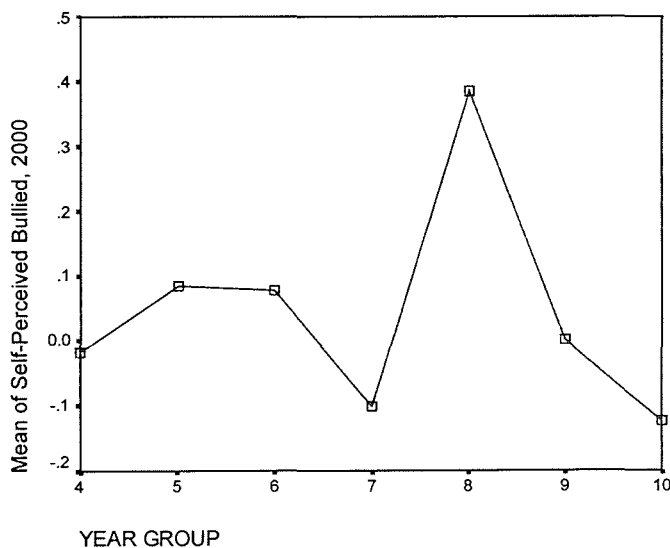


FIGURE1- STANDARDISED SELF-PERCEIVED BULLIED MEANS BY YEAR GROUP

There was no significant comparable difference on the within-group and between group variance for the LiS-C Bullied variables. The Year 8 group did not have the highest mean

on each of these variables. It is therefore assumed that the difference on Self-Perceived Bullied variable is an artefact of the sample.

Analysis was then carried out on the relationship between the measured covariates and the bullied variables

**Covariance of Measured variables: Control Beliefs Positive, Control Beliefs Negative and Lie/Social Desirability, with the bullied variables**

**LiS-C Physically Bullied**

TABLE 16 - UNIVARIATE ANALYSIS: LIS-C PHYSICALLY BULLIED AS THE DEPENDENT VARIABLE, MEASURED VARIABLES AS COVARIATES

**Tests of Between-Subjects Effects**

Dependent Variable: LiS-C Physically Bullied, 2000

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	29.497 <sup>b</sup>	3	9.832	14.674	.000	.106	44.022	1.000
Intercept	23.221	1	23.221	34.656	.000	.085	34.656	1.000
LIESOCD	6.838	1	6.838	10.206	.002	.027	10.206	.890
CBNEG	24.295	1	24.295	36.259	.000	.089	36.259	1.000
CBPOS	1.642	1	1.642	2.450	.118	.007	2.450	.345
Error	249.256	372	.670					
Total	284.363	376						
Corrected Total	278.752	375						

a. Computed using alpha = .05

b. R Squared = .106 (Adjusted R Squared = .099)

In this table, and tables 16,17,18 & 28:

LIESOCD = Lie/Social Desirability;

CBNEG = Control Beliefs Negative;

CBPOS = Control Beliefs Positive.

Both Control Beliefs Negative and Lie/Social Desirability are significant predictors of LiS-C Physically Bullied and LiS-C Verbally/Indirectly Bullied.



## LiS-C Verbally/Indirectly Bullied

TABLE 17 - UNIVARIATE ANALYSIS: LIS-C VERBALLY/INDIRECTLY BULLIED AS DEPENDENT VARIABLE, MEASURED VARIABLES AS COVARIATES

### Tests of Between-Subjects Effects

Dependent Variable: LiS-C Verbally/Indirectly Bullied, 2000

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	40.266 <sup>b</sup>	3	13.422	19.268	.000	.134	57.805	1.000
Intercept	27.079	1	27.079	38.874	.000	.095	38.874	1.000
LIESOCD	6.495	1	6.495	9.324	.002	.024	9.324	.861
CBNEG	35.459	1	35.459	50.904	.000	.120	50.904	1.000
CBPOS	1.576	1	1.576	2.263	.133	.006	2.263	.323
Error	259.131	372	.697					
Total	300.384	376						
Corrected Total	299.397	375						

a. Computed using alpha = .05

b. R Squared = .134 (Adjusted R Squared = .128)

Both Control Beliefs Negative and Lie/Social Desirability are found to be significant predictors of LiS-C Verbally/Indirectly Bullied.

## Self-Perceived Bullied

TABLE 18 - UNIVARIATE ANALYSIS: SELF-PERCEIVED BULLIED AS DEPENDENT VARIABLE, MEASURED VARIABLES AS COVARIATES

### Tests of Between-Subjects Effects

Dependent Variable: Self-Perceived Bullied, 2000

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	44.430 <sup>b</sup>	3	14.810	25.850	.000	.173	77.550	1.000
Intercept	18.799	1	18.799	32.813	.000	.081	32.813	1.000
LIESOCD	2.071	1	2.071	3.615	.058	.010	3.615	.475
CBNEG	40.103	1	40.103	69.997	.000	.159	69.997	1.000
CBPOS	3.671E-02	1	3.671E-02	.064	.800	.000	.064	.057
Error	211.980	370	.573					
Total	257.594	374						
Corrected Total	256.410	373						

a. Computed using alpha = .05

b. R Squared = .173 (Adjusted R Squared = .167)

Control Beliefs Negative is found to be the only significant measured predictor of Self-Perceived Bullied.

NB Additional validation for the bullied variables is shown in Appendix J

Having examined the relationship between the bullied variables and the covariates, attention is now turned to the Self-Perceived Bullying variable.

## Demographic and measurement covariates and the Self-Perceived Bullying variable

TABLE 19 - UNIVARIATE ANALYSIS: SELF-PERCEIVED BULLYING WITH COVARIATE PREDICTORS

### Tests of Between-Subjects Effects

Dependent Variable: LiC-S Self-Perceived Bullying

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	53.266 <sup>b</sup>	4	13.317	29.300	.000	.244	117.199	1.000
Intercept	32.411	1	32.411	71.313	.000	.164	71.313	1.000
YEAR	13.316	1	13.316	29.299	.000	.075	29.299	1.000
GENDER	1.750E-02	1	1.750E-02	.038	.845	.000	.038	.054
LIESOCD	52.999	1	52.999	116.612	.000	.243	116.612	1.000
CBNEG	1.311E-03	1	1.311E-03	.003	.957	.000	.003	.050
Error	164.981	363	.454					
Total	219.542	368						
Corrected Total	218.247	367						

a. Computed using alpha = .05

b. R Squared = .244 (Adjusted R Squared = .236)

In this analysis, the significant covariate predictors are age (YEAR) and Lie/Social Desirability (LIESOCD), indicating that they should be controlled for in an analysis containing this variable. A multiple regression was carried out, using these two variables to predict Self-Perceived Bullying.

TABLE 20 - MODEL SUMMARY: MULTIPLE REGRESSION, SELF-PERCEIVED BULLYING AS THE DEPENDENT VARIABLE, YEAR (AGE) AND LIE/SOCIAL DESIRABILITY AND THE PREDICTORS

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.499 <sup>a</sup>	.249	.245	.6705

a. Predictors: (Constant), Lie/Social Desirability, YEAR GROUP

TABLE 21 - COEFFICIENTS: MULTIPLE REGRESSION, SELF-PERCEIVED BULLYING AND THE DEPENDENT, YEAR (AGE) AND LIE/SOCIAL DESIRABILITY AND THE PREDICTORS

### Coefficients<sup>a</sup>

Mode		Unstandardize Coefficient		Standard zed Coefficie ts	t	Sig.
		B	Std.	Beta		
1	(Constant	2.876	.277		10.39	.000
	YEAR	-.105	.019	-.278	-5.484	.000
	Lie/Social	-.248	.022	-.561	-	.000

a. Dependent Variable: Self-Perceived Bullying

The coefficients suggest that Self-Perceived Bullying scores covary inversely with age and lie/social desirability. The likelihood of having a high Self-Perceived Bullying score reduces with age. Children with high Self-Perceived Bullying scores are also likely to have low scores on the lie/social desirability scale, suggesting that they tend not to lie or wish to be seen as adopting socially desirable behaviours. This paradoxical finding has been noted in a study using the Eysenck lie scale, by Mynard & Joseph, (1997).

Differences between ethnic group self-identity were considered in relation to the Self-Perceived Bullying variable.

TABLE 22 - ANOVA: ETHNICITY AS THE FACTOR, SELF-PERCEIVED BULLYING AS THE DEPENDENT VARIABLE

Self-Perceived Bullying					
	Sum Square	df	Mean	F	Sig.
Between	3.365	6	.561	.916	.483
Within	226.45	370	.612		
Total	229.81	376			

The non-significant result suggests that, in this sample, Self-Perceived Bullying scores are not related to ethnic group identity.

### **Meaning of the scores on the bullied/bullying variables**

High scores indicate high levels of being bullied, or of bullying others.

Scores on the bullied variables are expected to be inversely related to SWB scores.

### **The schoolchildren's Subjective Well-Being measure**

No existing measure met the requirement for quantifying the Subjective Well-Being of children. The development of this measure, over a number of pilot studies, resulted in the 30-item balanced scale, used in the 1999 and 2000 data collection. Two additional items, intended to measure how typical the last week had been for the child, were dropped from analysis after having been found unreliable.

The scale was designed to mirror contextual and temporal aspects of the "Life in School" checklist, as the aim of the research was always to explore the relationship between being bullied and SWB. Consequently, the SWB scale refers to a child's experience in school during the last week. Appendix K contains descriptive statistics for the SWB measure used in these studies.

Rust & Golombok, (1989) informed the construction of the scale. Stages in its development included:

- Pilot 1, 1997, n99 with a 54-item questionnaire with a four-point scale;
- Pilot 2, 1997, n841 with a 31-items embedded in a 40-item questionnaire; and,
- the 1999 study, n785, with the final 30-item questionnaire.

Items for these pilots were written according to whether agreement with the item would, in face-valid terms, be expected for a child with correspondingly high or low SWB. The items were selected on the basis that they reflected feelings or states associated with schoolchildren's well-being. The items were written to be intentionally simple and to be grounded in schoolchildren's everyday experience of school. Items for the Subjective Well-Being pilot studies included items related to: physical well-being; sociability; anxiety; happiness; and, positive expectation.

From these two studies came the final 30-item balanced scale in 1999, reproduced in Appendix L. The scale is 'balanced', meaning that it contains an equal number of positively to negatively phrased items. This helps to reduce the effects of acquiescence, whereby,

"...some respondents have a tendency to agree with all the statements whatever their content, while others tend to disagree with all the statements. ...some people tend to say yes to everything, while others tend to say no to everything, causing all

items to correlate positively with each other, regardless of content.” (Rust & Golombok, 1999, p. 106)

The need to create a balanced SWB scale for this study is all the more important as the bullied variable items are all negatively framed. To have an unbalanced SWB scale would be to risk either exaggerating or falsely minimising any potential association due to acquiescence. The creation of negative and positive SWB sub-scales, also allows the scale’s use in structural equation modelling, where at least two measured variables are required per construct.

Additional consideration was given to simplifying the cognitive demands on the children. The aim was to create a compromise between an understandable scale and one that could provide the variance and reliability, associated with valid psychometric tests. The final construction and administration of the SWB scale was informed by the form of the “Perceived Competence Scale for Children”, Harter, (1982). The items in the Harter scale, are given in a “structure alternative format”, in which:

“The child is first asked to decide which kind of kid he or she is most like – the kids described on the right or on the left [e.g., ‘Some kids often forget what they learn’ on the left, and ‘Other kids can remember things easily’, on the right]. Once having made this decision, the child decides whether the description on that side is sort of true or really true for him or her. Each item is scored from 1 to 4, where a score of 1 indicates low perceived competence and a score of 4 reflects high perceived competence.” (Harter, 1982, p. 89)

The benefit of this type of response format, is that the participant makes a simple two-stage decision. The SWB scale does not use the two statement model, as used by the Harter scale (1982), but more conventionally, it asks the participant whether they agree or disagree with a statement; that is the first stage. The second stage involves the child in deciding whether they agree or disagree, ‘a little’ or ‘a lot’. The use of a single statement, rather than two at the first stage, was chosen to simplify the task’s cognitive and memory demands, and also to reduce presentation order effects, as would be the case with two statements. The final reading level of the SWB scale (Flesch-Kincaid Grade Level = 1, that is 6-7 years of age approximately) gives an indication that the reading level should be within the range of the majority of the participants.

### **Scoring of the SWB scale**

Items were scored on a 1-4 range. Item scores on the negatively phrased items were first reversed, and then added to the total for the positively phrased items. The consequent sum of the two sub-scales produced an SWB scale total, a high score indicating a high (a relatively happy) level of Subjective Well-Being.

### **Psychometric properties of the schoolchildren's SWB scale**

As the SWB scale is an original measure of a construct, the psychometric examination of its reliability and validity needs to be more rigorous than that applied to existing measures. The extensive use of pilot testing, and a large scale (n785) pilot of the final version, before its use in the 2000 study, were attempts to ensure the psychometric quality of the measure.

The average item-scale correlation in the final n390 study was,  $r = .483$ . All item-scale correlations exceeded the  $r \geq .2$  criterion. Item-scale correlation in the 1999 pilot of the final version was similar, the average being,  $r = .476$ , with all correlations exceeding the  $r \geq .2$ , criterion.

In the 1999 pilot (n785), there were no univariate item outliers on the SWB scale. In the final n390 study, there was one univariate outlier, item 30, "I enjoyed being with other people." This item, when the scale was dichotomised, showed a 9.7% - 90.3% split, which was .3% outside the 10%-90% split criterion. However, though this is noted, it was decided to include data from this item as: (1) the deviation from the criterion is relatively minor; (2) to exclude the item would unbalance the whole scale; (3) the item showed sufficient variance in the 1999 pilot; (4) being the last item in the scale, it does not exert any influence on the participants' responses on the other items; (5) the item has a correlation with the total scale of,  $r = .330$ ,  $p < .000$ , 2-tailed; and, (6) the item had been originally selected for the last, as representing a positive end note for the scale. This was to ensure that participants did not complete the scale on a negatively phrased item.

The reliability of the SWB measure in the n390, 2000 study was,  $\alpha = .876$ . Spearman-Brown Split-Half reliability = .878. Reliability in the 1999, n785 pilot was,  $\alpha = .882$ , Spearman-Brown Split Half reliability = .862. The reliability, at both time points, exceeds the  $\geq .7$  criterion.

Test-retest reliability, involved the administration of

“the same questionnaire to the same respondents under the same circumstances and correlating the scores.” (Rust & Golombok, 1999, p. 213)

This was done using:

a separate validation group,  $r(49) = .722$ ,  $p < .000$ , 2-tailed, after 13 days; and, the longitudinal study,  $r(97) = .540$ ,  $p < .000$ , 2-tailed, after a 10-month interval.

The n49 validation group consisted of children age 9-11 years from a primary school, who were not involved with the main study, but who were from the same London borough.

These data attest to the reliability of the SWB scale. Some variation over time in participants' SWB is to be expected, and is desirable, as the measure has a more state, rather than a trait focus. It is intended to measure the influence of situation and events on the individual over a restricted time period; the last week.

Construct validity of the SWB scale was assessed using a factor analysis of the n390, 2000 data, using the same criteria as applied to the factor analysis of the LIS-C variables.

The 4-factor solution explained 36% of the total variance. The first two factors are as might be predicted from the test's construction; the positively framed items form most of the first factor and the negatively framed items form most of the second factor. Each of the first two factors explains 13% of the total variance. This result is to be expected, partly due to the different aspects of positive and negative SWB that they measure, but also due to the effects of acquiescence. More interesting are the items that have notable negative loadings on each of these factors, suggesting by their absence (in the first factor), or their presence (in the second factor), of an angry component.

The third factor consists of alert/positive-about-school attitudes. This factor contributes 6% of the total variance. The fourth factor consists of physical well-being items. This factor contributes 5% of the total variance. The items load in expected ways onto their respective factors.

TABLE 23 - ROTATED FACTOR MATRIX FOR SWB 2000, N390 DATA

**Rotated Factor Matrix<sup>a</sup>**

	Factor			
	1	2	3	4
I had lots of energy	.262		.383	
I was nervous		.467		
I wanted to come to school	.429		.388	
I was cross	-.257	.404		
I was sad		.650		
I felt relaxed	.473			
I felt ill		.263		.723
I felt that school was a safe place	.489		.440	
I concentrated	.512		.214	
I felt sick		.283		.671
I felt positive	.512			
I felt angry	-.390	.478		
I wanted to cry		.664		
I got on well with everyone	.479	-.201		
I was in a bad mood	-.399	.344		
I enjoyed myself	.615		.265	
I was tired		.214	-.535	.208
I felt calm	.696			
I was interested in working	.470		.382	
I was sorry for myself		.593		
I felt good	.508		.332	
I was confused		.493		
I was confident	.374			
I was upset		.693		
I wanted to give up		.540		
I felt wide awake	.325		.606	
I had headaches		.427		.340
I worked well	.503			
I was frightened		.565		
I liked being with other people	.378			

Extraction Method: Principal Axis Factoring.  
 Rotation Method: Varimax with Kaiser Normalization.  
 a. Rotation converged in 11 iterations.

Loadings of  $\leq .2$  were suppressed for clarity in the above table.



### **Factor analysis of the SWB 1999 n785 data**

To check the stability of the SWB 2000, n390, factor analysis, the same procedure was carried out on the SWB 1999, n785 data. The analysis showed considerable stability in the 4-factor solution, explaining 33% of the total variance. The factors were also extracted in the same order. The first two factors were the positively framed items in the first factor and the negatively-framed items in the second factor. The first factor explained 12% of the total variance; the second factor explained 10% of the total variance. Again, items that have negative loadings on each of these factors, suggest the absence, or presence, of an angry component.

The third factor again consists of alert/positive-about-school attitudes. This factor contributes 5% of the total variance. The fourth factor consists of the physical well-being items. This factor contributes 5% of the total variance.

TABLE 24 - ROTATED FACTOR MATRIX FOR SWB 1999, N785 DATA

Rotated Factor Matrix<sup>a</sup>

	Factor			
	1	2	3	4
I had lots of energy	.356			
I was nervous		.333		
I wanted to come to school	.358		.360	
I was cross		.396		
I was sad		.570		
I felt relaxed	.452			
I felt ill				.794
I felt that the school was a safe place	.458			
I concentrated	.391		.363	
I felt sick		.273		.662
I felt positive	.441		.317	
I felt angry	-.258	.472		
I wanted to cry		.549		
I got on well with everyone	.448	-.248		
I was in a bad mood	-.327	.436		
I enjoyed myself	.586			
I was tired			-.352	.235
I felt calm	.561			
I was interested in working	.384		.490	
I felt sorry for myself		.462		
I felt good	.619			
I was confused		.496	-.327	
I was confident	.477		.303	
I was upset	-.240	.662		
I wanted to give up		.409	-.425	
I felt wide awake	.393		.434	
I had headaches		.247		.462
I worked well	.479		.379	
I was frightened		.458		
I liked being with other people	.410			

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Loadings of  $\leq .2$  were suppressed for clarity in the above table. Consideration of the 1999 and 2000 factor analyses of the SWB data support the construct validity of the scales and its relative stability. Factors 1+3 and factors 2+4 correlate with the SWB+ and SWB- scales in both datasets at  $r > .945$ .

**Stability of SWB scores across the demographic covariates of gender, ethnicity and Year Group**

Analysis was made of how SWB covaried with gender, ethnicity and Year Group, in the n390 sample.

No effect was found for gender, in an independent samples t-test.

TABLE 25 - GENDER BY SWB: GROUP STATISTICS

**Group Statistics**

	SEX	N	Mean	Std. Deviation	Std. Error Mean
SWB	Girls	167	91.7443	13.5256	1.0466
	Boys	214	92.8955	13.8087	.9439

TABLE 26 - INDEPENDENT T-TEST RESULTS: GENDER BY SWB

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SWB	Equal variances assumed	.099	.754	-.815	379	.416	-1.1512	1.4130	-3.9296	1.6272
	Equal variances not assumed			-.817	360.164	.415	-1.1512	1.4094	-3.9230	1.6205

The analysis shows that there is no significant difference between the SWB means and standard deviations when grouped by gender, on this subset (n381) of the n390 Datagroup1 for whom there was complete data. No effect was found for ethnicity, in an analysis of variance, on the n390 Datagroup1.

TABLE 27 - ANALYSIS OF VARIANCE: SWB BY ETHNICITY, N390 DATAGROUP1

**ANOVA**

SWB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	815.526	6	135.921	.724	.630
Within Groups	69065.143	368	187.677		
Total	69880.669	374			

No significant differences between groups exist in a post hoc analysis, on the (n374) subset of the n390 Datagroup1, for whom complete data were available on ethnicity.

An effect was found for Year Group, in an analysis of variance, on the n390 Datagroup1, for who complete data were available (n384). The result shows a general trend for a decline in SWB scores with an increase in the participants' age.

TABLE 28 - ANALYSIS OF VARIANCE: SWB BY YEAR GROUP, N390 DATAGROUP1

**ANOVA**

SWB

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5970.013	6	995.002	5.749	.000
Within Groups	65424.078	378	173.080		
Total	71394.091	384			

The correlation between Year Group (Years 4-10) and SWB was,  $r = -.272$ ,  $p < .000$ , 2-tailed. Approximately 7% of the variance in the participants' SWB can be predicted from their Year Group.

Consideration was then given to how far the measured variables of: Control Beliefs Positive, Control Beliefs Negative, and Lie/Social Desirability, might covary with the SWB variable.

TABLE 29 - UNIVARIATE ANALYSIS: SWB AS THE DEPENDENT VARIABLE, MEASURED VARIABLES AS COVARIATES

**Tests of Between-Subjects Effects**

Dependent Variable: SWB

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Eta Squared	Noncent. Parameter	Observed Power <sup>a</sup>
Corrected Model	13762.493 <sup>b</sup>	3	4587.498	26.557	.000	.176	79.672	1.000
Intercept	7811.735	1	7811.735	45.222	.000	.108	45.222	1.000
LIESOCD	8318.393	1	8318.393	48.156	.000	.115	48.156	1.000
CBNEG	5807.861	1	5807.861	33.622	.000	.083	33.622	1.000
CBPOS	22.250	1	22.250	.129	.720	.000	.129	.065
Error	64259.334	372	172.740					
Total	3261307.159	376						
Corrected Total	78021.827	375						

a. Computed using alpha = .05

b. R Squared = .176 (Adjusted R Squared = .170)

Both Control Beliefs Negative and Lie/Social Desirability are significant predictors of SWB, and so should be controlled for as appropriate to any analysis.

### **Concurrent validity of the SWB scale**

To test the concurrent validity, the SWB scale was administered to 75, 8-11 year old children, a sub-group of whom were involved in the subsequent test-retest procedure, already described.

“A test is said to possess concurrent validity if it can be shown to correlate highly with another test of the same variable which was administered at the same time.”  
(Kline, 1993, p. 17)

It was decided to use existing proven tests of related constructs suitable for the age group involved. Sample size was selected to meet and exceed the requirements of statistical power. To calculate the necessary sample size, an assumption was made that most of the tests selected would correlate with the SWB scale at,  $r = \geq .4$ . For the results to indicate a large effect size ( $\geq .8$ ) the necessary sample size at  $p < .05$ , 2-tailed =  $n = 47$ .

Tests used include:

#### **The Culture-Free Self-Esteem Inventory, 2<sup>nd</sup> edition, (CFSE-I) Battle, (1992)**

“Self-esteem refers to the perception the individual possesses of his or her own worth.” (Battle, 1992, p. 3)

Subscales include: general; social; academic; and parent-related, self-esteem. The Form B scale, used in this study, consists of 30 items, including a 5-item “lie” scale. The remaining scales consist of 5-items, except the general self-esteem scale, which consists of 10-items. Of the 25, self-esteem related items, 6 are positively framed and the remaining 19 are negatively framed. The CFSE-I, is intended for schoolchildren of Grade 2 and above. A high score indicates a high level of self-esteem.

Participants are asked if they think that the item “describes how you usually feel”, (Battle, 1992, Form B) the format is a simple yes/no response on the form. The reliability of the scale in this study was,  $\alpha = .844$ , Unequal-Length Spearman-Brown =  $.880$

Oral and group administration are given as options in the manual.

A high score on the CFSE-I was predicted to correlate positively with the SWB scale, as high self-esteem is likely to correlate with a high level of SWB.

### **The Children's Depression Inventory – Short Form (CDI-S), Kovacs, (1992).**

“The 10-item CDI Short Form was developed to provide an easily measured empirical assessment of the extent to which a child exhibits depressive symptoms. A high score indicates that the child shows depressive symptoms.” (Kovacs, 1992, p. 1)

The items consist of three related statements, the participant selecting the one that best describes how they have felt over the last two weeks. A sample item reads:

“I am sad once in a while.

“I am sad many times”

“I am sad all the time”

The CDI-S is intended for children age 7-17 years. The reliability of the scale in this study was,  $\alpha = .801$ , Equal-Length Spearman-Brown =  $.775$ . Oral and group administration is an option given in the manual.

The CDI-S was predicted to correlate negatively with the SWB scale, if the latter measures children's subjective well-being. A depressed child was assumed to be likely to have a low level of SWB.

### **The Positive and Negative Affect Scale – Children (PANAS-C) (Laurent et al., 1999)**

The PANAS-C is an adaptation of the PANAS scale for adults, (Watson, Clark, Tellegen, 1988). It is intended to be a

“...brief useful measure that can be used to differentiate anxiety from depression in youngsters.” (Laurent et al., 1999, p.326)

The scale is a relatively new development. The article from which the measure is taken is titled “A measure of Positive and Negative Affect for Children: Scale development and preliminary validation.” The measure was included due to the apparent congruence of the constructs it measured, with those of the SWB scale. The scale is reproduced, as administered, in Appendix M.

The scale consists of a 27-item scale embedded within a 30-item scale, with three items that are recommended to be ignored in the scoring. This results in a 12-item positive affect scale, and a 15-item negative affect scale.

Participants are asked on each item to,

“indicate to what extent you have felt this way during the past few weeks.”

(Laurent et al., 1999, p. 338)

The items consist of adjectives, e.g., “interested”, “happy”, “guilty”, on a five point scale, consisting of verbal descriptors with anchors at: “Very slightly or not at all” and “Extremely.” The authors estimate the reading age to be at the 4<sup>th</sup> grade level.

For this study the items have been reverse scored, where appropriate, to provide a scale where a high score indicates a high positive and low negative affect. It is expected that the PANAS-C should be correlated positively with the SWB scale, as both are intended to measure aspects of children’s positive and negative affect. Though, in the case of the PANAS-C, the context is not specified and the time scale is longer and less clearly defined. The reliability of the scale in this study was,  $\alpha = .850$ , Unequal-Length Spearman-Brown = .852.

Group administration was reported as having been used in the article, though only those who could read the scale were included by the authors. In this validation study of the SWB, all measures were jointly administered orally and visually.

#### **Reliability of the SWB measure in the validation study**

The reliability of the SWB scale in this validation study was,  $\alpha = .862$ , Equal-Length Spearman-Brown = .834.

#### **Reading ages and difficulty for the validation form, and for the individual scales:**

An analysis of the reading difficulty, as a proxy measure of accessibility and cognitive demand, was made for each of the measures used in the validation study.

TABLE 30-READING AGES AND DIFFICULTY FOR THE VALIDATION FORM, AND FOR THE INDIVIDUAL SCALES

	Flesch-Kincaid Grade Level	Approximated UK age equivalents
CDI-S	0.7	5 yrs 8 months
SWB	1.0	6 yrs
PANAS-C	2.1	8 yrs 1 month
CFSE-I	4.6	10 yrs 7 months

The Flesch-Kincaid Grade Levels are as reported by WORD 1997, Microsoft, 1997. The UK chronological ages are the author's approximate transformations based on an assumed average age for children in US school grades. In the author's experience, these age equivalents seem a little optimistic.

### **Procedure for administration of the SWB validation study**

Instructions given for the validation study are included in Appendix N. The author administered the scales to the participants. Consent had been agreed by the parents/carers beforehand by letter; see Appendix O. The participants were told of the function of the task and that they could withdraw. The instructions and items were read to the children whilst at the same time a facsimile of the scales was projected onto a screen using an overhead projector. This ensured that the participants could both hear and see the relevant items, reducing the need for them to be able to read.

Those participants taking part in the test-retest study marked their booklets with a number after the task was completed. This number was given by the class teacher, who was asked into the room at the end of the task. The author withdrew from the class, the numbers were then written on the forms that were then collected by the teacher. This procedure ensured that anonymity was retained.

Following the analysis of the data, the author returned to the school to give appropriate feedback and thanks to the participants. Participants were offered the opportunity to ask questions or raise issues at this, or at a future time, as they wished.



## Results of the SWB validation study

TABLE 31 - CORRELATIONS OF SWB WITH MEASURES OF SIMILAR OR RELATED CONSTRUCTS

		Correlations		
		Culture-Free Self-Esteem Inventory	Children's Depression Inventory - Short Form	PANAS-C 27-item total
Subjective Well-Being	Pearson Correlation	.487**	-.547**	.709**
	Sig. (2-tailed)	.000	.000	.000
	N	77	77	77

\*\* . Correlation is significant at the 0.01 level (2-tailed).

SWB is correlated positively with PANAS-C and the CFSE-I; it is correlated negatively with the CDI-S. The correlations are as predicted, supporting the concurrent validity of the SWB scale. High scores on the SWB variable indicate high levels of Subjective Well-Being (happiness).

An additional validation study for the SWB measure, using the CFSE-I and cognitive ability as correlates, is contained in Appendix P.

### The Control-Beliefs-about-Being-Bullied measure

This 10-item, balanced scale is embedded within 26 items. The focus of the measure is on control beliefs about being bullied. This control-beliefs-about-being-bullied measure contains,

“...expectations about the extent to which agents...can obtain desired outcomes; means-ends beliefs, expectations about the extent to which certain potential causes produce outcomes; and agency beliefs, expectations about the extent to which agents possess potential means.” Skinner, Chapman & Baltes, (1998, p. 117)

Items were selected according to their clarity, and on whether they showed sufficient facility and discrimination; how well they measured what they were intended to measure and whether the item responses showed sufficient variance. This, as in the other measures, translates as an item-scale correlation of  $\geq .2$ , and as a 90:10 minimum response ratio on these dichotomously constructed items. Other theoretical considerations included whether the two, five-item scales reflected the related theoretical constructs of: attribution theory, (Weiner, 1992); in which the two sub-scales reflect contrasting internal/ controllable loci of control, and external /uncontrollable constructs;

and, hardiness, (Kobasa, 1979), in which the two sub-scales reflect contrasting control, commitment, challenge and lack of control, commitment and willingness to face challenge constructs.

Both attribution and hardiness theory are defined in the context of this measure as being specifically related to the experience of being bullied.

The response format was kept simple, participants were asked:

“What happens if you get bullied? Tick ‘Yes’ if the statement is right about you, or the ‘No’ box if it isn’t.”

The Flesch-Kincaid Grade Level of this measure = 0; the lowest that the program measures. The scale items include:

TABLE 32 - CONTROL BELIEFS SCALE ITEMS

<b>Individual in Control Control Beliefs Positive (CB+)</b>	<b>Individual feeling a lack of Control Beliefs Negative (CB-)</b>
1. I tell them to stop.	1. It will keep on happening.
2. I can get my friends to help.	2. I don't know what to do.
3. I tell someone.	3. I'm on my own.
4. I can get help from the teachers.	4. I feel helpless.
5. I fight back.	5. It gets worse if I try to stop it.

These items are approximate contrasting pairs. When data from the two subscales form summed variables, they are correlated negatively at,  $r(390) = -.362, p < .000, 2\text{-tailed}$ .

In the current study, the Control Beliefs scale was administered to the main datagroup,  $n=390$ . The reliability of the ten item Control Beliefs scale was,  $\alpha(390) = .655$ . The Split-Half reliability, Equal-Length Spearman-Brown  $(390) = .702$ .

The reliability of the five item Control Beliefs-Positive scale was,  $\alpha(390) = .412$ . The Split-Half reliability, Unequal-Length Spearman-Brown  $(390) = .4218$ .

The reliability of the five item Control Beliefs-Negative scale was,  $\alpha(390) = .689$ . The Split-Half reliability, Unequal-Length Spearman-Brown  $(390) = .713$ . Average Item-total correlations = .490, all were  $>.283$ . Content validity, the “relation between the content and the purpose of the questionnaire,” (Rust & Golombok, 1999, p. 215), was tested through factor analysis of the scale. The data from the 10 items (n390) were factor analysed, using Principal Axis Factoring, and a Varimax rotation. Three factors were extracted accounting for 37% of the variance.

TABLE 33 - CONTROL BELIEFS FACTORS

**Rotated Factor** <sup>a</sup>

	Factor		
	1	2	3
CB Positive			.453
CB Positive		.920	
CB Positive			.697
CB Positive			.396
CB Positive			
CB Negative	.585		
CB Negative	.550		
CB Negative	.352	-.549	
CB Negative	.575		
CB Negative	.592		

Extraction Method: Principal Axis  
Rotation Method: Varimax with Kaiser

a. Rotation converged in 5

Values loadings of  $<.35$  were suppressed for clarity.

The factors appear to be related to the proposed Control Dimensions.

Factor 1 - Consists of the Helpless and hopeless items characterising a lack of control - Individual feeling a lack of Control.

Factor 2 - Consists of a more controlled, peer supported and active response - Individual in Control.

Factor 3 - Consists of high loadings on control items relating to personal assertiveness and involving others, in this case teachers - Individual in Control.

The items correlate with the extracted factors in a slightly unexpected pattern in the case of Control Beliefs Positive. However, this analysis is seen as supporting the construct validity of the Control Beliefs Negative (CB-) scale, with its clear loading of the expected items on the first factor. This negative item scale will be retained in further analyses.

The construct validity of the Control Beliefs Positive (CB+) is less supported, and it fails both the alpha and split-half reliability criteria. It is also a non-significant correlate, when added as a covariate with the bullied and SWB variables. Given the poor validity, reliability and predictive power of the Control Beliefs Positive scale, it is dropped from further analysis.

The scale was devised to answer a particular research question. The Control Beliefs Negative measure possesses marginal, but sufficient, validity and reliability for the research task, and so the Control Beliefs Negative scale is accepted for the purpose intended in this research.

### **Meaning of the scores on the CB- variable**

Low scores indicate a strong agreement with helpless and hopeless Control Beliefs about being bullied.

Scores on the CB- variable are expected to be positively related to the SWB variable scores.

Descriptive statistics for the CB- variable are given in Appendix Q

### **The Lie/Social Desirability Scale**

The Lie/Social Desirability scale was included as a covariate measure. This was considered desirable, given previous research showing an association between measures of Social Desirability and Life Satisfaction (Huebner, 1998), as a known correlate of SWB, (Lucas, Diener & Suh, 1996) and between bullying and the Eysenck Lie scale (Mynard & Joseph, 1997). Its inclusion allows for the analysis of whether covariance between the SWB and bullied variables could be explained through their relationship with the Lie/Social Desirability measure. The measure was developed from two pilots, starting as a 10-item scale.

The final version is a short six-item balanced scale embedded in an 8-item scale. The items were selected from existing scales, Eysenck & Eysenck, (1970), and from the pilot study of the B/G Steem scale, Maines & Robinson, (1993). Both of these scales are unbalanced in the original; they contain a disproportionate number of positively to negatively framed items. Administration follows that given in the Eysenck scale, the participant is asked to choose 'Yes' or 'No' on each statement.

In the current study, this was the last scale to be administered.

Descriptive statistics for the Lie/Social Desirability scale are given in Appendix Q. The scale is reproduced as the last measure in Appendix C.

The Lie/Social Desirability scale, in the concurrent study, contains four items relating to behaviours that most participants would be expected to view as socially desirable, but which they are unlikely to demonstrate. These include:

“Do you generally pick up papers and rubbish that others throw onto the classroom floor?” (item1)

“Are you always good?” (item3)

“Are you always quiet in class, even when the teacher is out of the room?” (item 4)

The fourth item, second to the last administered, was dropped, as the responses in the 2000 study showed insufficient facility. This item was,

“Do you like everyone?” (item 7)

The second subscale, containing four items that most participants would be expected to view as socially undesirable, but which are likely to be demonstrated by most children, includes:

“Do you ever lie?” (item 2)

“Were you ever greedy by helping yourself to more than your share of anything?” (item5)

“Have you ever cheated at a game?” (item 6)

The fourth item, the last administered, was dropped, as the responses in the 2000 study showed insufficient facility. This item was,

“Do you ever make mistakes?” (item 8)

These items were selected from a 10-item pilot, given in 1999. Items with extreme scores, or with poor item-scale correlation, were dropped.

The two dropped items in the Lie/Social Desirability scale from the 2000 study, were the last to be given in the survey, and so their presence is unlikely to have influenced the participants' responses on previous items or scales.

Of the n390, used in the main, Datagroup1 analysis, 96% of the questionnaires had completed Lie/Social Desirability scale data.

In the current study the reliability of the Lie/Social Desirability scale was alpha (376) = .672. The Split-Half reliability, Equal Length Spearman Brown (n376) = .770.

### **Convergent validity of the Lie/Social Desirability scale**

In the separate validation study for the SWB scale, the Lie/Social Desirability scale was administered alongside the Culture-Free Self-Esteem Inventory, 2<sup>nd</sup> edition (CFSE-I), (Battle, 1992). This inventory has a five-item "Lie" scale. The items are all scored in the same direction, making it prone to the effects of acquiescence, an effect that might be anticipated on such a variable. The intention of the joint administration was to provide data for a concurrent validation of the Lie/Social Desirability scale.

In the event, the CFSE-I, Lie scale was found to have relatively poor internal reliability: alpha = .411. In addition, item-scale correlations were low at an average of,  $r(77) = .252$ ,  $p > .05$ , 2-tailed. No information is given in the CFSE-I manual as to the psychometric properties of this short lie scale. Causes for the poor reliability of the CFSE-I lie scale may be a reliance on negatively-framed, and therefore ambiguous items, e.g.,

"I have never taken anything that did not belong to me"

In contrast the Lie/Social Desirability, with this sample, showed a reliability of, alpha (77) = .708, and an Equal Length Spearman-Brown = .796. The average for the item-scale correlations for the Lie/Social Desirability scale was,  $r(77) = .637$ .

The best evidence supporting the convergent validity of the Lie/Social Desirability (L/SD) scale with the CFSE-I lie scale, comes from this scale's item with the strongest correlation with the L/SD. This item was:

"I always tell the truth."

This item correlated with the L/SD total at,  $r(77) = .513, p > .000, 2\text{-tailed}$ .

### Construct validity of the Lie/Social Desirability scale (L/SD)

Data from the n390, main data group were factor analysed to assess the construct validity of the L/SD scale.

Using the scree test, two main factors were indicated as explaining 37% of the variance. The rotated factor matrix shows that the positively and negatively phrased items fall into their respective factors, with some negative cross loadings at a lower correlation. Factor 1, explains 21% of the total variance, Factor 2, explains 17% of the total variance.

TABLE 34 - ROTATED FACTOR MATRIX FOR L/SD SCALE

**Rotated Factor Matrix<sup>a</sup>**

	Factor	
	1	2
Do you generally pick up papers and rubbish that others throw on the classroom floor?		.379
Do you ever lie?	.530	-.378
Are you always good?	-.454	.464
Are you always quiet in class, even when the teacher is out of the room?		.701
Were you ever greedy by helping yourself to more than your share of anything?	.402	
Have you ever cheated at a game?	.711	

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Loadings at  $\leq .3$  were suppressed to aid clarity. Items load on their respective negatively (Factor 1) or positively (Factor 2) framed items, with some strong logical negative loadings. This factor analysis supports the construct validity of the scale.

The validity and reliability for the L/SD is therefore sufficient for it to be used as a covariate variable in this study. Its reliability hovers around the .7 mark, the minimum that is acceptable for an adequate psychometric test according to Kline, (1993). The same level of reliability is recommended by Rust & Golombok, (1999), for person-based

questionnaires. The scale may have suffered from being delivered separately to the others, and in being the last to be administered.

### **Meaning of the scores on the L/SD variable**

High scores on the L/SD variable indicate a tendency towards positive self-representation. Scores on the L/SD variable are expected to be positively related to the SWB variable scores.

Scores on the L/SD variable are expected to be inversely related to the bullying variable scores.

### **Procedure for collecting nominal covariate (demographic) data,**

This information is based on pupil self-report gathered through the survey.

It includes:

**Age** – Participants filled in a box requesting their school Year Group. Of the n390, used in the main, Datagroup1 analysis, 99% of the questionnaires had complete Year Group data.

**Gender** – Participants ticked a box indicating whether they were a Boy or a Girl. Of the n390, used in the main, Datagroup1 analysis, 98% of the questionnaires had completed data on the participants' gender.

**Ethnicity** – Participants ticked one of 23 ethnic groupings, based on those used by the DfEE and Lewisham. Two more groups were added, Scottish and Welsh, as separate categories, reflecting recent political devolution. For those ethnic groupings that were not represented, there was a category of "Other (please say more...)." Participants were invited to write more, opposite the categories, if they wanted. Lewisham codes further combine these 23 groups. The Lewisham codes include:

A – Bangladeshi, Indian, Pakistani, Sri Lankan,

B – Black African, Black Afro-Caribbean, Black British, Black Other,

S – Chinese, Vietnamese, South East Asian Other,

W – English, Scots, Welsh, Greek, Irish, White European, White Other,

X – Mixed Race,

Y – Arabic, Turkish, Turkish Cypriot,

Z – Other.



The amalgamated data from these groups provided cells that were large enough (>5), for Chi square analysis, a minimum individual cell size as recommended by Kinnear & Gray, (1999). The ethnicity form, with Lewisham grouping codes added, is presented in Appendix G.

Of the n390, used in the main, Datagroup1 analysis, 97% of the questionnaires had completed ethnicity data.

### **Additional information gathered in the survey forms**

This included information gathered for the particular schools, though it is not reported in this study. Additional information included:

- 1) Responses on which was a safe, or an unsafe area in the school. Areas were chosen by teachers in each of the schools as being potential bullying ‘hotspots’. These areas were then entered onto the survey form for each school. Participants were asked to choose one ‘safe’ and one ‘unsafe’ area. Feedback to the schools included a breakdown of these areas by gender and Year group where pertinent.
- 2) A sentence-completion task, ‘School would be better if...’. Responses on this task were content analysed. Both quantitative and qualitative data from these responses were fed back to the school, including a breakdown by Year group, gender and race where appropriate.

Sample items are presented in Appendix C. Sample feedback to Primary and a Secondary school are given in Appendices F.

### **The teacher-based measure of: SWB; being bullied; and, bullying**

The Strengths and Difficulties Questionnaire, Goodman, (1997) was chosen due to its established status as a measure that provides a

“...balanced coverage of children and young people’s behaviours, emotions and relationships.” Goodman, (1997, p. 581)

Factor analysis “suggested that,

“...the expanded questionnaire was tapping into five distinct dimensions: conduct problems, emotional symptoms, hyperactivity, peer problems and prosocial behavior.” (Goodman, 1997, p. 581)

An additional 4-point item, labelled “Overall Difficulties” in the current study, provides an impact-score based on the degree to which the respondent decides that the child shows “difficulties in one or more of the following areas; emotions, concentration, behaviour or being able to get on with other people.” (Goodman, 1999, p. 799) The Strengths and Difficulties questionnaire is reproduced in Appendix D. Descriptive statistics for the Strengths and Difficulties questionnaire are given in Appendix R.

The five dimensions from the main scale are each represented by five items. Four of these dimension scores, excluding the pro-social dimension, can then be summed to give a total. Responses to the 25-items are given in a 3-point format, asking whether the respondent thinks that the item content is “Not True”, “Somewhat True”, or “Certainly True” for the child. Five out of the 25-items are reverse scored.

Individual items, salient to this study include:

“Often unhappy, down-hearted or tearful”, as a proxy SWB measure;  
“Picked on or bullied by other children”, as a proxy bullied measure; and,  
“Often fights with other children or bullies them” as a proxy bullying measure.

The use of data from another source is an attempt to provide a contrast and a check, to that provided by the participants alone. To rely on the results from the participants’ data alone may lead to “shared error variance”, (Hawker & Boulton, 2000). The presence of shared error variance may lead to an artifactual exaggeration of the relationships between variables.

Hawker & Boulton, explain that,

“When the same method is used to assess outcome and predictor variables, any resulting correlation between outcome and predictor variables could be explained partly by the fact that measurement variance is shared between the two variables. ... Thus a correlation between how unhappy children feel, and how victimized they are, may not primarily represent the association between victimization and unhappiness per se. Instead it may represent the extent to which children who have negative feelings about one aspect of their life tend also to have negative feelings about another aspect.” (Hawker & Boulton, 2000, p. 445)

In this study the Strengths and Difficulties questionnaire, was used as a variable avoiding shared variance.

### **Concurrent validity of the Strengths and Difficulties (S&D) Questionnaire**

Goodman (1997), assessed the scale's properties through testing its concurrent validity with the existing scale, on which it had been based.

“A test is said to possess concurrent validity if it can be shown to correlate highly with another test of the same variable which was administered at the same time.”

(Kline, 1993, p. 17)

The S&D is based on the Rutter questionnaires, (Rutter, 1967). The following table shows the strong association between the total and shared dimensions of the S&D and original Rutter scales.

TABLE 35 - THE S&D CORRELATIONS BETWEEN TEACHER SCALE SCORES THE RUTTER SCALES, GOODMAN, 1997

	S&D – Rutter correlation
Total Deviance/Difficulties score	.92
Conduct Problems score	.91
Emotional Symptoms score	.87
Hyperactivity score	.90

### **Use of the S&D in the concurrent study and its psychometric properties**

In the current study, the S&D questionnaire was administered to a subset of the main datagroup, n127. The convergent validity of the S&D questionnaire was assessed using the Total Difficulties Scale score and the Overall Difficulties score. The correlation between the two scores is,  $r(126) = .779, p < .000$ .

In the current study, the reliability of the S&D questionnaire was,  $\alpha(n127) = .882$ . The Split-Half reliability, Unequal Length Spearman Brown  $(n127) = .921$ . All item-total correlations were  $> .2$ .

The subscales of the S&D were correlated to the total difficulties score. The total difficulties score is a sum of the individual item scores, reversed scored where apt,

omitting the prosocial scale items. It is expected that the prosocial scale should be negatively correlated with the total difficulties score.

TABLE 36 - CORRELATION BETWEEN S&D TOTAL DIFFICULTIES SCORE, SUBSCALES AND TOTAL DIFFICULTIES SCORE

		Correlations					
		S&D Hyperactive	S&D Emotional	S&D Conduct	S&D Peer	S&D Prosocial	S&D Difficulties
S&D Total	Pearson Correlation	.825**	.574**	.762**	.622**	-.639**	.779**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	127	127	127	127	127	126

\*\* Correlation is significant at the 0.01 level (2-tailed).

The S&D scale is considered sufficiently valid and reliable for inclusion in the data analysis.

### Correlations between key S&D items and the Overall Difficulties item

The three salient S&D items mentioned above, and the independently derived Overall Difficulties item were examined to check whether correlations between these items ran as expected; given the first hypothesis. That is, it would be expected that being bullied item, (“Picked on or bullied by other children”) should be associated with a decline in SWB related item, (“Often feels unhappy, downhearted and tearful”). Given the negative framing of the proxy S&D, SWB item, it is expected that the relationship between the two items should be positive in this instance.

TABLE 37 - CORRELATIONS BETWEEN S&D ITEMS SALIENT TO THE STUDY

			Correlations			
			S&D Often fights with other children or bullies them	S&D Often unhappy, downhearted or tearful	S&D Picked on or bullied by other children	S&D OVERALL DIFFICULTIES
Spearman's rho	S&D Often fights with other children or bullies them	Correlation Coefficient	1.000	.283**	.104	.763**
		Sig. (2-tailed)	.	.001	.245	.000
		N	127	127	127	126
	S&D Often unhappy, downhearted or tearful	Correlation Coefficient	.283**	1.000	.334**	.444**
		Sig. (2-tailed)	.001	.	.000	.000
		N	127	127	127	126
	S&D Picked on or bullied by other children	Correlation Coefficient	.104	.334**	1.000	.325**
		Sig. (2-tailed)	.245	.000	.	.000
		N	127	127	127	126
	S&D OVERALL DIFFICULTIES	Correlation Coefficient	.763**	.444**	.325**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	126	126	126	126

\*\* Correlation is significant at the .01 level (2-tailed).

All significant correlations in table 33 meet the stated Power criteria. All significant correlations are as predicted from the central hypothesis 1, that,

“A schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied”,

and subsidiary hypothesis c),

“That a schoolchild’s self-reports of Subjective Well-Being and being bullied are associated with teacher-reports.”

### **The Strengths and Difficulties scale and group differences**

The availability of externally sourced data, independent from the measures completed by the pupils, allows for a planned examination of how the groups, defined through pupil responses on bullied/bullying variables, differ from each other on the S&D measures.

### **Procedure**

#### **Anticipated sources of attrition.**

The pilot studies suggested that an attrition rate of 10-20% might be expected. Attrition was due to missing data and mistakes in data entry – including dual entries on items.

Procedures for data screening and for the estimation of missing data followed the advice given in Tabachnick & Fidell, (1996). The detailed procedure for calculating missing data, for dropping cases and the analysis of the missing data groups are given in the results section.

#### **Data screening**

Cases were included if at least 90% of the data were available on each of the multiple-item scales. Where data was missing from single-item or single response items, the cases were dropped, as there was no reliable way of interpolating the subjects’ response without recourse to their responses on other scales. Such a procedure would have the effect of creating a statistical association between the independent variables. Data outliers, defined in this study as being  $>3SD$ , were dropped from individual analyses. The maximum number of valid cases was used in each analysis, depending on the variables used.

Dropped cases were analysed using the procedures used with the retained data, after any missing values were calculated. This was done to see if the relationship between the variables differed from that shown by the retained data.

### **Attempts to reduce the proportion of missing data**

The questionnaire format was modified over the pilot stages in an order to minimise missed or duplicated entries on items. This was achieved by the use of subtle 12.5% grey background shading for alternate items on multi-item scales. Items and item numbers were read to the pupils as they completed the forms. This reduced the need for the participants to read the items independently.

### **How data were made anonymous**

Participants were informed that their responses would not be individually identifiable. No names were asked for, only the Year Group and gender of the participant could be identified through the form.

However, there was a need to match data, for instance: when information was supplied from two sources, the participant and their teacher, in the S&D sub sample: and, in the longitudinal study, where the same participant's data needed to be matched over time.

This identification was achieved by the participant entering a number code on their form that was related to school-held records. These records were not available to the author and so the children remained anonymous, but the data could be matched. Once data were matched and recorded, these numbers were removed from all records.

### **Administration of the survey forms**

Copies of the survey instructions are given in Appendix S. These instructions cover the conditions, format, place and teacher administrators, who carried out the survey. The questionnaire forms, produced as stapled A4 booklets, were administered by the class teachers/tutors in the schools. A script for the administration of the form was provided for each teacher. This script was developed and modified during the pilot stages to ensure simplicity and coherence for the teachers and for the participants.

The script emphasised: the need for exam-style conditions to avoid discussion; the anonymity of the participants' responses; the potential to provide the school with feedback and to provide a benchmark for any future re-administration; that the questionnaire could be administered to small groups of children where appropriate, such as in the case of children with English as an additional language or who experienced learning difficulties; that the child's responses could be scribed where necessary; and, that absent children should complete the survey on return to school.

The use of teacher administration also helps to minimise the influence of, "experimenter bias," (Wilkinson, et al., 1999) whereby the administrator, if the same person as the researcher, consciously or unconsciously distorts the procedure according to their desired outcome.

The teacher-completed "Strengths and Difficulties" questionnaires were given to the schools with the participants' questionnaires. Instructions included: the need to use a school-based pupil number on each form, and for this to be entered by the child; and, for the Strengths and Difficulties questionnaire to be completed as close in time as possible to the administration of the participants' questionnaires. Administration of the survey forms in the longitudinal study followed the same procedure.

### **Correlations between variables**

Correlations between transformed variables, raw data variables and partial correlations between variables controlling for age, gender and lie/social desirability, are given in Appendix T.

### **Data entry procedures**

Instructions as to how data were entered onto SPSS spreadsheets are contained in Appendix U.

## **Results**

Results are presented for the analysis of each datagroup, concurrent and longitudinal, in relation to the relevant hypotheses. Analyses in this section were made using: SPSS, Release 9.0.1, (Univariate and Multivariate data); EQS for Windows 5.7b (Data screening and Structural Equation Modelling); and, UCLA Statistics (online) Power calculator <WWW.stat.ucla.edu/> (Power analysis).

### **Key analyses for each hypothesis**

For clarity, the analyses providing key evidence in support of particular hypotheses are indicated as:

**“Key analysis – Hypothesis (number of the central, or the letter of subsidiary hypothesis)”**

### **Treatment and analysis of expected data anomalies**

As expected, some cases were dropped from the analyses. Such anomalies include missing data and outliers. In each analysis, the maximum number of cases were used that were appropriate for the method chosen. The rationale for case selection will be given throughout this section.

### **Description of datagroups**

There are two datagroups. The first (Datagroup1) consists of the concurrent (single time-point) data. The second (Datagroup2) consists of longitudinal (10-month, test-retest) data.

The total number of participants - Datagroup1, N440

The total number of participants - Datagroup2, N105

### **Initial data screening**

The data screening criteria outlined in the Method section were implemented; these are repeated below. The effects of missing data in Datagroup1 and Datagroup2, were dealt with in the following ways:

- 1) Only those participants who had at least 90% complete data in each variable were included in the final analysis.



- 2) Missing values for items were replaced with the mean for the entire series for the SWB measure; a conservative approach, according to Tabachnick & Fidell (1996). This method substitutes the overall series mean for the item. This approach results in a slight reduction in the overall variance and, consequently, it is likely to reduce the strength of the relationship between variables. However, it avoids creating an artificial association between variables.
- 3) Missing values on the one-item Self-Perceived Bullied, and Self-Perceived Bully measures, resulted in the participant being dropped from further analysis, as there was no intrinsic basis for interpolating a response. To use a regression model to substitute for missing data would compromise the relationship between the independently sourced, bullied variables, as a positive correlation would have been introduced between the, previously predictor, variables. It was decided to avoid contamination between these predictor variables.
- 4) Missing values for the Physically Bullied and Verbally/Indirectly Bullied variables were replaced with the lowest value, that is 1. These variables consist of statements as to whether, and to what degree, the participant had experienced a stated behaviour during the last week. A missing response was interpreted as an absence of that behaviour, and therefore coded as “1.” Only one missing datapoint was accepted per participant.
- 5) Missing values for Control Beliefs scales, which require a dichotomous response on each item, were substituted using the mode for the entire subset of pupils who reported being bullied. The responses of the non-bullied were excluded as being irrelevant to the analysis and having no clear meaning, as the items ask about the participants’ responses to being bullied. Only one missing datapoint was accepted per participant.
- 6) Up to two missing values on the Strength and Difficulties Questionnaire, per participant, were substituted, using the mode for the related subscale. In practice, only one missing datapoint was found amongst the teachers’ responses.

#### **Outliers- Univariate and Multivariate – How were these dealt with.**

It was necessary to organise and select the data according to the hypothesis tested and the form of data analysis.

Using the full n390 Datagroup1, variables were standardised, where necessary, or the normality of their distribution checked. Where appropriate for the analysis, cases with

outliers on variables under consideration were deselected. Cases were deselected where they represented points of high influence or if they were outliers, so avoiding distortion of the relationship between variables. Where the analysis concerned a subset of the data, e.g., a Bullied children group and a Bullied and Bullying group, the variables were re-assessed and selected accordingly. Criteria for deselection of cases will be given for each analysis.

### **Analysis of the Retained Datagroup1**

#### **Test of hypothesis 1i)**

Analyses are presented in relation to the relevant hypothesis, as identified and described in the sections: "Central Hypotheses and Subsidiary and supportive hypotheses". The first analysis concerns the first central Hypothesis 1i) that, "The SWB of schoolchildren who report not being bullied is higher than the SWB of schoolchildren who report being bullied."

Data from the n390 datagroup were placed into a Bullied (having a total >0 on any of the Bullied variables), or Not Bullied group (having a total = 0, on all of the Bullied variables). An independent-samples t-test (assuming unequal variance) was conducted to evaluate the hypothesis. It is expected that the Bullied group should have a lower SWB level.

The Bullied group (n300) included pupils who reported being Bullied Only, and pupils who reported being Bullied and Bullying (those who reported being both bullied and bullying others). The Not Bullied group (n81) consisted of pupils reporting that they were Not Bullied or Bullying, and pupils who were Bullying Only.

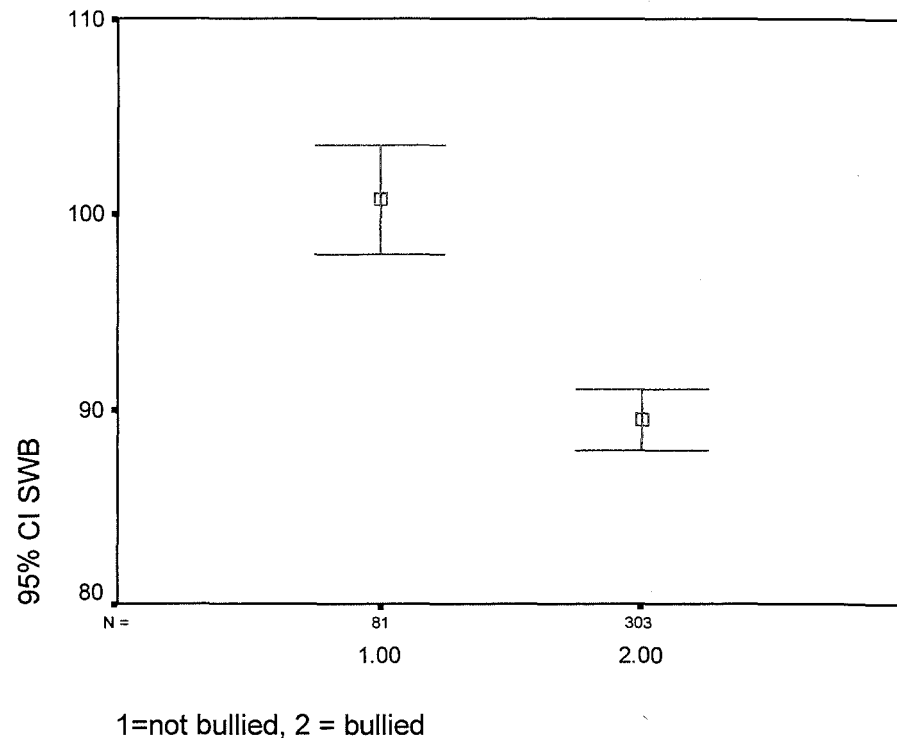


FIGURE 2 – GROUP MEANS AND CONFIDENCE INTERVAL BARS REPRESENTING SWB BY NOT BULLIED AND BULLIED GROUPS: DATAGROUP

The test was significant:  $t(378) = 7.756, p = .000$  (2-tailed). Bullied pupils (M 89.991, SD = 13.155) had a lower reported SWB than Non-Bullied pupils (M 101.412, SD = 11.282). The  $d$  statistic = .976.  $d$ , is a measure of the difference between the group means. A difference at .8, or above, is considered a large effect size (Green, Salkind & Akey, 2000). Six cases had incomplete bullied/bullying variable data. Six additional cases were univariate outliers on the SWB measure, having SWB >3SD below the mean. These cases were excluded from the analysis. The Eta squared index ( $\eta^2$ ) indicated that 14% of the variance in Subjective Well-Being was accounted for by whether a child was in the Bullied, or Not Bullied group. This indicates a large effect size (Green et al., 2000). No significant difference was found on t-tests within: the Bullied group (between Bullied Only, and Bullied and Bullying groups). No significant difference was found on t-tests within: the Not Bullied group (between Not Bully nor Bullied and the Bullying only groups). In these analyses, 4 cases having SWB > 3SD below the mean were excluded as being outliers. Additionally, 6 cases that had missing Self-Perceived Bullying data were excluded. The result supports the acceptance of central hypothesis 1.

**Regression analysis of Datagroup1: Combined Bullied predicting SWB, test of hypothesis 1)**

A Combined Bullied variable, the sum of all three bullied variables, was used to examine the nature of the relationship between being bullied and SWB.

TABLE 38 - CORRELATION OF THE BULLIED VARIABLES DATAGROUP1, N390

**Correlations**

		LiS-C Physically Bullied, 2000	LiS-C Verbally/Indir ectly Bullied, 2000	Self-Perceiv ed Bullied, 2000
LiS-C Physically Bullied, 2000	Pearson Correlation	1.000	.659**	.441**
	Sig. (2-tailed)	.	.000	.000
	N	387	387	384
LiS-C Verbally/Indirectly Bullied, 2000	Pearson Correlation	.659**	1.000	.491**
	Sig. (2-tailed)	.000	.	.000
	N	387	387	384
Self-Perceived Bullied, 2000	Pearson Correlation	.441**	.491**	1.000
	Sig. (2-tailed)	.000	.000	.
	N	384	384	384

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The individual predictor variables, the Bullied indicators, showed a high degree of correlation with each other, all significant at  $p \leq .000$ . To avoid multicollinearity amongst the predictor variables, a composite Combined Bullied variable was made from the combined raw data totals of: Physically Bullied; Verbally/Indirectly Bullied; and, Self-Perceived Bullied variables.

Scores on the Self-Perceived Bullied variable raw data were transformed to the same metric as the LiS-C Physically Bullied and LiS-C Verbally/Indirectly Bullied data; for details, see Appendix U.

Multicollinearity amongst predictor variables is seen as

“...having adverse effects in regression analysis and may even render the results uninterpretable.” (Pedhazur & Schmelkin, 1991, p459)

They add that:

“Multicollinearity may occur as a result of, among other things, poor model specification and measurement related issues. A prime example of the latter is the use of multiple indicators of the same variable ...in a regression analysis. When this is done, the indicators are necessarily treated as distinct variables. Partialing such ‘variables’ in the process of calculating partial regression coefficients is tantamount to partialing a variable from itself.” (Pedhazur & Schmelkin, 1991, p. 450)

The regression was carried out with the Combined Bullied as the predictor variable.

TABLE 39 – DESCRIPTIVE STATISTICS OF THE COMBINED BULLIED AND SWB VARIABLES ENTERED INTO THE REGRESSION (DATAGROUP1)

	Mean	Std. Deviation	N
SWB	92.4146	13.5647	382
Combined Bullied	4.1717	4.0845	382

Of the n384 maximum sample, two more case were dropped as having standardised residuals > 3SD.

TABLE 40 - MODEL SUMMARY FOR THE REGRESSION OF THE COMBINED BULLIED VARIABLE ONTO THE SWB CRITERION– DATAGROUP1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.418 <sup>a</sup>	.174	.172	12.3420	.174	80.229	1	380	.000

- a. Predictors: (Constant), Combined Bullied
- b. Dependent Variable: SWB

TABLE 41 - COEFFICIENTS FOR THE REGRESSION OF THE COMBINED BULLIED VARIABLE ONTO THE SWB CRITERION– DATAGROUP1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	98.199	.903		108.720	.000
	Combined Bullied	-1.387	.155	-.418	-8.957	.000

- a. Dependent Variable: SWB

The above tables show that the effect size for the regression is medium to large, (Cohen, 1992). Nb. If the Bullied variables are entered separately in a multiple regression then  $R(381) = .436$ ,  $p < .000$ , with one more case dropped as having standardised residuals  $> 3SD$ .

**Correlation of Bullied variables with SWB – Datagroup1, tests of Hypotheses 1) and a)**

Correlations between individual bullied variables and SWB show their similar strength as independent predictors.

TABLE 42 - CORRELATION BETWEEN SWB AND INDIVIDUAL BULLIED VARIABLES – DATAGROUP1

		<b>Correlations</b>		
		LiS-C Physically Bullied, 2000	LiS-C Verbally/Indir ectly Bullied, 2000	Self-Perceiv ed Bullied, 2000
SWB	Pearson Correlation	-.333**	-.374**	-.294**
	Sig. (2-tailed)	.000	.000	.000
	N	387	387	384

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Conclusion**

Central hypothesis 1, that “A schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied”, is supported in these analyses of Datagroup1.

Subsidiary hypothesis a) “That a schoolchild’s self-reports of being physically bullied are associated with his or her self-reports of being verbally/indirectly bullied”, is supported through the strength of the correlation,  $r(387) = .687$ ,  $p < .000$  between LiS-C Physically Bullied and LiS-C Verbally/Indirectly Bullied variables.

**Analysis of the frequency of pupil responses on the LiS-C items as a test of hypothesis 1)**

The central hypothesis 1, was then tested in relation to the implicit measurement of frequency in being bullied, over the previous week, that is contained in the LiS-C variables.

Both the LiS-C Physically Bullied and the Verbally/Indirectly Bullied variables are composed of the sum of a pupil’s responses on six items. One point is given if a pupil

chooses “Once”, or “More than Once.” A zero score is recorded if the pupil chooses “No” in relation to the behaviour described.

Clearly, a pupil who chooses “Once” rather than “More than Once” is indicating that they have experienced less of the behaviour described in the item when compared to a pupil choosing “More than Once.” It would be expected that the hypothesised relationship between being bullied and SWB should be stronger for pupils marking the “More than Once” option than for those who mark the “Once” option.

This hypothesis was tested using Datagroup1. The variables were named:

- LiS-C Physically Bullied (Once);
- LiS-C Physically Bullied (More than Once);
- LiS-C Verbally/Indirectly Bullied (Once); and,
- LiS-C Verbally/Indirectly Bullied (More than Once).

TABLE 43 - CORRELATION OF SWB WITH FREQUENCY-BASED LIS-C BULLIED VARIABLES

**Correlations**

		LiS-C Physically Bullied (Once);	LiS-C Physically Bullied (More than Once)	LiS-C Verbally/Indirectly Bullied (Once)	LiS-C Verbally/Indirectly Bullied (More than Once)
SWB	Pearson Correlation	-.151**	-.269**	-.177**	-.323**
	Sig. (2-tailed)	.003	.000	.000	.000
	N	390	390	390	390

\*\* . Correlation is significant at the 0.01 level (2-tailed).

As expected, all variables are inversely associated with SWB, with high frequency item scores (More than Once) showing a stronger association than low frequency item scores (Once).

**Analysis of the, Datagroup1-bullied, test of hypothesis1)**

The same central hypothesis 1, that “a schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied”, was tested to examine the strength and linearity of the relationship between the Bullied Total predictor variable and the SWB criterion using only those pupils’ data who reported being bullied.

The datagroup-bullied (n300) were analysed, to see whether the inverse relationship between the level of being bullied, and the level of SWB was maintained when the relatively large non-bullied group was removed. The rationale for repeating the analyses carried out previously with the whole of Datagroup1, was to allow a better quantification of how SWB varies as a function of being bullied.

TABLE 44 - CORRELATIONS BETWEEN SWB AND BULLIED VARIABLE INDICTORS – DATAGROUP1-BULLIED

**Correlations**

		SWB	LiS-C Physically Bullied, 2000	LiS-C Verbally/Indirectly Bullied, 2000	Self-Perceived Bullied, 2000
SWB	Pearson Correlation	1.000	-.228**	-.301**	-.226**
	Sig. (2-tailed)	.	.000	.000	.000
	N	303	303	303	303
LiS-C Physically Bullied, 2000	Pearson Correlation	-.228**	1.000	.516**	.276**
	Sig. (2-tailed)	.000	.	.000	.000
	N	303	303	303	303
LiS-C Verbally/Indirectly Bullied, 2000	Pearson Correlation	-.301**	.516**	1.000	.320**
	Sig. (2-tailed)	.000	.000	.	.000
	N	303	303	303	303
Self-Perceived Bullied, 2000	Pearson Correlation	-.226**	.276**	.320**	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	303	303	303	303

\*\* . Correlation is significant at the 0.01 level (2-tailed).

As expected, the correlations between variables are reduced with the exclusion of the not-bullied group. This is also inevitable, as a degree of variance has also been removed.

TABLE 45 - DESCRIPTIVE STATISTICS OF THE COMBINED BULLIED AND SWB VARIABLES ENTERED INTO THE REGRESSION – DATAGROUP1-BULLIED

**Descriptive Statistics**

	Mean	Std. Deviation	N
SWB	89.9914	13.1554	300
Combined Bullied	5.2880	3.9162	300

TABLE 46 - MODEL SUMMARY FOR THE REGRESSION OF THE COMBINED BULLIED VARIABLE ONTO THE SWB CRITERION– DATAGROUP1-BULLIED



Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.323 <sup>a</sup>	.105	.102	12.4690	.105	34.825	1	298	.000

a. Predictors: (Constant), Combined Bullied

b. Dependent Variable: SWB

TABLE 47 - COEFFICIENTS FOR THE REGRESSION OF THE COMBINED BULLIED VARIABLE ONTO THE SWB CRITERION- DATAGROUP1-BULLIED

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	95.737	1.211		79.061	.000		
	Combined Bullied	-1.087	.184	-.323	-5.901	.000	1.000	1.000

a. Dependent Variable: SWB

Residuals from the regression were normally distributed. Three cases were dropped as having standardised residuals > 3SD.

Nb. If the Bullied variables are entered separately in a multiple regression then R (300)= .329, p<.000. However, only the Verbally/Indirectly Bullied variable remains a significant predictor; a likely effect of multicollinearity.

### Conclusion

Central hypothesis 1, that, “a schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied”, and, subsidiary hypothesis a) “that a schoolchild’s self-reports of being physically bullied are associated with his or her self-reports of being verbally/indirectly bullied”, are supported in these analyses of Datagroup1-bullied.

### Examination of the effect of pupils’ Lie/Social Desirability scores - Datagroup1-bullied, test of hypothesis b)

The subsidiary hypothesis b), “that the effects of being bullied on Subjective Well-Being remain significant when covariates for the schoolchild’s Control Beliefs about being bullied, Lie/Social Desirability, Age, and Gender are accounted for”, was tested to examine the stability of the relationship between the Combined Bullied predictor variable and the SWB criterion, after the Datagroup1-bullied was dichotomised into a ‘Low’, and ‘High’ scoring group on the Lie/Social Desirability covariate.

It was expected that pupils' may tend to misrepresent themselves deliberately, or through a desire to conform, when responding to the survey items. The Lie/Social Desirability scale was included to examine the effects that these tendencies might have on the relationship between the Bullied and SWB variables.

The aim of this analysis was to see whether the relationship between being bullied and SWB differed, depending on whether the participants belonged to a high, or a low scoring Lie/Social Desirability group. It was hypothesised that SWB would be correlated with Lie/Social Desirability scores, as SWB (happiness) is a socially desirable state.

To examine that effect, Datagroup1-bullied (n300) were split into two groups, a High Lie/Social Desirability Group, and a Low Lie/Social Desirability Group. The cut between the groups was made as close to a 50:50 proportion of cases as possible. Eleven Lie/Social Desirability scores were incomplete, and so these cases were dropped from the analysis. Three SWB outliers  $> 3SD$  below the mean, were also removed. The final number of cases retained = n289. Residuals for the regressions were examined and found to be normally distributed.

The groups so formed consisted of:

- a High Lie/Social Desirability Group, n140,
- a Low Lie/Social Desirability Group, n175.

In the regression, of the Bullied Total predictor variables on the SWB criterion:

- $r = .318, p > .000$ , in the High Lie/Social Desirability Group, and,
- $r = .375, p > .000$ , in the Low Lie/Social Desirability Group.

The continuing stability of the form of the relationship, between the bullied variables, and SWB as the criterion, when comparing high and low scoring Lie/Social Desirability groups, suggests that the tendency to misrepresent on the scales, is relatively consistent across High and Low levels of the variable.

## **Conclusion**

The relationship between the Combined Bullied predictor and SWB criterion variable was maintained across low, and high scoring Lie/Social Desirability groups.

It remains to be assessed whether Lie/Social Desirability covaries with either or both of the SWB and Combined Bullied variables, or whether it explains additional variance in SWB criterion.

## **A consideration as to how far Control Beliefs-Negative (CB-) about being bullied, explain the residual from the regression of the Bullied Total on SWB, test of hypothesis d)**

The subsidiary hypothesis, “That the variance in SWB that is unaccounted for by being bullied is associated with pupils’ Control Beliefs about being bullied.”, is tested by examining the unexplained variance, the residuals, from the regression of the bullied variables on SWB, and whether this variance is associated with the Control Beliefs Negative variable. Put differently, whether what you think or believe about being bullied alters the degree to which you are affected. That if you believe that you are helpless and hopeless (Control Beliefs Negative) then you are likely to have a lower SWB than predicted.

Nb. The Control Beliefs Positive variable, failed to meet the psychometric criteria for inclusion in this study, and so was dropped from the analysis.

The construction of the Control Beliefs scales were informed by concepts of:

Control Commitment and Challenge (Kobasa, S.C., 1979 – Hardiness);  
Internal/External Locus, Controllable/Uncontrollable (Weiner, 1992);  
Control Beliefs, Means-Ends Beliefs, Agency Beliefs (Skinner, E.A. Chapman M.  
& Baltes, P.B., 1988).

The Control Beliefs-Negative items are shown following.

TABLE 48 - ITEMS FROM THE CONTROL BELIEFS ABOUT BEING BULLIED-NEGATIVE SCALE

<b>Control Beliefs Negative</b>
It will keep on happening
I don't know what to do
I'm on my own
I feel helpless
It gets worse if I try to stop it

The correlations between CB- total, and the Standardised residuals from the regression of the Combined Bullied variable as predictor and SWB as criterion were examined.

TABLE 49 - CORRELATIONS BETWEEN THE CONTROL BELIEFS FACTORS AND THE RESIDUAL FROM THE REGRESSION OF THE BULLIED VARIABLES ON SWB.

**Correlations**

	Standardized Residual from the regression of Combined Bullied on SWB	SWB	Combined Bullied
Control Beliefs Negative	Pearson Correlation	.000	.218**
	Sig. (2-tailed)	1.000	.000
	N	300	303

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Conclusion from the analysis of the unexplained residual from the regression of the Combined Bullied variable on the SWB criterion – Datagroup1-bullied, test of hypothesis d)**

Clearly variance in the CB- variable is not related to the unexplained residual from the Combined Bullied on SWB regression. Instead its status as a covariate is confirmed given the strength of the correlation between CB- and the SWB and Combined Bullied variables. This analysis does not support hypothesis d).

The relationship between negative Control Beliefs, Bullied variables and SWB will be covered later using a structural equation model.

The next section concerns the nature of the relationship between being bullied and SWB when covariates are controlled for.

**An examination of the predictive relationship between the Combined Bullied variables and the SWB criterion, where demographic and measured covariates are entered first, in a hierarchical regression.**

**Key analysis – test of central hypothesis 1 & subsidiary hypothesis b)**

Central hypothesis 1), a schoolchild's Subjective Well-Being (SWB) is inversely associated with being bullied", and subsidiary hypothesis b) that, "the effects of being bullied on Subjective Well-Being remain significant when covariates for the schoolchild's Control Beliefs about being bullied, Lie/Social Desirability, Age, and Gender are accounted for", were tested in an hierarchical regression. This procedure, with covariates entered first, quantifies the amount of variance predicted from the Combined Bullied variable, after the covariates have been accounted for.

In the analysis, Gender was dropped as a non-significant variable, explaining < 0.3% of the variance in SWB, when entered first, and <0.6% of variance in SWB at the second stage of the regression, after Combined Bullied had been entered.

The analysis was then repeated using the Age, Lie/Social Desirability and CB- covariates. Datagroup1-bullied was used for the analysis, as the CB- variable has meaning for this group.

Of the Datagroup1-bullied, 11 cases had missing Lie/Social Desirability scores, one case was dropped as having a standardised residual >3SD, and one further case had missing age information.

TABLE 50 - DESCRIPTIVE STATISTICS FOR THE COVARIATE, COMBINED BULLIED PREDICTOR VARIABLES AND SWB CRITERION IN THE HIERARCHICAL REGRESSION FOR DATAGROUP1-BULLIED

**Descriptive Statistics**

	Mean	Std. Deviation	N
SWB	89.8410	13.7182	290
Age	6.80	1.99	290
Lie/Social Desirability	8.2966	1.6993	290
Control Beliefs Negative	8.2172	1.5666	290
Combined Bullied	5.3814	3.9328	290

TABLE 51 - CORRELATIONS FOR THE COVARIATE, COMBINED BULLIED PREDICTOR VARIABLES AND SWB CRITERION IN THE HIERARCHICAL REGRESSION FOR DATAGROUP1-BULLIED

**Correlations**

		SWB	Age	Lie/Social Desirability	Control Beliefs Negative	Combined Bullied
Pearson Correlation	SWB	1.000	-.233	.227	.257	-.338
	Age	-.233	1.000	-.439	.096	-.053
	Lie/Social Desirability	.227	-.439	1.000	-.105	.001
	Control Beliefs Negative	.257	.096	-.105	1.000	-.420
	Combined Bullied	-.338	-.053	.001	-.420	1.000
Sig. (1-tailed)	SWB	.	.000	.000	.000	.000
	Age	.000	.	.000	.051	.185
	Lie/Social Desirability	.000	.000	.	.037	.493
	Control Beliefs Negative	.000	.051	.037	.	.000
	Combined Bullied	.000	.185	.493	.000	.
N	SWB	290	290	290	290	290
	Age	290	290	290	290	290
	Lie/Social Desirability	290	290	290	290	290
	Control Beliefs Negative	290	290	290	290	290
	Combined Bullied	290	290	290	290	290

In the above table, all variables significantly correlate with SWB. In addition the significant correlation between the Age and the Lie/Social Desirability variables, is expected from the similar relationship between these variables shown in the Eysenck & Eysenck Lie scale (Eysenck & Eysenck, 1970). That is, that scores decline on Lie/Social Desirability with age.

TABLE 52 - MODEL SUMMARY FOR THE COVARIATE, COMBINED BULLIED PREDICTOR VARIABLES AND SWB CRITERION IN THE HIERARCHICAL REGRESSION FOR DATAGROUP1-BULLIED

**Model Summary<sup>c</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.398 <sup>a</sup>	.158	.149	12.6522	.158	17.917	3	286	.000
2	.469 <sup>b</sup>	.220	.209	12.2008	.062	22.552	1	285	.000

a. Predictors: (Constant), Control Beliefs Negative, Age, Lie/Social Desirability

b. Predictors: (Constant), Control Beliefs Negative, Age, Lie/Social Desirability, Combined Bullied

c. Dependent Variable: SWB

The F change statistics for both models indicate a significant increase when the Combined Bullied variable is entered at the second stage. The model also shows that the covariates alone are significant predictors of SWB, as expected.

TABLE 53 - COEFFICIENTS FOR THE COVARIATE, COMBINED BULLIED PREDICTOR VARIABLES AND SWB CRITERION IN THE HIERARCHICAL REGRESSION FOR DATAGROUP1 BULLIED

		Coefficients <sup>a</sup>							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	65.437	7.165		9.133	.000			
	Age	-1.260	.416	-.183	-3.030	.003	-.233	-.176	-.164
	Lie/Social Desirability	1.430	.489	.177	2.927	.004	.227	.171	.159
	Control Beliefs Negative	2.569	.478	.293	5.368	.000	.257	.303	.291
2	(Constant)	80.533	7.606		10.588	.000			
	Age	-1.333	.401	-.194	-3.320	.001	-.233	-.193	-.174
	Lie/Social Desirability	1.297	.472	.161	2.747	.006	.227	.161	.144
	Control Beliefs Negative	1.553	.509	.177	3.053	.002	.257	.178	.160
	Combined Bullied	-.957	.201	-.274	-4.749	.000	-.338	-.271	-.248

a. Dependent Variable: SWB

All variables remain significant predictors of SWB at the second stage. Combined Bullied is the strongest predictor with a large effect size for this single variable, at  $f^2 = .378$ . This statistic meets the stated Power criteria for this study.

### Conclusion

The conclusion for the hierarchical regression of Age, Lie/Social desirability and CB-, when entered first, and then Combined Bullied second, in the prediction of SWB, is that Combined Bullied remains a significant predictor of SWB after the covariates are accounted for.

The central hypothesis 1) “A schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied”, and the subsidiary hypothesis b), “That the effects of being bullied on Subjective Well-Being remain significant when covariates for the schoolchild’s Control Beliefs about being bullied, Lie/Social Desirability, Age, and Gender are accounted for”, are supported in this analysis.

The next section includes an evaluation of a subset of Datagroup1 for whom there are teacher reports.

**An examination of whether teacher observations support pupil responses on the bullied/bullying and SWB measures, test of subsidiary hypothesis c)**

The subsidiary hypothesis c), “That a schoolchild’s self-reports of being bullied and of bullying, are associated with teacher-reports of problem behaviour”, was tested using teacher-completed Strengths and Difficulties questionnaires, (Goodman, 1997) completed on Datagroup1-S&D, (n127) a subset of Datagroup1.

The S&D questionnaire,

“provides balanced coverage of children and young people’s behaviours, emotions and relationships...25 items are divided between 5 scales of 5 items each - covering conduct problems, hyperactivity, emotional symptoms, peer problems and prosocial behavior.” (Goodman, 1997, p.581)

The teacher is asked to respond to the 25 items on a three-point scale, ranging from “Not True,” through “Somewhat True”, to “Certainly True.” An additional, overall difficulties item, (scale of the problem) is on a 4-point scale.

Using the teachers’ and pupils’ responses, hypothesis d) suggests that children who bully and who are bullied will have higher scores on the S&D Total scale – the sum of the four problem scale scores. The bullying/bullied pupils are also expected to have a lower score on the prosocial scale.

Pupils with high SWB scores are expected to have high prosocial scores and lower scores on the remaining four problem scales and the Overall Difficulties scale.

**Analysis of whether Datagroup1-S&D, a subset of the Datagroup1, differ in the relationships shown between key variables, test of hypothesis 1i)**

This analysis was carried out to check whether the Datagroup1-S&D was markedly different from Datagroup1 (n390) when considering the relationship between SWB and the bullied variables. 127 had teacher-completed, Strengths and Difficulties questionnaire data. All the pupils in this group were of Primary age, 8-11 years. 49,2% were girls, 50.8% were boys. The relationship between the key variables in this data group – S&D Datagroup1 (n127)- was found to reflect the relationships between variables in the larger Datagroup1 (n390).



For example, a further, independent-samples t-test (assuming unequal variance) was conducted to evaluate the hypothesis “That being bullied is associated with a decline in Subjective Well-Being.” It is expected that the Bullied group should have a lower SWB level in S&D Datagroup1, as already shown with the larger Datagroup1 (n390).

The Bullied group (n89) included pupils who reported being Bullied Only and Bullied and Bullying. The Not Bullied group (n36) consisted of pupils reporting that they were not bullied at all, and pupils who were only bullies. Two cases were dropped, as they had missing Self-Perceived Bullying data. The test was significant,  $t(123) = 5.792, p = .000$  (2-tailed). Bullied pupils ( $M = 92.346, SD = 12.543$ ) had a lower reported SWB than Non-Bullied pupils ( $M = 104.693, SD = 9.997$ ). The  $d$  statistic = 1.144.  $d$ , is a measure of the difference between the group means. As already stated, a difference at .8, or above, is considered a large effect size (Green, Salkind & Akey, 2000).

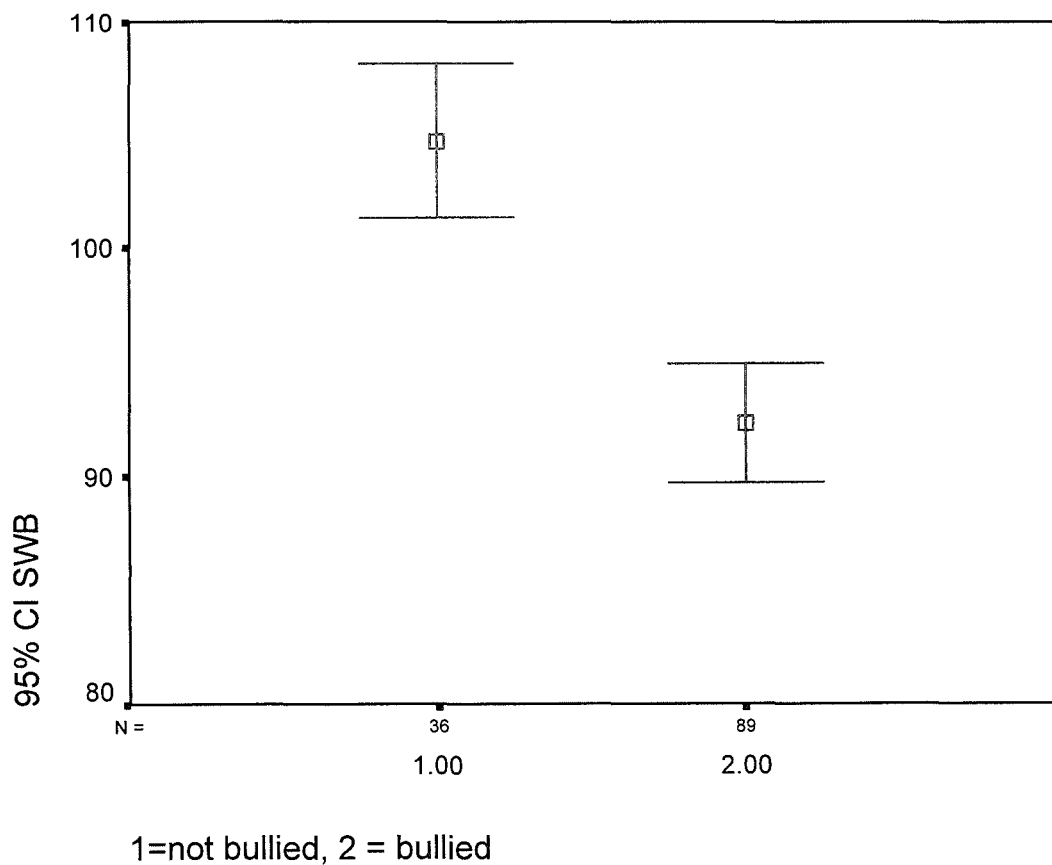


FIGURE 3 - GROUP MEANS AND CONFIDENCE INTERVAL BARS REPRESENTING SWB BY NOT BULLIED AND BULLIED GROUPS: DATAGROUP1-S&D

**Regression analysis of Datagroup1-S&D: Combined Bullied predicting SWB, test of hypothesis 1)**

Within the bullied group (n89) a regression, using SWB as the criterion variable, and the Combined Bullied variable as predictor, gave results that were very similar in form and degree to that conducted with the larger (n390) Datagroup1:

$r(127) = .493, p < .000$ , with the whole Datagroup1-S&D dataset, and  
 $r(89) = .335, p .001$ , with the Datagroup1-S&D bullied dataset.

The pattern of correlation between the variables was also similar in form and degree.

TABLE 54 - CORRELATIONS BETWEEN THE INDIVIDUAL BULLIED AND SWB VARIABLES, DATAGROUP1-S&D

**Correlations**

		SWB	LiS-C Physically Bullied	LiS-C Verbally/Indirectly Bullied	Self-Perceived Bullied
SWB	Pearson Correlation	1.000	-.426**	-.427**	-.361**
	Sig. (2-tailed)	.	.000	.000	.000
	N	127	127	127	127
LiS-C Physically Bullied	Pearson Correlation	-.426**	1.000	.649**	.457**
	Sig. (2-tailed)	.000	.	.000	.000
	N	127	127	127	127
LiS-C Verbally/Indirectly Bullied	Pearson Correlation	-.427**	.649**	1.000	.432**
	Sig. (2-tailed)	.000	.000	.	.000
	N	127	127	127	127
Self-Perceived Bullied	Pearson Correlation	-.361**	.457**	.432**	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	127	127	127	127

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The conclusion from the analyses of Datagroup1-S&D, to check whether the SWB and bullied variables share the same relationships shown in the parent Datagroup1, is that the variables do not differ effectively in their relationships from the patterns established in the larger Datagroup1 (n390).

**Group differences on teacher-based S&D scale scores, test of hypothesis c)**

SWB scores have already been shown to follow the pattern established in the larger, Datagroup1 (n390): that bullied pupils have a lower SWB score when contrasted with the not bullied pupils group. In looking at how these groups differ on S&D scale scores, hypothesis c) suggests that:

Group 1 – Not Bullied or Bullying, should have the lowest problem-scale score means, and a relatively high Prosocial scale score.

Group 2 – Bullied Only, should share the same pattern as Group1 on scale scores, though they may be expected to show slightly more distress-related problem behaviours, than Group1.

Group 3 – Bullied and Bullying, should have high S&D problem-scale scores. These pupils are likely to be both distressed and distressing.

Group 4 – Bullying Only, are likely to have relatively high problem-scale scores.

As with the larger datagroup, group sizes varied in size.

TABLE 55 - BULLIED – BULLYING GROUP DATA FROM THE S&D DATAGROUP1 (N125)

**1=not bullying or bullied, 2=bullied only, 3=bullied and bullying, 4=bullying only**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	22.8	23.2	23.2
	2	41	32.3	32.8	56.0
	3	48	37.8	38.4	94.4
	4	7	5.5	5.6	100.0
	Total	125	98.4	100.0	
Missing	System	2	1.6		
Total		127	100.0		

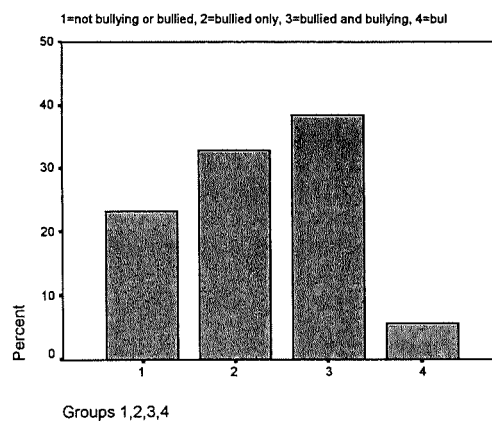


FIGURE 4 - BULLIED – BULLYING GROUP DATA FROM THE S&D DATAGROUP1 (N125)

The Bullying Only group, Group 4, are an especially small group (n7). Results based on group differences between this group and others are viewed with caution as to how widely they can be generalised.

TABLE 56, ANALYSIS OF VARIANCE - ONE-WAY ANOVA WITH MEMBERSHIP OF GROUPS (NOT BULLIED OR BULLYING, BULLIED, BULLIED AND BULLYING, BULLYING) AS THE GROUP VARIABLE, AND STRENGTHS AND DIFFICULTIES SCALE SCORES AS THE PREDICTOR VARIABLES.

**ANOVA**

		Sum of Squares	df	Mean Square	F	Sig.
S&D OVERALL DIFFICULTIES	Between Groups	28.499	3	9.500	16.231	.000
	Within Groups	70.234	120	.585		
	Total	98.734	123			
S&D HYPERACTIVITY	Between Groups	191.925	3	63.975	6.833	.000
	Within Groups	1132.875	121	9.363		
	Total	1324.800	124			
S&D CONDUCT	Between Groups	132.430	3	44.143	9.802	.000
	Within Groups	544.898	121	4.503		
	Total	677.328	124			
S&D TOTAL	Between Groups	774.928	3	258.309	6.254	.001
	Within Groups	4997.920	121	41.305		
	Total	5772.848	124			
S&D PROSOCIAL	Between Groups	143.675	3	47.892	9.978	.000
	Within Groups	580.757	121	4.800		
	Total	724.432	124			

Only significant group differences are included in the preceding table.

The Strengths and Difficulties questionnaire Emotion and Peer scales showed no significant differences between the groups. All of the other hypotheses were supported by the analysis. The following table and figures illustrate the significant differences in the post hoc analysis of the S&D scale means for each group.

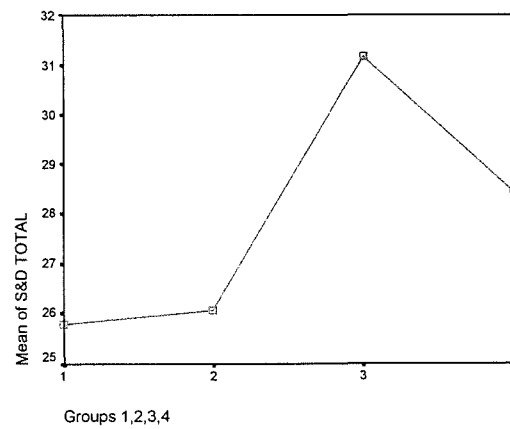
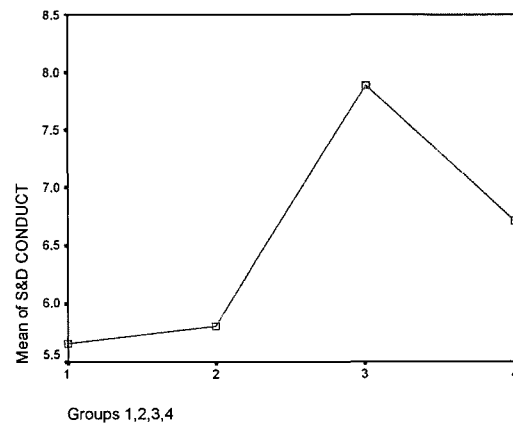
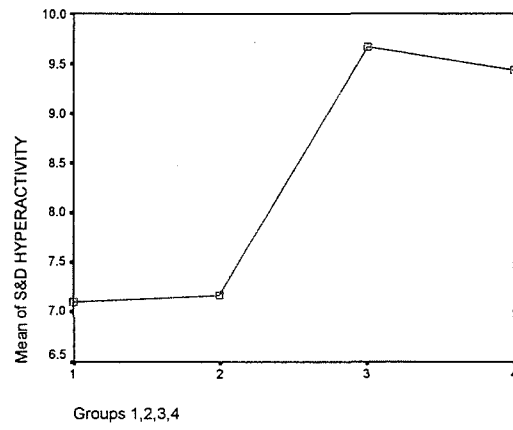
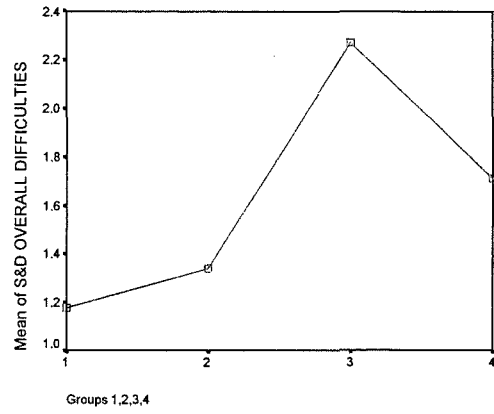
TABLE 57 - MULTIPLE COMPARISONS (USING A BONFERRONI CORRECTION) BETWEEN S&D SCALES BY: NOT BULLIED, BULLIED, BULLIED AND BULLYING, BULLYING GROUPS

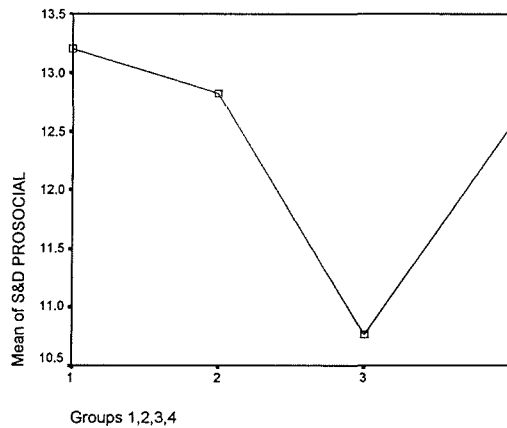
Multiple Comparisons

Bonferroni

Dependent Variable	(I) 1=not bullying or bullied, 2=bullied only, 3=bullied and bullying, 4=bullying only	(J) 1=not bullying or bullied, 2=bullied only, 3=bullied and bullying, 4=bullying only	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
S&D OVERALL DIFFICULTIES	1	2	-.1629	.1876	1.000	-.6661	.3403
		3	-1.0923*	.1819	.000	-1.5803	-.6042
		4	-.5357	.3233	.601	-1.4030	.3316
	2	1	.1629	.1876	1.000	-.3403	.6661
		3	-.9294*	.1627	.000	-1.3658	-.4929
		4	-.3728	.3129	1.000	-1.2122	.4665
	3	1	1.0923*	.1819	.000	.6042	1.5803
		2	.9294*	.1627	.000	.4929	1.3658
		4	.5565	.3095	.448	-.2738	1.3669
	4	1	.5357	.3233	.601	-.3316	1.4030
		2	.3728	.3129	1.000	-.4665	1.2122
		3	-.5565	.3095	.448	-1.3869	.2738
S&D HYPERACTIVITY	1	2	-6.7283E-02	.7424	1.000	-2.0587	1.9242
		3	-2.5632*	.7197	.003	-4.4936	-.6329
		4	-2.3251	1.2886	.442	-5.7814	1.1312
	2	1	6.728E-02	.7424	1.000	-1.9242	2.0587
		3	-2.4959*	.6507	.001	-4.2413	-.7505
		4	-2.2578	1.2513	.442	-5.6144	1.0987
	3	1	2.5632*	.7197	.003	.6329	4.4936
		2	2.4959*	.6507	.001	.7505	4.2413
		4	.2381	1.2380	1.000	-3.0825	3.5587
	4	1	2.3251	1.2886	.442	-1.1312	5.7814
		2	2.2578	1.2513	.442	-1.0987	5.6144
		3	-.2381	1.2380	1.000	-3.5587	3.0825
S&D CONDUCT	1	2	-.1497	.5149	1.000	-1.5308	1.2314
		3	-2.2407*	.4991	.000	-3.5794	-.9019
		4	-1.0591	.8937	1.000	-3.4562	1.3380
	2	1	.1497	.5149	1.000	-1.2314	1.5308
		3	-2.0910*	.4513	.000	-3.3014	-.8605
		4	-.9094	.8679	1.000	-3.2373	1.4184
	3	1	2.2407*	.4991	.000	.9019	3.5794
		2	2.0910*	.4513	.000	.8805	3.3014
		4	1.1815	.8586	1.000	-1.1214	3.4645
	4	1	1.0591	.8937	1.000	-1.3380	3.4562
		2	.9094	.8679	1.000	-1.4184	3.2373
		3	-1.1815	.8586	1.000	-3.4845	1.1214
S&D TOTAL	1	2	-.2801	1.5594	1.000	-4.4629	3.9028
		3	-5.3736*	1.5116	.003	-9.4281	-1.3190
		4	-2.6355	2.7065	1.000	-9.8951	4.6242
	2	1	.2801	1.5594	1.000	-3.9028	4.4629
		3	-5.0935*	1.3667	.002	-8.7595	-1.4275
		4	-2.3554	2.6283	1.000	-9.4055	4.6947
	3	1	5.3736*	1.5116	.003	1.3190	9.4281
		2	5.0935*	1.3667	.002	1.4275	8.7595
		4	2.7381	2.6002	1.000	-4.2366	9.7128
	4	1	2.6355	2.7065	1.000	-4.6242	9.8951
		2	2.3554	2.6283	1.000	-4.6947	9.4055
		3	-2.7381	2.6002	1.000	-9.7128	4.2366
S&D PROSOCIAL	1	2	.3776	.5316	1.000	-1.0482	1.8035
		3	2.4361*	.5153	.000	1.0540	3.8182
		4	.6355	.9226	1.000	-1.8392	3.1101
	2	1	-.3776	.5316	1.000	-1.8035	1.0482
		3	2.0584*	.4659	.000	.8088	3.3081
		4	.2578	.8960	1.000	-2.1454	2.6611
	3	1	-2.4361*	.5153	.000	-3.8182	-1.0540
		2	-2.0584*	.4659	.000	-3.3081	-.8088
		4	-1.8006	.8864	.266	-4.1781	.5769
	4	1	-.6355	.9226	1.000	-3.1101	1.8392
		2	-.2578	.8960	1.000	-2.6611	2.1454
		3	1.8006	.8864	.266	-.5769	4.1781

\*. The mean difference is significant at the .05 level.





FIGURES 5 TO 9 - TEACHERS STRENGTHS AND DIFFICULTIES SCALE RESPONSES BY BULLIED/BULLYING GROUP

Group1 = Not Bullied, Group2 = Bullied Only, Group3 = Bullied and Bullying, Group4 = Bullying Only.

### Conclusion

Clearly, there appears to be an association between teacher-observed problem behaviours and pupil groups based on their self-rating of the bullied/bullying variables, with Group 3, the Bullied and Bullying group, standing out as problematic. Hypothesis c) is supported for the S&D variables shown in figures 5-9.

**An examination of whether teacher-based (S&D) items predict pupil-based bullied and SWB scores in Datagroup1-S&D, test of hypothesis1**

**Key analysis –hypothesis 1),“ A schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied.”**

As the S&D items for being bullied and SWB, are single items, a simple correlational analysis is used.

**TABLE 58 - CORRELATIONAL ANALYSIS OF THE WITHIN-PUPIL AND TEACHER-BASED MEASURES OF SWB AND BEING BULLIED**

		<b>Correlations</b>			
		S&D Picked on or bullied by other children	S&D Often unhappy, downhearted or tearful	Combined Bullied	SWB
S&D Picked on or bullied by other children	Pearson Correlation	1.000	.358**	.314**	-.184*
	Sig. (2-tailed)	.	.000	.000	.038
	N	127	127	127	127
S&D Often unhappy, downhearted or tearful	Pearson Correlation	.358**	1.000	.224*	-.272**
	Sig. (2-tailed)	.000	.	.012	.002
	N	127	127	127	127
Combined Bullied	Pearson Correlation	.314**	.224*	1.000	-.435**
	Sig. (2-tailed)	.000	.012	.	.000
	N	127	127	127	127
SWB	Pearson Correlation	-.184*	-.272**	-.435**	1.000
	Sig. (2-tailed)	.038	.002	.000	.
	N	127	127	127	127

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).



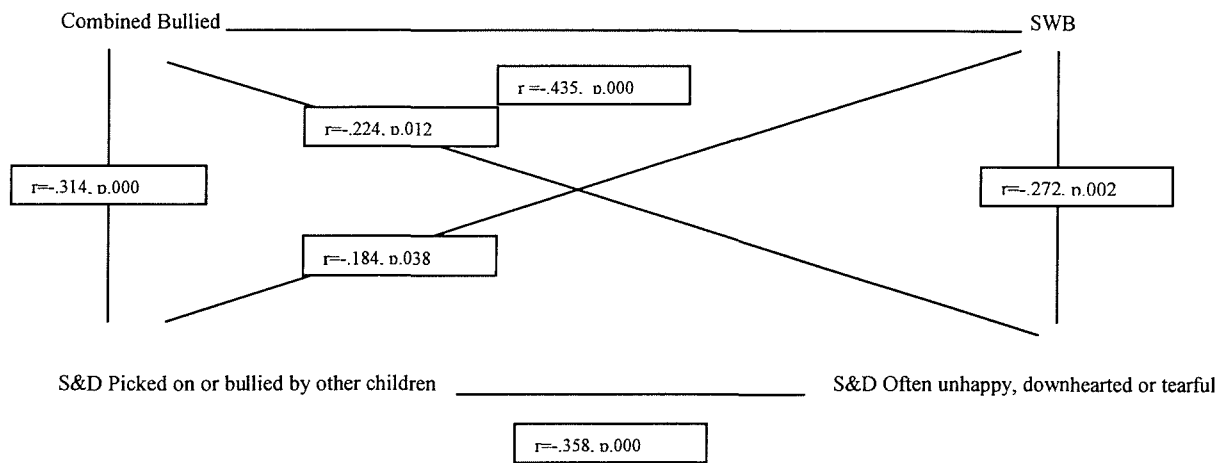


FIGURE 10 - CORRELATIONAL ANALYSIS OF THE WITHIN-PUPIL AND TEACHER-BASED MEASURES OF SWB AND BEING BULLIED, N127

With the exception of the diagonal correlations, all others exceed the stated Power criterion for these studies. All correlations are significant and are in the expected direction.

In this analysis, the “Combined Bullied” variable corresponds to the summed LiS-C Bullied and Self-Perceived Bullied variables. High “SWB” scores indicate a positive sense of well-being, whereas high scores on the proxy S&D SWB item indicate a low sense of well-being.

The conclusion of the analysis is that the teacher-based measures of SWB and being bullied, and pupil-based measures are significantly associated in the manner suggested in hypothesis 1) with this sample. Hypothesis 1), is therefore supported.

#### **Teacher and pupil based measures of bullying, a test of hypothesis e)**

A further analysis was made of the association between bullying reports by pupils and by teachers. One item in the Strengths and Difficulties questionnaire refers directly to bullying others. This item was correlated with LiS-C Bully scores.

TABLE 59 - CORRELATION OF TEACHER-BASED "BULLYING" ITEM AND PUPIL-BASED LiS-C BULLY MEASURE

**Correlations**

		LiC-S Bully
Often fights with other children or bullies them	Pearson Correlation	.501**
	Sig. (2-tailed)	.000
	N	125

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Two cases were dropped, having no score on the Self-Perceived Bullying variable.

The conclusion of the analysis of the S&D "bullying" item score as a correlate of pupil-based, LiS-C Bully scores, (Datagroup1-S&D) supports the concurrent validity of the pupil-based bully measure, and so supports hypothesis e).

**S&D scale scores as predictors of pupil SWB, Datagroup1-S&D, a test of hypothesis f)**

The relationship between the teachers' Strengths and Difficulties responses, and pupils' SWB, was assessed through a multiple regression. It was expected that happy pupils present teachers with few problems, and so that low scores on the problem-scales and the S&D Total scale, and a high score on the Prosocial scale should be associated with high SWB.

TABLE 60 - CORRELATION OF STRENGTHS AND DIFFICULTIES SUBSCALES WITH SWB

**Correlations**

		SWB
S&D OVERALL DIFFICULTIES	Pearson Correlation	-.407**
	Sig. (2-tailed)	.000
	N	126
S&D PROSOCIAL	Pearson Correlation	.341**
	Sig. (2-tailed)	.000
	N	127
S&D TOTAL	Pearson Correlation	-.367**
	Sig. (2-tailed)	.000
	N	127

\*\* . Correlation is significant at the 0.01 level

Only correlations  $p > .007$  ( $\Rightarrow .05$  with Bonferroni style correction for  $n$  variables =  $.05/7$ ), and Power  $\geq .8$ , at this significance level are reported. These subscales were then entered into a multiple regression. The S&D Total (sum of the four problem scales) was dropped as it added little in explaining the variance, if entered with the other two predictors. The

S&D Overall Difficulties scale is known to have a high correlation with the S&D total score (Goodman, 1999). The retained variables are all independent in that they are not a statistical function of each other. One case had a missing value for the Overall Difficulties variable.

TABLE 61 - MODEL SUMMARY OF THE MULTIPLE REGRESSION OF THE S&D, OVERALL DIFFICULTIES AND THE PROSOCIAL SUBSCALES, ON SWB

Model Summary <sup>a</sup>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.417 <sup>a</sup>	.174	.160	11.9591	.174	12.916	2	123	.000

a. Predictors: (Constant), S&D PROSOCIAL, S&D OVERALL DIFFICULTIES

b. Dependent Variable: SWB

TABLE 62 - COEFFICIENTS FROM THE MULTIPLE REGRESSION OF THE S&D, OVERALL DIFFICULTIES AND THE PROSOCIAL SUBSCALES, ON SWB

Coefficients <sup>a</sup>									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	96.043	9.367		10.253	.000			
	S&D OVERALL DIFFICULTIES	-4.697	1.605	-.325	-2.927	.004	-.407	-.255	-.240
	S&D PROSOCIAL	.652	.600	.121	1.086	.279	.341	.097	.089

a. Dependent Variable: SWB

The strongest teacher-predictor of pupils' SWB is their response on the Overall Difficulties item. This item, on a four-point scale asks: "Overall, do you think that this child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?" For teachers, an absence of such difficulties is associated with a pupil's positive SWB, as is, to a lesser degree, prosocial (friendly, helpful and considerate) behaviour.

Evidence from the teachers' Strengths and Difficulties questionnaire supports hypothesis f) with reference to pupils' SWB.

### **Pupil predictors of the S&D Overall Difficulties scale score, Datagroup1-S&D, test of hypothesis f)**

An analysis was undertaken to see how far a pupil's self-nominated bully status and low SWB might predict the teacher's Overall Difficulties score. It was expected that pupil

unhappiness and a tendency to bully would be associated with more generalised, teacher-recognised, behaviour problems.

TABLE 63 - CORRELATIONS BETWEEN SWB AND SELF-PERCEIVED BULLYING WITH S&D OVERALL DIFFICULTIES, DATAGROUP1-S&D

Correlations			S&D OVERALL DIFFICULTIES
SWB	Pearson Correlation		-.407**
	Sig. (2-tailed)		.000
	N		126
Self-Perceived Bullying	Pearson Correlation		.509**
	Sig. (2-tailed)		.000
	N		124

\*\* . Correlation is significant at the 0.01 level (2-tailed).

TABLE 64 - MODEL SUMMARY OF THE MULTIPLE REGRESSION OF SWB AND SELF-PERCEIVED BULLY AS PREDICTORS OF S&D OVERALL DIFFICULTIES, DATAGROUP1-S&D

Model Summary <sup>b</sup>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.555 <sup>a</sup>	.308	.297	.7513	.308	26.966	2	121	.000

a. Predictors: (Constant), BULLY RIGBY, SWB TOTAL

b. Dependent Variable: S&D OVERALL DIFFICULTIES

TABLE 65 - COEFFICIENTS FROM THE MULTIPLE REGRESSION OF SWB AND SELF-PERCEIVED BULLY AS PREDICTORS OF S&D OVERALL DIFFICULTIES, DATAGROUP1-S&D

Coefficients <sup>a</sup>									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error				Beta	Zero-order	Partial
1	(Constant)	-3.03E-03	.289		-.011	.992			
	SWB TOTAL	1.903E-02	.005	.279	3.466	.001	.415	.301	.262
	BULLY RIGBY	.393	.080	.393	4.886	.000	.490	.406	.369

a. Dependent Variable: S&D OVERALL DIFFICULTIES

Nb. in the above tables “Bully Rigby” stands for the Self Perceived Bullying variable. The conclusion from the analysis of pupil predictors of the S&D Overall Difficulties scale score, Datagroup1-S&D, is that there is an association between pupils’ unhappiness, their bullying behaviour, and with their being identified, by teachers, as having problems with their emotions, concentration, behaviour, and relationships with others. Bullies may not only make others unhappy, but may be unhappy themselves. The analysis supports hypothesis f).

### **Structural Equation Models (SEM)**

Some of the hypotheses were further analysed, where appropriate, using structural equation modelling. The decision to adopt structural equation modelling (SEM) techniques followed the support for many of the hypotheses, having already used more familiar methodology. The choice of SEM was made due to its capacity to quantify the measurement error in variables, and to correlate these errors as separate variables. SEM allows an examination of more restricted theoretical models, and nested models derived from theory, that can explain relationships between the variables. SEM also allows the inclusion of correlated predictor variables in the measurement model, independently of the structural (regression) model. Models were constructed and analysed, using EQS for Windows 5.7b.

### **SEM data requirements and its effect upon data.**

Due to the way in which SEM works, each latent variable, such as the SWB and Bullied variables, needs to be regressed onto two or more independent, (or measurement) variables. If only one independent variable is used then it is assumed that there is no measurement error (Pedhazur & Schmelkin, 1991, p. 711).

In this analysis:

The Bullied latent variable, synonymous with a Bullied factor, is regressed onto the three Bullied variables: Physically Bullied, Verbally/Indirectly Bullied and Self-Perceived Bullied;

The SWB latent variable is regressed onto Positive SWB and Negative SWB;

The Negative Control Beliefs (CB) latent variable is regressed onto the five negative CB items.

### **Datagroup selection criteria**

For these analyses, only those pupils who identified themselves as being bullied were included. This was done to examine the relationship between levels of the Bullied, SWB and Control Beliefs variables. It has already been established that there is a significant difference between the SWB of Bullied versus Not Bullied pupils. A further reason for selecting the Bullied Only group was due to the nature of the Control Beliefs variables. The Control Beliefs scale relates to the pupils' beliefs when bullied; to include pupils' responses who had not been bullied, would be illogical and potentially confounding.

Due to the requirements for the data to be multivariate normal, Datagroup1 was re-analysed to ensure that this expectation was met across all the variables. The subsequent analysis led to the exclusion of 3 further cases as outliers on the Positive SWB variable. The Positive and Negative SWB variables consisted of the summed relevantly framed 15 items. The final Datagroup1 used in the SEM analysis was n297 (to be called Datagroup1-SEM), instead of the n300, as used in the previous analyses. The previous analyses were rerun with Datagroup1-SEM. There were no significant differences in the form and strength of the relationship between variables using this revised datagroup.

### **Test of central hypothesis 1), using SEM, Datagroup1-SEM**

#### **Key analysis – central hypothesis 1) (SEM)**

SEM was used to test central hypothesis 1, that “a schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied.” This was examined by creating a Bullied latent variable, regressed onto the three measured variables: LiS-C Physically Bullied (Physbull), LiS-C Verbally/Indirectly Bullied (Verbull), and Self-Perceived Bullied (SelfPerB). The Bullied latent variable was then regressed onto an SWB latent variable, itself regressed onto two measured variables: Positive SWB (SWB+) and, Negative SWB (SWB-). SWB+ and SWB- are composed of the positively and negatively framed item totals.

Error “E” variables are created by the model, and refer to the residual of the measured variable unexplained by the latent variable. The numbers attached to the E variables, e.g., “E56”, refer to the position of the variable in the originating spreadsheet; it is a label, not a value.

Latent variables, if they are a dependent in the structural model (regression) also have residuals, labelled “D.” D variables represent “Disturbance” or residuals; unexplained variance in the criterion variable following regression by one, or a number of predictors.

Indices of model fit, the relative success the model has in explaining the covariance between variables in the data, are given and their relative meaning explained in each case.

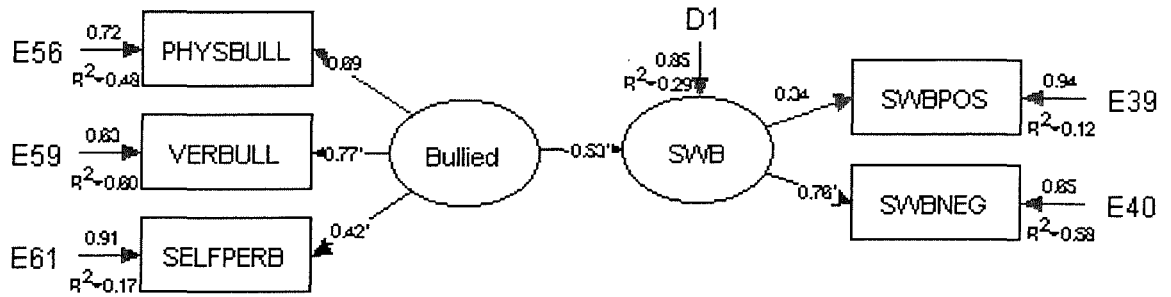


FIGURE 11 - SEM MODEL BULLIED LATENT VARIABLE REGRESSED ONTO SWB LATENT VARIABLE, DATAGROUP1-SEM (N297)

A larger version of this diagram is contained in Appendix V, as “SEM MODEL, Datagroup1 – SEM (n297).”

[In the above figure:

SWBPOS = sum of SWB positively framed items;

SWBNEG = sum of SWB negatively framed items;

Phys. Bull = LiS-C Physically Bullied;

Verb/Ind. Bull = LiS-C Verbally/Indirectly Bullied;

Self Per. Bull = Self-Perceived Bullied.]

As might be expected from the regression analysis already carried out, the model fit is exceptionally good, showing that this model is a very good fit to the data. .

The figures between the latent and dependent variables are standardised regression coefficients. From this diagram it can be calculated that 29% of a pupils SWB score can be predicted from their Bullied latent variable ( $R^2$ , expressed as a percentage).

Also noticeable, is the relatively high proportion of variance explained in the first two Bullied independent variables by the Bullied latent variable. 48% of the variance in the LiS-C Physically Bullied variable is explained by the Bullied latent variable; 60% of the variance in the LiS-C Verbally/Indirectly Bullied variable is explained by the Bullied latent variable; and, 18% of the variance in the Self-Perceived Bullied variable is explained by the Bullied latent variable.

The level of shared variance between the two LiS-C bullied variables, shows that 28% of the variance in one of the LiS-C variables can be predicted from the other. This result supports the subsidiary hypothesis a), “that a schoolchild’s self-reports of being

physically bullied are associated with their self-reports of being verbally/indirectly bullied.”

In relation to the SWB latent variable, it can be seen that, 58% of the variance in the Negative SWB variable is explained by the SWB latent variable. 12% of the variance in the Positive SWB variable is explained by the SWB latent variable on this sample.

### **Indices of fit for the model**

SEM model Bullied latent variable regressed onto SWB latent variable:

Bentler-Bonett Normed Fit Index (NFI)	=	0.991
Bentler-Bonett Nonnormed Fit Index (NNFI)	=	1.030
Comparative Fit Index (CFI)	=	1.000
Chi-Square, based on 4 degrees of freedom	=	1.751
Probability Value for the Chi-Square Statistic is	=	0.781
Average Absolute Standardised Residuals	=	0.009
Average Off-Diagonal Absolute Standardised Residuals	=	0.014

The first three indices indicate a good fit if they are close to 1.

The non-normed fit index can exceed 1, as it does in this case, as it builds in a correction based on the normed fit index, modified by the degrees of freedom present in the model. It is not possible to exceed a CFI of 1, indicating a good fit.

The Chi square, to indicate a good fit, should not be significant, at  $p \leq .05$

The standardised residuals should be as low as possible. Pedazur & Schmelkin (1991) suggest that less than .05 is indicative of a good model fit to the data.

In this analysis, and the analyses that follow, the CFI, then the NNFI, are taken to be the critical values. These indices take into account underestimation of model fit encountered with relatively small sample models:

“CFI avoids the underestimation of fit sometimes noted in small samples, and that the sampling variability of CFI ...is less than that of NNFI, i.e., these indices are more precise in describing comparative model fit”, (Bentler, 1995, p116-117).



**Gender rerun of the SEM model, Bullied latent variable regressed onto SWB latent variable, test of hypothesis 1ii)**

The model was then rerun with two groups, a boys' and a girls' group. This was done in order to check whether the model was reliable with a subset of the data, and to test whether gender modified the relationships between the measured and latent variables.

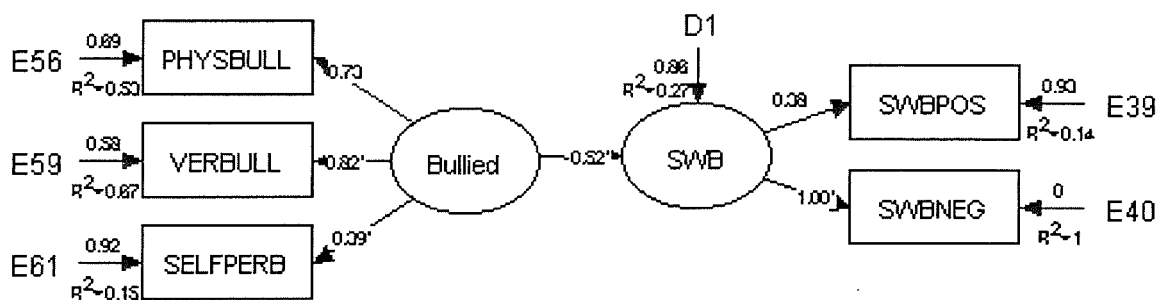


FIGURE 12 - GIRLS ONLY (N127)- SEM MODEL BULLIED LATENT VARIABLE REGRESSED ONTO SWB LATENT VARIABLE

A larger version of this diagram is contained in Appendix V, as “GIRLS ONLY (127) SEM MODEL.”

Fit indices for the Girls-only rerun, show a very high consistency with the full data analysis:

Bentler-Bonett Normed Fit Index	=	0.979
Bentler-Bonett Nonnormed Fit Index	=	1.033
Comparative Fit Index (CFI)	=	1.000
Chi-Square, based on 4 degrees of freedom	=	2.536
Probability Value for the Chi-Square Statistic is	=	0.638
Average Absolute Standardised Residuals	=	0.019
Average Off-Diagonal Absolute Standardised Residuals	=	0.029

The model was then rerun, this time with Boys only

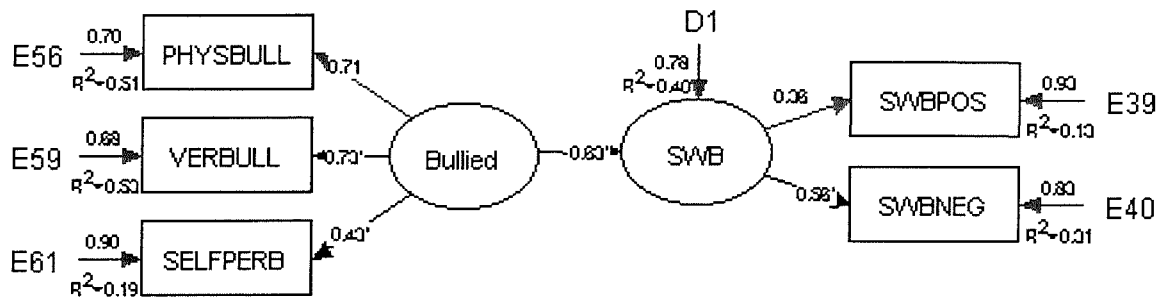


FIGURE 13 - BOYS ONLY (N166)- SEM MODEL BULLIED LATENT VARIABLE REGRESSED ONTO SWB LATENT VARIABLE

A larger version of this diagram is contained in Appendix V, as “BOYS ONLY (166) SEM MODEL.”

[NOTE FOUR CASES HAD NO DATA ON GENDER]

Fit indices for the Boys-only rerun, show a high consistency with the full data analysis:

Bentler-Bonett Normed Fit Index	=	0.957
Bentler-Bonett Nonnormed Fit Index	=	0.982
Comparative Fit Index (CFI)	=	0.993
Chi-Square, based on 4 degrees of freedom	=	4.715
Probability Value for the Chi-Square Statistic is	=	0.318
Average Absolute Standardised Residuals	=	0.019
Average Off-Diagonal Absolute Standardised Residuals	=	0.028

**Conclusion for the Test of Central hypothesis 1ii), hypothesis a) and hypothesis 1ii), using SEM, Datagroup1-SEM**

All three models, boys & girls, boys only and girls only, strongly support the acceptance of central hypothesis 1 that, “a schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied”, and the subsidiary hypothesis a), “that a schoolchild’s self-reports of being physically bullied are associated with their self-reports of being verbally/indirectly bullied,” and hypothesis 1ii) “that the inverse relationship between SWB and being bullied is supported in both boys and in girls.”

**The relationship of Negative Control Beliefs with the Bullied variables, Datagroup1-SEM Bullied (n 297), test of hypothesis g)**

The hypothesis that Control Beliefs is a significant covariate in the analysis of the effect of being bullied on SWB, has been shown. In the process of carrying out the analysis, the Positive Control Beliefs items were found to have a relatively poor internal reliability as a scale. In contrast, the Negative Control Beliefs items, had a sufficient reliability to be used as a separate scale for research. The Negative Control Beliefs scale was retained in the analysis, and used to test hypothesis g). This hypothesis was informed by previous research by the author, in an unpublished MSc thesis concerning children's playground experiences, in which it was concluded that,

“At an individual level, it is suggested that an understanding of others' behaviour may in part be mediated by the subject's attitudes... This is seen to have implications in relation to the body of research on bullying that relies on quantifying subjective data. Specifically, that false data may be included where the bullying construct is inadequately operationalised to exclude subjects' subjective misinterpretation of experience.” (Ivens, 1995, p. 92)

In the previous research, based on questionnaire and observational methods, it had been noticed that some pupils reporting high levels of bullying, tended to misconstrue random physical interactions in a crowded playground as bullying. These pupils' parents shared a belief that the playground at the school was an unsafe and relatively hostile place. From this previous observation, it was hypothesised that pupils' perceptions of being bullied, are partially independent of self-reported behavioural interactions that are typically associated with being bullied.

To test this hypothesis, it was assumed that pupils' Negative Control Beliefs about being bullied would be associated with the Self-Perceived bullied variable, a measure based on the subjective interpretation of events as being bullied. It was also assumed that the error associated with the Self-Perceived Bullied variable, the residual of the regression on the latent Bullied variable, would contain aspects of anxiety about being Bullied that were not included in the, more behaviourally based, LiS-C Physically Bullied and LiS-C Verbally/Indirectly variables. More simply, that Self-Perceived Bullied responses contain an element of anxiety, or expectation of being bullied, over and above, the experience of

being bullied. The resultant model instantiates this perspective by associating the Negative Control Beliefs latent variable with the Self-Perceived Bullied variable and its residual.

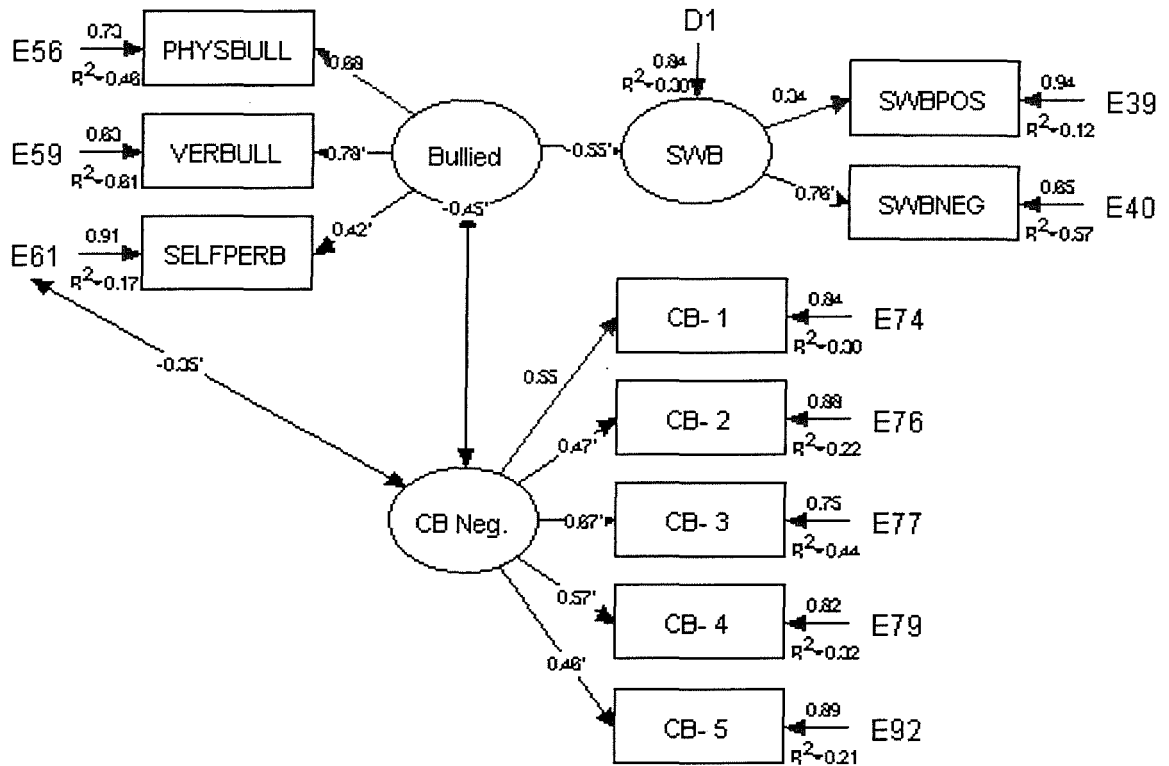


FIGURE 14 - THE ASSOCIATION OF THE CONTROL BELIEFS NEGATIVE LATENT VARIABLE WITH THE SELF PERCEIVED BULLIED LATENT VARIABLE AND ITS RESIDUAL.

A larger version of this diagram is contained in Appendix V, as “CB- and SELF-PERCEIVED BULLIED, Datagroup1-SEM.”

Bentler-Bonett Normed Fit Index	=	0.915
Bentler-Bonett Nonnormed Fit Index	=	0.968
Comparative Fit Index (CFI)	=	0.977
Chi-Square, based on 32 degrees of freedom	=	42.269
Probability Value for the Chi-Square Statistic is	=	0.106
Average Absolute Standardised Residuals	=	0.027
Average Off-Diagonal Absolute Standardised Residuals	=	0.033

The normed fit index may be just meaningful, according to Pedhazur & Schmelkin (1991, p. 667), though the other indices and Chi-square indicate a good fit of the model to the data.

A further analysis, removing the SWB variable, redundant in this analysis, shows that the modelled relationship holds.

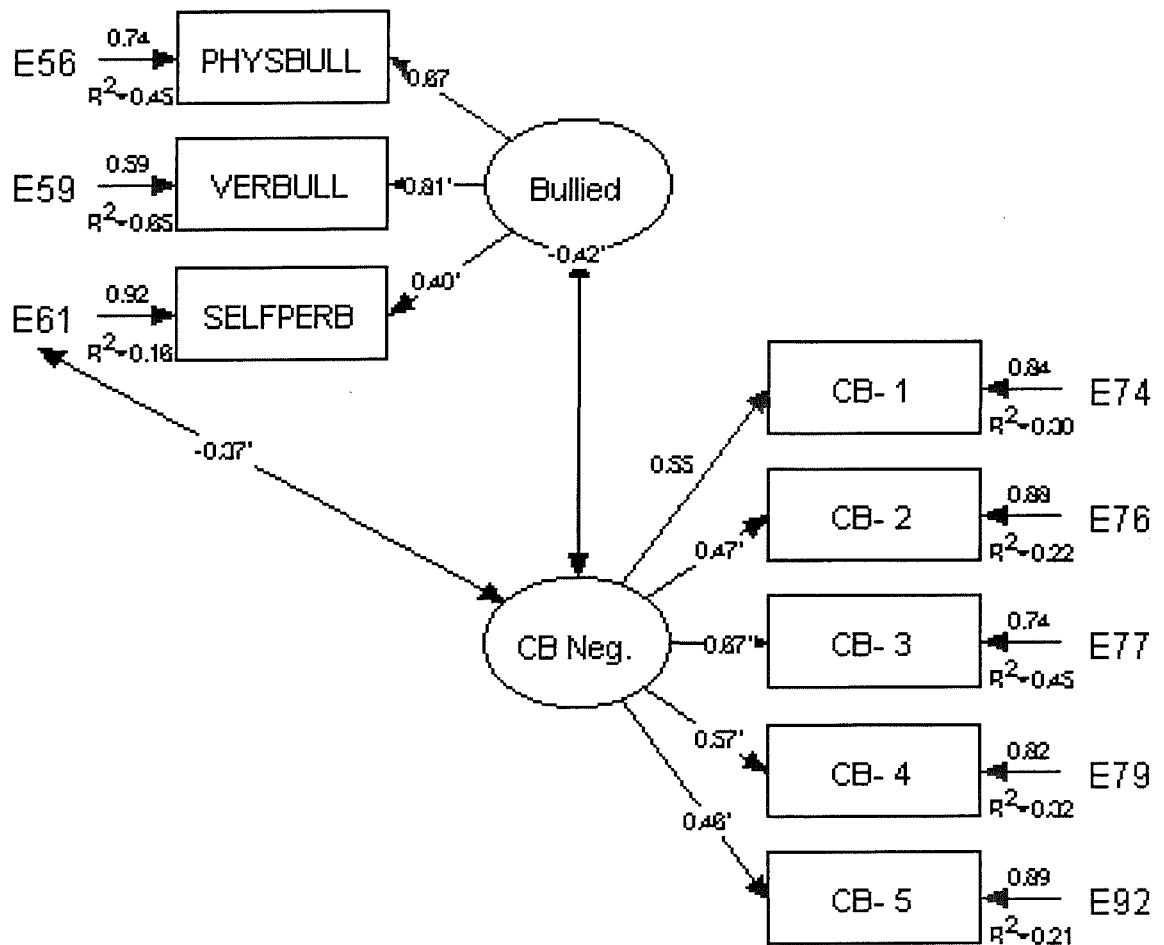


FIGURE 15 - THE ASSOCIATION OF THE NEGATIVE CONTROL BELIEFS LATENT VARIABLE WITH THE BULLIED LATENT VARIABLE AND ITS RESIDUAL – (SWB REMOVED).

A larger version of this diagram is contained in Appendix V, as “CB- and SELF-PERCEIVED BULLIED (2), Datagroup1-SEM.”

Goodness of Fit Summary:

Bentler-Bonett Normed Fit Index	=	0.949
Bentler-Bonett Nonnormed Fit Index	=	0.988
Comparative Fit Index (CFI)	=	0.992

Chi-Square, based on 18 degrees of freedom	=	21.054
Probability Value for the Chi-Square Statistic is	=	0.277
Average Absolute Standardised Residuals	=	0.024
Average Off-Diagonal Absolute Standardised Residuals	=	0.031

In addition to the conclusions already made about the relationship between being bullied and SWB, it may be that Self-Perceived Bullied responses are affected by a tendency to perceive that one is bullied even in the absence of recent experiences, as measured by the LiS-C variables. This anxiety of being bullied may colour pupil responses, and may consequently, have implications for the measurement of being bullied. The SEM model, demonstrated here, shows one technique for managing this influence.

An alternative interpretation would be that the error associated with the Self-Perceived Bullied variable, contains variance due to the long-term experience being bullied, and that this variance is not picked up by the more recent focus of the LiS-C variables. Hypothesis g) is provisionally supported, with this last caveat.

**Analysis of the longitudinal Datagroup2 (n105) - Further analyses related to central hypothesis 2, that, “The effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated”**

This datagroup (n105), consists of a single school’s pupils from Years 4 and 5 (approximately 8-10 years old), who were administered the survey in 1999, when they were in Years 4 and 5, and in 2000, when they were in Years 5 and 6. Pupil forms were numbered in 1999 to retain anonymity, but also to ensure that forms could be matched a year later. A missing data group (n8), caused by pupils leaving the school, and through absence, was compared to the retained Datagroup2 (n97), to check whether it was representative.

The 2000 data from this school are contained in Datagroup1. This data has already been analysed, and so the focus for the following analyses is to explore longitudinal stability amongst the proposed models, rather than to consider them, falsely, as a source of new data. However the 1999 data, although involving the same participants, is a source of matched data.

The 1999 data for this group was gathered using an earlier version of the survey. This earlier version contained Physically, Verbally/Indirectly Bullied, Positive SWB and Negative SWB variables. However, it did not contain the Control Beliefs items, or the Self-Perceived Bullied variable, and so analyses are included or modified accordingly. Any modifications to the analyses will be noted throughout.

**Analyses of the Datagroup2 (1999) data, test of hypothesis 1i)**

The Datagroup2 (1999) data were analysed to see whether the central hypothesis 1i), “The SWB of schoolchildren who report not being bullied, is higher than the SWB of schoolchildren who report being bullied,” was supported.

As with the analysis of Datagroup1, data from the n97 Datagroup2 were placed into a Bullied (having a total >0 on any of the Bullied variables), or Not Bullied group (having a total = 0, on each of the Bullied variables).

An independent-samples t-test (assuming unequal variance) was conducted to evaluate the hypothesis. It is expected that the Bullied group should have a lower SWB level. The Bullied group (n75) included pupils who reported being Bullied Only with, Bullied and Bullying, who reported being both bullied and bullying others. The Not Bullied group (n22) consisted of pupils reporting that they were Not Bullied or Bullying, and pupils who were Bullying Only.

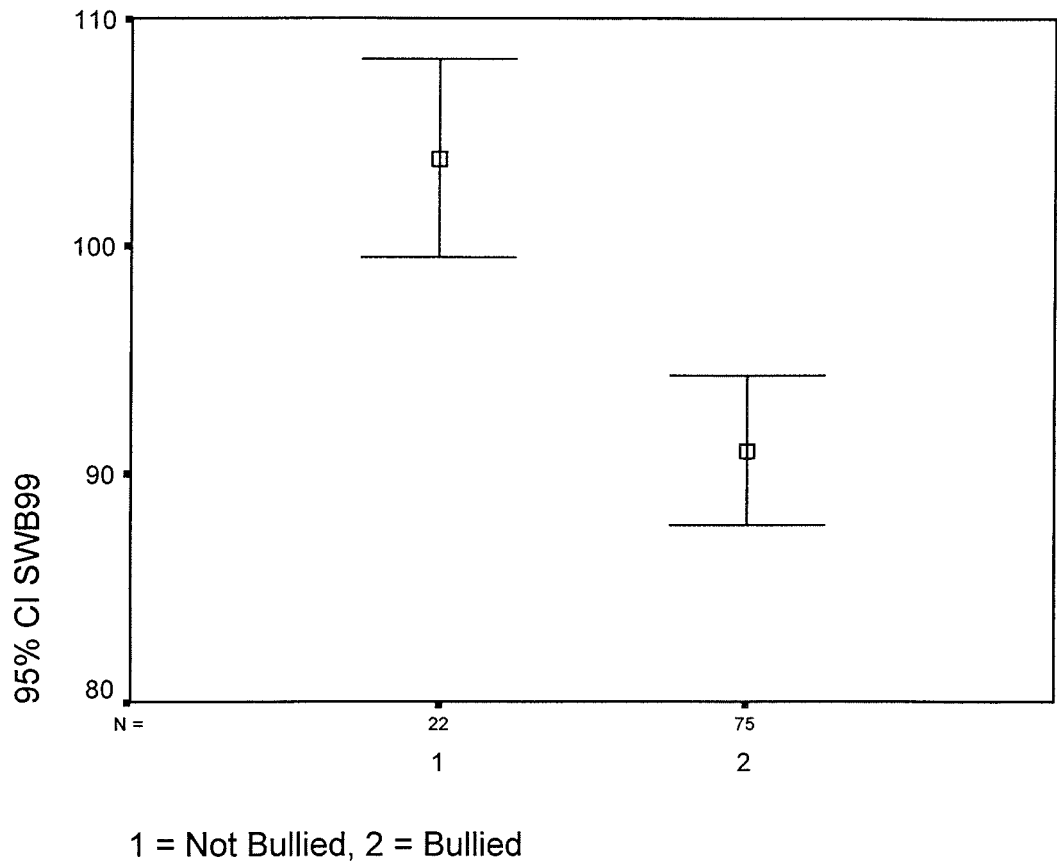


FIGURE 16 - GROUP MEANS AND CONFIDENCE INTERVAL BARS REPRESENTING SWB BY NOT BULLIED AND BULLIED GROUPS: FOR DATAGROUP2 (1999).

The test was significant:  $t(95) = 4.82, p = .000$  (2-tailed).

Bullied pupils ( $M = 91.025, SD = 9.774$ ), had a lower reported SWB than Non-Bullied Pupils ( $M = 103.883, SD = 14.420$ ). The  $d$  statistic = 1.169, indicates a large effect size for the difference between the groups, that is  $> .8$  (Green et al. 2000).

The Eta squared index ( $\eta^2$ ) indicated that 19% of the variance in Subjective Well-Being was accounted for by whether a child was in the Bullied, or Not Bullied group. This also indicates a large effect size (Green et al., 2000).



In this analysis, the groupings were made according to the pupils' responses on the Physically and Verbally/Indirectly Bullied variables. The Self-Perceived Bullied variable was not given in the 1999 survey. However, the results are comparable in form and size, to those from a parallel analysis on Datagroup1.

**Analysis of Datagroup2-bullied (1999), test of hypothesis 1)**

The same hypothesis was tested to examine the strength of the relationship between the Bullied Total predictor variable and the SWB criterion, and whether the relationship was linear.

The Datagroup2-bullied (1999) (n75) were analysed, to see whether there was a relationship between being bullied, and the level of SWB. It was again hypothesised that the more a pupil is bullied, the lower their SWB will be.

One case was excluded, as an SWB outlier, >3SD below the mean.

TABLE 66 - DESCRIPTIVE STATISTICS FOR THE VARIABLES ENTERED THE REGRESSION

<b>Descriptive Statistics</b>			
	Mean	Std. Deviation	N
SWB99	91.6473	13.4674	74
Bullied Total 99	3.4730	2.2588	74

TABLE 67 - PREDICTOR VARIABLE COEFFICIENTS IN THE REGRESSION OF THE BULLIED TOTAL VARIABLE ON SWB - DATAGROUP2-BULLIED (1999)

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.392 <sup>a</sup>	.154	.142	12.4740	.154	13.090	1	72	.001

a. Predictors: (Constant), Bullied Total 99

b. Dependent Variable: SWB99

An examination of the residuals showed them to be normally distributed.

As before, hypothesis 1), that being bullied is associated with a decline in Subjective Well-Being is supported.

### Conclusion from the analysis of Datagroup2 (1999)

These analyses support the central hypothesis 1) “A schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied” and 1i) the SWB of schoolchildren who report not being bullied, is higher than the SWB of schoolchildren who report being bullied”.

TABLE 68 - CORRELATION, SWB AND BULLIED VARIABLES, DATAGROUP2 (1999 & 2000)

**Correlations**

		SWB99	LiS-C Physically Bullied 99	LiS-C Verbally/Indirectly Bullied 99	SWB 2000	LiS-C Physically Bullied 2000	LiS-C Verbally Bullied 2000	Self-Perceived Bullied 2000
SWB99	Pearson Correlation	1.000	-.323**	-.559**	.540**	-.397**	-.329**	-.345**
	Sig. (2-tailed)	.	.001	.000	.000	.000	.001	.001
	N	97	97	97	97	97	97	97
LiS-C Physically Bullied 99	Pearson Correlation	-.323**	1.000	.394**	-.274**	.310**	.238*	.275**
	Sig. (2-tailed)	.001	.	.000	.007	.002	.019	.006
	N	97	97	97	97	97	97	97
LiS-C Verbally/Indirectly Bullied 99	Pearson Correlation	-.559**	.394**	1.000	-.497**	.344**	.383**	.343**
	Sig. (2-tailed)	.000	.000	.	.000	.001	.000	.001
	N	97	97	97	97	97	97	97
SWB 2000	Pearson Correlation	.540**	-.274**	-.497**	1.000	-.498**	-.567**	-.236*
	Sig. (2-tailed)	.000	.007	.000	.	.000	.000	.020
	N	97	97	97	97	97	97	97
LiS-C Physically Bullied 2000	Pearson Correlation	-.397**	.310**	.344**	-.498**	1.000	.671**	.488**
	Sig. (2-tailed)	.000	.002	.001	.000	.	.000	.000
	N	97	97	97	97	97	97	97
LiS-C Verbally Bullied 2000	Pearson Correlation	-.329**	.238*	.383**	-.567**	.671**	1.000	.555**
	Sig. (2-tailed)	.001	.019	.000	.000	.000	.	.000
	N	97	97	97	97	97	97	97
Self-Perceived Bullied 2000	Pearson Correlation	-.345**	.275**	.343**	-.236*	.488**	.555**	1.000
	Sig. (2-tailed)	.001	.006	.001	.020	.000	.000	.
	N	97	97	97	97	97	97	97

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

In this table, all correlations are significant across at the same time point and across time.

All correlations at  $r \geq .310$  meet Power criteria for their effect size.

Clearly, SWB and bullied variables in Datagroup2 maintain similar associations across time. However there is considerable variability in the stability of the bullied measures; not unexpected given the situational, as well as within-person nature of the bullied variables. However, the analysis of the LiC-S bullied variables show that they are significantly associated over time; this further supports hypothesis a), “That schoolchildren’s self-reports of being physically bullied are associated with their self-reports of being verbally/indirectly bullied.”

**Bullied in 1999 and 2000, the effect on SWB, Datagroup2, test of hypothesis 2)**

The long-term and chronic effects of being bullied on SWB were examined. It was expected that pupils, who reported not having been bullied in 1999 and 2000, should have a higher SWB than pupils reporting being bullied in both years. Also, that this difference should be greater than the t-tests carried out already, at one time point.

An independent-samples t-test (assuming unequal variance) was conducted to evaluate the hypothesis. It is expected that the Not Bullied pupils at either time point should have a higher SWB level than the Bullied pupils at both time points.

The Bullied at both time points group (n57) included pupils who reported being bullied in 1999 and 2000. The Not Bullied group (n6) consisted of pupils reporting that they were Not Bullied or Bullying, and pupils who were Bullying Only.

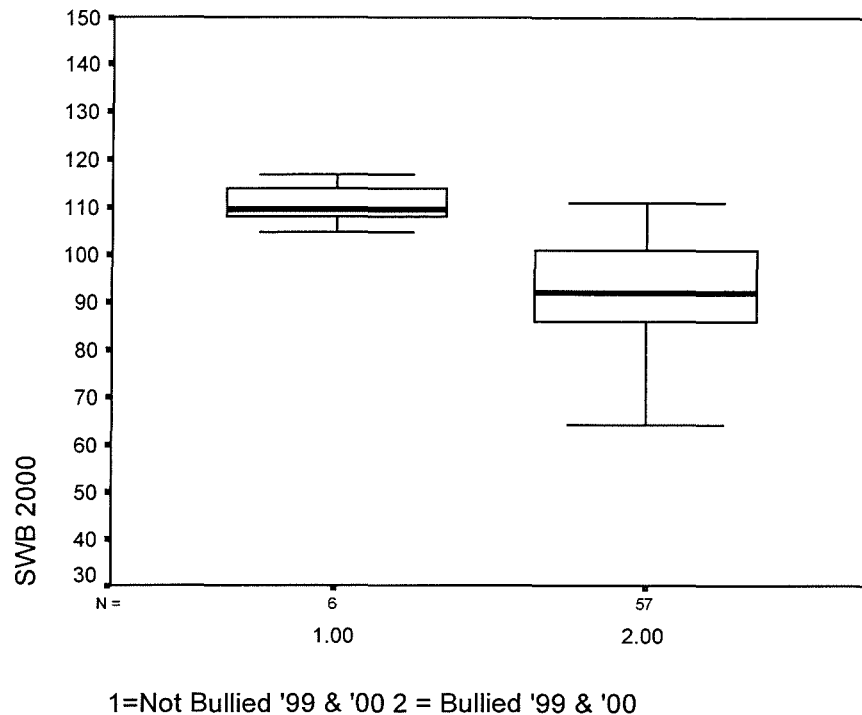


FIGURE 17 - BOXPLOT OF PUPIL GROUPS IN RETAINED DATAGROUP2, GROUPED ACCORDING TO- NOT BULLIED '99 & '00 (NOT BULLIED AT EITHER TIME POINT) AND BULLIED '99 & '00 (BULLIED AT BOTH TIME POINTS).

The test was significant:  $t(61) = 7.49, p = .000$  (2-tailed).

Bullied at both time points pupils (M 92.251, SD 12.667), had a lower reported SWB than Never-Bullied Pupils (M 110.500, SD 4.324). The  $d$  statistic = 10.429, indicates a large effect size for the difference between the groups, that is  $> .8$  (Green et al., 2000).

The Eta squared index ( $\eta^2$ ) indicated that 48% of the variance in Subjective Well-Being was accounted for by whether a child was in the Bullied at both time points or Not Bullied at either time point group. This indicates a large effect size (Green et al., 2000).

**Key analysis – central hypothesis 2), that, “The effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated**

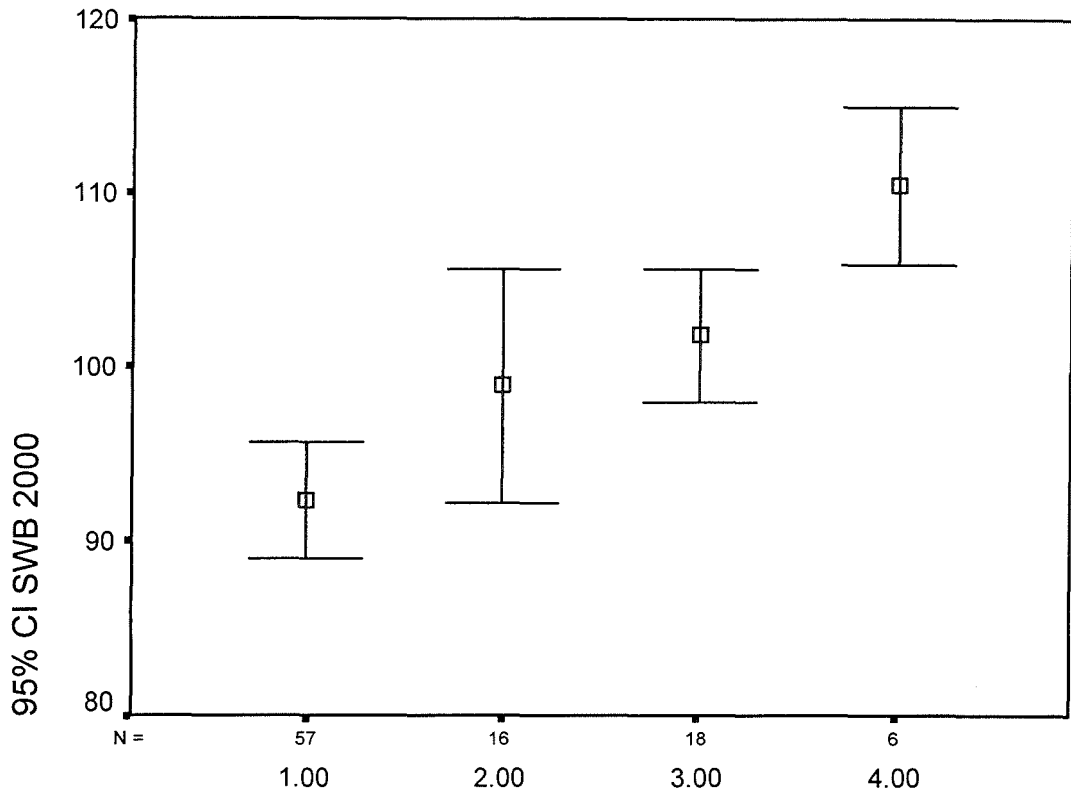
From this large difference, it was hypothesised that recent experiences of being bullied would have a stronger effect on SWB, or  $SWB = Time / Bullied$ , where time represents the temporal distance from being bullied.

To test the hypothesis the Pupils in Retained Datagroup2 were grouped as follows:

1 = Bullied in '99 & '00, n57;

- 2 = Bullied in '00 only, n16;
- 3 = Bullied in '99 only, n18;
- 4 = Not Bullied in '99 & '00, n6.

If the hypothesis is to be supported, there should be an increase in SWB across the four groups.



1=bullied 99 & 00, 2 = bullied 00, 3 = bullied 99, 4 = not bullied

FIGURE 18 - DATAGROUP2 GROUP DIFFERENCES ON MEAN SWB WITH CONFIDENCE INTERVALS, GROUPED BY BEING BULLIED X TIME.

Results of a one-way, between-subjects ANOVA were:

$$F(3,93) = 6.948, p < .001.$$

TABLE 69 - ANOVA, DATAGROUP2 GROUP DIFFERENCES ON MEAN SWB WITH CONFIDENCE INTERVALS, GROUPED BY BEING BULLIED X TIME

ANOVA					
SWB 2000					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2804.781	3	934.927	6.948	.000
Within Groups	12514.446	93	134.564		
Total	15319.227	96			

TABLE 70 - POST HOC ANALYSIS OF ANOVA, DATAGROUP2 GROUP DIFFERENCES ON MEAN SWB WITH CONFIDENCE INTERVALS, GROUPED BY BEING BULLIED X TIME

**Multiple Comparisons**

Dependent Variable: SWB 2000  
Bonferroni

(I) Bullied '99 & '00, 2=Bullied '99, 3=Bullied '00, 4=Bullied '99 & '00	(J) Bullied '99 & '00, 2=Bullied '99, 3=Bullied '00, 4=Bullied '99 & '00	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	8.6667	5.4684	.698	-6.0753	23.4087
	3.00	11.5822	5.5532	.238	-3.3884	26.5527
	4.00	18.2487*	4.9788	.002	4.8266	31.6708
2.00	1.00	-8.6667	5.4684	.698	-23.4087	6.0753
	3.00	2.9155	3.9857	1.000	-7.8295	13.6605
	4.00	9.5820*	3.1363	.018	1.1269	18.0372
3.00	1.00	-11.5822	5.5532	.238	-26.5527	3.3884
	2.00	-2.9155	3.9857	1.000	-13.6605	7.8295
	4.00	6.6665	3.2819	.270	-2.1811	15.5141
4.00	1.00	-18.2487*	4.9788	.002	-31.6708	-4.8266
	2.00	-9.5820*	3.1363	.018	-18.0372	-1.1269
	3.00	-6.6665	3.2819	.270	-15.5141	2.1811

\*. The mean difference is significant at the .05 level.

A Bonferroni correction was used to avoid spurious significance (Type 1 error) due to multiple comparisons.

**Conclusion**

The results support the hypothesis, with more recent experience of bullying having the strongest effect on depressing SWB. The central hypothesis 2), “the effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated”, is supported in this analysis.

The same hypothesis, but allowing for the influence of past levels of SWB was carried out in the following analysis.

**Hierarchical regression, past SWB and past bullied, entered before current bullied. An examination of how far current bullying predicts current SWB (Datagroup2), test of hypothesis 2)**

Using a hierarchical regression, SWB 2000, (SWB Time 2) was predicted first by SWB 1999, (SWB 1999) with the bullied variables were entered afterwards. This controls for the stability of SWB over time, independent of the experience of being bullied. The Bullied Total variables were entered in two stages, 1999 first (Bullied Total Time 1), then 2000 (Bullied Total Time 2). It is expected that there should be a significant

improvement in predictive power over the three models, due to the expectation that: SWB = Time / Bullied, i.e., that more recent experiences of being bullied should have a higher influence than past experiences, even after past SWB and bullied variables have been partialled out.

TABLE 71 - DESCRIPTIVE STATISTICS

Descriptive Statistics			
	Mean	Std. Deviation	N
SWB 2000	96.2578	12.6323	97
SWB99	93.9416	14.5077	97
Bullied Total 1999	7.639E-02	1.4413	97
Bullied Total 2000	7.938E-02	1.5394	97

TABLE 72 - CORRELATIONS BETWEEN TIME 1 AND TIME 2 VARIABLES (10 MONTH INTERVAL)

		SWB 2000	SWB99	Bullied Total 1999	Bullied Total 2000
Pearson Correlation	SWB 2000	1.000	.540	-.465	-.585
	SWB99	.540	1.000	-.532	-.394
	Bullied Total 1999	-.465	-.532	1.000	.418
	Bullied Total 2000	-.585	-.394	.418	1.000
Sig. (1-tailed)	SWB 2000	.	.000	.000	.000
	SWB99	.000	.	.000	.000
	Bullied Total 1999	.000	.000	.	.000
	Bullied Total 2000	.000	.000	.000	.
N	SWB 2000	97	97	97	97
	SWB99	97	97	97	97
	Bullied Total 1999	97	97	97	97
	Bullied Total 2000	97	97	97	97

TABLE 73 - MODEL SUMMARY FOR THE 3-STAGE HIERARCHICAL REGRESSION: PAST SWB ENTERED FIRST, THEN THE 1999 BULLIED TOTAL VARIABLE, THEN THE 2000 BULLIED TOTAL VARIABLE

Model Summary <sup>d</sup>									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.540 <sup>a</sup>	.292	.284	10.6855	.292	39.166	1	95	.000
2	.579 <sup>b</sup>	.336	.322	10.4049	.044	6.194	1	94	.015
3	.683 <sup>c</sup>	.467	.450	9.3725	.131	22.849	1	93	.000

- a. Predictors: (Constant), SWB99
- b. Predictors: (Constant), SWB99, Bullied Total 1999
- c. Predictors: (Constant), SWB99, Bullied Total 1999, Bullied Total 2000
- d. Dependent Variable: SWB 2000

TABLE 74 - MODEL COEFFICIENTS

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	52.063	7.145		7.287	.000			
	SWB99	.470	.075	.540	6.258	.000	.540	.540	.540
2	(Constant)	62.979	8.224		7.658	.000			
	SWB99	.356	.086	.409	4.118	.000	.540	.391	.346
	Bullied Total 1999	-2.166	.870	-.247	-2.489	.015	-.465	-.249	-.209
3	(Constant)	71.170	7.604		9.360	.000			
	SWB99	.271	.080	.311	3.390	.001	.540	.332	.257
	Bullied Total 1999	-1.124	.813	-.128	-1.382	.170	-.465	-.142	-.105
	Bullied Total 2000	-3.354	.702	-.409	-4.780	.000	-.585	-.444	-.362

a. Dependent Variable: SWB 2000

At each stage, the F change was significant, indicating an improvement in the prediction of SWB 2000; past SWB remains a significant predictor. Bullied Total 1999, does not remain a significant predictor in Model 3. However, this could be due to multicollinearity between the two Bullied total variables (the sum of the standardised LiS-C variables for their respective time points).

**Conclusion of the hierarchical regression; past SWB and past bullied entered before current bullied in the prediction of current SWB (Datagroup2)**

The proposed model, SWB = Time / Bullied, is supported, even when past SWB is controlled for.

A further, more rigorous analysis follows, where known covariates of SWB and being bullied, are entered into the hierarchical regression at the first stage, to see if the model still holds.



**Hierarchical regression, demographic (age & gender) and measured covariates (CB- & L/SD) entered, then past SWB, then past bullied, entered before current bullied. An examination of how far current bullying predicts current SWB (Datagroup2), test of hypothesis 2)**

**Key analysis – central hypothesis 2, that, “The effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated.”**

This is a very severe test of the model as most of the covariates are known to correlate with the bullied and SWB variables.

In the first analysis, gender and age were found to be a non-significant contributors at all stages, and so were dropped. The age range of one year is likely to be the explanation for the non-significance of this variable.

TABLE 75 - CORRELATIONS IN THE HIERARCHICAL REGRESSION OF DEMOGRAPHIC AND MEASURED COVARIATES, PAST SWB AND PAST BULLIED ENTERED BEFORE CURRENT BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

		Correlations							
		SWB 2000	CB-	Lie/Social Desirability 2000	YEAR	GENDER	SWB99	Bullied Total 1999	Bullied Total 2000
Pearson Correlation	SWB 2000	1.000	.240	.209	-.018	.104	.540	-.465	-.585
	CB-	.240	1.000	-.091	.143	-.038	.083	-.138	-.329
	Lie/Social Desirability 2000	.209	-.091	1.000	-.301	.286	.233	-.238	-.036
	YEAR	-.018	.143	-.301	1.000	-.029	-.011	.089	-.056
	GENDER	.104	-.038	.286	-.029	1.000	-.034	-.245	-.041
	SWB99	.540	.083	.233	-.011	-.034	1.000	-.532	-.394
	Bullied Total 1999	-.465	-.138	-.238	.089	-.245	-.532	1.000	.418
	Bullied Total 2000	-.585	-.329	-.036	-.056	-.041	-.394	.418	1.000
Sig. (1-tailed)	SWB 2000	.	.009	.020	.432	.156	.000	.000	.000
	CB-	.009	.	.188	.082	.357	.209	.089	.001
	Lie/Social Desirability 2000	.020	.188	.	.001	.002	.011	.009	.362
	YEAR	.432	.082	.001	.	.388	.457	.194	.291
	GENDER	.156	.357	.002	.388	.	.370	.008	.345
	SWB99	.000	.209	.011	.457	.370	.	.000	.000
	Bullied Total 1999	.000	.089	.009	.194	.008	.000	.	.000
	Bullied Total 2000	.000	.001	.362	.291	.345	.000	.000	.
N	SWB 2000	97	97	97	97	97	97	97	97
	CB-	97	97	97	97	97	97	97	97
	Lie/Social Desirability 2000	97	97	97	97	97	97	97	97
	YEAR	97	97	97	97	97	97	97	97
	GENDER	97	97	97	97	97	97	97	97
	SWB99	97	97	97	97	97	97	97	97
	Bullied Total 1999	97	97	97	97	97	97	97	97
	Bullied Total 2000	97	97	97	97	97	97	97	97

This table shows all covariate, predictor and criterion variable correlations, including age and gender.

TABLE 76 - DESCRIPTIVE STATISTICS IN THE HIERARCHICAL REGRESSION OF DEMOGRAPHIC AND MEASURED COVARIATES, PAST SWB AND PAST BULLIED ENTERED BEFORE CURRENT BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

**Descriptive Statistics**

	Mean	Std. Deviation	N
SWB 2000	96.2578	12.6323	97
CB- Lie/Social Desirability 2000	8.8557	1.2161	97
SWB99	8.1753	1.6521	97
Bullied Total 1999	93.9416	14.5077	97
Bullied Total 2000	7.639E-02	1.4413	97
	7.938E-02	1.5394	97

TABLE 77 - MODEL SUMMARY OF THE HIERARCHICAL REGRESSION OF DEMOGRAPHIC AND MEASURED COVARIATES, PAST SWB AND PAST BULLIED ENTERED BEFORE CURRENT BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

**Model Summary<sup>e</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.334 <sup>a</sup>	.111	.093	12.0334	.111	5.896	2	94	.004
2	.585 <sup>b</sup>	.342	.321	10.4107	.231	32.588	1	93	.000
3	.610 <sup>c</sup>	.372	.345	10.2233	.030	4.442	1	92	.038
4	.694 <sup>d</sup>	.482	.453	9.3418	.109	19.181	1	91	.000

- a. Predictors: (Constant), Lie/Social Desirability 2000, CB-
- b. Predictors: (Constant), Lie/Social Desirability 2000, CB-, SWB99
- c. Predictors: (Constant), Lie/Social Desirability 2000, CB-, SWB99, Bullied Total 1999
- d. Predictors: (Constant), Lie/Social Desirability 2000, CB-, SWB99, Bullied Total 1999, Bullied Total 2000
- e. Dependent Variable: SWB 2000

Note that the F change is significant at all stages in the model.

TABLE 78 - ANOVA IN THE HIERARCHICAL REGRESSION OF DEMOGRAPHIC AND MEASURED COVARIATES, PAST SWB AND PAST BULLIED ENTERED BEFORE CURRENT BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

ANOVA<sup>e</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1707.663	2	853.832	5.896	.004 <sup>a</sup>
	Residual	13611.564	94	144.804		
	Total	15319.227	96			
2	Regression	5239.637	3	1746.546	16.115	.000 <sup>b</sup>
	Residual	10079.590	93	108.383		
	Total	15319.227	96			
3	Regression	5703.849	4	1425.962	13.644	.000 <sup>c</sup>
	Residual	9615.378	92	104.515		
	Total	15319.227	96			
4	Regression	7377.726	5	1475.545	16.908	.000 <sup>d</sup>
	Residual	7941.500	91	87.269		
	Total	15319.227	96			

a. Predictors: (Constant), Lie/Social Desirability 2000, CB-

b. Predictors: (Constant), Lie/Social Desirability 2000, CB-, SWB99

c.

Predictors: (Constant), Lie/Social Desirability 2000, CB-, SWB99, Bullied Total 1999

d. Predictors: (Constant), Lie/Social Desirability 2000, CB-, SWB99, Bullied Total 1999, Bullied Total 2000

e. Dependent Variable: SWB 2000

TABLE 79 - COEFFICIENTS IN THE HIERARCHICAL REGRESSION OF DEMOGRAPHIC AND MEASURED COVARIATES, PAST SWB AND PAST BULLIED ENTERED BEFORE CURRENT BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	57.658	11.374		5.069	.000			
	CB-Lie/Social Desirability 2000	2.715	1.014	.261	2.677	.009	.240	.266	.260
		1.781	.746	.233	2.385	.019	.209	.239	.232
2	(Constant)	29.389	11.016		2.668	.009			
	CB-Lie/Social Desirability 2000	2.171	.883	.209	2.460	.016	.240	.247	.207
	SWB99	.858	.666	.112	1.289	.201	.209	.132	.108
		.432	.076	.497	5.709	.000	.540	.509	.480
3	(Constant)	41.798	12.316		3.394	.001			
	CB-Lie/Social Desirability 2000	1.933	.874	.186	2.212	.029	.240	.225	.183
	SWB99	.644	.662	.084	.974	.333	.209	.101	.080
		.343	.086	.394	4.001	.000	.540	.385	.330
	Bullied Total 1999	-1.835	.871	-.209	-2.108	.038	-.465	-.215	-.174
4	(Constant)	58.016	11.848		4.897	.000			
	CB-Lie/Social Desirability 2000	.845	.836	.081	1.011	.315	.240	.105	.076
	SWB99	.824	.606	.108	1.361	.177	.209	.141	.103
		.259	.081	.298	3.215	.002	.540	.319	.243
	Bullied Total 1999	-.920	.822	-.105	-1.119	.266	-.465	-.117	-.084
	Bullied Total 2000	-3.226	.737	-.393	-4.380	.000	-.585	-.417	-.331

a. Dependent Variable: SWB 2000

Note that after all other variables have been entered, current (Bullied Total 2000) bullied has a large effect size on current (SWB 2000) SWB,  $f^2 = .647$ , where  $r \geq .35$  equals a large effect size (Cohen, 1992). At the model 4 stage, only past SWB and current Bullied remain significant predictors of current SWB. The direction of the covariate and predictor variables with the SWB criterion was as predicted.

When the analysis was repeated, using the bullied only group, the significant F change over models was retained and the effect size for current bullied, when entered last was,  $f^2 = .572$ . The removal of the not bullied group is likely to explain the reduced variance and therefore slightly lower  $f^2$ .

When the analysis was repeated with a 57:40 randomised split of the data, the model held, though past bullied did not remain a significant predictor of current SWB at the last stage in the n40 analysis.

Respective effect sizes for current SWB, after accounting for the covariates, past SWB and past bullied, were:

$$(n40) f^2 = .908,$$

$$(n57) f^2 = .541.$$

**Hierarchical regression, demographic (age & gender) and measured covariates (CB- & L/SD) entered, then past SWB, then past bullied, entered before current LiS-C Physically Bullied or, current LiS-C Verbally/Indirectly Bullied. Examining how far current LiS-C Bullied variables, taken individually, significantly predict current SWB (Datagroup2), test of hypothesis 2)**

When entered in the same analysis at the last stage, LiS-C Physically Bullied remained a significant predictor of current SWB:

$$\beta (96) = -.231, p.013$$

One case was dropped as having a standardised residual >3SD.

When entered in the same analysis at the last stage, LiS-C Verbally/Indirectly Bullied remained a significant predictor of current SWB:

$$\beta (96) = -.358, p<.000$$

One case was dropped as having a standardised residual >3SD. Beta,  $\beta$  = is a measure standardised association of change in the dependent variable from change in the predictor variable, i.e., a change of +1SD in LiS-C Verbally/Indirectly Bullied is related to a decrease in SWB of -.358SD.

However, if Self-Perceived Bullied was entered in the same analysis at the last stage, it did not remain a significant predictor of current SWB:

$$\beta (95) = -.022, p.813.$$

Two cases were dropped as having standardised residuals >3SD.

**Analysis of the Self-Perceived Bullied predictor variable; whether it adds unique variance in the prediction of current SWB, test of hypothesis 2)**

This last result is more surprising when it is considered that the variable has not been entered before, as was the case in the LiS-C variables, as part of the Bullied Total 99 variable. The Self-Perceived Bullied variable only became a significant predictor of SWB 2000, after Bullied Total 1999 and SWB 1999 had been removed.

Change in SWB predicted from Self-Perceived Bullied, after CB- and Lie/Social Desirability had been entered first, was,

$$\beta (95) = -.224, p.031.$$

The regression was repeated with SWB 1999 entered before Self-Perceived Bullied, to check whether the Bullied Total 1999 accounted for the shared variance with Self-Perceived Bullied, i.e., that Self-Perceived Bullied is a measure of long-term being bullied, and therefore overlaps with Bullied Total 1999. However the result,  $\beta (95) = -.035, p.706$ , suggests that the Self-Perceived Bullied variable does not predict current SWB, once past SWB has been taken into account.

This was tested in an hierarchical regression, entering past SWB, (SWB 1999) before Self-Perceived Bullied, as predictors of current SWB (SWB 2000).

TABLE 80 - DESCRIPTIVE STATISTICS, HIERARCHICAL REGRESSION, PAST SWB ENTERED BEFORE CURRENT SELF-PERCEIVED BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

Descriptive Statistics			
	Mean	Std. Deviation	N
SWB 2000	96.9896	11.6417	95
SWB99	93.9824	14.5536	95
Self-Perceived Bullied 2000	4.968E-02	.8186	95

TABLE 81 - CORRELATIONS, HIERARCHICAL REGRESSION, PAST SWB ENTERED BEFORE CURRENT SELF-PERCEIVED BULLIED AS PREDICTORS OF CURRENT SWB,

**Correlations**

		SWB 2000	SWB99	Self-Perceived Bullied 2000
Pearson Correlation	SWB 2000	1.000	.577	-.265
	SWB99	.577	1.000	-.338
	Self-Perceived Bullied 2000	-.265	-.338	1.000
Sig. (1-tailed)	SWB 2000	.	.000	.005
	SWB99	.000	.	.000
	Self-Perceived Bullied 2000	.005	.000	.
N	SWB 2000	95	95	95
	SWB99	95	95	95
	Self-Perceived Bullied 2000	95	95	95

TABLE 82 - MODEL SUMMARY: HIERARCHICAL REGRESSION, PAST SWB ENTERED BEFORE CURRENT SELF-PERCEIVED BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

**Model Summary<sup>c</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.577 <sup>a</sup>	.333	.326	9.5600	.333	46.394	1	93	.000
2	.582 <sup>b</sup>	.338	.324	9.5724	.005	.759	1	92	.386

- a. Predictors: (Constant), SWB99
- b. Predictors: (Constant), SWB99, Self-Perceived Bullied 2000
- c. Dependent Variable: SWB 2000

As can be seen from the above table, the entry of the Self-Perceived Bullied variable does not significantly add to the prediction of current SWB (SWB 2000).

TABLE 83 – COEFFICIENTS: HIERARCHICAL REGRESSION, PAST SWB ENTERED BEFORE CURRENT SELF-PERCEIVED BULLIED AS PREDICTORS OF CURRENT SWB, DATAGROUP2

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	53.619	6.443		8.322	.000			
	SWB99	.461	.068	.577	6.811	.000	.577	.577	.577
2	(Constant)	55.672	6.868		8.106	.000			
	SWB99	.440	.072	.550	6.106	.000	.577	.537	.518
	Self-Perceived Bullied 2000	-1.117	1.282	-.079	-.871	.386	-.265	-.090	-.074

a. Dependent Variable: SW B 2000

The behaviour of the Self-Perceived variable in these analyses suggests that it may measure aspects of both past SWB, and past being bullied, and would therefore not be a very discriminating variable to use in longitudinal studies, where the focus is on the impact of being bullied on SWB. In these analyses, using the Self-Perceived Bullied variable, hypothesis 2) is not supported.

**Conclusion of the hierarchical regression of demographic and measured covariates, past SWB and past bullied entered before current bullied as predictors of current SWB (Datagroup2), test of hypothesis 2)**

The results of this exceptionally rigorous test support the SWB = Time / Bullied model, as well as supporting central hypothesis 2, that, “The effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated.”

The relationship between past experience and current experience of being bullied as predictors of current SWB was examined using an SEM model.



**SEM model, longitudinal path model for the temporal effects of past and present bullying on current SWB, Datagroup2, test of hypothesis 2)**

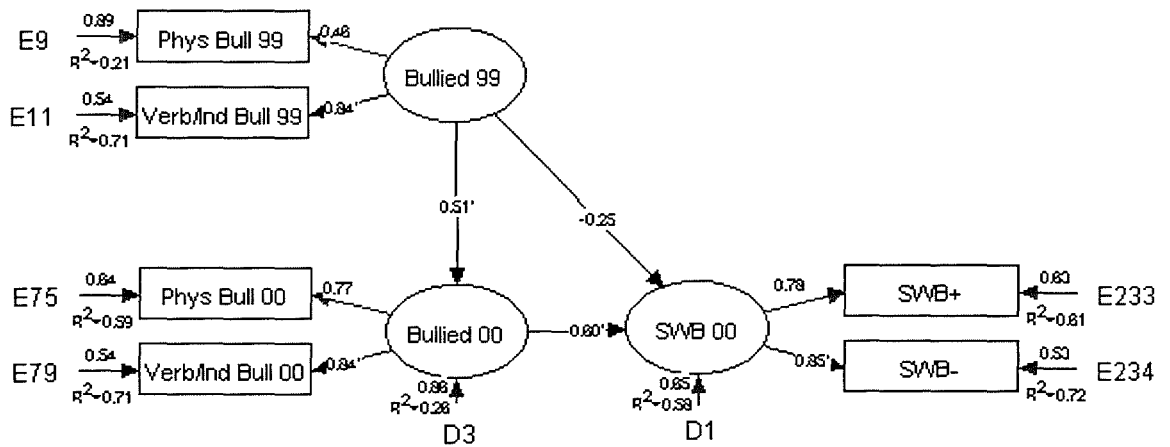


FIGURE 19 - PATH MODEL SHOWING LONGITUDINAL EFFECTS OF BEING BULLIED ON SWB.

A larger version of this diagram is contained in Appendix V, as “LONGITUDINAL EFFECTS OF BEING BULLIED ON SWB.”

Data from pupils in Datagroup2-SEM, n95, were modelled to see if the SWB= Bullied/Time, hypothesis held up. The Self-Perceived Bullied variable was dropped from the analysis, as it had not been used in the previous year. Two cases were dropped from the analysis as multivariate outliers. Fit indices indicate a good fit of the model to the data

Bentler-Bonett Normed Fit Index	=	0.965
Bentler-Bonett Nonnormed Fit Index (NNFI)	=	0.990
Comparative Fit Index (CFI)	=	0.996
Chi-Square, based on 6 degrees of freedom	=	6.678
Probability Value for the Chi-Square Statistic is	=	0.352
Average Absolute Standardised Residuals	=	0.021
Average Off-Diagonal Absolute Standardised Residuals	=	0.029
Interpretation of the SEM model, Datagroup2 (n95)		

Interpretation of the model can be made if it is known that the path effects can be multiplied together and squared to gauge additive factor effects, e.g., that to understand the predictive power of Bullied 99 on SWB 00, it is necessary to add its effect through the Bullied 00 factor, to its direct influence on SWB 00.

This amounts to  $(.51 \times -.6) + -.25 = -.56$ , (the effect of bullied 99 through Bullied 00 on SWB 00) + direct effect of Bullied 99 on SWB). This effect expressed as a percentage =  $-.56^2 = .31 = 31\%$ . Therefore, 31% of the variance in SWB 00, can be predicted from the Bullied 99 score.

However, the effect of past experience of being bullied (Bullied 99) that is not predicted through the current experience of being bullied (Bullied 00) is the direct effect =  $-.25^2 = .063 = 6\%$ . Therefore, the past experience of being bullied, if not repeated, has a relatively low influence on current SWB.

The model can also inform as to how far the past experience of being bullied predicts the current experience of being bullied. In this model the past experience of being bullied (Bullied 99) predicts 26% of the variance in the current experience of being bullied (Bullied 00), i.e.  $.51^2 = .26 = 26\%$ .

The SEM analysis was repeated with cases removed of those who reported not being bullied at either time point. This removes a source of confounding variance in SWB that is not associated in those cases; with levels of being bullied.

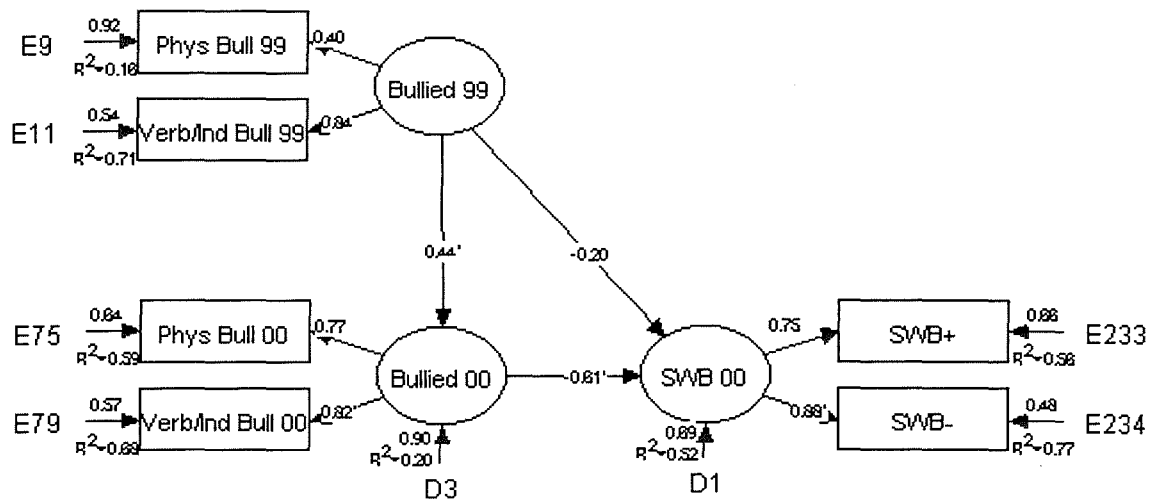


FIGURE 20 - PATH MODEL SHOWING LONGITUDINAL EFFECTS OF BEING BULLIED ON SWB – DATAGROUP2- BULLIED IN 99 OR 00 ONLY.

A larger version of this diagram is contained in Appendix V, as “LONGITUDINAL EFFECTS OF BEING BULLIED ON SWB – BULLIED ONLY 99 OR 00.”

Fit indices indicate a good fit of the model to the data

Bentler-Bonett Normed Fit Index	=	0.964
Bentler-Bonett Nonnormed Fit Index (NNFI)	=	1.003
Comparative Fit Index (CFI)	=	1.000
Chi-Square, based on 6 degrees of freedom	=	5.823
Probability Value for the Chi-Square Statistic is	=	0.443
Average Absolute Standardised Residuals	=	0.020
Average Off-Diagonal Absolute Standardised Residuals	=	0.028

**Interpretation of the SEM model, Datagroup2 – Bullied in 99 or 00 only (n89), test of hypothesis 2).**

Clearly, after the not bullied cases have been removed, the fit indices improve.

Revised predictions from this model, using the same methods described above, include the following:

22% of the variance in SWB 00 can be predicted from the Bullied 99 score, including indirect and direct effects;

37% of variance in SWB 00 accounted for by the Bullied 00 factor;

4% of the variance in SWB 00 was accounted for by the direct effects only of past experience of being bullied (Bullied 99);

19% of the variance in current experience of being bullied (Bullied 00) was predicted by past experience of being bullied (Bullied 99).

The Power for all associations in the SEM models was above the criteria given for this study, except for the direct association between Bullied 99 and SWB 00, which fell below the criteria on both analyses.

### **Conclusion for the SEM longitudinal models for the effect of being bullied on SWB**

If past experience of being bullied is asked for, then this is likely to be a good (inverse) predictor of current SWB. Once the association of past being bullied from current being bullied is accounted for, then past experience of being bullied becomes a weak predictor of current SWB. The strength of past experience of being bullied as a predictor of current SWB is based on the recurrence of being bullied, i.e., that being bullied in the past is associated with being bullied in the present. These conclusions support the hypothesis that: SWB = Time / Bullied.

The results support central hypothesis 2, that, “The effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated.”

### **Analysis of Missing datagroups 1&2**

Where feasible, missing datagroups were treated to the same analysis as the retained datagroups 1&2. Missing data were replaced using the same procedures as in the retained groups. The intention is to test whether the missing datagroups are representative in the relationships they show with the variables under study.

Analysis of the Missing Datagroup1 (n50)

This group had missing data in excess of the criteria already given. This group was analysed to examine whether, with missing values replaced, it would reveal a similar set of relationships between variables as shown by the retained Datagroup1, the group used for the main analyses. A similar pattern of relationships between the variables amongst the Missing and Retained datagroups would be seen to increase the validity of the findings.

TABLE 84 - MISSING DATAGROUP1, DESCRIPTIVE STATISTICS

Items	n	Missing	
		Count	Percent
SWB 1	43	7	14.0
SWB 2	40	10	20.0
SWB 3	42	8	16.0
SWB 4	40	10	20.0
SWB 5	37	13	26.0
SWB 6	39	11	22.0
SWB 7	38	12	24.0
SWB 8	38	12	24.0
SWB 9	40	10	20.0
SWB 10	37	13	26.0
SWB 11	40	10	20.0
SWB 12	41	9	18.0
SWB 13	41	9	18.0
SWB 14	40	10	20.0
SWB 15	42	8	16.0
SWB 16	41	9	18.0
SWB 17	41	9	18.0
SWB 18	44	6	12.0
SWB 19	41	9	18.0
SWB 20	41	9	18.0
SWB 21	41	9	18.0
SWB 22	39	11	22.0
SWB 23	38	12	24.0

Table 84 (continued)

Items	n	Missing	
		Count	Percent
SWB 24	41	9	18.0
SWB 25	39	11	22.0
SWB 26	41	9	18.0
SWB 27	39	11	22.0
SWB 28	43	7	14.0
SWB 29	41	9	18.0
SWB 30	44	6	12.0
Verbally/Indirectly Bullied 1	44	6	12.0
Verbally/Indirectly Bullied 2	11	11	22.0
Verbally/Indirectly Bullied 3	7	7	14.0
Verbally/Indirectly Bullied 4	10	10	20.0
Verbally/Indirectly Bullied 5	10	10	20.0
Verbally/Indirectly Bullied 6	9	9	18.0
Physically Bullied 1	10	10	20.0
Physically Bullied 2	7	7	14.0
Physically Bullied 3	7	7	14.0
Physically Bullied 4	8	8	16.0
Physically Bullied 5	10	10	20.0
Physically Bullied 6	7	7	14.0
Self-Perceived Bullied	13	13	26.0
Self-Perceived Bully	13	13	26.0

The Missing Datagroup1, represents 11.36% of the total datagroup.

#### Reliability of the variables in the Missing Datagroup1

The reliability of the variables was tested before using the data in any parallel analysis.

With missing values replaced, and using the same procedures as used with the retained data, the reliability (alpha) of the following variables is:

SWB = .858  
 LiS-C Physically Bullied = .736  
 LiS-C Verbally/Indirectly Bullied = .763

(Taken from file D: results section.../excluded data analysis.../my briefcase/results 29-6-00/21-6-00 n50 ecluded data...-missing data replaced nb file crashed before I could save the reversed SWB neg variables, from which the reliability was calculated)

The reliability is satisfactory, but the figures need to be interpreted with caution, as the method of replacing missing values with the item mean will have inflated the reliability. This analysis was made of the SWB and Bullied variables in the Missing Datagroup1, separately, before analysing them together.

TABLE 85 – CORRELATIONS BETWEEN THE POSITIVE AND NEGATIVE SUBSCALES OF THE SWB VARIABLE IN THE MISSING DATAGROUP1.

**Correlations**

		Positive	Negative	SWB
Positive	Pearson	1.000	.344	.812
	Sig. (2-	.	.	.
	N	50		
Negative	Pearson	.233	1.000	.828
	Sig. (2-	.103	.	.
	N	50	50	
SWB	Pearson	.808**	.761**	1.000
	Sig. (2-	.000	.000	.
	N	50	50	50

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The bottom left hand diagonal refers to the correlations in Missing Datagroup1. The top right hand diagonal refers to the correlations in Retained Datagroup1. Correlations between the Positive and Negative subscales of the SWB variable follow the pattern established in the retained data.



**Correlation of the LiS-C Physically Bullied and LiS-C Verbally/Indirectly Bullied variables in Missing Datagroup1, test of hypothesis a)**

Correlation of the Physically Bullied and Verbally/Indirectly Bullied variables in Missing Datagroup1, is a test of one of the hypotheses, hypothesis a): “That a schoolchild’s self-reports of being physically bullied are associated with their self-reports of being verbally/indirectly bullied.”

Before carrying out the analysis, the variables were transformed into normalised and standardised values (Kline, 1993). This was necessary in order to analyse the data using parametric methods, as the bullied variables are not normally distributed in their “raw” state, but are “J” shaped.

TABLE 86 - CORRELATION OF STANDARDISED LIS-C PHYSICALLY BULLIED AND LIS-C VERBALLY/INDIRECTLY BULLIED VARIABLES, MISSING DATAGROUP1

		Std Phys. Bullied	Std Verb./Ind. Bullied
Standardised Physically Bullied	Pearson Sig. (2-tailed)	1.000	.654
	N	50	
Standardised Verbally/Indirectly Bullied	Pearson Sig. (2-tailed)	.610**	1.000
	N	50	50

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Power = .998 at 0.05, 2-tailed, (n50)

The bottom left hand diagonal refers to the correlations in Missing Datagroup1. The top right hand diagonal refers to the correlations in Retained Datagroup1. As with the Retained Datagroup1, the hypothesis is supported. The internal relationship of the SWB and Bullied variables in the Missing Datagroup1 is similar to the relationship of the same variables in the Retained Datagroup1.

Having established the congruent validity and reliability of the Missing Datagroup1 variables, the data were then analysed in relation to the hypothesis 1): “A schoolchild’s Subjective Well-Being (SWB) is inversely associated with being bullied.” Due to expected multicollinearity amongst the Bullied predictor variables, a composite Bullied variable was created from LiS-C Physically Bullied and LiS-C Verbally/Indirectly

Bullied raw data. Multicollinearity amongst predictor variables is seen as incompatible with regression analyses (Pedhazur & Schmelkin, 1991).

TABLE 87 - MODEL SUMMARY, MISSING DATAGROUP1 REGRESSION OF BULLIED PREDICTOR ON THE SWB CRITERION

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.193 <sup>a</sup>	.037	.017	10.9826

a. Predictors: (Constant), Bullied Total

The regression analysis was carried out using SWB as the criterion variable with the standardised Total Bullied, as the predictor variable.

TABLE 88 - ANOVA, MISSING DATAGROUP1 REGRESSION OF BULLIED PREDICTORS ON SWB CRITERION

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	220.193	1	220.193	1.826	.183 <sup>a</sup>
	Residual	5668.987	47	120.617		
	Total	5889.180	48			

a. Predictors: (Constant), Bullied Total

b. Dependent Variable: revswb

Power = .263 at 0.05, 2-tailed, (n49)

One outlier, >3SD, was excluded from the analysis.

In small sized sample analysis, the hypothesis is supported, but not proven at the  $\leq 0.05$  significance level. Being bullied is weakly associated with a reduced degree of Subjective Well-Being. The lack of Power and significance in the analysis of missing data groups is expected. The number of cases in the missing datagroups is expected and desired to be low. Analysis based on a few cases is unlikely to be statistically significant. More importantly, is that the direction and relative strength of the statistical relationships should be similar.

**An examination of whether Missing Datagroup1 is representative.**

An analysis was carried out, as to how representative the population of Missing Datagroup1 was, in relation to the Retained Datagroup1. Grouping variables included gender, ethnicity and educational phase.

TABLE 89 - CHI SQUARE ANALYSIS OF GENDER, ETHNICITY AND EDUCATIONAL PHASE (PRIMARY OR SECONDARY) BY RETAINED AND MISSING DATAGROUPS

Grouping Variable	Pearson Chi Square 2- sided
Gender	.755
Ethnicity	.554
Age Group	.000

In the Missing Datagroup1, there were significantly more data missing from the secondary age pupils, when compared to the Retained Datagroup1. However, there were no significant differences between the retained and missing datagroups on gender or ethnicity. The nature of the age distribution is covered by the following table.

TABLE 90 - MISSING AND RETAINED DATAGROUPS1, BY EDUCATIONAL PHASE

Educational Phase	Retained Datagroup1	Missing Datagroup1
Primary	54.499%	28.571%
Secondary	45.501%	71.429%

However, as this difference does not alter the form of the relationship between the variables, it is noted, but it is not considered important for the proposed analyses.

**Conclusion from the analysis of Missing Datagroup1**

From this analysis of the Missing Datagroup1, it is concluded that there is no marked difference in the hypothesised relationship between the variables, to that shown in the Retained Datagroup1.

### Analysis of the Missing Datagroup2

Data were studied, to see how far they were missing at random. Analysis was made of the available data to examine whether missing data deviated significantly from the patterns found in the retained data. The data are small in number (n8), and this is taken into account when considering the analysis. Comparisons between the retained and missing datagroups were made according to the following issues.

#### Gender

The Missing data group2 (n8) was too small to conduct a Chi-square, as a minimum of 5 is needed for each cell. However, it is clear from the following table, that the two groups are broadly comparable.

TABLE 91 - DATAGROUP2, GENDER BY RETAINED AND MISSING GROUPS

	Boys	Girls
Retained Datagroup2, n97	50	47
Missing Datagroup2, n8	4	4

#### Year Group (Age)

The Missing data group2 (n8) was too small to conduct a Chi-square, as a minimum of 5 is needed for each cell. However, it is clear from the following table that the two groups differ, with the Missing Datagroup2, having proportionately more Year 4 pupils than Year 5.

TABLE 92 - DATAGROUP2, YEAR GROUP BY RETAINED AND MISSING GROUPS

	Year 4	Year 5
Retained Datagroup2, n97	46	51
Missing Datagroup2, n8	6	2

An independent samples t test, indicates that this difference between the two groups is not significant,  $t(103) = 1.609$ ,  $p = .144$ . As neither Gender nor Age were significant covariates in the hierarchical regression analysis of Retained Datagroup2, any significant difference is unlikely to have a noticeable effect.

## Ethnicity

No data was collected on this variable in the 1999 sample, from which the Missing data are derived.

## SWB

An independent-samples t-test was conducted to evaluate the hypothesis that there might be a difference between the Retained and Missing datagroups2, on a measure of children's Subjective Well-Being. The test was not significant,  $t(103) = .965$ ,  $p = .363$ , indicating that the two groups did not differ on a measure of Subjective Well-Being. The Eta squared index ( $\eta^2$ ) indicated that <1% of the variance in Subjective Well-Being was accounted for by whether a child was in the Missing, or Retained datagroup.

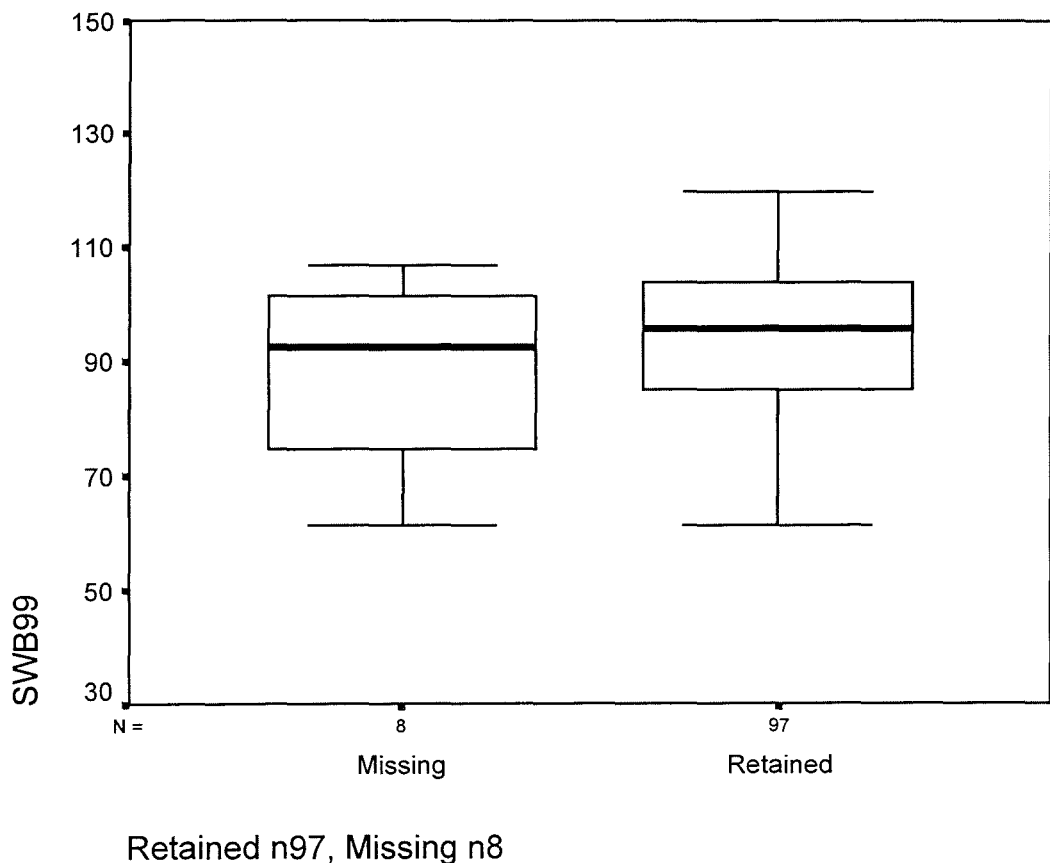


FIGURE 21 - BOXPLOT OF SWB WITHIN MISSING AND RETAINED DATAGROUPS2

## Bullied measures

Retained and Missing datagroups2, were studied to see whether they differed in reports of being Physically and Verbally/Indirectly bullied. A Mann-Witney U test was carried out

on the unstandardised data to answer the question as to whether the means for the two groups would differ. The results indicate that there was no significant difference between means on both measures: Physically Bullied  $z = -.697$ ,  $p = .487$ , Verbally/Indirectly Bullied  $z = -1.055$ ,  $p = .292$ .

**The relationship between the level of being bullied and SWB in Missing Datagroup2, test of hypothesis 1)**

The hypothesis “that being bullied is associated with a decline in Subjective Well-Being,” was tested with missing Datagroup2. The results, though not significant for such a small group (n8), show that the relationships between the predictor (Bullied) variables and the criterion (SWB) follow the pattern shown in the retained datagroup.

TABLE 93 - MISSING DATAGROUP2, CORRELATIONS BETWEEN BULLIED AND SWB VARIABLES

**Correlations**

		SWB99	Physically Bullied 99	Verbally/Indirectly Bullied 99
Pearson Correlation	SWB99	1.000	-.172	-.441
	Physically Bullied 99	-.172	1.000	.564
	Verbally/Indirectly Bullied 99	-.441	.564	1.000
Sig. (1-tailed)	SWB99	.	.342	.137
	Physically Bullied 99	.342	.	.073
	Verbally/Indirectly Bullied 99	.137	.073	.
N	SWB99	8	8	8
	Physically Bullied 99	8	8	8
	Verbally/Indirectly Bullied 99	8	8	8

TABLE 94 - MISSING DATAGROUP2, MODEL SUMMARY FOR THE PREDICTION OF SWB FROM THE BULLIED TOTAL VARIABLE.

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.676 <sup>a</sup>	.457	-.087	19.7343

a. Predictors: (Constant), Bullied Total

TABLE 95 - MISSING DATAGROUP2, PREDICTOR VARIABLE COEFFICIENTS IN THE REGRESSION OF 1999 BULLIED TOTAL ON SWB 2000

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	96.832	34.139		2.836	.216
	Bullied Total	-2.930	3.197	-.676	-.917	.528

a. Dependent Variable: SWB 2000

An analysis of the residuals found them to be normally distributed.

### **Conclusion from the analysis of Missing Datagroup2**

From these analyses, the hypothesis, that the variable data in Missing Datagroup2, do not differ significantly in the relationship of the variables, from those in Retained Datagroup2, is supported.

## Discussion section

### **Findings in relation to the Central Hypotheses.**

The strength of the relationship between being bullied and SWB in the concurrent study  $r(382) = -.418$ , was within the range ( $r = .25-.45$ ) reported in the studies of the association between victimization and psychosocial maladjustment, from the Hawker & Boulton (2000) review of studies with shared method variance. Psychosocial maladjustment, as used by Hawker & Boulton, includes constructs such as: depression; loneliness; global self-esteem; social self-concept; social anxiety; generalized anxiety and anxiety overall (social/generalized).

The strength of the relationship between being bullied and SWB in the subset of the concurrent study that had teacher-based S&D responses was:  $r(127) = -.184$ , (Teacher bullied measure with SWB) and,  $r(127) = -.224$ , (Combined bullied measure with S&D “unhappy” measure). This was within the range ( $r = .14-.29$ ) reported in the studies of the association between victimization and psychosocial maladjustment, from the Hawker & Boulton (2000) review of studies without shared method variance.

Beyond the initial confirmation of the relationship, shown to be in line with previous research, is the maintenance of the association after the influence of the covariates has been accounted for. This was tested strenuously in the concurrent and longitudinal analysis. In the concurrent study, the effect of being bullied on SWB remained after the significant covariates of: Age; Control Beliefs-Negative; Lie/Social Desirability, were entered. The standardised effect for Combined Bullied predicting SWB, controlling for these variables was  $\beta = -.274$ , equating to a large effect size ( $f^2 = .378$ ).

In the longitudinal study the effect of Combined Bullied on SWB was examined after the significant covariates of: Control Beliefs- Negative; Lie/Social Desirability; past SWB; past Being Bullied, were entered before current Combined Bullied. Current Being Bullied still accounted for  $\beta -.393$  in the prediction of current SWB in an hierarchical regression, equating to a large effect size ( $f^2 = .647$ ).

In a structural equation model analysis of the longitudinal data, using the bullied group and with measurement error accounted for, the effect of current being bullied on current



SWB, controlling for past being bullied was  $\beta$   $-.342$ . However, if past being bullied was included, the effect increases to  $\beta$   $-.61$ .

Being bullied in the past, but not in the present, has relatively little effect on current SWB;  $\beta$   $-.21$ . It appears that being bullied at both time points magnifies the effect on SWB. It can be concluded that chronically being bullied is likely to have a strong effect on an individual's SWB, but that if the bullying is not repeated then the effect wears off. Clearly, intervention might usefully be aimed at those who are repeatedly and intensely bullied. As time elapses the effect of being bullied on SWB diminishes, but if repeated, past being bullied adds to the effect on SWB.

The conclusion from this summary of the results, is that both central hypotheses are supported with this population, i.e., being bullied results in lower SWB and that the effects decline over time unless reinforced.

#### **Findings in relation to the subsidiary and supportive hypothesis a)**

The association between the measures of being physically bullied (the adapted LiS-C Bullying index) and the newly derived LiS-C verbally/indirectly bullied variable, was found to be,  $r(387) = .659$ . This is a moderately strong relationship, indicating that the variables are likely to be based on a shared construct, but that they measure subtly different aspects. This conclusion was supported by a factor analysis that produced a two-factor solution. Items loaded most strongly on their predicted factor; either physical or verbally/indirectly bullied. The item with the strongest cross-loading, was "Threatened to hurt me", from the existing LiS-C physically bullied variable. In this item, there are obvious elements of both physical and likely verbal intimidation. Each measures' (the LiS-C physically bullied and the LiS-C verbally/indirectly bullied) association with SWB and with the self-perceived bullied variable are of a comparable order. Both measures easily met the psychometric criteria for measures in this study. It is concluded that the subsidiary hypothesis a), "That a schoolchild's self-reports of being physically bullied are associated with their self-reports of being verbally/indirectly bullied", is supported in this study.

### **Assumptions of causality implicit in these findings**

The underlying assumption behind this research is that being bullied has an effect on SWB. The structural equation models used are implicitly based on this proposition.

However,

“researchers using nonrandomized designs have an extra obligation to explain the logic behind covariates included in their designs and to alert the reader to plausible rival hypotheses that might explain the results.” (Wilkinson, 1999. p. 600)

It could be argued that individuals with a low SWB might be more likely to be bullied than individuals with a high SWB; depressed children may make passive victims who are not likely to retaliate. However, t-tests of the SWB in the bullied only and in the bullied/bullying groups in Datagroup1 and Datagroup2 show no significant difference, as might be expected if the alternative hypothesis were true, as by definition, participants in the bullied/bullying group are not passive victims.

Datagroup1,  $t(301) = 1.550, p = .118,$

Datagroup2,  $t(71) = -.114, p = .912.$

Though this alternative hypothesis is not upheld, there are many others that could fit the data. Support for the hypotheses in this research should not be taken to be an assertion of causality. The data have been shown as supporting the hypothesis using the statistical criteria of power and significance. Consequently, this study adds to a body of research based on explicit models that seek to explain the psychological effects of being bullied. The study lends partial support to these models, but does not prove them; it stands as a contingent proof until a better explanation emerges.

### **Contributions to the research area**

#### **Longitudinal analysis of the effect of being bullied on SWB**

Several recent articles have called for more longitudinal studies including Rigby (2000a) and Hawker & Boulton (2000). Longitudinal studies allow a greater scope for tentative postulation of cause and effect. In particular, structural equation modelling allows hypotheses to be tested against the available data. Hierarchical regression allows the effects of known covariates to be partialled out before entering the predictor variable of

combined bullied. Past levels of both being bullied and of SWB were entered to help counter the potential confound of repeated individual response bias. The use of SEM modelling also allows measurement error to be controlled for and theoretical models to be tested. Using both methods allows a degree of cross-checking. In this study, the finding from the hierarchical regression that being bullied remains a significant predictor of current SWB at a large effect size, is supported further by SEM analysis of the relationship.

The study contributes to research through the postulation of the relationship between being bullied, time and SWB; that the effects on SWB of being bullied diminish over time unless repeated, in which case the effect is sustained and additive. Much past research has used measures that combine recent, with past experiences of being bullied, as does the self-perceived bullied measure in this study. This is likely to result in two unwanted effects. Firstly, the effect of being bullied on current SWB, or related measures, is likely to be underestimated due to the contrast effect; that is, past and un-repeated negative experience may make the current situation rosier than it might otherwise seem. Secondly, it combines the repeatedly bullied with the periodically bullied. This study has shown that it is the effect of being repeatedly bullied that has the strongest effect on SWB. This is logical, yet it further emphasises the consequences of being bullied in the long-term.

Alternatively, the longitudinal analysis shows that if being bullied stops, then there is a likelihood that the effects on SWB will diminish over time, and that there is a recovery to near normal levels of SWB. It is therefore seen as important to focus on the plight of the repeatedly bullied in interventions. It may also be useful to find out the differences between those who are periodically bullied and those who are repeatedly bullied. Such differences may help guide focused intervention.

### **The development of an SWB measure for children**

The research question required that a reliable and valid measure of schoolchildren's SWB be created, as none existed. By starting with a clean slate, it was possible to design a measure that referred to the same place and time period as the LiS-C measures. By piloting the measure through several incarnations, it was possible to refine and simplify the measure and its administration to suit the intended purpose. Though a lengthy and

labour-intensive task – in excess of 150,000 individual data points entered onto a spreadsheet by hand– the result is a straightforward and robust test.

**The development of a Verbal/Indirectly Bullied measure from an existing measure:**

Over recent years there has been increasing interest in a related class of verbal, (Crozier & Dimmock, 1999), socially excluding, (Stanley & Arora, 1998) and relational, (Crick & Bigbee, 1998) forms of bullying. It has been suggested that girls bully for affiliation and not for domination, (Thompson & Arora, 1991). The development of a measure that includes aspects of verbal and relational bullying is a useful addition to testing these hypotheses. That the measure, the LiS-C verbally/indirectly bullied measure is developed from a well-established measure helps its credibility. Harris, (2000) has, in a separate study, used a similar adaptation of the LiS-C. In a personal communication, Harris acknowledged that five out of the six items used in her study as a measure of verbal bullying, are the same as the ones used in this study. Harris' findings are broadly in line with those in this study, though she found that boys reported being more physically and verbally bullied than girls.

In this current study there was no significant difference between boys and girls in the reported levels of being verbally/indirectly bullied, whereas boys reported higher levels of being physically bullied, in line with previous findings (Olweus, 1994). The verbally/indirectly bullied variable, of the three bullied variables in this study, had the strongest inverse association with SWB, both for boys ( $r(215) = .393, p < .000$ ), and for girls ( $r(170) = .375, p < .000$ ).

In addition to adapting and administering the verbally/indirectly bullied variable, the psychometric properties of the two LiS-C measures were assessed and found to be good at the criteria chosen in this study.

The LiS-C verbally/indirectly measure is presented as a simple and robust addition for those researching the effects of this form of being bullied.

### **The form of adjustment of bullied/bullying data for parametric analysis**

One of the issues for data analysis using bullied data, whatever the source, has been the apparent use of raw data in parametric analyses. Bullied data usually comes in a “J-shaped” form, in which there are a high number of zeros (not bullied) and a declining curve representing frequency or intensity. There is no other half to the normal curve; no levels of not being bullied. Consequently, the data must be transformed if it is to be used appropriately in certain forms of parametric analysis. This is especially a requirement when using structural equation models, though it should also be followed, or at least acknowledged in regression or correlational analysis.

In this study, where necessary and appropriate, the bullied variables have been transformed using a percentile transformation (Kline, 1993). This helps to remove a statistical confound and error in the analysis that has not been clearly evident in other research.

### **The inclusion of two existing bullied measures**

Through the inclusion of multiple bullied measures, including self-reports and teacher-reports, it has been possible to analyse the inter-relationships between them and the new LiS-C verbally/indirectly bullied measure. These have largely conformed to expectations, with boys reporting that they are more physically bullied. Other gender, age and ethnicity based analyses were non-significant. The use of adapted existing measures (LiS-C Physically Bullied and Self-Perceived Bullied), alongside a new measure (LiS-C Verbally/Indirectly Bullied), allows for comparison to be made of the research sample to existing data. The inclusion of existing measures also helps support the validation of the new one.

### **The inclusion of ethnicity**

The issue of being bullied, bullying and ethnicity is an especially sensitive issue and one that is not central to the hypotheses under test. Eslea & Mukhtar (2000), have explored the experience of Asian pupils in relation to being bullied. Moran, Smith, Thompson, & Whitney, (1993) looked at the different experiences of bullying between Asian and white children. Loach & Bloor, (1995), challenge the concept of bullying as disguised racism. Huebner & Dew, (1996), and Huebner, (1998) raised concern over the validity of the children's Multidimensional life Satisfaction scale, across racial groups. Christopher,

(1999) questions the individualistic and culturally derived notion of psychological well-being; norms from one culture not being directly applicable to another.

It is important to know if one group is different from others on the measures, as it may have at least two implications. Firstly, it may mean that the measure contains an inherent bias, tending certain groups to respond in atypical ways, or through a lack of face validity for that group. Secondly, differences may reflect experience.

By including self-reports of ethnicity, it was possible to determine if either of these considerations were apparent in the data. On examination, there were no significant differences between groups on the SWB, bullied or bullying variables. Had there been it would have proved necessary to find which, or whether both, of the two concerns were responsible.

As no effect for ethnicity was found, it was dropped from the subsequent analyses. There appear to be no inherent biases operating within the measures on this group of children including from diverse ethnic heritage. This has positive implications for the potential use of such measures in other areas.

### **Links between this research and relevant literature**

The implication that control related attributions may influence the perceptions of being bullied or of SWB, is established in the literature on both areas. In relation to SWB, Adelman, Talyer & Nelson, (1989) associated low life satisfaction with low control, using a perceived control in school scale. DeNeve, & Cooper, (1998), DeNeve, (1999), Huebner, (1991c), Myers & Diener (1996) all found that an internal locus of control was associated with high SWB or life satisfaction. Taylor, Kemeny, Reed, Bower, & Gruenwald, (2000) link a personal sense of control with positive mental health in adults and with physical health. These findings were confirmed in the current study, where Control Beliefs-Negative, equating to an external locus of control in relation to being bullied, was inversely correlated with SWB.

Chorpita & Barlow, (1998) linked early experiences of low control with a subsequent external locus of control bias in an individual's interpretation of events. Mynard, Joseph, & Alexander, (2000) found that victims of verbal bullying were especially prone to

believing that control lay with powerful others. In this study, similar results were obtained. Being bullied was associated with the control beliefs-negative variable.

Clearly, locus of control, or control beliefs, are known correlates of both being bullied and SWB. In including a control beliefs measure it was first decided to use an existing measure, the Nowicki-Strickland locus of control scale, (Nowicki & Strickland, 1973) however the measure did not pass the psychometric criteria established in this study, when it was used in a pilot. Instead, a new measure was developed, of which only the control beliefs-negative scale met the criteria. In the analysis, control beliefs-negative was a significant predictor of SWB, though being bullied remained the strongest predictor in an hierarchical regression.

Lie/Social Desirability is also a known correlate of being bullied/bullying and SWB. Mynard, & Joseph, (1997), using Eysenck's junior personality questionnaire, (Eysenck & Eysenck, 1970) found that bullies were relatively low on the lie scale and that bully/victims want social acceptance, but that they do not have it. In Salmon, James, & Smith, (1998), bullied pupils had relatively high lie scale scores. This finding was replicated in the current study.

DeNeve, K.M. & Cooper, H. (1998) found that Social Desirability was inversely associated with SWB (mean  $r = -.23$ ) in a meta-analysis of the relationship between SWB and 137 adult personality variables. A similar finding, with SWB reverse-scored, was evident in the present study.

The SWB measure developed for this study was the product of several pilots in which the existing measures were found to be inadequate, given the study's psychometric criteria. The new measure meets these criteria. As with the control beliefs-negative variable, lie/social desirability is a significant predictor of SWB, but not as strong as being bullied, even when entered before being bullied in an hierarchical regression.

The inclusion of both variables in the research has helped to refine examination of the impact of being bullied on SWB.

### **How the research fits with existing studies**

In this section, it is intended to highlight recent and pertinent links with research and the results of this study, rather than repeat the contents of the literature review.

One of the central findings of this study, that being bullied, if not repeated, results in the deleterious effects on SWB wearing off over time, is replicated in Juvonen, Nishina & Graham, (2000). In Juvonen et al. study, there are clear parallels with the present study. Juvonen et al. include a concurrent (n244) and longitudinal study (n106) over one year of middle school pupils. The analysis included the use of structural equation modelling with the EQS program. Variables included feelings of victimisation and harassment incidents (self-perceived peer harassment) and self-worth, depression (using the CDI) and loneliness (all as measures of psychological adjustment). The prediction of psychological adjustment from self-perceived peer harassment was  $\beta = -.59$ , close to the  $\beta = -.53$ , found in the present concurrent study for the prediction of SWB from being bullied. The type of fit indices used were the same, and they were of the same order as those in the present study. SEM was not used in analysing the longitudinal data, but the correlation between victimisation at time point 1 and time point 2 was  $r = .37$ , compared to  $r = .418$ , for the combined bullied variable at both time points in the current study.

Juvonen et al. concluded from their analysis of the groupings of old victims (bullied at time point one only) new victims (bullied at time point two only) and stable victims (bullied at both time points) that:

“...these findings indeed support the concurrent timing effects and also provide evidence for recovery effects. Students who perceived themselves as harassed a year earlier but not presently showed no psychological adjustment difficulties at the present time when compared with those who never viewed themselves as victimized.” (Juvonen et al. 2000, p.356)

This timely and supportive research supports the current hypothesis that “The effect of being bullied on a schoolchild’s SWB covaries with time; that the effects of being bullied diminish unless repeated.” However, the present study adds to the research through: through the replication in a different country and a broader age group; using purpose-built measures that share a context and time frame, especially important when considering the SEM analysis; using SEM for the longitudinal analysis; transforming the variables into a



normal distribution, where appropriate, something not done in the Juvonen et al. study; and, the inclusion of additional demographic and known psychological covariates. Despite these caveats, the Juvonen et al. research highlights the need to differentiate between periodically, and repeatedly bullied pupils when measuring the effects of being bullied.

Similar magnifying effects for those experiencing stable victimisation are described in Kochenderfer & Ladd (1996), in their longitudinal study of 200 five to six year old kindergarten children.

Rigby, (1999) found, in a three year longitudinal study of 13 to 16 year old pupils, that previous victimization predicted poor physical health at time two and poor mental health in girls. However, there are a number of weaknesses in this study. Being bullied was measured using a single item, and the measures of mental health were adapted adult measures that were not school focused or time delimited.

The behaviour difficulties highlighted in the teachers' S&D scores for the bullied/bullying group in the current study, are similar to those found in the review by Salmon & West (2000) of the effects of bullying in schools on children's physical and mental health. Salmon & West concluded that,

“bully/victims are the most likely to present with physical and psychological symptoms.” (Salmon & West, 2000, p.379)

This finding is further supported by Sourander, Hestelä, Helenius, & Piha, (2000), in longitudinal research over eight years with 8-16 year old pupils. Sourander et al. found that,

“bullying and victimization are often persistent and associated with severe emotional and behaviour problems.” (Sourander et al. 2000, p.873)

In the Sourander et al. research, parents and teachers completed versions of the Rutter scales (Rutter 1967 & Rutter, Tizard, & Whitmore, 1970), which were the precursors to the S&D. Forero, McLellan, Rissel, & Bauman, (1999) also found that,

“Students who both bullied and were bullied had the greatest number of psychological and psychosomatic symptoms.” (McLellan et al. 1999, p.344)

The study was of 3918, 11-16 year old New South Wales schoolchildren.

Kaltiala-Heino, Rimpela, Rantanen, & Rimpela, (2000) in a study of 26430, Finnish adolescents found that,

“Anxiety, depression and psychosomatic symptoms were most frequent among bully-victims.” (Kaltiala-Heino, 2000, p.661)

Wolke, Woods, Bloomfield & Karstadt, (2000) used parent-based S&D scores (a parallel form to the teachers’ S&D used in this study) matched with individual interviews of N=1639 Year 2 (6 - 7 years old) and Year 4 (8 – 9 years old). The interviews focused on “direct bullying” and “relational bullying” both as perpetrators and as recipients. The term “bullying” was not used, instead a specific behaviours were listed in relation to the pupils’ experiences. “Direct bullying” included physical and verbal bullying. “Relational bullying” is associated with the indirect form of bullying identified in the present study, involving,

“...the hurtful manipulation of peer relationships/friendships that inflicts harm on others through behaviours such as ‘social exclusion’ and ‘malicious rumour spreading.’” (Wolke et al., 2000, p989)

Children were placed in one of four groups, as in the present study. Results were similar to those already reported. Overall,

“All children involved in direct bullying had significantly increased behaviour problems, hyperactivity, conduct problems, and peer problem scores, and lower prosocial behaviour scores compared to those not involved in bullying... Findings were similar for relational bullying involvement.” (Wolke et al., 2000, p989)

Haynie, Nansel, Eitel, Crump, Saylor, Yu & Simons-Morton, (2001) found that bully/victims, in a study of N4263 middle-school students,

“were found to score less favorably than either bullies or victims on all measured psychosocial and behavioural variables.” (Haynie et al., 2001, p.29)

This body of research, taken with the current study, points to the need to focus on pupils who are both bullied and bullying as a source of distress to themselves and others.

Hawker & Boulton (2000) raise issues about methodology in their meta-analysis of research on the effects of being bullied (peer victimization) on SWB-related variables (psychosocial maladjustment). They highlight “shared method variance” as potentially exaggerating the relationship, as it may be a product of the individual’s overall disposition. Instead, multiple informants are recommended for the outcome and predictor

variables. However, Crick & Bigbee, (1998) who used a multi-informant approach to assessing the effects of relational bullying on

“sociopsychological adjustment problems [found that]...self-reports of victimization may not be more biased than peer reports.” (Crick & Bigbee, 1998, p346)

The inclusion of the S&D subgroup in the current study goes some way to answering the shared variance concern, and to validate the findings from the central within-person analysis. Additionally, the poor reliability of peer nomination techniques, raised in Frederickson, & Furnham, (1998) and the superiority of self-reports for assessing the “intrapersonal consequences of victimization” (Graham & Juvonen, 1998, p587), suggest that the chosen methodology for the current study was appropriate. This is especially the case where there is an emphasis on quantifying, rather than grouping, individuals for analysis. Other informants may suggest that a person is bullied, though it is unlikely that they will have as accurate picture of how much they are bullied.

When considering SWB in relation to existing research it was necessary to examine adult models and measures, such as those described in Myers & Diener (1997) and Andrews & Withey, (1976). These included a pictorial, seven-faces scale with the happiest face at one end and a saddest face at the other, and another seven-point scale with “terrible” at one end and “delighted” at the other. Both single-item measures were included between the multiple item measures in the validation study. Both showed a significant association with the SWB measure, (see Appendix N).

There has been increasing interest in happiness and positive psychology, with an issue of *American Psychologist* devoted to positive psychology (*American Psychologist*, 2000, Vol.55, part 1). This issue focuses on what psychology can add to what makes people happy, rather than on the negative aspects of life that are so often the subject of research. SWB and happiness are important constructs in positive psychology (Belle, Doucet, Harris, Miller, & Tan, 2000, Csikszentmihalyi, 2000, Diener, 2000, Myers, 2000, Reiss, 2000, Salovey, Rothman, Detweiler, & Steward, 2000, Seligman, & Csikszentmihalyi, 2000a, Seligman, & Csikszentmihalyi, 2000b, Sink, 2000, Smith, T.B. 2000). In creating a schoolchildren’s SWB measure, the adult models were formative. The structure of well-being used is comprised of three main measurable components; life satisfaction; positive affect and negative affect. The development of this model is covered by Lucas,

Diener, & Suh, (1996), and in Diener, Suh, Lucas, & Smith, (1999). The schoolchildren's SWB measure relates to the positive and negative affect aspects of this model. Life satisfaction is not included, as it a comparative construct in which the individual compares their circumstance with that of others, or with his or her personal strivings.

A research measure for assessing children's positive and negative affect was published during the research period. The PANAS-C (Laurent et al., 1999) is a measure in development of children's positive and negative affect. It was used in the validation study of the SWB measure but it was not used in the main study for several reasons: it has a clear United States English slant to some of the items, such as 'Jittery' and 'Blue'; it is suggested that an unbalanced version of the form is used, making it prone to acquiescence effects; and, it has vaguely determined time and contextual frames of reference.

In developing the SWB measure, it was decided that the school context and a recent time-frame were important for several reasons: (1) to match the frame of reference for the LiS-C bullied variables; (2) to avoid the paradoxical influence of past events through contrast effects (Diener, 2000, Parducci, 1995, Suh, Diener, & Fujita, 1996); (3) to avoid over-reliance on long-term memory for emotionally laden events; and, (4) to focus on a range of current affective, physical and relationship themes.

This last point emphasises that SWB is related to physical well-being (Salovey, Rothman, Detweiler, & Steward, 2000, and Williams, Chambers, Logan, & Robinson, 1996) and to sociability and good social networks, (DeNeve, 1999 and Myers, 2000) as well as affect; it is hard to be happy if you are feeling unwell or alone.

The importance of constraining the context for subjective judgements is not evident in the literature. Yet, this is important, as it is possible to be unhappy at work and happy at home or vice versa. A focus on the school context in relation to the current research may have helped to reduce the introduction of confounding, external to school, effects on a schoolchild's SWB. By measuring SWB at two time points in the longitudinal study it was possible to control for trait-like dispositions in relation to SWB may mask the effect of recent events. Brebner, (1998) distinguishes four happiness/personality groups: happy; labile; stable; and, unhappy, that might otherwise confound the relationship between the experience of being bullied and SWB. Controlling for past SWB effectively reduces the

trait effect, showing that even when included, current levels of being bullied remain the best predictors of current SWB.

McCullough, Huebner, & Laughlin (2000) support the focus on current events as predictors of SWB. McCullough et al., found that of positive daily events, negative daily events and major life events, only negative daily events correlated significantly to positive and negative affect amongst 92 high school students. Major life events and positive daily events were found better predictors of student self-concept. This study included the Positive and Negative Affect Scales (PANAS: Watson & Clark, 1988) and the Students Life Satisfaction Scale (SLSS: Huebner, 1991b) amongst the measures used.

### **This study in relation to research on being bullied**

#### Methodological issues

The content validity of the Life in School Checklist, with its focus on defined behaviours, has been further confirmed by Arora, (1999). In this article, Arora states that:

"A specific advantage of the checklist is that it does not mention bullying as such. Effective anti-bullying policies tend to increase awareness of pupils of the range of actions that could be considered bullying... By not mentioning bullying the checklist avoids this confounding effect." (Arora, 1999, p17)

This may help avoid the type of over-inclusive self-reports of bullying that younger pupils are prone to, as described by Smith, Madsen, & Moody, (1999) and for learning disabled children in Nabuzoka, & Smith, (1999). Alternatively, Gumpel, & Meadan, (2000) argue for a more inclusive definition of school-based violence, which reduces the demand to subjectively interpret events as bullying or not. The methodology used in the present concurrent study includes both forms of questionnaire; the behaviour and the overtly bully-focused.

Multi-informant alternatives for measuring a pupil's experience of being bullied are shown to have relatively weak associations when peer, self-report, teacher and researcher based methods were used, Pellegrini, & Bartini, (2000). However the inclusion of the teachers' S&D data is important when checking shared variance effects (Hawker & Boulton, 2000).

Alternative methodologies for assessing bullied/bullying behaviour are in development. These include qualitative methods and visual – cartoon – methods that help to reduce the cultural specificity of existing techniques (Costabile et al., 1999, del Barrio et al., 1999, and, Smith, Cowie, Olafsson, & Liefoghe, 1999). However, for relatively large scale surveys, the mixture of methods used in the present study is broadly supported in a review of methodologies by Ortega et al., (1999).

The groupings used in the present study of not bullied, bullied, bullied/bullying and bullying only, are replicated in Schwartz, D. (2000). Schwartz uses the synonymous categories: normative contrasts, non-aggressive victims, aggressive victims and non-victimised aggressors. In addition, the aggressive victims group (bullied/bullying) were notable for their “ behavioural and emotional dysregulation;” (Schwartz, D. 2000, p.191) a finding in line with the teachers S&D reports in the present study.

### **What has been learned in the process of completing the study**

The personal experience:

At the beginning of the study the area of research seemed clear and uncomplicated. With time, the complexity of both conceptualising and measuring SWB and bullied/bullying behaviour became more apparent. Throughout the process, clarity in defining the research problem and not becoming sidetracked has been essential. Alongside this focused approach, it has been necessary at times to make strong revisions or leave promising side turnings – the road not taken – for another time or another person.

Part of the process of completing this PhD, has been complete immersion into two fields of study and thought, and with supervision, discussion and mental effort, fashion a coherent route through a territory that is partly uncharted. Sometimes this has been simple, the mere recording of landmark studies and their relationship to each other and the central theme. At other times it was not possible to make simple or obvious connections, instead it was necessary to struggle to make links. As this process is necessarily original, it was not always easy to make clear and parsimonious links.

In completing the write-up, there was a tension between reporting the whole journey taken, for completeness of view, or to focusing on a single logical route that may appear

to have a teleological rationale. But, completeness can be confusing, as if reporting the random excursions of someone in a private and unseen maze. To focus alternatively, on the journey's end may be simple, but would deny the exploration of the surrounding countryside, the context in which the journey took place. The intention has been to balance the two, with important landmarks highlighted for the reader from which to take his or her bearings.

### **Implications for future research**

Outcomes from this study will focus on three areas: clarification of theoretical and practical issues surrounding the measurement of bullying and SWB; measuring bullying and SWB in schools; and, the potential for highlighting pupil at-risk and protective factors in relation to being bullied.

The relationship between the constructs of bullying and SWB and their measurement needs further exploration. Definitions of bullying, including themes of an imbalance of power, repetition and intention are not adequately reflected in the current methods of measurement. It is necessary to continue the development of bullied/bullying measures that reduce the confounding influences of language culture, subjective bias, the unreliability of peer assessments, observer error and of complexity in definition. The incorporation of multi-informant and multi-method approaches helps to avoid measurement error, as single source /single measure attempts to operationalise these concepts have considerable shortcomings.

The use of structural equation modelling holds several advantages in analysis where instruments are known to be prone to measurement errors or where they are closely associated, as is the case with measuring different forms of being bullied. In the current study, the being bullied factor, generated within SEM model, helped to exclude measurement error and to isolate unshared variance. This form of analysis is likely to promote conceptual parsimony and precision.

It would be preferable to control the linguistic promiscuity of the term bully in research, where the bullying behaviour becomes identified with the actor. This has the unfortunate effect of labelling the individual along with the behaviour. In turn, this leads to the creation of groups who are labelled, and implicitly judged, according to their behaviours.

This too easily results in reductionist categorising, with little sense of the fluidity in group membership based on changeable social behaviour.

The measurement of schoolchildren's SWB, though shown reliable and valid for the measure used, still needs development. A simplified administration may encourage consistency and usage amongst other users. Both the bullying and SWB measures could be usefully transferred to a computer program to be used in the many computer suites that have proliferated in UK primary and secondary schools. For research, it has been useful to form a personal relationship with the data, through the manual entry of each data point. However, this is labour-intensive and prone to simple error, even with checks and rechecking. Computer-administered delivery of the measures may help to provide schools with quick quantitative feedback, and where web-based, provide continually updated normative data for child and school variables.

Whether computer-based or not, the measures need to be further administered amongst other populations based on ethnicity, age, socio-economic group, school type and region, to test their broader validity and reliability.

The use of the S&D has been useful in this study as an established observer measure. However, it could be supplemented as a source of data on bullying/being bullied and SWB. Clearer definitions of these constructs could be followed by multiple items that related to a shared time-frame with the pupil measures.

The longitudinal research in the study has shown that group membership is at least partially fluid. Some children bullied at one time point did not report being bullied at the second time point. These children's SWB had returned to a similar level to those of children bullied at neither time point. In contrast, children bullied at both time points had a considerably lower SWB. Consequently, future research with 'victims' may usefully focus on the differences between these two groups, the once bullied, and the continually bullied. The results of such work may help differentiate the two groups according to strategies used, social, personality and attributional factors.

Continued longitudinal analysis of schoolchildren's experience of bullying may also help to uncover individual or situational at-risk and protective factors. It would be useful to find what maintained the behaviour of those pupils who continually bully and whom are



bullied; the most distressed and distressing individuals in this, and in others' research. Comparing the endogenous and exogenous influences affecting these pupils, with those of the non-bullied and non-bullying pupils, may suggest where to intervene in helping them. Intervening with this group is most likely to improve their SWB, and the SWB of others whom they affect. Comparison of the never bullied or bullying group with the repeatedly bullied/bullying group would highlight discriminating factors, some of which may be open to change.

### **Practical and theoretical implications of the results**

The study supports Olweus' (1994) emphasis on: working through a whole school policy, using curriculum based strategies, working directly with pupils involved in bullying situations, enhancing breaks and lunchtimes, and the involvement of pupils, parents and carers. That is, intervention should be at an individual and at a systemic level. Clearly, intervention should be aimed at helping the persistently victimised child, who may be at risk from chronically lowered SWB and potential psychosocial distress. This research suggests that a child who is victimised in the long term may internalise the negative views of others and develop helpless self-attributions; a reflection of the group's influence on an individual's psychopathology. He or she may also externalise these negative feelings, using the group's established bullying behaviour patterns and by presenting behaviour problems as identified by the class teacher. This is proposed as a model for the problematic bullied/bullying group, who are distressed and distressing, contributing negatively to their own and others well-being.

Consequently, intervention at the individual level solely, is likely to have a minimal impact on the setting in which the victimisation occurred. To affect the context, intervention needs to become part of the culture, or ethos, of the school. Intervention should be continuous and long-term, involving all those who are part of the broader school community. Implicit in the research is the further payoff that such intervention might have. It is suggested that intervention to reduce levels of bullying may well bring about increased happiness, more prosocial behaviour and less problematic behaviour in schools. Further, from a speculative interactionist perspective, intervention focused on any of these variables, reducing bullying, increasing happiness and improving behaviour, may constructively influence each other. This reinforces the status of anti-victimisation interventions as having a broader positive influence on schools.

Future endeavour may turn from measuring bullying, to testing interventions intended to reduce it. In so doing, it may help to look at those pupils who have little or no experience of being bullied or of bullying, and to find out how they, or their schools are different.

In addition, the existence of a psychometrically valid and reliable, school-based measure of children's SWB is likely to prove a useful tool for researchers.

## Appendices

## **Appendix A - Pilot & Subsidiary Studies**

Pilot studies					
This appendix outlines the research studies undertaken					
Pilot Study	N	Participants	Form of SWB measure	Additional Measures	Findings
1	99	Secondary girl students 11-15 years	Design, according to the procedure outlined in, J. & Golombok, S. (1991 & 1999) 52 item, balanced + & - items. Four point scale; Poles = I Strongly Agree, I Strongly Disagree.	“Life in School” checklist (LiS, Arora, 1995), sentence completion measures and a safe/unsafe locations in school question.	Moderate correlation between LiS and SWB measures. SWB measure taken from those 31 items correlating with the total scale at .4 or above.  Results on the SWB measure were normally distributed and had a coherent internal factor structure.
2	841	Primary & Secondary school students (8 Schools) 8-15 years	31 items (23 Negative, 8 positive) embedded in a 40-item scale, with 9 dummy positive items. Poles as above	As above	Significant correlation between LiS (Physically Bullied) and SWB measures $r = .27$ , $p < .000$ (Pearson), $r = .26$ , $p < .000$ (Spearman)  Oblique factor analysis of data suggests the SWB measure is internally coherent, normally distributed and has relatively stable means and distribution across years. Internal reliability (Alpha) is .89.

3	37	Primary & Secondary school students	As pilot study 2	A range of assessments as appropriate to each child, plus The "N" scale from the Eysenck Junior Personality Scale (Eysenck & Eysenck, 1970) and the B/G STEEM (Maines and Robinson, 1993), self-esteem scale	Overall Norms and distribution in line with study 2. However a greater number of unhappy (low SWB) children as was expected for this sample. Correlation between SWB and B/G STEEM $\Rightarrow$ .63. This meets the study's power criteria, whereas, the correlation between SWB and "N" = r-.41, does not, at this sample size.
4	89	Primary school students 8-11 years	<p>Design, according to the procedure outlined in Rust, J. &amp; Golombok, S. (1991 &amp; 1999)</p> <p>Revised 30 item balanced scale (15 pos., 15 neg.), plus 2 items reflecting the typicality of the measure's time frame (the last week).</p> <p>A four-point scale, split into two halves. The student is asked to first "Agree" or "Disagree" with the statement and then decides by how much; "a lot" or "a little".</p> <p>Responses are demonstrated to the students and each item is read aloud.</p>	<p>"Life in School" checklist (L.I.S.); in addition a Verbally/Indirectly Bullied" scale derived from existing items.</p> <p>A sentence completion measure and a safe/unsafe location (in school) question.</p>	<p>Normal distribution. Reliability (Alpha) = .86 Reliability (Split-half) = .81.</p> <p>Significant correlation between Verbally/Indirectly Bullied and SWB <math>p = .008</math> (Power analysis suggests that this is significant at .05 for a 2-tailed test at 80%).</p>

5	785	5 Primary schools. 2 Secondary schools.	As in study 4. Internal reliability (SWB) = .88 (Alpha),	As in study 4. Plus, the inclusion of a range of demographic data. As in study 4 plus: 10 of the 20 item Eysenck lie scale (L). This scale contains 5 positive and 5 negative items and; a self-report of Ethnicity.	Initial findings show a significant correlation between direct and indirect bullying with each other and with SWB. Shortened Eysenck lie scale found not satisfactory.
6	Case studies	From Lewisham Schools	As in study 4.	As appropriate	Ongoing data collection. Examining the relationship between SWB with CFSE-I & IQ.

## **Appendix B - Glossary of Acronyms**



<b><u>CB-N</u></b>	<b><u>Negative Control Beliefs about being bullied</u></b>
<b><u>CDI</u></b>	<b><u>Children's Depression Inventory</u></b>
<b><u>CFSE-I</u></b>	<b><u>Culture Free Self-Esteem Inventory</u></b>
<b><u>L/SD</u></b>	<b><u>Lie/Social Desirability</u></b>
<b><u>LiS-C</u></b>	<b><u>Life in School Checklist</u></b>
<b><u>LS</u></b>	<b><u>Life Satisfaction</u></b>
<b><u>MSLSS</u></b>	<b><u>Multidimensional Students' Life Satisfaction Scale</u></b>
<b><u>PANAS-C</u></b>	<b><u>Positive and Negative Affect Schedule for Children</u></b>
<b><u>QoL</u></b>	<b><u>Quality of Life</u></b>
<b><u>S&amp;D</u></b>	<b><u>Strengths and Difficulties Questionnaire</u></b>
<b><u>SLSS</u></b>	<b><u>Students Life Satisfaction Scale</u></b>
<b><u>SWB</u></b>	<b><u>Subjective Well-Being</u></b>

## **Appendix C - Sample Primary Research Form**

I am a Boy	I am a Girl	Year	Number
------------	-------------	------	--------

①	During the last week in school:	I Agree		I Disagree	
		A Lot	A Little	A Little	A Lot
1	I had lots of energy				
2	I was nervous				
3	I wanted to come to school				
4	I was cross				
5	I was sad				
6	I felt relaxed				
7	I felt ill				
8	I felt that school was a safe place				
9	I concentrated				
10	I felt sick				
11	I felt positive				
12	I felt angry				
13	I wanted to cry				
14	I got on well with everyone				
15	I was in a bad mood				
16	I enjoyed myself				
17	I was tired				
18	I felt calm				
19	I was interested in working				
20	I felt sorry for myself				
21	I felt good				
22	I was confused				
23	I was confident				
24	I felt upset				
25	I wanted to give up				
26	I felt wide awake				
27	I had headaches				
28	I worked well				
29	I was frightened				
30	I liked being with other people				
31	I felt the same as usual				
32	It was a typical week for me				

<b>2</b>	<b>During the last week another pupil:</b>	<b>No</b>	<b>Once</b>	<b>More than once</b>
1	Helped me with my work			
2	Called me names			
3	Was nasty about my family			
4	Tried to kick me			
5	Was unkind because I'm different			
6	Said they'd beat me up			
7	Tried to make me give them money			
8	Lent me something			
9	Talked about clothes with me			
10	Told me a joke			
11	Got a gang on me			
12	Smiled at me			
13	Helped me carry something			
14	Tried to hurt me			
15	Talked about TV with me			
16	Shared something with me			
17	Was rude about the colour of my skin			
18	Played a game with me			
19	Was unkind about something I did			
20	Tried to break something of mine			
21	Told a lie about me			
22	Tried to hit me			

3

Which of the places below do you think is the safest in school at break and lunchtimes, and which is the least safe?

Put **ONE** tick (ü) next to the safest place and **ONE** cross (X) next to the least safe place.

Football Cage	
Volley Ball Area	
4 Squares	
Basketball	
Large Bars	
Small Bars	
Toilets	
Shed	
Dining Hall	
Grass	
Skipping Area	
Infant Playground (not infant only area!)	
Bushes	

Remember only tick (✓) one box and cross (X) one box.

4

Complete the following sentence:

School would be better if.....

.....

.....

5

This part is about bullying.

Pupils sometimes bully weaker pupils by deliberately and repeatedly hurting or upsetting them in some way; for example, by hitting them, saying mean things or leaving them out on purpose. But it is not bullying when two people of about the same strength have the odd fight or argument.

Tick the one box that fits you best

How often were you bullied at school this year?	Never	
	Less than once a week	
	About once a week	
	One or two days a week	
	Most days	
	Every day	

Tick the one box that fits you best

How often did you take part in bullying another pupil at school this year?	I did not bully anyone	
	It has happened once or twice	
	Sometimes	
	About once a week	
	Several times a week	

**What happens if you get bullied? Tick "Yes" if the statement is right about you, or the "No " box, if it isn't**

<b>6</b>	<b>If I get bullied in school:</b>	<b>Yes</b>	<b>No</b>
1	I tell them to stop.		
2	I ignore it.		
3	I make a joke of it.		
4	I do nothing.		
5	I worry about it.		
6	I feel helpless.		
7	I can get my friends to help.		
8	I'm on my own.		
9	It will keep on happening.		
10	I talk my way out of it.		
11	It gets worse if I try to stop it.		
12	I keep thinking about it.		
13	I tell someone.		
14	I feel bad.		
15	I can get help from the teachers.		
16	I do it to someone else.		
17	I let them get their own way.		
18	I can look after myself.		
19	I keep quiet.		
20	It's alright.		
21	People think it's funny.		
22	I fight back.		
23	I don't know what to do.		
24	I want to stay at home.		
25	I stay out of the way.		

Tick the group that best describes you?  
Write some more if you want

Ethnicity		
Bangladeshi		
Indian		
Pakistani		
Sri Lankan		
Black African		
Black African-Caribbean		
Black British		
Black Other (please say more...)		
Chinese		
Vietnamese		
South East Asian		
English		
Scottish		
Welsh		
Greek		
Irish		
White European		
White Other (please say more...)		
Mixed Race (please say more...)		
Arabic		
Turkish		
Turkish Cypriot		
Other (please say more...)		



Please answer each question by putting a circle around the "Yes" or the "No" following the question. There are no right or wrong answers and no trick questions. Work quickly and do not think too long about the exact meaning of the questions.

Remember to answer each question

1	Do you generally pick up papers and rubbish that others throw on the classroom floor?	YES	NO
2	Do you ever lie?	YES	NO
3	Are you always good?	YES	NO
4	Are you always quiet in class, even when the teacher is out of the room?	YES	NO
5	Were you ever greedy by helping yourself to more than your share of anything?	YES	NO
6	Have you ever cheated at a game?	YES	NO
7	Do you like everyone?	YES	NO
8	Do you ever make mistakes?	YES	NO

**Appendix D**  
**Teachers' Strengths & Difficulties Questionnaire**

## STRENGTHS AND DIFFICULTIES QUESTIONNAIRE

For each item tick Not True, Somewhat True or Certainly True. It would help if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of the child's behaviour over the last six months or this school year.

Class.....

Number.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings			
Restless, overactive, cannot stay still for long			
Often complains of headaches, stomach-aches or sickness			
Shares readily with other children (treats, toys, pencils, etc.)			
Often has temper tantrums or hot tempers			
Rather solitary, tends to play alone			
Generally obedient, usually does what adults request			
Many worries, often seems worried			
Helpful if someone is hurt, upset or feeling ill			
Constantly fidgeting or squirming			
Has at least one good friend			
Often fights with other children or bullies them			
Often unhappy, down-hearted or tearful			
Generally liked by other children			
Easily distracted, concentration wanders			
Nervous or clingy in new situations, easily loses confidence			
Kind to younger children			
Often lies or cheats			
Picked on or bullied by other children			
Often volunteers to help others (parents, teachers, other children)			
Thinks things out before acting			
Steals from home, school or elsewhere			
Gets on better with adults than with other children			
Many fears, easily scared			
Sees tasks through to the end, good attention span			

Do you have any comments?

**Please turn over – there are a few more questions on the other side**

Overall, do you think that this child has difficulties in one or more of the following areas:  
Emotions, concentration, behaviour or being able to get on with other people?

No	Yes – minor difficulties	Yes – definite difficulties	Yes – severe difficulties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you answered “Yes”, please answer the following questions about these difficulties:

❖ How long have these difficulties been present?

Less than a month	1 – 5 months	6 – 12 months	Over a year
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

❖ Do the difficulties upset or distress the child?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

❖ Do the difficulties interfere with the child’s everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

❖ Do the difficulties put a burden on you or the class as a whole?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Date \_\_\_\_\_

Class Teacher / Head of year / Other (please specify:)

**Thank you very much for your help**

**Appendix E**  
**Initial School Contact Letter**

**Executive Director for Education and Culture: Althea Efunshile**

**Psychological & Learning Support Service**

New Woodlands Centre  
49 Shroffold Road  
Downham, Bromley BR1 5PD

Date: Monday, 8 November  
Our Ref: 1000

Telephone: (020) 8314 7041  
Fax: (020) 8314 3079  
E-mail: @lewisham.gov.uk  
Web site: <http://www.lewisham.gov.uk>

## **EBD Project – Bullying**

Dear .....

I would like to discuss with you the potential for carrying out a bullying survey for ..... School.

The survey has been completed by four other Lewisham secondary schools. Feedback from all on the survey's use-value has been positive; all those who completed the survey last year wanted the follow-up this year.

The survey gives the school:

- a baseline measure for Aggression, Bullying and Social Exclusion
- pupils' perceptions of safe and unsafe areas in the school
- pupils' ideas on how the school could be improved

The survey is based on a DFEE recommended checklist plus additional items on pupils' sense of well-being and their beliefs in being able to effect positive change.

The survey includes teacher-based evaluations to:

- Check on whether the results are valid
- Provide the basis for developing warning signs that teachers may use to identify children who are vulnerable to bullying.

Additional points:

- The survey is completed anonymously; numbers not names are used to link the data.
- Years 7,8,9 & 10 are involved; one class per year group is sufficient.
- The survey takes about 30 minutes per class (schools report between 15-45 minutes).
- The Teacher-based form takes about three minutes per child, and can be completed over the half term in which the survey takes place.

If you would like to take up the offer, it would help me in preparing the survey

materials if I were to know which areas in the school might be seen as relatively “unsafe” by the children. Other schools have selected between 6-10 areas often including the toilets, areas of the playground/s, own classroom, corridors, stairs etc.

I can come to ..... to discuss the survey on:

**Monday 15<sup>th</sup> November at 11:30.**

Yours sincerely

John Ivens  
Educational Psychologist

**Appendix F**  
**Sample Primary & Secondary School Feedback**



## **Bullying in Schools**

### **Feedback Report to ..... School, Summer '99**

#### **Outline**

The survey provides an update for ..... on:

- Levels of aggression.
- Levels of bullying.
- Perceptions of unsafe/safe areas.
- Pupils' perceptions of how the school could be safer.

These results can be compared with the findings from 1998. Please refer to the feedback from last year for background on bullying, methodology, sources and particular outcomes for the school.

A change this year has involved the inclusion of an indirect bullying or social exclusion measure- such as teasing or not including someone in play or work.

The sample this year included 167 pupils from year 4,5 & 6.

#### **Results**

##### **1) Pupils' Self-Perception**

Across the whole of the current EPS survey in Lewisham, it appears that those children reporting a particularly high level of bullying or especially social exclusion and are likely to be less "happy" on the self-perception scale. The results from ..... fit this trend.

(2) **Aggression, Bullying and Social Exclusion**

(N.B. lower figures indicate less aggression/bullying/social exclusion).

..... <b>Aggression Index,</b>	<b>Year4 = 15.2</b> (Last year 12)
	<b>Year5 = 10.5</b> (Last year 11.5)
	<b>Year6 = 9.7</b> (Last year 5.8)
	<b>Total = 12</b>

This index in the original "Life in School" research ranged from about 8 - 16 for a whole primary school. In Lewisham the range is from 8-19 in primary schools.

This index is likely to reflect the level of aggression in the school. It consists of children reporting occasional incidents, rather than systematic bullying.

..... <b>Bullying Index,</b>	<b>Year4 = 10.4</b> (Last year 14.3)
	<b>Year5 = 5.9</b> (Last year 5.9)
	<b>Year6 = 8.7</b> (Last year 4.7)
	<b>Total = 8.3</b>

This index in the original "Life in School" research ranged from about 4 - 16 for a whole primary school, and in the current EPS research in Lewisham ranges from about 6 - 18.

This index is likely to reflect the level of bullying in the school. It consists of children reporting a series of incidents and behaviours, happening to them at a rate of more than once a week.

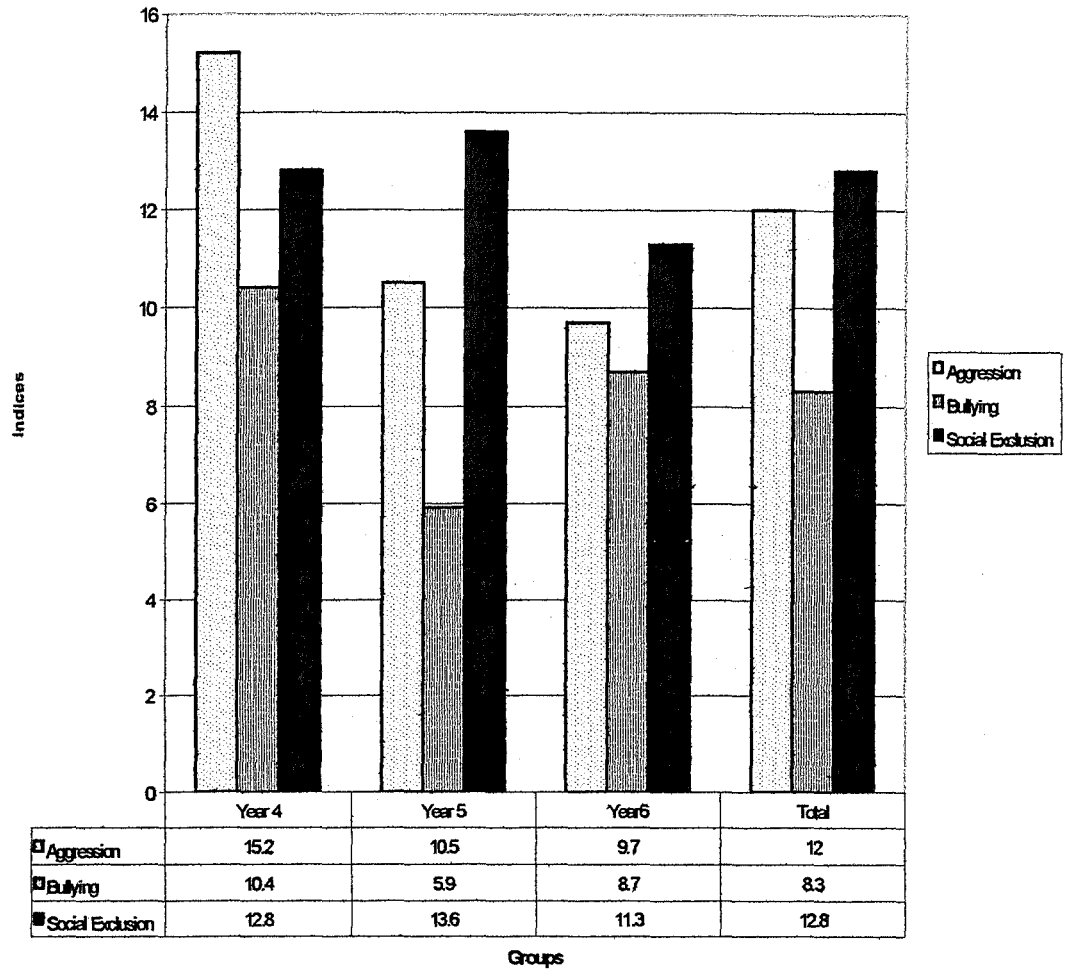
..... **Social Exclusion Index:**

<b>Year4 = 12.8</b>
<b>Year5 = 13.6</b>
<b>Year6 = 11.3</b>
<b>Total = 12.8</b>

This index is a relatively new addition made by the Lewisham EBD Project Team to assess indirect and verbal bullying. It is associated with bullying, and the index figure is usually higher, as is the case on this set of results.

Both bullying and social exclusion were reported more heavily by boys than girls.

## Life in School Results 1999



These indices are derived from pupils' responses to a set of statements reflecting what happened to them over their previous week in school.

The results were compiled by Year Group to provide the above chart. There appears to be no clear trend on this year's results.

"It must be stressed that the main purpose of the "Life in School" checklist is to provide a measurement which is specific to the school and it's circumstances. If such a measurement is repeated after a period of time under the same conditions as before..., it is only then that a meaningful comparison can be made ...(of)...the extent of bullying and aggression..." Dr. T. Arora.

(3) **Safe and Unsafe Areas**

These were determined by asking pupils to decide, from a choice of six areas at ....., the places, which were *safest*, and *least safe*.

The overall findings regarding places of relative safety, ranked in order (safest first) were: -

- 1<sup>st</sup> Grass (all year groups)**
- 2<sup>nd</sup> Dining Hall (all year groups)**
  
- 3<sup>rd</sup> Shed, sometimes amended to "Garden", (Years 5 & 6)**
- 3<sup>rd</sup> Skipping Area (Year 4)**

The overall findings regarding places of least safety, ranked in order (least safe first) were: -

- 1<sup>st</sup> Bushes**
- 2<sup>nd</sup> Volley Ball Area**
  
- 3<sup>rd</sup> Large Bars (especially Years 5 & 6)**
- 3<sup>rd</sup> Basketball (Year 4)**

(4) **The Sentence Completion: "School would be better if..."**

Overall 53% of the comments made reference to the playground; perhaps an indication of pupils' priorities. The focus on playgrounds continues to be been a common finding across Primary schools completing the survey in Lewisham.

Pupils' responses to this were content analysed and sorted into mutually exclusive categories and then ranked in order of frequency. This means that they were put into logical groupings and counted. As the categories are generated from the pupils' responses they are subject to change when compared with the previous year.

The year group that gave the strongest is shown in brackets for each category.

### **Statement Categories:**

**1<sup>st</sup> (5) The Playground**

More equipment, football nets, soft matting under the bars, more activities, more play, more grass. This focus was consistent for boys and girls.

**2<sup>nd</sup> (5) Quality Resources**

That school dinners should improve and that the toilets should be cleaner; this second issue was particularly noted by boys. Other suggestions included the provision of a library and bike sheds. These and similar comments accounted for 20% of the total.

**3<sup>rd</sup> (5) Pupils as the problem:**

Pupils mentioning bullying, fighting, teasing and in one case, racism. These and similar comments accounted for 10% of the total. Pupils mentioning bullying as an issue were not necessarily reporting that they were bullied, or that they were particularly unhappy, just that this was an issue for improvement.

The remaining views were less widely held, the next three being mentioned by 5% of the pupils in each case:

**Pupils as the solution:**

Having and being with friends, people being friendlier/nicer/more sensible.

**Staff availability:**

Supervision in the playground, availability as referees in football, wanting male staff.

**Curriculum issues:**

Wanting harder more interesting or easier work, more trips.

Of the remainder, two children mentioned security issues in school; there were seven last year, and one child said that the school was alright as it was.

## **Conclusions:**

When compared with last year's results, the children appear similarly focused on the playground and play. There appear to be some constructive, though not always feasible, ideas about how play might be improved.

A positive framing of this year's results would conclude that the experience of younger children is more in line with those of older children. However, there is little evidence of any clear trend, except that boys appear more likely to report being bullied or socially excluded.

It would also be predicted from last year's very low results that this year's would be slightly worse, all things being equal. This is known as "regression to the mean" and is likely to affect all those who achieve very well or very poorly in one year; the next year showing a more average result.

It may still be useful to consider interventions in the playground. Within the EPLSS there are teaching staff with special interests in developing playground games and social skills – ..... would be the link person for this work. Otherwise, Peter Blatchford, of the Institute of Education, has produced "Playtime in the Primary School". Routledge 1989, and, with Sonia Sharp, "Breaktime and the School" 1994, by the same publisher. These may be worth investigating.

Many thanks are due to the teachers and pupils at ....., who participated in this survey and ensured its effective administration.

John Ivens  
Educational Psychologist  
Lewisham EBD Project

CC ..... EBD Team  
....., Educational Psychologist

## Sample Secondary School Feedback

**Executive Director for Education and Culture: Althea Efunshile**

**Psychological & Learning Support Service**

New Woodlands Centre  
49 Shroffold Road  
Downham, Bromley BR1 5PD

Date: Tuesday, 22 February 2000  
Our Ref:

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Web site: <http://www.lewisham.gov.uk>

## **Bullying in Schools**

### **Feedback Report to ..... Secondary, Spring '00**

#### **Outline**

The survey provides a baseline for ..... on:

- Levels of aggression.
- Levels of bullying.
- Levels of social exclusion.
  
- Perceptions of unsafe/safe areas.
  
- Pupils' perceptions of how the school could be safer.

#### **Introduction**

Bullying can be a cause of great distress to children, parents and teachers. The first UK bullying survey was conducted by Kidscape from 1984 to 1986 with 4000 children aged 5 to 16. This survey found that 68% of the children reported that they had been bullied at least once; 38% reported that they had been bullied more than once or had experienced an especially bad incident; 5% of the pupils reported that it had affected their lives to the extent that they had attempted suicide, had run away, refused to go to school or had been chronically ill (Elliott and Kilpatrick 1996).

Olweus found that 15% of Norwegian school children aged 7-16 were involved in the practice, either as bullies or victims. Studies undertaken by researchers based at Sheffield University from 1991 to 1993 and funded by the Department of Education and Science using a self-report questionnaire found that 27% of children reported



having been bullied. This research was carried out in 24 schools. It involved a survey, interventions and an evaluation. It identified a range of successful strategies for dealing with bullying in schools. These included: -

- Enhancing breaks and lunchtimes.
- The involvement of pupils' parents/carers.
- Working on a whole school policy,
- Curriculum based strategies,
- Working directly with pupils involved in bullying situations

### **What is bullying?**

There do not appear to be 'bully-proof' schools. Bullying is a covert problem that is difficult to identify and distinguish from other types of aggressive behaviour. The difficulty in defining 'bullying' has been identified (e.g. Boulton 1994). This difficulty centres around delineating 'bullying' from other forms of unacceptable behaviour and from age-appropriate 'rough and tumble' play. The DFE Circular 8/94 describes bullying as being distinguishable from other forms of aggression, "in that it involves dominance of one pupil by another, or a group of others, is premeditated and usually forms a pattern of behaviour rather than an isolated incident."

The Sheffield researchers focused on the type of behaviours specific to bullying. They said that:

- it is deliberately hurtful
- it is repeated over a long period of time
- it is difficult for those being bullied to defend themselves

(i.e. there has to be intent, powerlessness and a number of incidents)

There are three types of bullying: -

- physical : hitting, kicking, taking belongings
- verbal : name-calling, insulting, racist remarks
- indirect : spreading nasty stories about someone, excluding someone from social groups

### **Why should schools be concerned?**

Section 22 of the 1986 Education Act states that Headteachers are responsible for maintaining acceptable behaviour in schools. Section 1 of the Education Reform Act, 1988 requires schools to offer a balanced and broadly based curriculum which promotes the pupil's moral, mental, spiritual, cultural and physical development. Approaches to these developments are outlined in the National Curriculum Council's discussion paper 'Spiritual and Moral Development' (April 1993). Schools are

expected to uphold certain values among them the rejection of bullying and cruelty.

The OFSTED Framework for Inspection indicates that registered Inspectors will report on behaviour and discipline including the views of pupils, parents and teachers on the incidence of bullying and the response of the school.

The 'LEA Support for School Improvement - A programme for Inspection' November 1996 identifies the criteria for assessing the effectiveness of support for raising educational standards. One of these is that the 'LEA gives appropriate guidance, training and support to school staff to promote higher standards of behaviour in schools and eliminate harassment and bullying'.

In response to this Lewisham Education Authority issued the 'Lewisham Education and Community Services Anti-Bullying and Anti- Harassment Policy and Guidelines'. This states that Lewisham is committed to the elimination of all forms of bullying and harassment, and provides guidelines for action for headteachers, governors, teachers, support staff, parents/carers and pupils. The LEA advises that all schools should have whole school policies, which cover equal opportunities, bullying, and harassment.

### **The Current Study**

The current research was undertaken as part of the Lewisham EBD (Emotional and Behavioural Difficulties) Project programme for the academic year 1999/00.

The EBD Project was established in 1995. The main aims were on improving school behaviour and reducing the number of exclusions. The core of the Project work is undertaken by a Team of three Specialist Teachers and two full time equivalent Educational Psychologists. The work of the Project is reviewed annually and one of the strands of work was to undertake research in the area of bullying.

### **Background to this report, and methodology**

This report summarises the questionnaire survey carried out at ..... during the Autumn Term 1999.

The DfEE - recommended "Life in School Checklist" was used in order to assess levels of aggression and bullying within the school. In addition, a pupil assessment of safe/unsafe areas in the school was made, alongside a sentence completion task "I would feel safer at school if..."

Pupils were also asked to complete a questionnaire regarding their feelings about the last week in school, an assessment of well-being.

The final sample at ..... School consisted of 151 pupils across Years 7-10.

The information resulting from this research may provide a baseline from which the school could assess the effectiveness of any interventions (for example the Peer Mediation training) or provide pointers towards areas of concern specific to ..... and thus assist in prioritisation of school-based work. The sample eventually surveyed was small, in comparison to the whole school group, and was not representative across Year Groups. This may limit how far the results can be seen as representative.

As Dr. T Arora, the originator of the checklist has noted "The main purpose of...(this information)... is to use it like a dipstick which can be used at the beginning of an intervention and at later intervals in order to find out whether your intervention is having any effect."

## **Results**

### **1) Pupils' Self-Perception**

Across the whole of the current EPS survey in Lewisham, it appears that those children reporting a particularly high level of bullying (on the "Life in School" checklist) are likely also to be "unhappy" on the self-perception scale. This relationship was supported in the ..... study, especially amongst pupils who were at a loss to know what to do when bullied. These pupils tended not to want to be at school.

### **(2) Aggression, Bullying and Social Exclusion**

(N.B. lower figures indicate less aggression/bullying/social exclusion).

#### **..... Aggression Index = 8.5**

This index in the original "Life in School" research ranged from about 5 - 16 for a whole secondary school. In Lewisham, the range is from 4.4 – 12.

This index is likely to reflect the level of aggression in the school. It consists of children reporting occasional incidents, rather than systematic bullying.

#### **..... Bullying Index = 9.9**

This index in the original "Life in School" research ranged from about 2 - 8 for a whole secondary school, and in the current EPS research in Lewisham ranges from about 2 - 10.

This index is likely to reflect the level of bullying in the school. It consists of

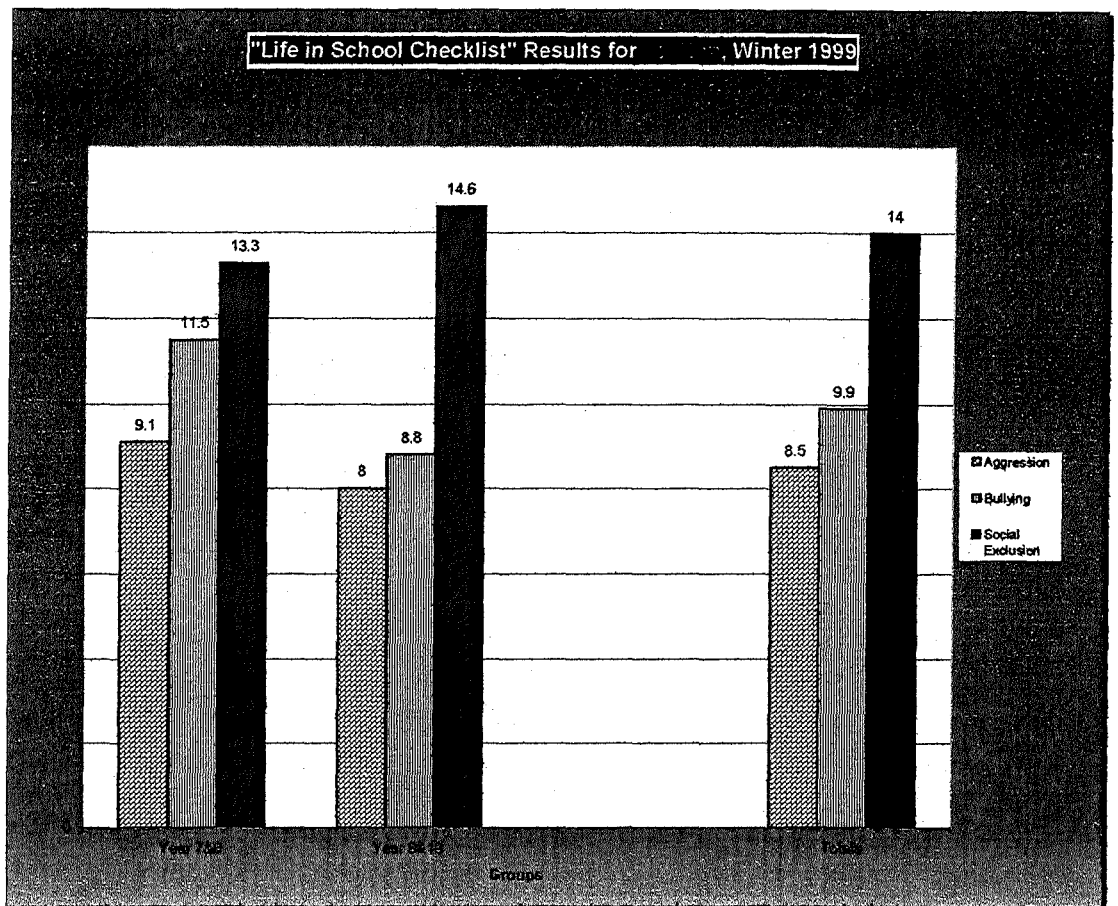
children reporting a series of incidents and behaviours, happening to them at a rate of more than once a week.

38% of pupils identify themselves as bullying, at least sometimes, and 6% marked that they bullied "several times a week". These levels are similar for boys and girls. This is higher than many other schools that have used a similar survey.

### **Social Exclusion Index = 14**

This index is a relatively new addition made by the Lewisham EBD Project Team to assess indirect and verbal bullying. The results from Lewisham schools suggest that there is a strong link between this and more physical forms of bullying.

No significant effects were noted for gender. The experience for boys and girls at ..... is quite similar on these measures.



These indices are derived from pupils' responses to a set of statements reflecting what happened to them over their previous week in school.

The results were compiled by Year Group to provide the above chart. The data from the Year Groups have been amalgamated due to the low numbers of completed forms from Years 7 and 9.

"It must be stressed that the main purpose of the "Life in School" checklist is to provide a measurement which is specific to the school and its circumstances. If such a measurement is repeated after a period of time under the same conditions as before (i.e. same instructions, same time of day and year, same lessons or form time), it is only then that a meaningful comparison can be made ...(of)...the extent of bullying and aggression..." Dr. T. Arora.

(3) **Safe and Unsafe Areas**

These were determined by asking pupils to decide, from a choice of eight areas at ....., the places, which were *safest*, and *least safe*.

The overall findings regarding places of relative safety, highlighted one area:

Classroom (98%)

The overall findings regarding places of least safety, ranked in order (least safe first) were: -

1 <sup>st</sup>	Astroturf	(60%)
2 <sup>nd</sup>	Back of the Design Block	(12%)
3 <sup>rd</sup>	Stairwells	(12%)
4 <sup>th</sup>	Corridors	(9%)
5 <sup>th</sup>	Car Park	(6%)

These results are relatively stable across the Year Groups. The results suggest, as might be expected, that children feel vulnerable in areas of lower staff supervision. For some children this vulnerability may be offset by the positive aspects of socialising away from the teachers. It may be useful to ensure that those pupils who feel vulnerable or who are being bullied, to have the option of a more supervised area.

(4) **The Sentence Completion: "I would feel safer at school if..."**

Pupils' responses to this were content analysed and sorted into mutually exclusive categories and then ranked in order of frequency.

**Statement Categories:**

- 1st Resources and activities at break and lunchtimes:**  
Things to do; access to shelter and warmth.
- 2nd Pupils as a problem, including bullying:**  
Pupils primarily concerned about bullying, fighting, aggression, and lack of consideration for each other.
- 3rd Teachers:**  
Wanting greater availability and responsiveness.
- 4th Anti-school sentiment:**  
Having no/less school. Not wanting to be there. Disaffection.
- 5th Access to privileges:**  
Being able to go out at lunchtime to the local shops. Not having to wear school uniform, longer breaktimes.
- 6th Security:**  
Cameras, alarms, anti-intruder measures.
- 7th Curriculum:**  
Wanting a changed/easier/more challenging curriculum.

The first three categories above account for 62% of the responses. Overall, the pupils' responses from ..... suggest that they would welcome change in several areas. At present, they may want to distance themselves from the school, rather than identify with its aims.

There are a high number of children who identify themselves as bullies, perhaps an indication that it may be seen as acceptable.

These responses suggest that the school may benefit from change that would include the pupils in the process.

Further practical suggestions to tackle bullying can be found in:

Sharp. S and Smith P.U. (Eds.) (1994) Tackling Bullying in your School: London: Routledge

Many thanks are due to the teachers and pupils at ..... who participated in this survey and in particular to ..... for co-ordinating the project in school.

John Ivens  
Educational Psychologist  
Lewisham EBD Project

Cc ..... School  
..... School  
....., EPLSS



**Appendix G**

**Ethnicity Form with DfEE Group Codes**

**Grouping used in the data analysis.**

**Ethnicity (Lewisham Codes)**

Bangladeshi	A01	1
Indian	A02	
Pakistani	A03	
Sri Lankan	A04	
Black African	B01	2
Black African-Caribbean	B02	
Black British	B03	
Black Other (please say more...)	B04	
Chinese	S01	3
Vietnamese	S02	
South East Asian	S03	
English	W01	4
Scottish	W01	
Welsh	W01	
Greek	W02	
Irish	W03	
White European	W04	
White Other (please say more...)	W05	5
Mixed Race (please say more...)	X01	
Arabic	Y01	6
Turkish	Y02	
Turkish Cypriot	Y03	
Other (please say more...)	Y04	
Not Declared	Z99	7

The letters and numbers in the middle column refer to DfEE codes.

## **Appendix H**

### **Descriptive Statistics for the Bullied/Bullying Measures**

**Retained datagroup1 n390**

**Table H.1 - Descriptive Statistics for Bullied/Bullying variables (Raw Data), Retained datagroup1 – n390**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied (raw data)	390	.00	6.00	.6308	1.2633
LiS-C Verbally/Indirectly Bullied (raw data)	390	.00	6.00	1.6410	1.6645
Self-Perceived Bullied (raw data)	387	1.00	6.00	2.0620	1.3757
Combined Bullied	387	.00	18.00	4.1788	4.0831
Self-Perceived Bullying (raw data)	386	1.00	5.00	1.5777	.8918
Valid N (listwise)	384				

NB the Combined Bullied score is the total of all three Bullied variables plus a transformation of the Self-Perceived Bullied score, to ensure that they share the same metric.

**Table H.2 - Descriptive Statistics for Bullied/Bullying variables (Normalised), Retained datagroup1 – n390**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied, 2000	390	-.72	2.48	.1072	.8604
LiS-C Verbally/Indirectly Bullied, 2000	390	-.96	2.23	4.987E-02	.8854
Self-Perceived Bullied, 2000	387	-.68	2.42	5.370E-02	.8341
Self-Perceived Bullying 2000	386	-.50	2.27	6.381E-02	.7775
Valid N (listwise)	384				

– S&D Datagroup n127-

**Table H.3 - Descriptive Statistics for Bullied/Bullying variables (Raw Data), S&D Datagroup**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied (Raw Data)	127	.00	6.00	1.0551	1.4271
LiS-C Verbally/Indirectly Bullied (Raw Data)	127	.00	6.00	1.4488	1.5972
Self Perceived Bullied (Raw Data)	127	1.00	5.00	1.8346	1.2003
Combined Bullied (Raw Data)	127	.00	15.80	3.5055	3.6974
Self-Perceived Bullying (Raw Data)	125	1.00	5.00	1.6720	.8960
Valid N (listwise)	125				

NB the Combined Bullied score is the total of all three Bullied variables plus a transformation of the Self-Perceived Bullied score, to ensure that they share the same metric.

**Table H.4 - Descriptive Statistics for Bullied/Bullying variables (Normalised), S&D Datagroup**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied	127	-.72	2.48	-4.33E-03	.7978
LiS-C Verbally/Indirectly Bullied	127	-.96	2.23	-6.80E-02	.8682
Self-Perceived Bullied	127	-.68	1.63	-9.80E-02	.7467
Self-Perceived Bullying	125	-.50	2.27	.1604	.8048
Valid N (listwise)	125				

**1999-2000 Test-Retest Group n97**

**Table H.5 - Descriptive Statistics for Bullied/Bullying variables 1999, (Raw Data) Test-Retest Group**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied '99 (raw data)	97	.00	6.00	1.1649	1.5253
LiS-C Verbally/Indirectly Bullied '99 (raw data)	97	.00	5.00	1.5876	1.5394
Valid N (listwise)	97				

**Table H.6 - Descriptive Statistics for Bullied/Bullying variables 1999, (Normalised Data) Test-Retest Group**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied 99	97	-.07	2.57	.3608	.5912
LiS-C Social Exclusion 99	97	-1.02	1.74	2.639E-02	.8836
Valid N (listwise)	97				

**Table H.7 - Descriptive Statistics for Bullied/Bullying variables 2000, (Raw Data) Test-Retest Group**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied '00 (raw data)	97	.00	5.00	.7629	1.2811
LiS-C Verbally/Indirectly Bullied '00	97	.00	5.00	1.2784	1.3597
Valid N (listwise)	97				

**Table H.8 - Descriptive Statistics for Bullied/Bullying variables 2000, (Normalised Data) Test-Retest Group**

**Descriptive Statistics**

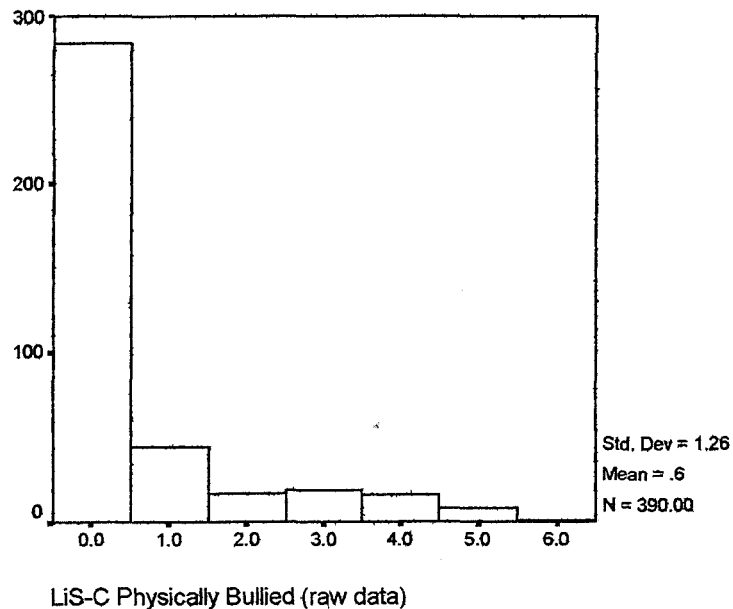
	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied '00	97	-.48	2.05	6.959E-02	.7810
LiS-C Verbally Bullied '00	97	-.95	2.31	9.794E-03	.9023
Valid N (listwise)	97				

**Table H.9 - Descriptive Statistics for Bullied/Bullying variables (Raw Data)**

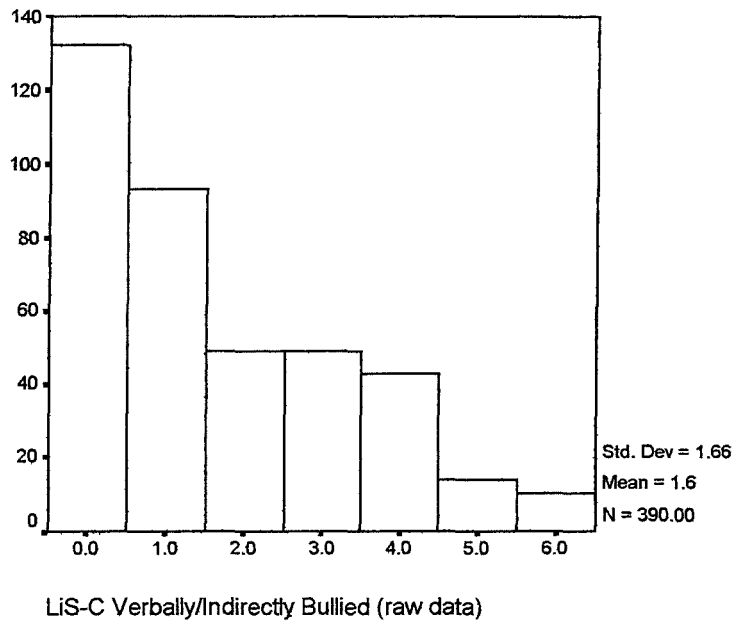
**Table H.9 - Descriptive Statistics for Bullied/Bullying variables (Raw Data) Pilot**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
LiS-C Physically Bullied (Pilot, raw data)	813	.00	6.00	1.1857	1.4550
LiS-C Indirectly/Verbally Bullied (Pilot, raw data)	813	.00	6.00	1.3616	1.5368
LiS-C Physically plus Verbally/Indirectly Bullied	813	.00	11.00	2.5474	2.6991
Valid N (listwise)	813				

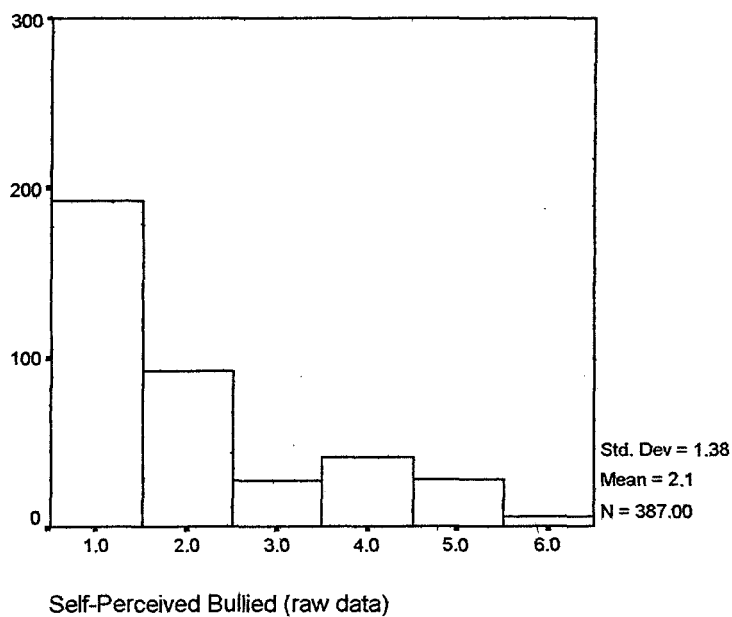
NB, the LiS-C Physically plus Verbally/Indirectly Bullied variable is a total bullied variable, but omits the Self-Perceived Bullied variable, which was not administered in the pilot.



**Figure H.1- n390, 2000 LiS-C Physically Bullied (raw data): Histogram of score distribution**

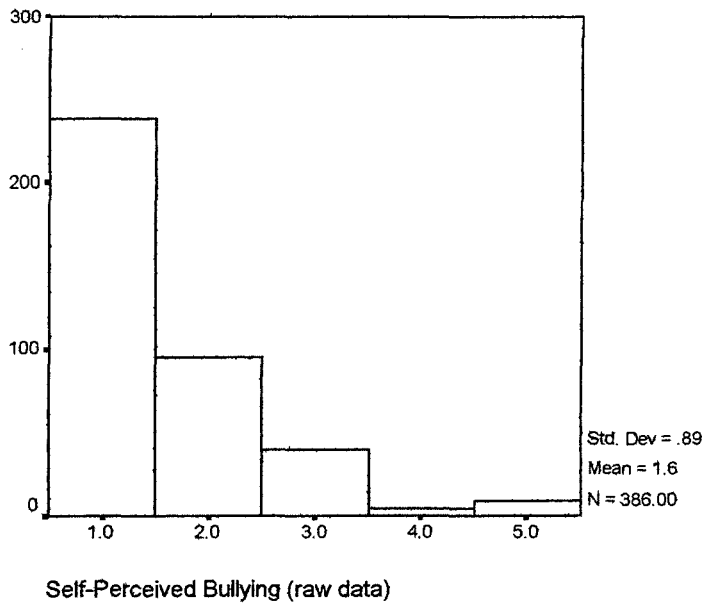


**Figure H.2 - n390, 2000 LiS-C Verbally/Indirectly Bullied (raw data): Histogram of score distribution**



**Figure H.3 - n390, 2000 Self-Perceived Bullied (raw data): Histogram of score distribution**





**Figure H.4 - n390, 2000 Self-Perceived Bullying (raw data): Histogram of score distribution**

## **Appendix I**

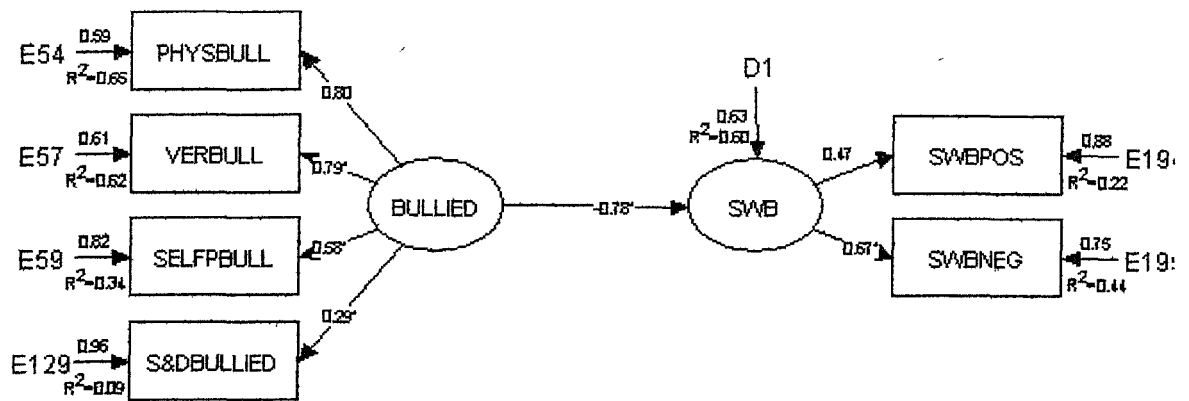
### **Life in School Checklists, Primary & Secondary Forms**

<b>Fig. I.1</b>	<b>During the last week another pupil:</b>	<b>No</b>	<b>Once</b>	<b>More than once</b>
<b>1</b>	<b>Helped me with my work</b>			
<b>2</b>	<b>Called me names</b>			
<b>3</b>	<b>Was nasty about my family</b>			
<b>4</b>	<b>Tried to kick me</b>			
<b>5</b>	<b>Was unkind because I'm different</b>			
<b>6</b>	<b>Said they'd beat me up</b>			
<b>7</b>	<b>Tried to make me give them money</b>			
<b>8</b>	<b>Lent me something</b>			
<b>9</b>	<b>Talked about clothes with me</b>			
<b>10</b>	<b>Told me a joke</b>			
<b>11</b>	<b>Got a gang on me</b>			
<b>12</b>	<b>Smiled at me</b>			
<b>13</b>	<b>Helped me carry something</b>			
<b>14</b>	<b>Tried to hurt me</b>			
<b>15</b>	<b>Talked about TV with me</b>			
<b>16</b>	<b>Shared something with me</b>			
<b>17</b>	<b>Was rude about the colour of my skin</b>			
<b>18</b>	<b>Played a game with me</b>			
<b>19</b>	<b>Was unkind about something I did</b>			
<b>20</b>	<b>Tried to break something of mine</b>			
<b>21</b>	<b>Told a lie about me</b>			
<b>22</b>	<b>Tried to hit me</b>			

<b>Fig. I.2</b>	<b>During the last week another pupil:</b>	<b>No</b>	<b>Once</b>	<b>More than once</b>
1	Helped me with my work			
2	Called me names			
3	Teased me about my family			
4	Tried to kick me			
5	Teased me because I'm different			
6	Threatened to hurt me			
7	Demanded money from me			
8	Lent me something			
9	Talked about clothes with me			
10	Told me a joke			
11	Ganged up on me			
12	Smiled at me			
13	Helped me carry something			
14	Tried to hurt me			
15	Talked about TV with me			
16	Shared something with me			
17	Was rude about the colour of my skin			
18	Played a game with me			
19	Made fun of me			
20	Tried to break something of mine			
21	Told a lie about me			
22	Tried to hit me			

## **Appendix J**

### **SEM modelling for the relationship between the pupil and teacher bullied measures and the latent bullied factor**



**Figure J.1 - SEM for the effect of the teacher and pupil based bullied variables on pupil SWB**

A larger version of this diagram is presented on the last page of this Appendix.

**Key**

[SWBPOS = sum of SWB positively framed items;  
 SWBNEG = sum of SWB negatively framed items;  
 PHYSBULL = LiS-C Physically Bullied;  
 VERBULL = LiS-C Verbally/Indirectly Bullied;  
 SELFPBULL = Self-Perceived Bullied  
 S&DBULLY = S&D Bullying item]

**Indices of fit for the model**

Bentler-Bonett Normed Fit Index (NFI)	=	0.996
Bentler-Bonett Nonnormed Fit Index (NNFI)	=	1.029
Comparative Fit Index (CFI)	=	1.000
Chi-Square = 5.617 based on 8 degrees of freedom		
Probability Value for the Chi-Square Statistic is		0.690
Average Absolute Standardised Residuals	=	0.012
Average Off-Diagonal Absolute Standardised Residuals	=	0.028

**Variance predicted in each of the Bullied indicators**

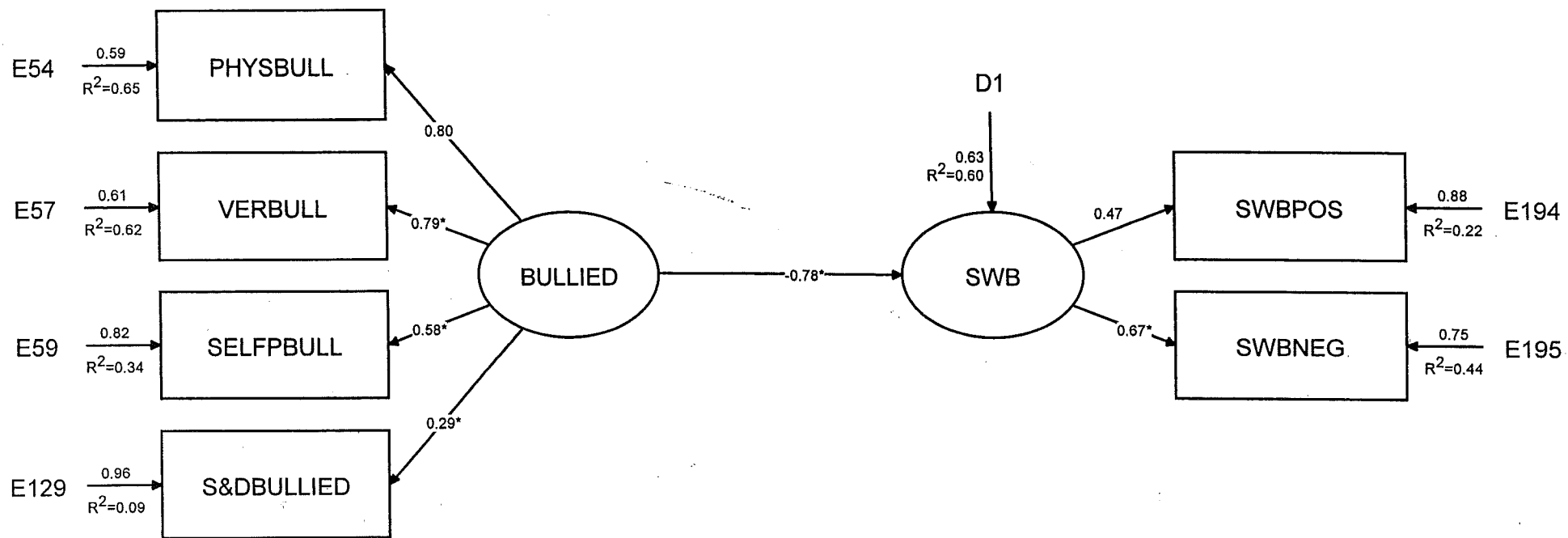
- 64% of the variance in the LiS-C Physically Bullied variable is explained by the Bullied latent variable.
- 62% of the variance in the LiS-C Verbally/Indirectly Bullied variable is explained by the Bullied latent variable.
- 34% of the variance in the Self-Perceived Bullied variable is explained by the Bullied latent variable.
- 8% of the variance in the Self-Perceived Bullied variable is explained by the Bullied latent variable.

**Analysis**

As with parallel SEM models using the whole datagroup1, this model shows a good fit to the data. Of interest is the relatively weak prediction of the teacher-based S&D bullied item scores. However, the associated measurement error appears to be just that, measurement error and is randomly distributed in this model. Part of this error may be due to the absence of a recent and shared time-scale in the S&D measure, but another part may be due to teachers being a less reliable source than the individual children on these bullied measures.

**Figure J.2. - SEM for the effect of the teacher and pupil based bullied variables on pupil SWB (enlarged)**





Chi sq.=5.62 P=0.69 CFI=1.00 RMSEA=0.00

## **Appendix K**

### **Descriptive Statistics for the SWB Measure**

## Subjective Well-Being (SWB)

### Retained datagroup1 – n390

**Table K.1 - Descriptive Statistics for SWB, Retained datagroup1 – n390**

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SWB	390	43.12	119.00	91.8535	14.3273
Valid N (listwise)	390				

**Table K.2 - Descriptive Statistics for SWB, S&D Datagroup n127  
– S&D Datagroup n127-**

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SWB	127	65.00	119.00	95.9039	12.9989
Valid N (listwise)	127				

### 1999-2000 Test-Retest Group n97

**Table K.3 - Descriptive Statistics for SWB 1999**

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SWB 1999	97	45.00	120.00	93.9416	14.5077
Valid N (listwise)	97				

**Table K.4 - Descriptive Statistics for SWB 2000**

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SWB 2000	97	54.00	117.00	96.2578	12.6323
Valid N (listwise)	97				

### Concurrent Validation Group

**Table K.5 - Descriptive Statistics for Validation Group**

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SWB Validation Group	77	62.32	118.00	97.6670	12.6382
Valid N (listwise)	77				

## 1999 Pilot

Table K.6 - Descriptive Statistics for 1999 Pilot

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
SWB 1999 (Pilot)	785	41.00	120.00	93.6219	13.8598
Valid N (listwise)	785				

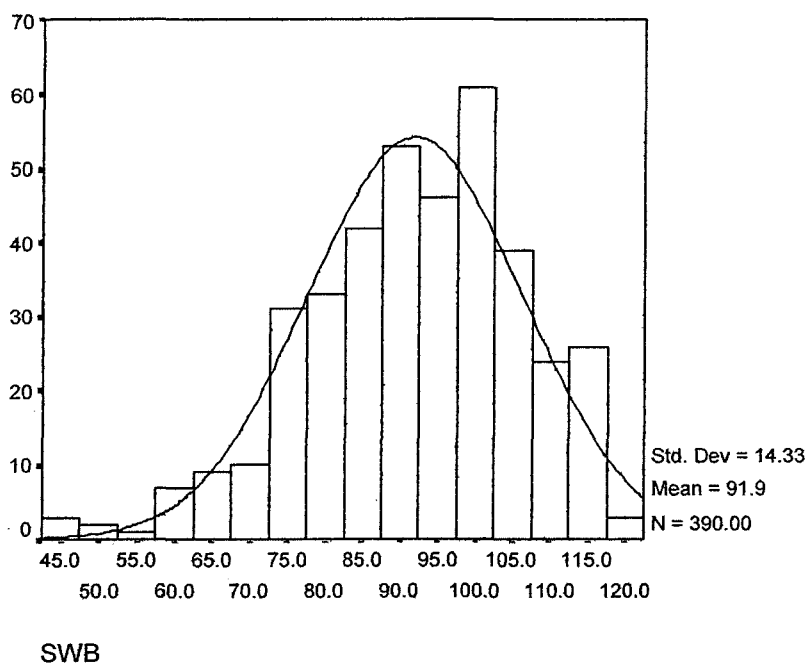


Figure K.1 - n390, 2000 SWB: Histogram of score distribution with a superimposed normal curve

## **Appendix L**

### **Subjective Well-Being (SWB) Measure**

Age	Year	I am a Boy	I am a Girl
-----	------	------------	-------------

①	During the last week in school:	I Agree		I Disagree	
		A Lot	A Little	A Little	A Lot
1	I had lots of energy				
2	I was nervous				
3	I wanted to come to school				
4	I was cross				
5	I was sad				
6	I felt relaxed				
7	I felt ill				
8	I felt that school was a safe place				
9	I concentrated				
10	I felt sick				
11	I felt positive				
12	I felt angry				
13	I wanted to cry				
14	I got on well with everyone				
15	I was in a bad mood				
16	I enjoyed myself				
17	I was tired				
18	I felt calm				
19	I was interested in working				
20	I felt sorry for myself				
21	I felt good				
22	I was confused				
23	I was confident				
24	I felt upset				
25	I wanted to give up				
26	I felt wide awake				
27	I had headaches				
28	I worked well				
29	I was frightened				
30	I liked being with other people				
31	I felt the same as usual				
32	It was a typical week for me				

## **Appendix M**

### **PANAS-C, Positive and Negative Affect Scale for Children**

### *Feelings and Emotions*

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word.

Indicate to what extent you have felt this way during the past few weeks.

	Feeling or emotion	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1	Interested	1	2	3	4	5
2	Sad	1	2	3	4	5
3	Frightened	1	2	3	4	5
4	Alert	1	2	3	4	5
5	Excited	1	2	3	4	5
6	Ashamed	1	2	3	4	5
7	Upset	1	2	3	4	5
8	Happy	1	2	3	4	5
9	Strong	1	2	3	4	5
10	Nervous	1	2	3	4	5
11	Guilty	1	2	3	4	5
12	Energetic	1	2	3	4	5
13	Scared	1	2	3	4	5
14	Calm	1	2	3	4	5
15	Miserable	1	2	3	4	5
16	Jittery	1	2	3	4	5
17	Cheerful	1	2	3	4	5
18	Active	1	2	3	4	5
19	Proud	1	2	3	4	5
20	Afraid	1	2	3	4	5
21	Joyful	1	2	3	4	5
22	Lonely	1	2	3	4	5
23	Mad	1	2	3	4	5
24	Fearless	1	2	3	4	5
25	Disgusted	1	2	3	4	5
26	Delighted	1	2	3	4	5
27	Blue	1	2	3	4	5
28	Daring	1	2	3	4	5
29	Gloomy	1	2	3	4	5
30	Lively	1	2	3	4	5



## **Appendix N**

### **Instructions for Validation and Additional Single Item Measures**

## **Instructions for Validation:**

**Prepare:**

- OHP – slides in order
- 30 copies of the form, plus spares
- Projector and screen
- Register list for the teacher

**Outline:**

**Explain who I am, and that the survey is part of a piece of research into finding out what children feel and think.**

**Also:**

***That... “no names will be used – I won’t know who did what. But, we will use numbers, so that when I come back two weeks, I will be able to match up the two pieces of belonging to the same person. We can put the numbers on at the end.***

***There are a number of things to do, all in these papers. Each of you will have one (hand them out). I will read each piece of work aloud so that you can follow.”***

**(Switch on OHP, and place first overhead, covering all but headings; uncover as it is read.)**

***...On the first side, there are boxes for your Year, and a box to tick if you are a boy and another to tick if you are a girl. Fill out those boxes now but don’t put your names on the forms. We will come back to your number at the end...***

**Wait until completed.**

***...Turn the page.***

**(Use the second SWB OHP with the third ✓ OHP)**

**Here are some things that you might have thought or felt during the last week in school.**

Look at the first one, (point) "During the last week in school, I had lots of energy".

You might think "I Agree" if it's right about you (point out on form), or "I Disagree" (point out on form), if it's not.

Then choose if you "Agree, A Lot" (point out on form) or "Agree, A Little" (point out on form and pause).

Or, you might "Disagree A Little," (point out on form), or "Disagree, A Lot" (point out on form).

After I read each one aloud, **Tick the one box that fits you best on each of the statements.**"

Read out each statement starting with...

"Number... During the last week in school...(read statement)"

as the pupils mark their forms.

**Place fourth overhead on OHP (Del.-Terrible)**

**Ask them to turn the page. Read the instructions, and point to the items.**

**Wait until finished, remind them not to think too long about their choices.**

- Terrible
- Unhappy
- A little unhappy
- Mixed...about equally pleased and unhappy
- A little pleased
- Pleased
- Delighted

**Put a tick in the box that best shows how you feel about school.**

**Place fifth overhead on OHP (Instructions. of CDI)**

Ask the children to turn over the page.

Read the instructions from the OHP:

**Place sixth overhead on OHP (CDI)**

Read the individual items.

**Place seventh overhead on OHP (Line)**

Ask the children to turn over.

***“This line is like a ruler, but it measures happiness, not length.***

***At one end of the line is a happy face, the happiest boy or girl in this school.***

***At the other end is an unhappy face, the most unhappy boy or girl in this school.***

***Make a mark on the line to show how near you have ever got to being like the happiest boy or girl in the school.”***

**Place eighth overhead on OHP (x)**

**(Put x overhead over the line on screen and move to the happy end.)**

**“Make a mark on the line to show how near you have ever got to being like the unhappiest boy or girl in the school. (Put x overhead over the line on screen and move to the unhappy end.)**

**Looking at the bit of line between your two marks, decide how happy you are today, and make another mark to show if it's nearer the happiest, or the unhappiest you've been, or somewhere in the middle.”**



**Place ninth overhead on OHP (PANAS)**

Ask the children to turn over.

Read the instructions and each item.

**Place tenth overhead on OHP (Happy/Unhappy)**

Read the instructions.

**Place eleventh overhead on OHP (CFSE-I (B) instructions)**

Read the instructions.

**Place twelfth overhead on OHP (CFSE-I (B))**

Read the scale headings and the items.

**Place thirteenth overhead on OHP (Soc. Des. & Lie Scale)**

Read the instructions and the individual items.

**Place fourteenth overhead on OHP (Faces)**

Read the instructions.

Put a circle around the face that comes closest to showing how you feel about school.





**Thank the class and teacher copiously. Ask the children to turn back to the front page and enter their number as the teacher calls it out. Collect up the forms, pack up and withdraw.**

**Table N.1 - Correlations of the SWB total with the single item school-based well-being items – Validation sample**

**Correlations**

		Terrible-Delighted Scale	Line Positive	Line Negative	Seven Faces scale, school item
SWB	Pearson Correlation	-.399**	-.388**	-.404**	-.387**
	Sig. (2-tailed)	.000	.000	.000	.001
	N	77	77	77	75

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Appendix O**  
**Parental Permission Letter**

Director: Althea Efunshile

Psychological & Learning Support Service  
New Woodlands Centre  
49 Shrofford Road  
Downham  
Bromley BR1 5PD

Extension: 46465  
Date: 11/11/99

Telephone: 0181 314 7041  
Fax: 0181 314 3079

Dear Parent/Carer,

I am an Educational Psychologist, working for Lewisham Education. I am developing a way of finding out how happy children are in school. As part of this, I need to work with classes of children in a series of tasks lasting about an hour, and for a 15-minute session two weeks later. The tasks are simple and, other schools report that the children enjoy doing them.

All the work done by the children will be anonymous, so I won't know who has done what.

....., the headteacher at ....., has agreed to my working with three classes in the school, including your child's. This will take place in the second half of this term.

Please let me know if you have any questions. If you do not want your child to take part, please fill in the slip below and return it to your child's class teacher.

John Ivens

.....

I/We do not want my/our child to take part in John Ivens' work.

Name of child ..... Class .....

Name of parent/carer .....

Signature of parent/carer .....

## Appendix P

### SWB correlates – individual casework sample

The following data is derived from the use of the SWB measure in an educational psychologist's casework, following parental permission. The administration of the SWB measure is modified, in that the response options are presented on cards, placed on a table. The individual SWB items are printed on separate cards that the child then places under their chosen response option. The remainder of the administration is unchanged. The aim of this approach is to discuss subsequently the pattern of the responses, how things might be different, why such choices were made.

Alongside SWB, measures of ability the BAS-R, (Elliott, Murray & Pearson, 1983) or the BAS II (Elliott, Smith & McCullough, 1996) and of self-esteem (Battle, 1992) were given. Elliott et al. (1986) report the correlation between the BAS-R and BAS II full scores as  $r=.86$ . The two ability measures are treated as equivalent for the purposes of this analysis.

**Table P.1 - Descriptive Statistics for SWB, IQ & Self-Esteem, Case Study group – n41**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
SWB	41	58.00	117.00	92.7805	14.8096
IQ	41	48.00	119.00	76.5366	17.1422
CFSE-I (Self Esteem)	41	4.00	22.00	16.3902	3.9299
Valid N (listwise)	41				

The means for the SWB (see Appendix K) and the Self-Esteem (Battle, 1992) measures are close to the established means and standard deviations. The IQ mean is lower than the established population mean of 100 for such tests. This is to be expected, given the nature of educational psychology casework.

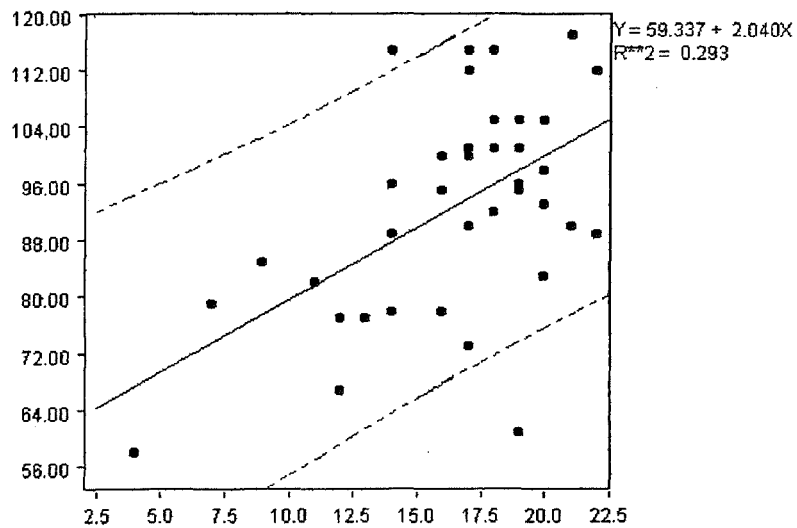
**Table P.2 - Correlations SWB with IQ & Self-Esteem - Case Study group**

**Correlations**

		IQ	CFSE-I (Self Esteem)
SWB	Pearson Correlation	.042	.541**
	Sig. (2-tailed)	.796	.000
	N	41	41

\*\* . Correlation is significant at the 0.01 level

In this group IQ is clearly not related to SWB, whereas Self-Esteem is moderately correlated, meeting the study's power criteria for the sample size post hoc.



**Figure P.1 – Correlation of SWB with Self-Esteem - Case Study group**  
 This figure shows a scatterplot of individual scores, (Self-Esteem on the 'x' axis and SWB on the 'y' axis), the regression line and 95% confidence interval dotted lines

## Appendix Q

### Frequency and Descriptive Statistics for the Covariate Measures

**Retained datagroup1 n390**

**Table Q.1 - Year Group (Age) across the n390 sample**

**YEAR GROUP**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	47	12.1	12.1	12.1
	5	85	21.8	21.9	33.9
	6	80	20.5	20.6	54.5
	7	33	8.5	8.5	63.0
	8	52	13.3	13.4	76.3
	9	18	4.6	4.6	81.0
	10	74	19.0	19.0	100.0
	Total	389	99.7	100.0	
Missing	System	1	.3		
Total		390	100.0		

**Table Q.2 - Gender across the n390 sample**

**Gender**

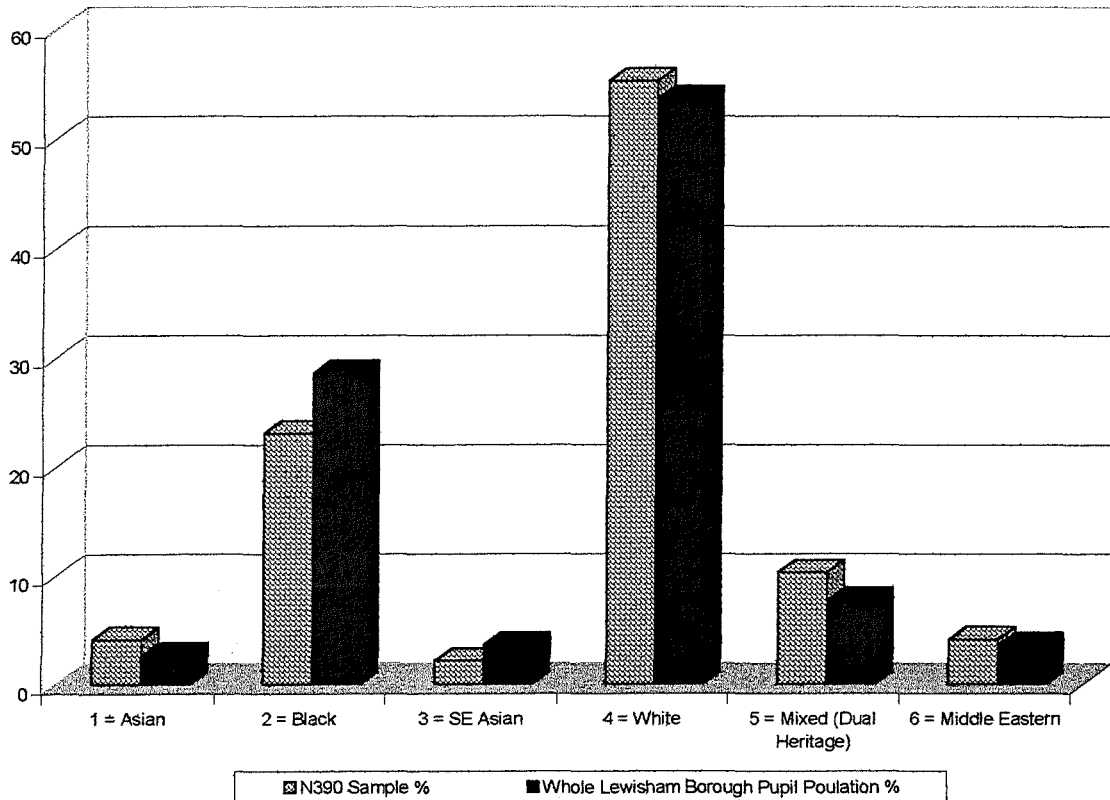
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.3	1.3	1.3
	Boys	215	55.1	55.1	56.4
	Girls	170	43.6	43.6	100.0
	Total	390	100.0	100.0	

**Table Q.3 - Ethnicity in the n390 sample compared to Lewisham Borough Pupil Ethnicity**

Ethnicity (broad categories) 1=Asian, 2=Black, 3=SE Asian, 4=White,  
5=Mixed, 6=Middle Eastern 7=Other,

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	16	4.1	4.2	4.2
	2.00	87	22.3	23.0	27.2
	3.00	11	2.8	2.9	30.1
	4.00	208	53.3	54.9	85.0
	5.00	39	10.0	10.3	95.3
	6.00	16	4.1	4.2	99.5
	7.00	2	.5	.5	100.0
	Total	379	97.2	100.0	
Missing	System	11	2.8		
Total		390	100.0		





**Figure Q.1 - Ethnicity in n390 Sample and Lewisham pupils**

The difference between the ethnicity proportions in the Lewisham and sample was assessed using a Chi-square.

**Table Q.4 - Chi-square test of actual and expected ethnicity in n390 sample**

**Test Statistics**

	Ethnicity (broad categories) 1=Asian, 2=Black, 3=SE Asian, 4=White, 5=Mixed, 6=Middle Eastern
Chi-Square <sup>a</sup>	11.874
df	5
Asymp. Sig.	.037

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.2.

(NB Lewisham Borough percentages were reported without a Group 7 (Other). This category was dropped from the data and the percentages recalculated.)

The result shows that the sample were not a proportional sample of the local pupil population. The following table highlights the differences.

**Table Q.5 - Observed and Expected Frequencies in Ethnicity for the n390 sample**

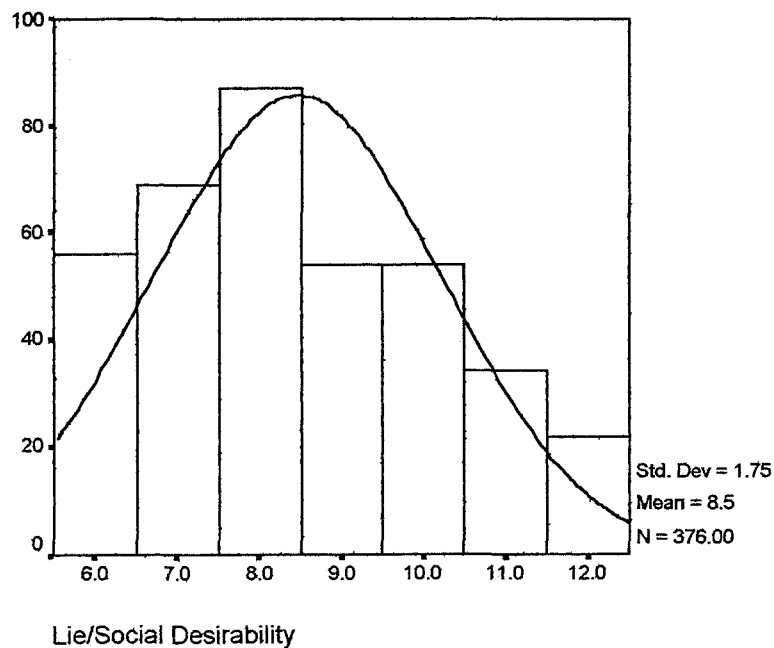
Ethnicity (broad categories) 1=Asian, 2=Black, 3=SE Asian, 4=White, 5=Mixed, 6=Middle Eastern

	Observed N	Expected N	Residual
1.00	16	10.2	5.8
2.00	87	107.8	-20.8
3.00	11	13.9	-2.9
4.00	208	202.1	5.9
5.00	39	29.0	10.0
6.00	16	13.9	2.1
Total	377		

**Table Q.6 - Descriptive Statistics for the Lie/Social Desirability Scale in the n390 sample**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Lie/Social Desirability Scale	376	6.00	12.00	8.4548	1.7460
Valid N (listwise)	376				



**Figure Q.2 - n390, 2000 Lie/Social Desirability scale (raw data): Histogram of score distribution with superimposed normal distribution curve**

### Descriptive Statistics for the Control Beliefs Measure

**Table Q.7 - n390, Descriptive Statistics for Control Beliefs Raw data**

#### Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Control Beliefs Negative	390	5.00	10.00	8.3769	1.5525
Control Beliefs Positive	390	5.00	10.00	6.4718	1.2139
Valid N (listwise)	390				

**S&D Datagroup n127-**

**Table Q.8 - Frequency of Year Group (Age) across the S&D Datagroup**

**YEAR GROUP**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4.00	25	19.7	19.7	19.7
	5.00	29	22.8	22.8	42.5
	6.00	73	57.5	57.5	100.0
	Total	127	100.0	100.0	

**Table Q.9 - Frequency of Gender across the S&D Datagroup**

**Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1	.8	.8	.8
	Boys	64	50.4	50.4	51.2
	Girls	62	48.8	48.8	100.0
	Total	127	100.0	100.0	

**Table Q.10 - Ethnicity in the S&D Datagroup compared to Lewisham Borough Pupil Ethnicity**

Ethnicity (broad categories) 1=Asian, 2=Black, 3=SE Asian, 4=White, 5=Mixed, 6=Middle Eastern 7=Other,

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	5	3.9	4.0	4.0
	2.00	30	23.6	24.0	28.0
	3.00	4	3.1	3.2	31.2
	4.00	64	50.4	51.2	82.4
	5.00	18	14.2	14.4	96.8
	6.00	3	2.4	2.4	99.2
	7.00	1	.8	.8	100.0
	Total	125	98.4	100.0	
Missing	System	2	1.6		
	Total	127	100.0		

The difference between the ethnicity proportions in Lewisham and the S&D Datagroup was assessed using a Chi-square.

**Table Q.11 - Chi-square test of actual and expected ethnicity in S&D Datagroup**

**Test Statistics**

	Ethnicity (broad categories) 1=Asian, 2=Black, 3=SE Asian, 4=White, 5=Mixed, 6=Middle Eastern
Chi-Square <sup>a</sup>	9.855
df	5
Asymp. Sig.	.079

a. 3 cells (50.0%) have expected frequencies less than 5. The minimum expected cell frequency is 3.3.

**Table Q.12 - Observed and Expected Ethnicity in the S&D Datagroup, when contrasted with the Lewisham Pupil population**

Ethnicity (broad categories) 1=Asian, 2=Black, 3=SE Asian, 4=White, 5=Mixed, 6=Middle Eastern

	Observed N	Expected N	Residual
1.00	5	3.3	1.7
2.00	30	35.5	-5.5
3.00	4	4.6	-.6
4.00	64	66.5	-2.5
5.00	18	9.5	8.5
6.00	3	4.6	-1.6
Total	124		

The results show that in relation to Ethnicity, the S&D Datagroup is broadly representative of the Lewisham population.

**Table Q.13 - Descriptive Statistics for the Lie/Social Desirability Scale in the S&D Datagroup**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Lie/Social Desirability	124	6.00	12.00	8.7581	1.7173
Valid N (listwise)	124				

**1999-2000 Test-Retest Group n97**

**Table Q.14 - Year Group (Age) across the 1999-2000 Test-Retest Group**

**YEAR**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5.00	46	47.4	47.4	47.4
	6.00	51	52.6	52.6	100.0
	Total	97	100.0	100.0	

**Table Q.15 Gender across the 1999-2000 Test-Retest Group**

**Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Boys	50	51.5	51.5	51.5
	Girls	47	48.5	48.5	100.0
	Total	97	100.0	100.0	

**Table Q.16 - Descriptive Statistics for the Lie/Social Desirability Scale in the 1999-2000 Test-Retest Group**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Lie/Social Desirability	97	6.00	12.00	8.1753	1.6521
Valid N (listwise)	97				

**1999 Pilot**

**Table Q.17 - Gender across the 1999 Pilot sample**

**Gender (Pilot)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	.5	.5	.5
?	5	.6	.6	1.1
Boys	325	39.7	39.7	40.8
Girls	484	59.2	59.2	100.0
Total	818	100.0	100.0	

**Table Q.18 - Year Group (Age) across the 1999 Pilot sample**

**YEAR**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 4.00	156	19.1	19.1	19.1
5.00	259	31.7	31.7	50.7
6.00	238	29.1	29.1	79.8
7.00	46	5.6	5.6	85.5
8.00	39	4.8	4.8	90.2
9.00	42	5.1	5.1	95.4
10.00	38	4.6	4.6	100.0
Total	818	100.0	100.0	

## **Appendix R**

### **Frequency and Descriptive Statistics for the Strengths & Difficulties variables**

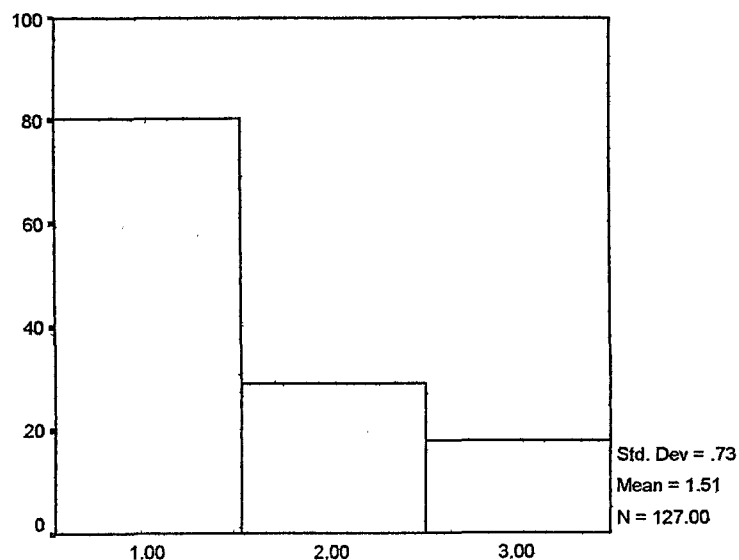


**Table R.1 - Descriptive Statistics for Strengths & Difficulty variables (Raw Data), S&D Datagroup**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
S&D OVERALL DIFFICULTIES	126	1.00	4.00	1.7063	.9039
S&D PROSOCIAL	127	5.00	15.00	12.0787	2.4156
S&D HYPERACTIVITY	127	5.00	15.00	8.2835	3.2827
S&D EMOTIONAL	127	5.00	13.00	6.6063	1.9072
S&D CONDUCT	127	5.00	14.00	6.6850	2.3761
S&D PEER	127	5.00	14.00	6.6142	1.8259
S&D TOTAL	127	20.00	47.00	28.1890	6.8194
Valid N (listwise)	126				

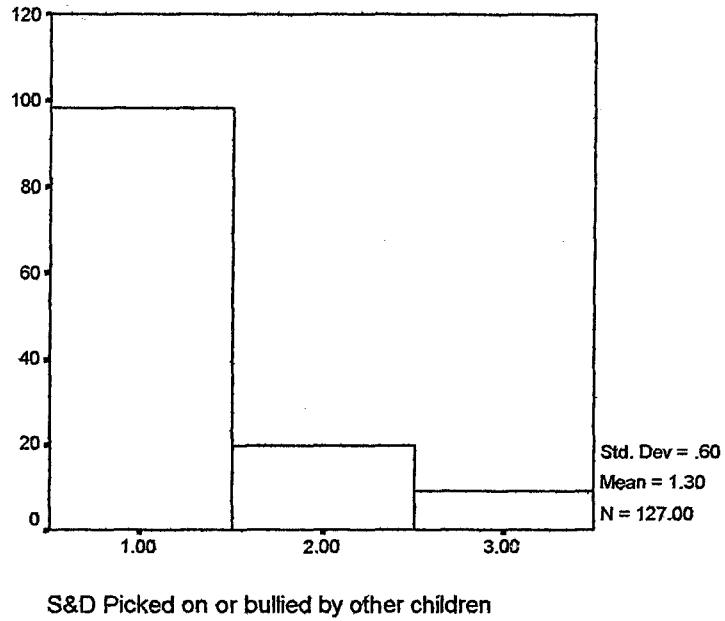
**Table R.2 - Descriptive Statistics for Strengths & Difficulty variables (Normalised Data), S&D Datagroup**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
S&D Difficulties	126	-.58	2.14	5.143E-02	.7886
S&D Prosocial	127	-2.65	1.34	-1.88E-02	.9414
S&D Hyperactive	127	-1.07	1.92	2.850E-02	.9037
S&D Emotional	127	-.80	2.65	4.732E-02	.8663
S&D Conduct	127	-.66	2.65	5.661E-02	.8402
S&D Peer	127	-.87	2.65	4.071E-02	.8790
S&D Total	127	-1.64	2.65	8.110E-03	.9721
Valid N (listwise)	126				

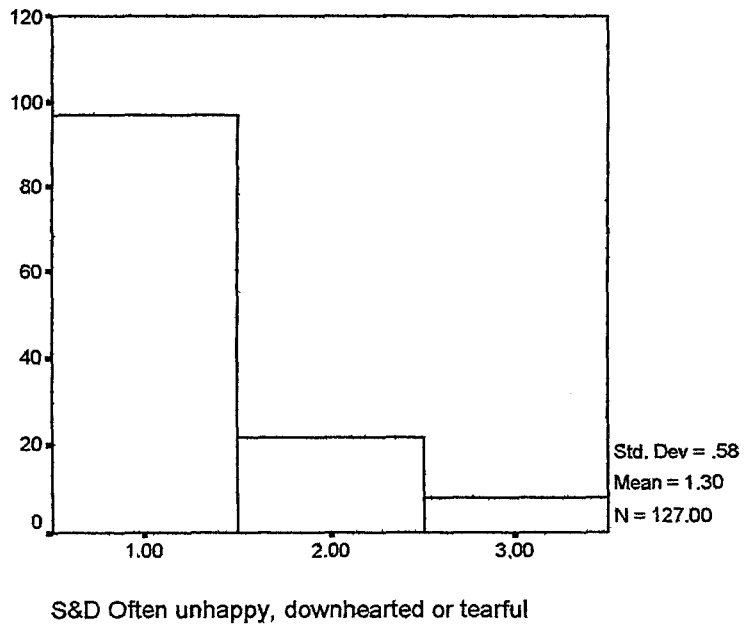


S&D Often fights with other children or bullies them

**Figure R.1 - n127, S&D Bullying item (raw data): Histogram of score distribution**



**Figure R.2 - n127, S&D Bullied item (raw data): Histogram of score distribution**



**Figure R.3 - n127, S&D proxy SWB item (raw data): Histogram of score distribution**

**Appendix S**  
**Survey Form Instructions**

## Survey Information for Teachers

### Overview

The survey ...

- ...Is primarily intended to provide the school with information on the level, type, effect on well-being and likely location of bullying in the school.
- ...Is designed to be completed by pupils in as close to exam conditions as possible. This will allow children the most freedom to give truthful responses.
- ...Is intended to be completed quickly.
- ...Is self-contained; with no pre, or post discussion.
- ...Allows pupils' responses to be anonymous, the researcher will have no access to the children's names and information on individuals will not be fed back to the school.
- ...Is based on a short version of the DFEE recommended "Life in School", checklist, plus items on pupils' perceptions.
- ...Can be reused to measure the effects of any interventions if re-administered under the same conditions.
- ...Can, and should, be administered individually or in small groups to those children who would have difficulty in following the instructions along with the rest of the class. These children may belong to vulnerable groups and so it is important that they are included.
- ...Can be scribed for a child if necessary
- ...Needs to be completed by absent children on their return to school where possible, as some children's absences are related to issues covered by the survey.
- ...Will benefit from being related to the database information held by the school on each pupil. Before administration, you will need a class list generated by the school admin office that contains the pupils' names, their database number and a number representing their order on the list, i.e.,

<b>Class name:</b>		
<b>Number on class list</b>	<b>Name of child</b>	<b>Database number</b>
1	(This column to be deleted from the researcher's copy)	(Particular to the school's database)
2	...	...
...	...	...

The Educational Psychologist will only have access to the numbers but not the names.

## Survey Instructions for Teachers

Hand out the survey forms to each pupil.

Introduce the survey by saying:

*"Some researchers would like to know what happens to people in school..."*

**Hold up a copy of the survey, item ①.**

*...On the first side, there are boxes for your age, Year and a box to tick if you are a boy and another to tick if you are a girl. Fill out those boxes now...*

**Wait until completed.**

*...Below these boxes, there are some things you might have thought or felt during the last week in school.*

*Look at the first one, (point) "During the last week in school, I had lots of energy".*

*You might think "I Agree" if it's right about you (point out on form), or "I Disagree" (point out on form), if it's not.*

*Then choose if you "Agree, A Lot" (point out on form) or "Agree, A Little" (point out on form and pause).*

*Or you might "Disagree A Little," (point out on form), or "Disagree, A Lot" (point out on form).*

*After I read each one aloud, Tick the one box that fits you best on each of the statements."*

Read out each statement starting with...

*"Number... During the last week in school...(reads statement)"*

as the pupils mark their forms.

**Turn over to item ② and ask the class to do the same.**

*"On the other side..."*

*...there are various things that might have happened to you during the past week. Look at the first statement; (point) "During the last week another pupil, helped me with my work." If no one did, you should tick the (point) "No" box. If another pupil helped you once, you should tick the (point) "Once" box. If you were helped several times you should tick the (point) "More than once" box. Only tick one box for each statement."*

Read out each statement starting with,

*"Number... During the last week another pupil..."*

as the pupils mark the sheet.

Some pupils may require individual assistance. If giving support, try to avoid elaborating.

Ideally, the surveys should be completed in as near to test conditions as possible. Pupils should do the survey individually and privately. Try to ensure that all pupils have marked each item before moving on.

**Turn to items ③ and ④.** These help to give a broader picture for the school.

- Point to item ③, read out the instructions on the page. Please stress that only one box should be ticked and only one box should be crossed.
- Point to item ④, read out the instructions on the page. This item is clearly optional for pupils who find writing hard. Where necessary, staff can scribe the pupil's views.
- Turn to item ⑤, read out the instructions and the individual items, giving time for the pupils to respond.

Thank the class.

- Ask the pupils to check that they have responded to each item, (missing items invalidate the pupil's form).
- You will need to read out each pupil's name followed by his or her number. This number—usually from 1-30—is shown on the class list from the school's admin office. Ask each pupil to place his or her number in the top right hand corner of the first page.
- Explain that this is a way of connecting their responses to information about similar pupils, but without anyone knowing their names.
- Collect the forms,
- Bundle the forms together and clearly mark the Year group.
- Include the completed Teacher's survey for each class.
- Include the class list of identifying number and database number, but excluding the children's names.
- Once completed the survey forms should be collected and passed on to the member of staff who is in touch with the Educational Psychologist.

Thank you.

**Appendix T**  
**Correlations between Variables**

TABLE T.1 - CORRELATIONS AND PARTIAL CORRELATIONS - DATAGROUP I

**Correlations**

		SWB	LiS-C Physically Bullied, 2000	LiS-C Verbally/Indirectly Bullied, 2000	Self-Perceived Bullied, 2000	LiC-S Bully
SWB	Pearson Correlation	1.000	-.339**	-.402**	-.318**	-.220**
	Sig. (2-tailed)	.	.000	.000	.000	.000
	N	390	364	364	364	364
LiS-C Physically Bullied, 2000	Pearson Correlation	-.318**	1.000	.656**	.445**	.213**
	Sig. (2-tailed)	.000	.	.000	.000	.000
	N	390	390	364	364	364
LiS-C Verbally/Indirectly Bullied, 2000	Pearson Correlation	-.384**	.654**	1.000	.504**	.220**
	Sig. (2-tailed)	.000	.000	.	.000	.000
	N	390	390	390	364	364
Self-Perceived Bullied, 2000	Pearson Correlation	-.310**	.438**	.495**	1.000	.217**
	Sig. (2-tailed)	.000	.000	.000	.	.000
	N	387	387	387	387	364
LiC-S Bully	Pearson Correlation	-.210**	.220**	.218**	.183**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.
	N	386	386	386	384	386

\*\* Correlation is significant at the 0.01 level (2-tailed).

In the above table, the top right triangle represents the partial correlations between the variables controlling for Age, Gender & Lie/Social Desirability. The bottom left triangle represents the bivariate correlations. The analysis was carried out using normalised Bullied/Bullying variables.

TABLE T.2 - NON-PARAMETRIC CORRELATIONS (SPEARMAN'S RHO), RAW DATA- DATAGROUP I

**Correlations**

		SWB	LiS-C Physically Bullied (raw data)	LiS-C Verbally/Indirectly Bullied (raw data)	Self-Perceived Bullied (raw data)	Self-Perceived Bullying (raw data)	Combined Bullied	
Spearman's rho	SWB	Correlation Coefficient	1.000	-.283**	-.391**	-.297**	-.211**	-.410**
		Sig. (2-tailed)	.	.000	.000	.000	.000	.000
		N	390	390	390	387	386	387
LiS-C Physically Bullied (raw data)	LiS-C Physically Bullied (raw data)	Correlation Coefficient	-.283**	1.000	.532**	.303**	.170**	.612**
		Sig. (2-tailed)	.000	.	.000	.000	.001	.000
		N	390	390	390	387	386	387
LiS-C Verbally/Indirectly Bullied (raw data)	LiS-C Verbally/Indirectly Bullied (raw data)	Correlation Coefficient	-.391**	.532**	1.000	.460**	.223**	.862**
		Sig. (2-tailed)	.000	.000	.	.000	.000	.000
		N	390	390	390	387	386	387
Self-Perceived Bullied (raw data)	Self-Perceived Bullied (raw data)	Correlation Coefficient	-.297**	.303**	.460**	1.000	.194**	.744**
		Sig. (2-tailed)	.000	.000	.000	.	.000	.000
		N	387	387	387	387	384	387
Self-Perceived Bullying (raw data)	Self-Perceived Bullying (raw data)	Correlation Coefficient	-.211**	.170**	.223**	.194**	1.000	.249**
		Sig. (2-tailed)	.000	.001	.000	.000	.	.000
		N	386	386	386	384	386	384
Combined Bullied	Combined Bullied	Correlation Coefficient	-.410**	.612**	.862**	.744**	.249**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.
		N	387	387	387	387	384	387

\*\* Correlation is significant at the .01 level (2-tailed).

The above table shows the untransformed data correlations, including a Combined Bullied variable.



TABLE T.3 - CORRELATIONS AND PARTIAL CORRELATIONS - S&D DATAGROUP

Correlations

		SWB	LiS-C Physically Bullied	LiS-C Verbally/Indirectly Bullied	Self-Perceived Bullied	Self-Perceived Bullying
SWB	Pearson Correlation	1.000	-.359	-.376	-.289	-.130
	Sig. (2-tailed)	.	.000	.000	.001	.157
	N	127	119	119	119	119
LiS-C Physically Bullied	Pearson Correlation	-.426	1.000	.640	.433	.088
	Sig. (2-tailed)	.000	.	.000	.000	.339
	N	127	127	119	119	119
LiS-C Verbally/Indirectly Bullied	Pearson Correlation	-.427	.649	1.000	.403	.196
	Sig. (2-tailed)	.000	.000	.	.000	.031
	N	127	127	127	119	119
Self-Perceived Bullied	Pearson Correlation	-.361	.457	.432	1.000	.054
	Sig. (2-tailed)	.000	.000	.000	.	.557
	N	127	127	127	127	119
Self-Perceived Bullying	Pearson Correlation	-.345	.268	.281	.235	1.000
	Sig. (2-tailed)	.000	.002	.002	.008	.
	N	125	125	125	125	125

In the above table, the top right triangle represents the partial correlations between the variables controlling for Age, Gender & Lie/Social Desirability. The bottom left triangle represents the bivariate correlations. The analysis was carried out using normalised Bullied/Bullying variables. In this group, it is the Self-Perceived Bullied variable whose relationship with the other variables changes most when the controlling variables are accounted for.

TABLE T.4 - NON-PARAMETRIC CORRELATIONS (SPEARMAN'S RHO), RAW DATA- S&D DATAGROUP

Correlations

		SWB	LiS-C Physically Bullied (Raw Data)	LiS-C Verbally/Indirectly Bullied (Raw Data)	Self Perceived Bullied (Raw Data)	Self-Perceived Bullying (Raw Data)	Self-Perceived Bullying	Combined Bullied (Raw Data)
Spearman's rho SWB	Correlation Coefficient	1.000	-.421**	-.451**	-.359*	-.349*	-.349*	-.494**
	Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
	N	127	127	127	127	125	125	127
LiS-C Physically Bullied (Raw Data)	Correlation Coefficient	-.421**	1.000	.648**	.422**	.273**	.273**	.820**
	Sig. (2-tailed)	.000	.	.000	.000	.002	.002	.000
	N	127	127	127	127	125	125	127
LiS-C Verbally/Indirectly Bullied (Raw Data)	Correlation Coefficient	-.451**	.648**	1.000	.421**	.292**	.292**	.879**
	Sig. (2-tailed)	.000	.000	.	.000	.001	.001	.000
	N	127	127	127	127	125	125	127
Self Perceived Bullied (Raw Data)	Correlation Coefficient	-.359**	.422**	.421**	1.000	.226*	.226*	.700**
	Sig. (2-tailed)	.000	.000	.000	.	.011	.011	.000
	N	127	127	127	127	125	125	127
Self-Perceived Bullying (Raw Data)	Correlation Coefficient	-.349**	.273**	.292**	.226*	1.000	1.000**	.313**
	Sig. (2-tailed)	.000	.002	.001	.011	.	.	.000
	N	125	125	125	125	125	125	125
Self-Perceived Bullying	Correlation Coefficient	-.349**	.273**	.292**	.226*	1.000**	1.000	.313**
	Sig. (2-tailed)	.000	.002	.001	.011	.	.	.000
	N	125	125	125	125	125	125	125
Combined Bullied (Raw Data)	Correlation Coefficient	-.494**	.820**	.879**	.700**	.313**	.313**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	127	127	127	127	125	125	127

\*\* Correlation is significant at the .01 level (2-tailed).

\* Correlation is significant at the .05 level (2-tailed).

**This table shows the untransformed data correlations, including a Combined Bullied variable.**

TABLE T.5 - CORRELATIONS AND PARTIAL CORRELATIONS - 1999-2000 TEST-RETEST GROUP

		Correlations							
		SWB99	LIS-C Physically Bullied '99	LIS-C Verbally/Indirectly Bullied '99	SWB 2000	LIS-C Physically Bullied 2000	LIS-C Verbally Bullied 2000	Self-Perceived Bullied 2000	Self-Perceived Bullying 2000
SWB99	Pearson Correlation	1.000	-.354	-.556	.525	-.422	-.319	-.364	.125
	Sig. (2-tailed)	.	.001	.000	.000	.000	.002	.000	.231
	N	97	91	91	91	91	91	91	91
LIS-C Physically Bullied 99	Pearson Correlation	-.323	1.000	.437	-.254	.266	.273	.295	.083
	Sig. (2-tailed)	.001	.	.000	.014	.010	.008	.004	.432
	N	97	97	91	91	91	91	91	91
LIS-C Verbally/Indirectly Bullied 99	Pearson Correlation	-.559	.394	1.000	-.486	.406	.375	.373	.015
	Sig. (2-tailed)	.000	.000	.	.000	.001	.000	.001	.390
	N	97	97	97	91	91	91	91	91
SWB 2000	Pearson Correlation	.540	-.274	-.497	1.000	-.512	-.577	-.250	.077
	Sig. (2-tailed)	.000	.007	.000	.	.000	.000	.016	.462
	N	97	97	97	97	91	91	91	91
LIS-C Physically Bullied 2000	Pearson Correlation	-.397	.310	.344	-.498	1.000	.707	.496	.025
	Sig. (2-tailed)	.000	.002	.001	.000	.	.000	.000	.810
	N	97	97	97	97	97	91	91	91
LIS-C Verbally Bullied 2000	Pearson Correlation	-.329	.238	.383	-.567	.671	1.000	.557	.171
	Sig. (2-tailed)	.001	.019	.000	.000	.000	.	.000	.101
	N	97	97	97	97	97	97	91	91
Self-Perceived Bullied 2000	Pearson Correlation	-.345	.275	.343	-.236	.488	.555	1.000	.320
	Sig. (2-tailed)	.001	.006	.001	.020	.000	.000	.	.002
	N	97	97	97	97	.045	.177	97	97
Self-Perceived Bullying 2000	Pearson Correlation	.054	.112	.059	.021	.095	.177	.302	1.000
	Sig. (2-tailed)	.601	.275	.566	.842	.664	.085	.003	.
	N	96	96	96	96	96	96	96	96

In the above table, the top right triangle represents the partial correlations between the variables controlling for Age, Gender & Lie/Social Desirability. The bottom left triangle represents the bivariate correlations. The analysis was carried out using normalised Bullied/Bullying variables.

TABLE T.6 - NON-PARAMETRIC CORRELATIONS (SPEARMAN'S RHO), RAW DATA- 1999-2000 TEST-RETEST GROUP

		Correlations							
		SWB99	LIS-C Physically Bullied '99 (Raw Data)	LIS-C Verbally/Indirectly Bullied '99 (Raw Data)	SWB 2000	LIS-C Physically Bullied '00 (Raw Data)	LIS-C Verbally/Indirectly Bullied '00 (Raw Data)	Self-Perceived Bullied '00	Self-Perceived Bullying '00
Spearman's rho SWB99	Correlation Coefficient	1.000	-.264**	-.551**	.576**	-.378**	-.316**	-.333**	.069
	Sig. (2-tailed)	.	.009	.000	.000	.000	.002	.001	.506
	N	97	97	97	97	97	97	97	96
LIS-C Physically Bullied '99 (Raw Data)	Correlation Coefficient	-.264**	1.000	.374**	-.218*	.207*	.170	.200*	.093
	Sig. (2-tailed)	.009	.	.000	.032	.042	.096	.050	.368
	N	97	97	97	97	97	97	97	96
LIS-C Verbally/Indirectly Bullied '99 (Raw Data)	Correlation Coefficient	-.551**	.374**	1.000	-.531**	.346**	.376**	.342**	.067
	Sig. (2-tailed)	.000	.000	.	.000	.001	.000	.001	.517
	N	97	97	97	97	97	97	97	96
SWB 2000	Correlation Coefficient	.576**	-.218*	-.531**	1.000	-.443**	-.550**	-.202*	.058
	Sig. (2-tailed)	.000	.032	.000	.	.000	.000	.047	.575
	N	97	97	97	97	97	97	97	96
LIS-C Physically Bullied '00 (Raw Data)	Correlation Coefficient	-.378**	.207*	.346**	-.443**	1.000	.628**	.425**	.025
	Sig. (2-tailed)	.000	.042	.001	.000	.	.000	.000	.812
	N	97	97	97	97	97	97	97	96
LIS-C Verbally/Indirectly Bullied '00 (Raw Data)	Correlation Coefficient	-.316**	.170	.376**	-.550**	.628**	1.000	.511**	.176
	Sig. (2-tailed)	.002	.096	.000	.000	.000	.	.000	.087
	N	97	97	97	97	97	97	97	96
Self-Perceived Bullied '00	Correlation Coefficient	-.333**	.200*	.342**	-.202*	.425**	.511**	1.000	.303**
	Sig. (2-tailed)	.001	.050	.001	.047	.000	.000	.	.003
	N	97	97	97	97	97	97	97	96
Self-Perceived Bullying '00	Correlation Coefficient	.069	.093	.067	.058	.025	.176	.303**	1.000
	Sig. (2-tailed)	.506	.368	.517	.575	.812	.087	.003	.
	N	96	96	96	96	96	96	96	96

\*\* . Correlation is significant at the .01 level (2-tailed).

\* . Correlation is significant at the .05 level (2-tailed).

The above table shows the untransformed data correlations, including a Combined Bullied variable.

## **Appendix U**

### **Instructions for Data Entry & Scoring schedules for the variables in the analysis**

### Data entry procedure:

In order, left to right.

<u>Variable Label</u>	<u>Instructions</u>
Number	Number pencilled on the form, refers to the child in the whole data set
Year	Year group that the child belongs to
Gender	Girls =0, Boys=1
SWB1-30	SWB items, entered unreversed so that 1="I Agree – A Lot", 4="I Disagree-A Lot".
Usual 1& 2	SWB items 31 & 32. Entered as above.
Posswb	Total of All the positive items in the SWB (items: 1,3,6,8,9,11,14,16,18,19,21,23,26,28,30)
Negswb	<u>75</u> -Total of all the negative items in the SWB; this effectively reverses the scoring on the individual items. (items: 2,4,5,7,10,12,13,15,17,20,22,24,25,27,29)
Totswb	150-(Posswb + Negswb)
LIS 1-22	Life in School checklist items. 1 = No, 2 = Once, 3 = More than once
Physbull	LiS-C Physically Bullied total = Total number of 2's and 3's entered in items: 4,6,7,14,20,22
Verbull	LiS-C Verbally/Indirectly total = Total number of 2's and 3's entered on items: 2,3,5,17,19,21 (N.B. items 5 & 17, are likely to be the most logically related to those children reporting racism – see Content Analysis)
Bulliedr	Self-Perceived Bullied score – 1 = Never, 6 = Everyday
Combined Bullied	Physbull + Verbull (Bulliedr-1) x 6/5). This correction puts the Self-Perceived Bullied score on the same metric as the LiS-C scores.
Bullyrig	Self-Perceived Bullying score – 1 = I did not bully anyone, 5 = Several times a week
Content	Content Analysis of the "School would be better if..." item. 1= Comments: not related to bullying, 2 = related to bullying, 3 = related to racism

cb1-25	Control Beliefs 1-25. 1=Yes, 2= No.
Ethnicity	Ethnicity: 1-23, from the top down
Eth2	Ethnicity (Broad Categories) Derived from DfEE. 1=Asian, 2=Black, 3=SE Asian, 4=White, 5=Mixed (Dual Heritage), 6=Middle Eastern, 7=Other.
Lie1-6	Lie/Social Desirability scale items. 1=Yes, 2=No
Lietot6	Total for 6-item Lie/Social Desirability scale, with items reversed = (9-items 1+3+4) + items 2+5+6
Sd1-25	Strengths & Difficulties Questionnaire for teachers. Items 1-25. 1 = Not True, 2 = Somewhat True, 3 = Certainly True
Diff5	S&D Overall difficulties item at top of second page. 1 = No, 4 = Severe Difficulties
Prosoc	S&D Prosocial scale = items: 1+4+9+17+20
Hyper	S&D Hyperactivity scale = items: 2+10+15+ (8-(21+25))
Emotion	S&D Emotional scale = items: 3+8+13+16+24
Conduct	S&D Conduct scale = items: 5+12+18+22+(4-7)
Peer	S&D Peer scale = items: 6+19+23+(8-(11+14))
Sanddtot	S&D Total scale = sum of Hyper. Emotion., Conduct, Peer scales.
SWB1-30_1	SWB item scores with missing values entered (using series mean, a conservative approach). These revised scores are the basis for the SWB scale totals.

**NB all underlined values are constants, not item values**

## Scoring schedules for the variables in the analysis

Nb. The measures relating to the following instructions are contained in Appendix C. Administration instructions appear in Appendix S. The instructions are presented in the order that the measures appear on the form.

### Age

The participant entered their school Year Group number in a box marked "Year".

### Gender

The pupil ticked one of two boxes, "I am a Boy" or "I am a Girl".

### SWB

Essentially the SWB measure is a four-point scale with a modified administration. The measure requires that the participant choose between "I Agree" to "I Disagree" at the first response stage. The participant then chooses as to whether they agree or disagree "...a little" or "...a lot".

The 15 negative items of the 30 items are reverse scored when computing the total scale. Consequently a high score indicates a high level of SWB (happiness), whereas a low score indicates a lack of SWB (unhappiness).

### Life in School Checklist (LiS-C Physically Bullied and Verbally/Indirectly variables Bullied)

Three options are given, asking whether the participant experienced the described behaviour in school over the last week. Response options include:

- "No",
- "Once",
- "More than once".

In each of the LiS-C scales there are six items each amongst the 22 items. Each response in the "once" or "more than once" categories counts as "1". A response in the "No" category counts as "0". Therefore the score on each scale ranges from 0-6, with the higher number indicating greater experience of being bullied.

### Self-Perceived Bullied item

A definition of bullying is written and read to the participants. A question follows,

"How often were you bullied at school this year?"

The participant chooses from six response options (scoring on the right) including:

- |                           |   |
|---------------------------|---|
| "Never",                  | 1 |
| "Less than once a week",  | 2 |
| "About once a week",      | 3 |
| "One or two days a week", | 4 |
| "Most days",              | 5 |
| "Every day".              | 6 |

A high score indicates a high reported level of being bullied.

#### Self-Perceived Bullying item

This item follows the Self-Perceived Bullied item. Responses are based on the same definition of bullying.

The participant chooses from five response options (scoring on the right) including:

“I did not bully anyone”,	1
“It has happened once or twice”,	2
“Sometimes”,	3
“About once a week”,	4
“Several times a week”.	5

A high score indicates a high reported level of bullying others.

#### Control Beliefs

The Control Beliefs Negative scale consists of five items contained within a 25-item questionnaire. Response options are “Yes” or “No”, indicating whether the participant thinks that the item content is right about them. The items all relate to

“What happens if you get bullied?”

Consequently, all analyses using responses on this item exclude the not bullied.

A “Yes” response on the CB- items scores as 1,

A “No” response on the CB- items scores as 2.

A low total on the CB- scale indicates strong helpless and hopeless beliefs in relation to being bullied.

#### Ethnicity

See Appendix G for the form. Participants were asked to identify one ethnic group description that best described them. 23 options were given, including an “Other” category. Participants were given a space opposite the descriptor to add further information if they wanted to. These categories were amalgamated into seven composite groupings based on DfEE codings for 1997, as used by Lewisham. These composite groups were used in the analysis to ensure that cell sizes would be sufficient for statistical analysis.

#### Lie/Social Desirability Scale

This eight item balanced scale asks participants to choose whether a description applies to them or not. Response options and scoring are:

“Yes”,	1
and,	
“No”.	2

A high score indicates a tendency to dissemble or to wish to conform to social expectations.

### Strengths & Difficulties Questionnaire

The version of the measure used in this study included a 25-item scale and a supplementary item assessing severity of impact (the S&D Overall Difficulties item).

The 25-item scale included a three point response option (scoring on right) including:

“Not True”,	1
“Somewhat True”,	2
“Certainly True”.	3

The positively framed items are reverse scored. A high total therefore indicates higher behavioural, emotional and social difficulties. There are five, five-item subscales including:

- Prosocial,
- Hyperactivity,
- Emotional,
- Conduct,
- Peer.

The last four scales are added to form an S&D Total score.  
The individual subscale scores can range from 5-15.  
The S&D Total score can range from 20-60.

The S&D Overall Difficulties item includes the following response options (scoring on the right):

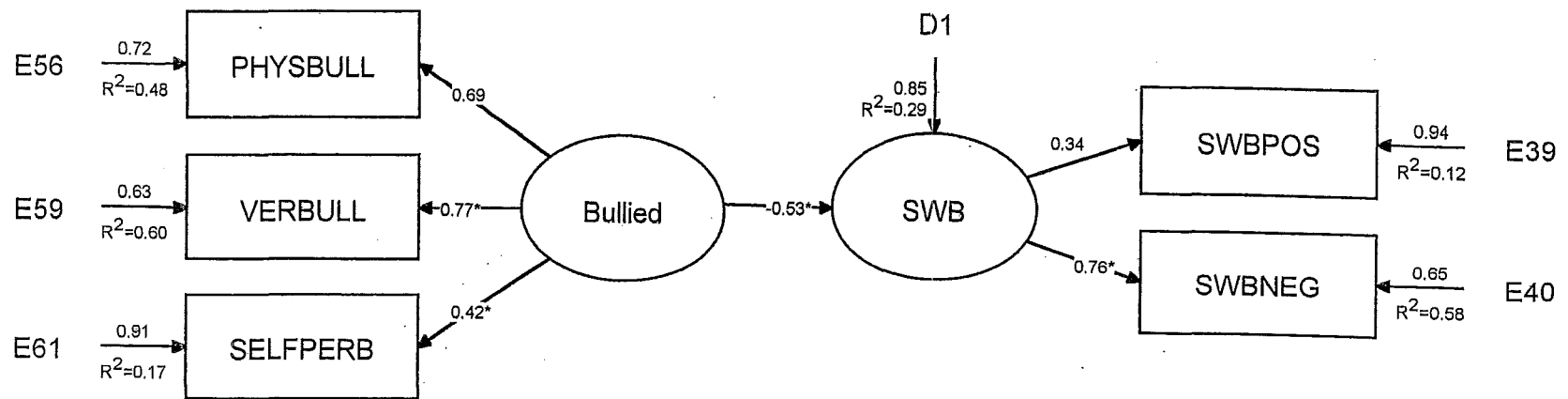
“No difficulties”,	1
“Yes – minor difficulties”,	2
“Yes – more serious difficulties”,	3
“Yes – very severe difficulties”.	4

A higher score indicating greater difficulties.



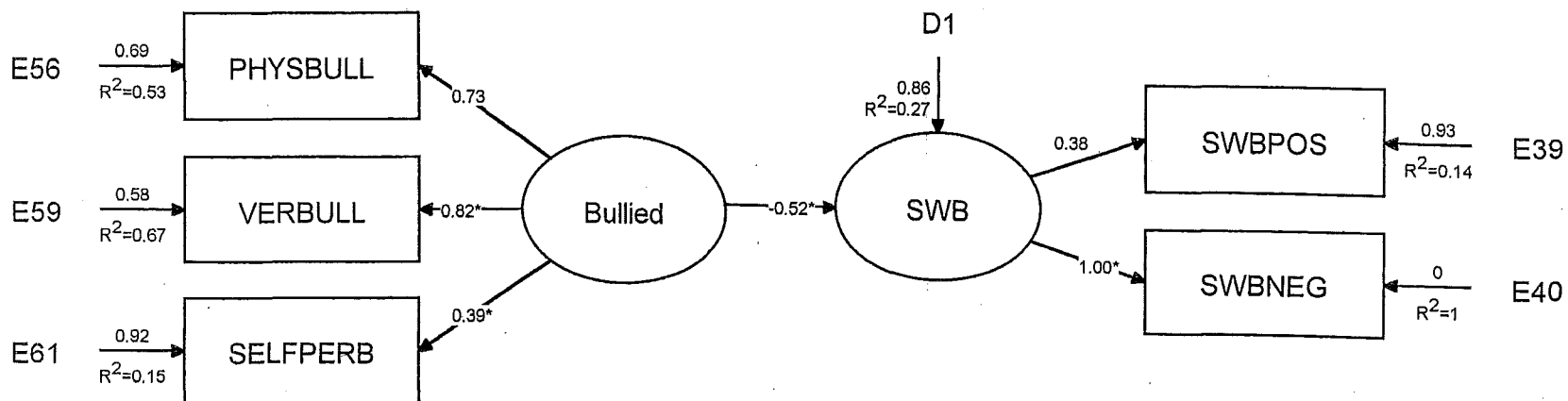
**Appendix V**  
**SEM Diagrams**

**Figure V.1. - SEM MODEL, Datagroup1 – SEM (n297)**



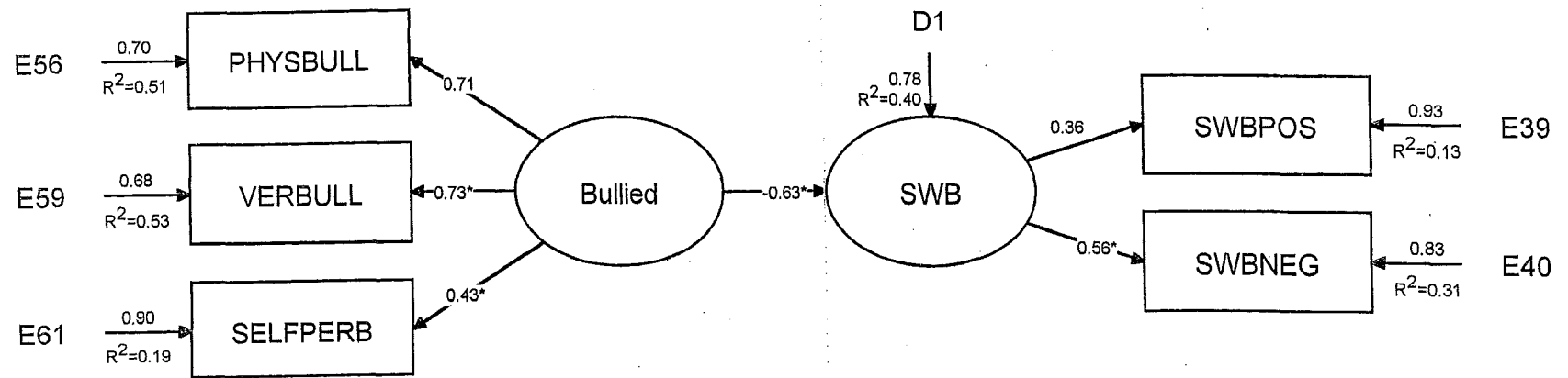
SEM MODEL, datagroup1-SEM (n297)

**Figure V.2. - GIRLS ONLY (127) SEM MODEL**



GIRLS ONLY (127) - SEM MODEL

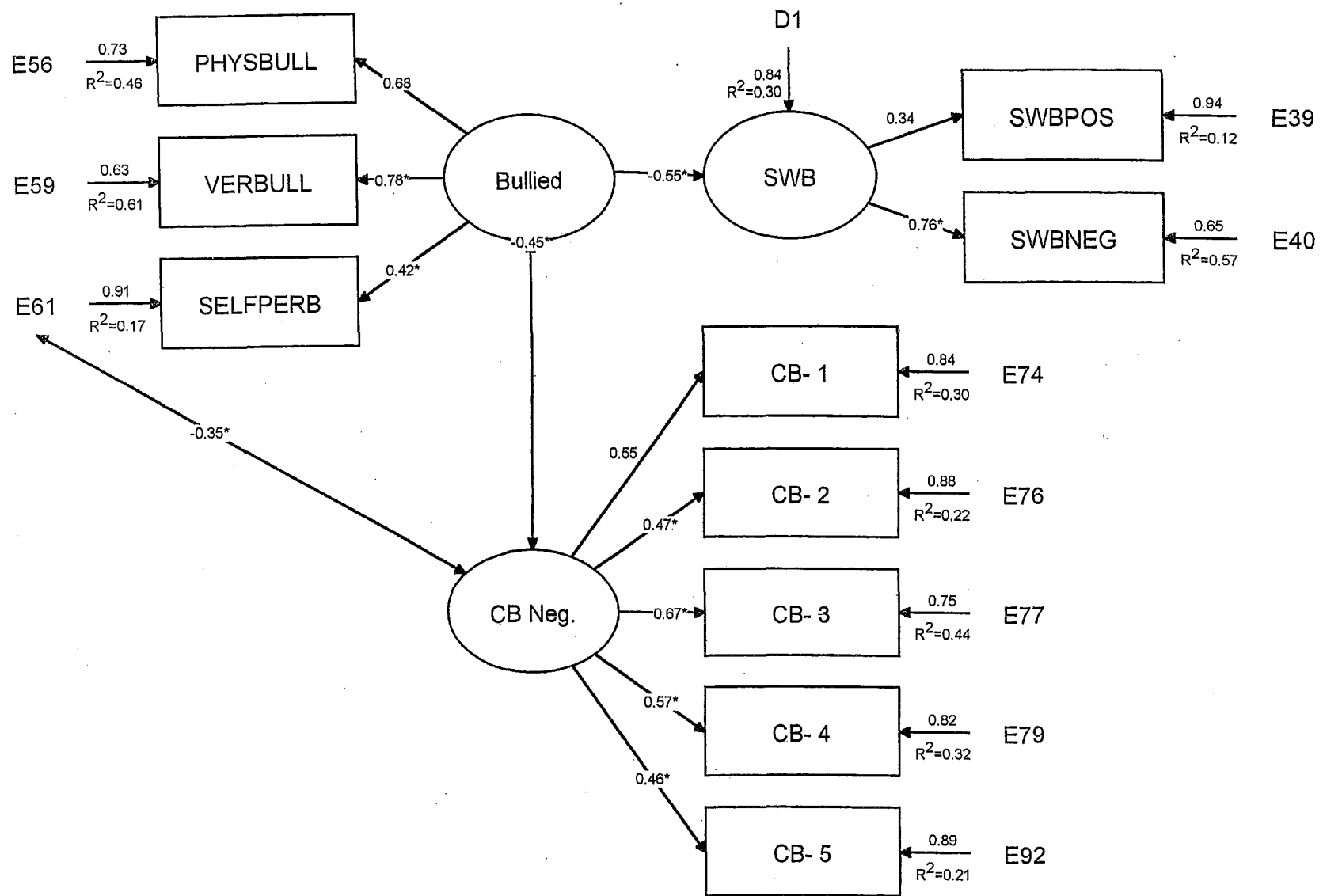
**Figure V.3. - BOYS ONLY (166) SEM MODEL**



BOYS ONLY (166) - SEM MODEL

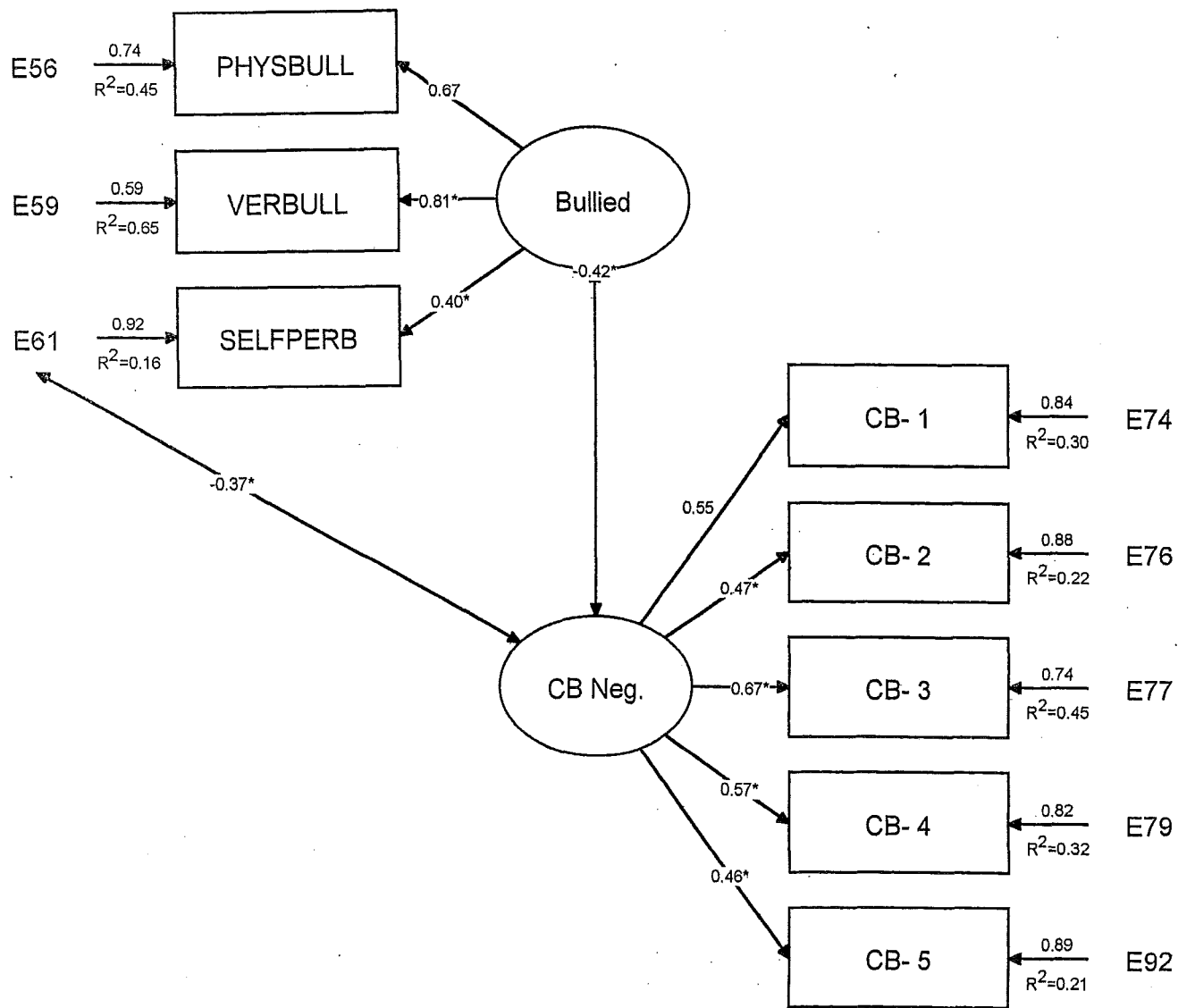
**Figure V.4. - CB- and SELF-PERCEIVED BULLIED, Datagroup1-SEM**





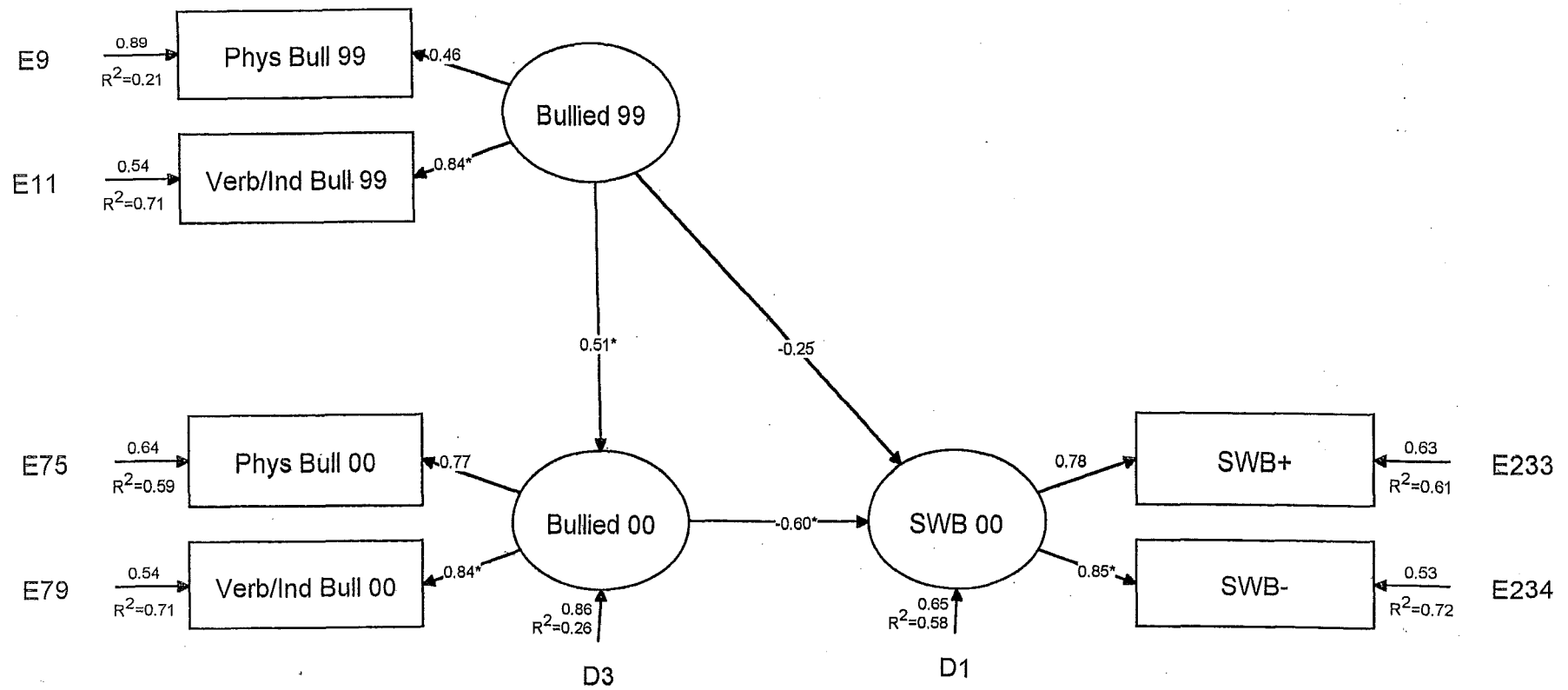
CB- and SELF-PERCEIVED BULLIED, Datagroup1-SEM

**Figure V.5. - CB- and SELF-PERCEIVED BULLIED (2), Datagroup1-  
SEM**



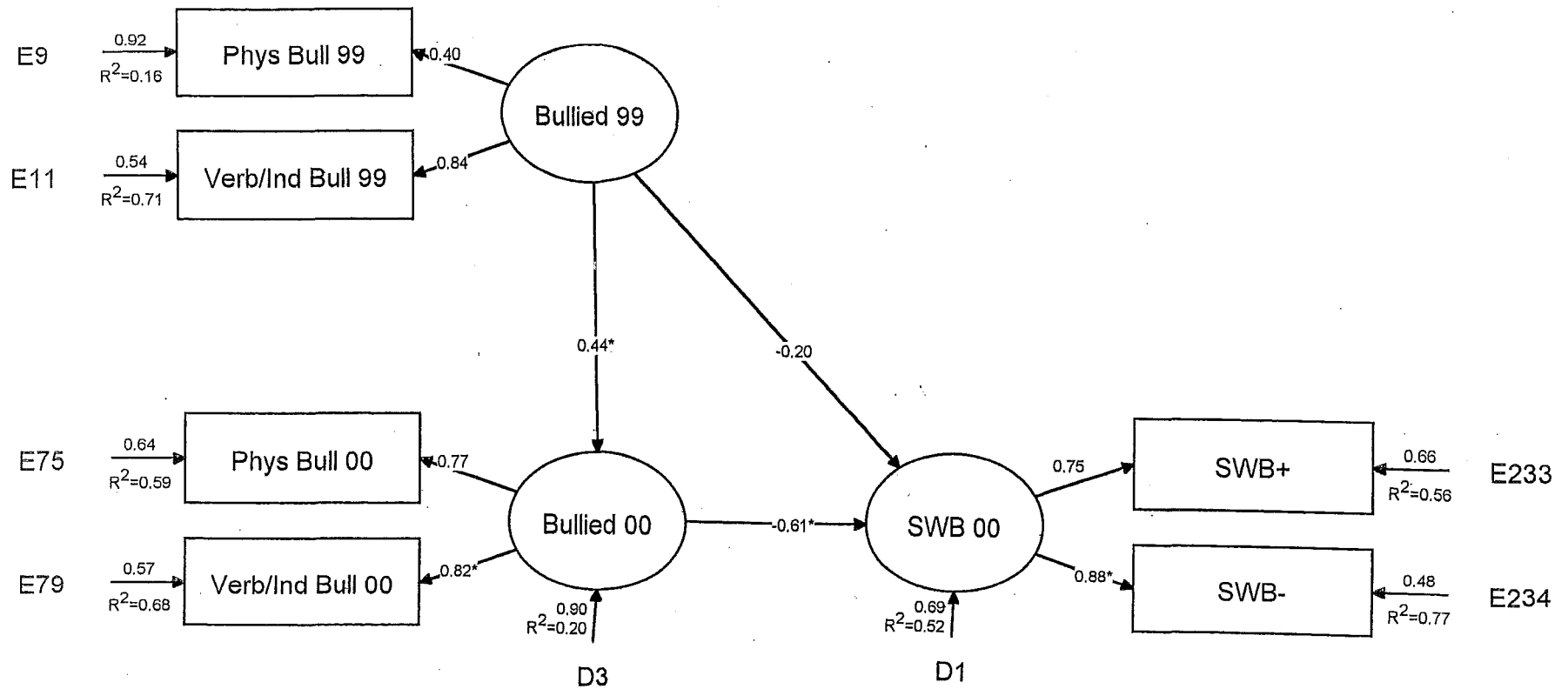
CB- and SELF-PERCEIVED BULLIED (2), Datagroup1-SEM

**Figure V.6. - LONGITUDINAL EFFECTS OF BEING BULLIED ON  
SWB**



## LONGITUDINAL EFFECTS OF BEING BULLIED ON SWB

**Figure V.7. - LONGITUDINAL EFFECTS OF BEING BULLIED ON  
SWB – BULLIED ONLY 99 OR 00**



Long. effects of being bullied on SWB - Bullied only 99 or 00

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