

Single-Item Measures: Cantril's Ladder, the Terrible-Delighted Scales and the Happiness Line Measure

By Dr John Ivens, headteacher at the Bethlem and Maudsley Hospital School



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Dr John Ivens, headteacher at the Bethlem and Maudsley Hospital School, provides an insight into how schools can help create conditions in which pupils and staff can thrive.

Description and purpose

This section contains three single-item measures in their varied forms:

1. Cantril's Ladder (Cantril 1965)
2. The Terrible-Delighted Scales (Andrews and Withey 1976)
3. The Happiness Line Measure (HLM) (Ivens 2007)

These single-item measures can be used with individuals, from 8 years old upwards, to assess within-person change, or as group measures to track the effects of an intervention. Each measure has a strong visual aspect in its presentation. Such single-item measures have a number of strengths and weaknesses.

Strengths:

- They are quick to administer and simple to comprehend.
- Visually presented items minimise the language load and therefore are better for children for whom English is not a first language.
- Using two or three single-item measures with different response formats is likely to reduce the common methods bias inherent in multiple item measures (Bergkvist and Rossiter 2007) and provide sufficient precision (Andrews and Withey 1976: 355).
- The validity and reliability of these scales (referring to Cantril's Ladder and the *Terrible-Delighted Scales*) suggest that they are adequate if a very brief measure of global wellbeing is required' (Diener 1984: 544).
- The same measure can be easily adapted to explore other areas of interest. This can be achieved through:
 - Drilling down into more personally generated concerns and superordinate or subordinate constructs
 - Changing the construct under study, e.g. the individuals' view of his or her achievements
 - Moving to an examination of the construct in a particular context, e.g. school.

Weaknesses:

- Only temporal reliability estimates available; no access to internal consistency reliability.
- Diverse profile responses on multi-item measures can provide a greater insight into the particular experience and meaning of the construct for the individual.



- Can over-simplify complex constructs unless used as a starting point for further investigation or if used alongside other related but subtly different measures. .
- Impossible to uncover the effect due to the particular form of the single question unless further explored with the individual.

Cantril's Ladder

This visual analogue measure is a broad-range measure tapping into the individual's global assessment of his or her life satisfaction. It consists of an image of a 'self-anchoring' ladder with 10 rungs with its base at '0' ('worst possible life') and the top rung at '10' ('best possible life').

Administration

These instructions are slightly modified from the version used by UNICEF [2007: 37] in a study that looked at the wellbeing of children in 25 countries belonging to the Organization for Economic Cooperation and Development (OECD). The (English) instructions are:

Here is a picture of a ladder. The top of the ladder, 10, is the best possible life for you and the bottom, 0, is the worst possible life for you. In general, where on the ladder do you feel you stand at the moment?

With simple modification to the instructions the ladder can be adapted to:

- refer to particular settings and time-frames
- explore related constructs or particular aspects of the individual's life
- explore preferred futures through visualising what it would be like to be on the next rung up.

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The mean percentage of pupils, aged 11, 13 and 15 years from 25 DECD and ten non-DECD nations, rating themselves at rung 6 or above

	11-year-olds	13-year-olds	15-year-olds
Girls	87.1	82.5	77.4
Boys	88.1	86.9	84.5

Scoring

This merely requires recording the number of the rung on which the individual has 'placed' themselves. The child can either point at, or circle with a pen, his or her chosen number. This number is the score.

Interpretation

In a study of child wellbeing in rich countries (UNICEF 2007) Centil's Ladder was used as a measure of life satisfac-

The Terrible-Delighted Scale

This scale comes in two forms:

- A seven-point 'visual analogue' scale with verbal descriptors at each point.
- A visual 'faces' scale, consisting of seven faces moving from 'f:\ with a large smile to 'G', with a downturned mouth.

In both forms the child is asked to choose the face/word that comes closest to showing how he or she feels about his or her life at the moment. In this form it is best considered as a measure of life satisfaction. However, as with Centit's Ladder, there is no reason why the focus for the question cannot be modified in terms of context, time-frame or construct, as has been done in adult versions.

Administration

A version for the adult form of the Visual Analogue scale is given as:

Here are some words and phrases that people use to identify various features of their lives. The scale runs from 'Terrible' to 'Delighted' in seven steps. Please check the number on the scale that comes closest to describing how you feel about ... [insert topic in question! [McDowe" 2006: 578]

Rigby and Slee [1993] used a child-in-school version of the Faces scale, in which children and young people aged 8 to 18 years were asked to indicate:

Which face is most like you when you are at school?

Scoring

The scoring on the Visual Analogue scale ranges from 1 [Delighted] to 7 [Terrible], and on the Faces scale from 1 [Face A] to 7 [Face G].

Interpretation

Rigby (2002) reported data from a range of studies involving 31,980 Australian schoolchildren which had used the Faces

scale to assess the effects of being bullied on pupil happiness. When asked 'Which face is most like you when you are at school?' the great majority of eight-eighteen-year olds (85 per cent of girls and 77 per cent of boys) pointed to happy faces (A, B or C). A small minority (4 per cent of girls and 7 per cent of boys) pointed to unhappy faces (E, F or G). Selection of faces E, F or G is therefore quite unusual and a cause for further investigation, particularly in view of associations with bullying. Rigby found that across age and gender those who were being bullied were more likely to select an unhappy face on this task.

The Happiness Line Measure (HLM)

Although simple in administration, the HLM yields a variety of rich quantitative and qualitative information from three marks made on the same pencil-drawn line. The HLM is an adaptation of the Salmon Line 'a simple technique that invites people to mark out [a] line before trying to verbalise things' (Salmon 1995: 83). The Salmon Line is an aid to visualising a construct; its meaning and the opposite represented by the two ends of the line.

In common with the 'self-anchoring' Cantril's Ladder, the HLM has end points representing the child's 'assumptions, perceptions, goals and values' (Cantril 1965: 22) but focuses on a given construct 'Happiness-Unhappiness' and explores its meaning to the child in a particular context such as school.

Quantitative information from the HLM includes the child's perceptions of his or her:

- Happiest and Unhappiest experiences, compared to the happiest and unhappiest children in the peer group.
- Happiness Range in comparison to that of the peer group.
- Current level of happiness.
 - in the context of the range of happiness experienced by the peer group (Current Group-Referenced Happiness) and
 - in relation to his or her personal range of happiness (Current Self-Referenced Happiness).

Qualitative information from the HLM arises from the opportunity to explore:

- The child's personal constructs around his or her happiness; what makes him or her happy or unhappy and what makes others happy or unhappy in the shared context. What it would be like to be happier [hopes] or unhappier [fears] than has been personally experienced.

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- What would have to happen next for him or her to feel happier in the context?
- What it would be like to be happier (hopes) or unhappier (fears) than has been personally experienced.
- What would have to happen next for him or her to feel happier in the context.

Administration

Keeping to the specific instructions is not critical when working with individuals, as it is important to respond to the child and to support them with additional prompts that are tailored to their needs. However, if using the HLM as a group measure, for instance as the baseline and follow-up for an intervention, then the same instructions should be used for everyone.

Materials required are the Happiness Line Measure, a pencil and the HLM Scoring Key. Place the Happiness Line Measure in front of the child and say:

This line will help us to look at what it's like to be you, in your class/school relevant context. What would it be like [pointing to the 'happy' face] to be the 'happiest' child in the class?

[consider using 'why ...' 'what ...' and 'how...' questions as prompts]

Record the child's responses next to the 'happy' face [this is not necessary when using the HLM as a group measure]. Repeat with the 'sad' face:

What would it be like [pointing to the 'sad' face] to be the 'unhappiest' child in the class?

Record the child's responses next to the 'sad' face [this is not necessary when using the HLM as a group measure]. Then say:

Where is the nearest [indicate the line, moving towards the 'happy' face] that you have got to being the happiest child in the class? [hand the child the pencil] Put a mark there.

Where is the nearest [indicate the line, moving towards the 'sad' face] that you have got to being the unhappiest child in the class? Put a mark there.

What was going on when you were happiest? [Point to the child's mark closest to the 'happy' face. Write down the child's responses next to the mark.]

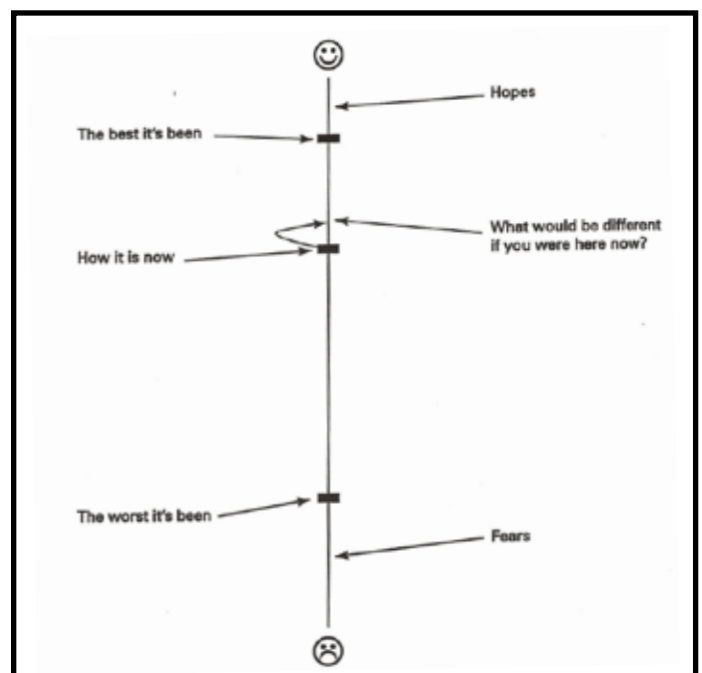
What was going on when you were at your unhappiest? [Point to the child's mark closest to the 'sad' face. Write down the child's responses next to the mark.]

Where are you this week? Put a mark there. [for Current Group and Self-Referenced Happiness]

[Pointing to a point just above this mark] *What would be different if I came next week and your week had been a little bit happier? [Write down the child's responses next to the mark.]*

Scoring

1. Place the Scoring Key over the top of the completed HLM.
2. Match up the ends of the line with the tallest vertical line on the left hand side of the template. This position of the transparency on the line is Scoring Point 1.
3. On the Scoring Sheet, record in boxes 1 and 2 the numbers on the 1-10 scale shown on the transparency which are closest to the child's highest [1. Happiest] and lowest [2. Unhappiest] marks on their line.
4. The Happiest and Unhappiest scores, added together, give a score for the Happiness Range which is entered into the third box on the Scoring Sheet.
5. Record as score 4, the Current Group-Referenced Happiness score, the number on the template closest to the child's current happiness point.
6. To record the Current Self-Referenced Happiness [score 5] you will first need to move the position of the transparency from Scoring Point 1 to Scoring Point 2. Move the transparency to the left and up, across the young person's line until their Unhappiest mark intersects, the bottom ☹️ to ☹️ line and their Happiest mark intersects the top ☺️ to ☺️ line. This is Scoring Point 2. Record the number that is now closest to the young person's current happiness mark.



A sample HLM with three child's marks and their interpretation

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Interpretation

The child's word descriptions at both poles give an insight into the context-related meaning of happiness for him or her. The happiest and unhappiest descriptions show the best and worst context-related experiences for the child. Any gap above his or her happiest point and below the unhappiest represents the imagined and the possible but, as yet unexperienced; the representation of unknown hopes and fears.

The Current ... Happiness point locates the child's experience of happiness in the present or near present and allows the possibility of thinking about how it can improve; what would be different about him or her or what would be different about the context.

Consider where the child's Happiness Range is (happiest + unhappiest -) in relation to the full line. Is it nearer one end or another; happier than others or unhappier than others? Is the child's range nearly as long as the full line or is it only a small section? Why might this be?

How does the child compare his or her current experience with others? Where Current Self-Referenced Happiness is greater than Current Group-Referenced Happiness this suggests that the child perceives his or her experience more positively than most.

Where "Current Group-Referenced Happiness is greater than Current Self-Referenced Happiness it suggests that the child perceives his or her current experience more negatively than most. This might be typical for a child that is being bullied, for instance.

During follow-up interviews with the child the following issues can be explored:

- Did they improve/deteriorate as they expected? Why? How? What happened? What did he or she do?
- Did their highest and lowest points change? What happened?
- If things got worse, how did they manage?

Technical details

For Cantril's Ladder, the two-year test-retest reliability is reported at $r=.65$ (Palmore and Kivett 1977, reported in Diener 1984: 544).

	SchoolChildren's Happiness Inventory	Kovacs Child Depression Inventory	PANAS - C Positive	PANAS - C Negative
<i>Terrible-Delighted - Visual Analogue</i>				
Pearson Correlation	.399**	-.318**	.386**	.150
Sig. (2-tailed)	.000	.005	.001	.193
N	77	77	77	77
<i>Terrible-Delighted - Faces</i>				
Pearson Correlation	.278*	-.640**	.262*	.392**
Sig. (2-tailed)	.016	.000	.024	.001
N	74	74	74	74
<i>Line Negative</i>				
Pearson Correlation	.404**	-.436**	.169	.383**
Sig. (2-tailed)	.000	.000	.142	.001
N	77	77	77	77
<i>Line Positive</i>				
Pearson Correlation	.386**	-.466**	.328**	.372**
Sig. (2-tailed)	.000	.000	.004	.001
N	77	77	77	77
<i>Line Pos. + Line Neg.</i>				
Pearson Correlation	.493**	-.560**	.305**	.469**
Sig. (2-tailed)	.000	.000	.007	.000
N	77	77	77	77

Source: Ivens 2007

Notes:

* Correlation is significant at the 0.5 level (2-tailed)

** Correlation is significant at the 0.1 level (2-tailed)

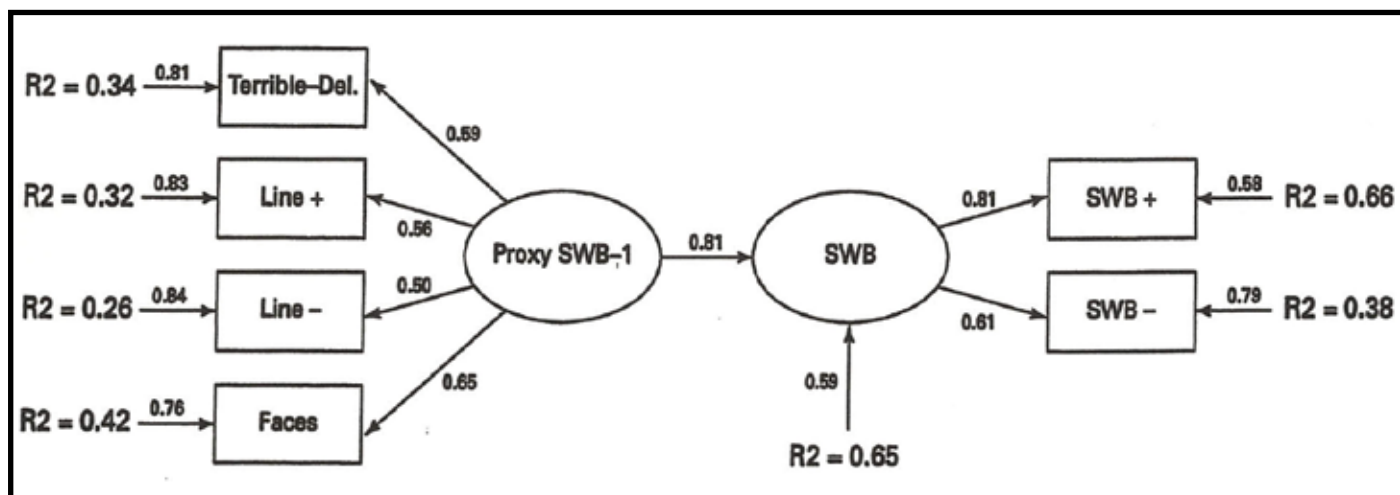
The direction of the association was as predicted given the scoring schemes for each measure in the study.

- The 'Positive and Negative Affect Scale - Children (PANA5-Q (Laurent et al. 1999).

All three are designed to measure related but not synonymous concepts: self-esteem, depression and affect. The average correlation of $r=.47$, is of a similar order to that reported by Larson et al (1983) of $r=.40$ in a correlational study of wellbeing measures, including the *Terrible-Delighted* scales. The table below shows that, with two exceptions, the single-item measures showed a medium to large correlation with the multi-item measures.

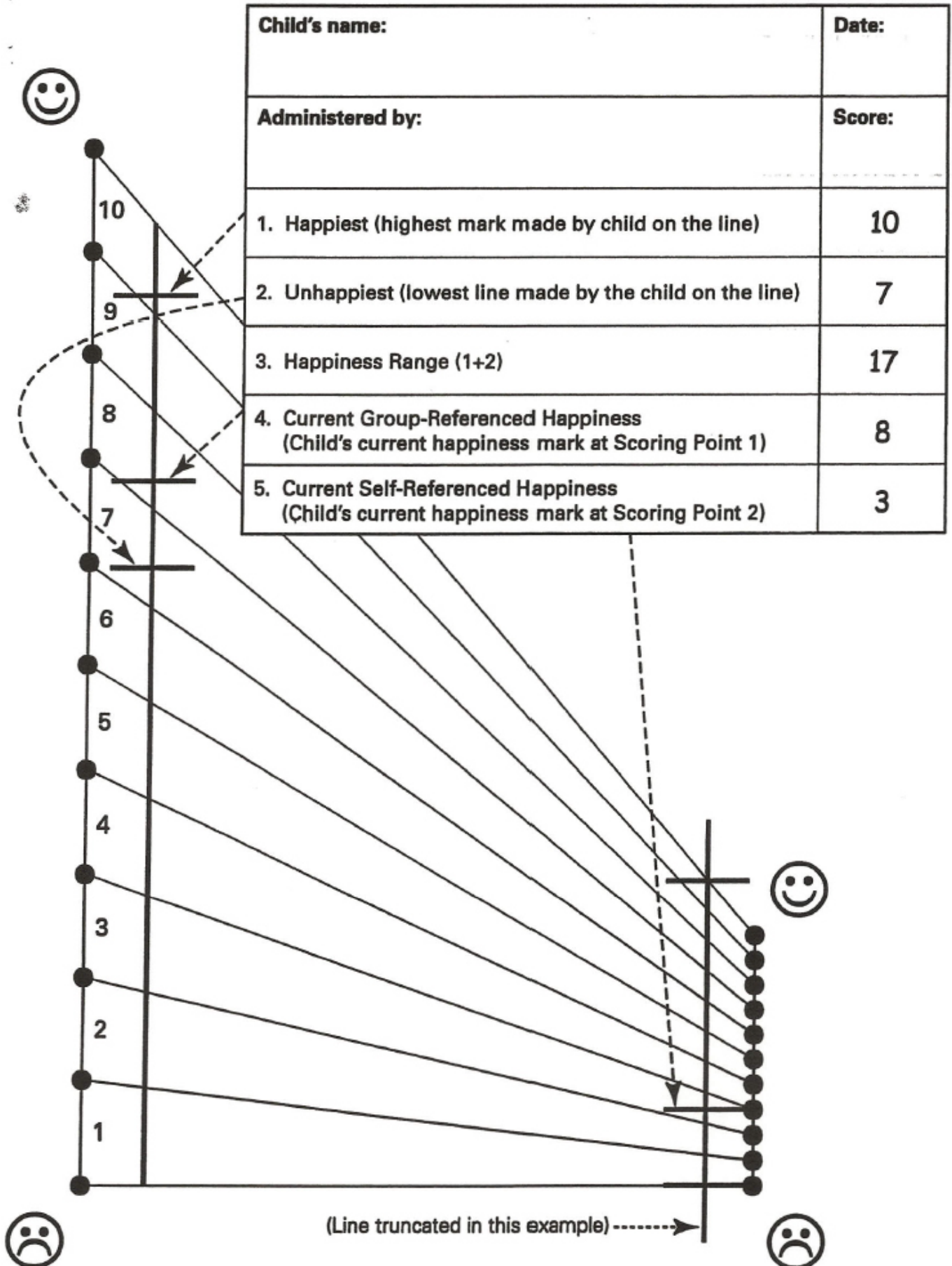
The two exceptions, italicised in the table, were for:

- *Terrible-Delighted - Visual Analogue* item and the PANAS - C Negative scale. -
- Line Negative and PANAS - C Positive; this being attributable to the difference in directional focus between the two measures.



Proxy-1 SWB (formed from the two single-Item Terrible-Delighted scores and two HLMscores) as a predictor of SWB

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Record 1) to 4) scores with the full length of the line within the template before moving the line so that the child's topmost and bottommost marks lie on the topmost and bottommost lines of the template and record 5)

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Diener (1984) reports the Terrible-Delighted scale as having repeated-measure reliability of $r.66$ and $r.40$ at 6 months. Diener (1984: 544) also refers to the report of Andrews and Withey (1976) that the measure 'contains 65% valid variance' using similar self-report measures. Correlations of the *Terrible-Delighted* scale completed on students by family and friends, with those completed by the students themselves, were $r.52$ and $r.49$ respectively (Sandvik et al. 1993:335). The use of other informants, apart from the student participants, provides additional assessments of the measures' validity that does not rely on self-report solely.

Bowling (2005), quoting Andrews and Oandall (1976), reported that a multimethod-multitrait analysis for each of the two *Terrible-Delighted* scales, Cantril's Ladder and one other scale found that the median validity coefficients in the assessment of six areas of life satisfaction ranged from 0.70 to 0.82 . The two *Terrible-Delighted* measures and the Happiness Line Measure were administered alongside the

SchoolChildren's Happiness Inventory (SCH~ (Ivens 2007) during the development of that measure. A good fit was found between the data and the model and the analysis showed that all four measures jointly predicted 65 per cent of the variance in SWB (Ivens 2007). The Happiest Score on the HLM is shown as 'Line +' and the Unhappiest score is shown as 'Line - ').

Ivens (2007) administered the *Terrible-Delighted* (Visual Analogue and Faces versions) and the Line scales (Negative, Positive and a combined Line Positive and Line Negative score) as part of an examination of the convergent validity of the SCHI with multiple-item measures, to 77 Year 5 pupils (aged 9 to 10 years). These measures included:

- The Culture-Free Self-Esteem Inventory, 2nd edition (CFSE-f) (Battle 1992).
- The Children's Depression Inventory- Short Form (CD/-51) (Kovacs 1992).

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CANTRIL'S LADDER



Name Date

Age..... Class..... Please circle: Male / Female

10
9
8
7
6
5
4
3
2
1
0

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THE TERRIBLE-DELIGHTED SCALE

Faces

Name Date

Age Class Please circle: Male / Female



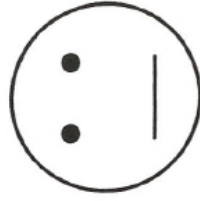
A



B



C



D



E



F



G

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THE TERRIBLE-DELIGHTED SCALE

Visual Analogue

Name

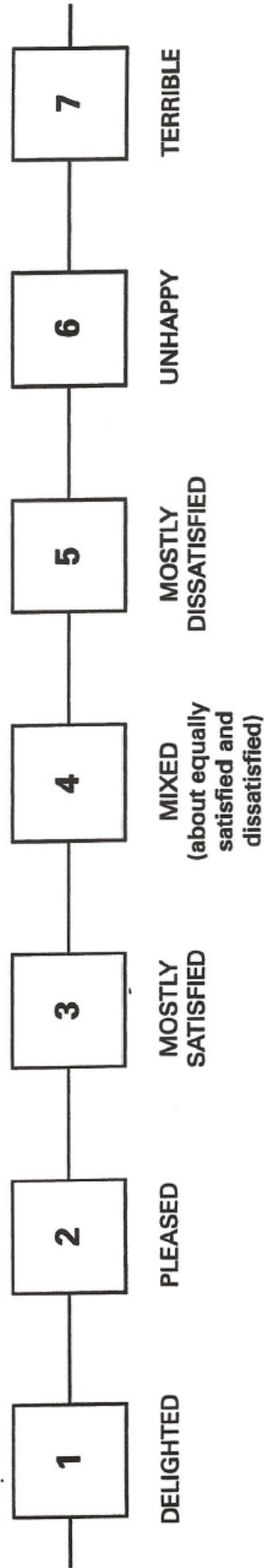
.....

Date

Age

.....

Please circle: Male / Female



Single-Item Measures: Cantril's Ladder, the Terrible-Delighted Scales and the Happiness Line Measure



THE HAPPINESS LINE MEASURE

Name Date

Age Class Please circle: Male / Female



Single-Item Measures: Cantril's Ladder, the Terrible-Delighted Scales and the Happiness Line Measure

THE HAPPINESS LINE MEASURE

Scoring Sheet

Child's name:	Date:
Administered by:	Score:
1. Happiest (highest mark made by child on the line)	
2. Unhappiest (lowest line made by the child on the line)	
3. Happiness Range (1+2)	
4. Current Group-Referenced Happiness (Child's current happiness mark at Scoring Point 1)	
5. Current Self-Referenced Happiness (Child's current happiness mark at Scoring Point 2)	