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**The @school project : developmental considerations in the design and delivery of cognitive-behavioural therapy for adolescent school refusal**

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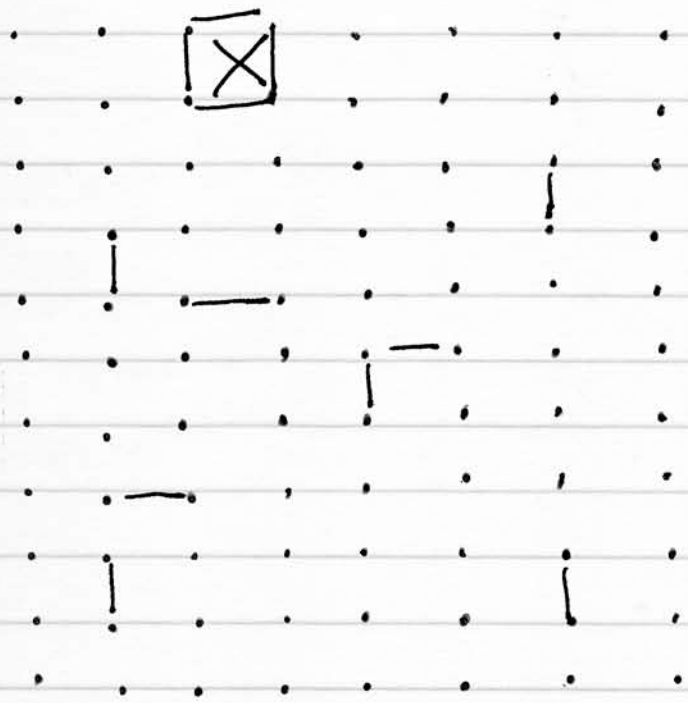
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## Chapter 3

Assessing Therapy-Relevant Cognitive Capacities  
in Young People: Development and Psychometric  
Evaluation of the Self-Reflection and Insight Scale  
for Youth

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## Abstract

The effectiveness of cognitive-behavioural therapy with young people may be influenced by a young person's capacity for self-reflection and insight. Clinicians who assess clients' proficiencies in these cognitive capacities can better tailor cognitive and behavioural techniques to the client, facilitating engagement and enhancing treatment outcome. It is therefore important that sound instruments for assessing self-reflection and insight in young people are available. The aim of the current study was to translate and adapt the Self-Reflection and Insight Scale (SRIS) for use with a child and adolescent population (Study 1), and to evaluate the psychometric properties of the resulting measure, the Self-Reflection and Insight Scale for Youth (SRIS-Y; Study 2). In Study 1 (n = 145), the comprehensibility of the SRIS-Y was assessed in a community sample of children and adolescents. Study 2 (n = 215) then explored the reliability and structural, convergent, and divergent validity of the SRIS-Y. The SRIS-Y was found to be comprehensible to young people, and had good reliability and structural validity. It appears that the SRIS-Y is a sound instrument for assessing therapy-relevant cognitive capacities in young people, of potential benefit in both research and clinical contexts. Future research foci include the predictive validity of the instrument.

## Introduction

Treatment approaches which include strategies for cognitive change, such as cognitive-behavioural therapy (CBT), are commonly recommended for the treatment of psychopathology in children and adolescents. Indeed, there is increasing evidence for the short- and long-term efficacy of CBT for a range of difficulties in childhood and adolescence (e.g., Schmidt et al., 2007; Smith et al., 2007). However, while many young people treated with CBT experience clinically and statistically significant improvements, a large number of clients continue to present with symptoms post-treatment (e.g., Cartwright-Hatton, Roberts, Chitabesan, Fothergill, & Harrington, 2004).

The effectiveness of CBT for young people depends on a broad range of factors. Client-, clinician-, and treatment-related variables (specific and non-specific) all potentially predict treatment response in child and adolescent psychotherapy (March & Curry, 1998). One likely cause of poorer treatment outcomes is a mismatch between the type or level of treatment provided, and the client's CBT-relevant cognitive capacities<sup>5</sup>. Researchers and clinicians commonly make reference to the importance of cognitive capacities such as abstract reasoning, cognitive flexibility, and psychological mindedness for young people's engagement in CBT (e.g., Holmbeck, O'Mahar, Abad, Colder, & Updegrove, 2006; Quakley, Reynolds, & Coker, 2004; Sauter, Heyne, & Westenberg, 2009). These capacities allow young people to identify and discriminate their own thoughts, feelings, and behaviours, and to objectively identify causal relations between them. Indeed, such cognitive capacities are seen to be important for successful engagement in cognitive therapeutic strategies, such as the identification, refutation, and adaptation of maladaptive cognitions (Doherr, Reynolds, Wetherly, & Evans, 2005; Grave & Blissett, 2004). While several studies have demonstrated that even children as young as five years can engage in some meta-cognitive tasks (Flavell, Green, & Flavell, 2000; Quakley, Coker, Palmer, & Reynolds, 2003), there are likely to be considerable intra- and inter-individual differences in the development of these cognitive capacities (Bacow, Pincus, Ehrenreich, & Brody, 2009; Holmbeck et al., 2006).

Psychological mindedness (PM) is a cognitive capacity which has long been regarded as having an influence on treatment outcome. It is generally seen as a (meta)cognitive construct involving the awareness and understanding of psychological phenomena such as cognitions, emotions, and behaviours of oneself and others (Farber, 1985; Hatcher, Hatcher, Berlin, Okla, & Richards, 1990). Clients high in PM are held to be more observant of the relations between cognitive, affective and behavioural states, and therefore more able to participate in psychotherapeutic

<sup>5</sup> For the purposes of this paper, 'CBT-relevant cognitive capacities' are taken to include intellectual and executive functioning, as well as broader psychological constructs such as abstract reasoning and psychological mindedness.

interventions (Beitel, Ferrer, & Cecero, 2005; Farber, 1985). Indeed, McCallum, Piper, Ogradniczuk, and Joyce (2003) found a significant relation between PM and outcomes in both short-term group psychotherapy for grief ( $n = 107$ ) and short-term individual psychotherapy for clients with mixed diagnoses ( $n = 144$ ). Similarly, Conte et al. (1990) reported a positive relation between PM and outcome in a sample of 44 adults with affective disorders, although they failed to replicate these results in a later study (Conte, Ratto, & Karusa, 1996).

While these adult-based studies support the notion that clients high in PM respond better to treatment than less psychologically minded clients, there has been very little systematic exploration of PM in relation to CBT with young people. This is despite the fact that PM may be particularly relevant to engagement in CBT, given that CBT encourages the monitoring, evaluation and expression of cognitions, emotions, and behaviours (Grant, 2001). In the one study to date, Boylan (2006) compared CBT for depression in adolescents ( $n = 37$ ) with Systemic-Behavioural Family Therapy ( $n = 35$ ) and Non-Specific Treatment ( $n = 35$ ). Levels of PM were not found to be predictive of post-treatment functioning (e.g., depression as measured by the Beck Depression Inventory). At the same time, clients with high PM showed a more rapid improvement in the CBT condition in comparison to those treated with Systemic-Behavioural Family Therapy.

Valid and reliable measures may allow for further exploration of the relationship between cognitive capacities such as PM and CBT outcomes with children and adolescents. Until recently, measures of PM and related constructs (e.g., self-consciousness) were not without problems. In particular, there had been a tendency for measures of PM to tap into maladaptive cognition such as rumination (Kingree & Ruback, 1996). For example, items of the Private Self-Consciousness Scale (PrSCS; Fenigstein, Scheier, & Buss, 1975) have been shown to correlate significantly with measures of depressive psychopathology, and these items may therefore fail to accurately capture the type of PM which is seen to be essential for engagement in CBT (Anderson, Bohon, & Berrigan, 1996).

An alternative framework with which to understand PM and its potential relevance to CBT is encapsulated in the multidimensional model of PM developed by Grant (2001)<sup>6</sup>. Grant positioned PM as a (meta)cognitive construct incorporating both: (1) the capacity to explore cognitive, affective, and behavioural phenomena ('self-reflection'); and (2) an interest in, and understanding of, cognitive, affective, and behavioural phenomena ('insight'). The process by which individuals monitor (i.e., self-reflect) and evaluate (i.e., apply insight to) the impact of cognitive, affective, and behavioural changes is seen to be particularly relevant to the clinical practice of CBT (Grant, 2001). For example, Grant noted that the process of 'self-reflection' is akin to the self-monitoring held to be central to CBT, and suggested that the speed or

extent of a client's response to CBT may be influenced by their level of self-reflection and insight. Further, Grant also suggested that a knowledge of the capacity for self-reflection and insight can be used to guide clinicians' use of cognitive and behavioural techniques.

In order to facilitate tests of this model of PM, Grant, Franklin, and Langford (2002) developed and evaluated the Self-Reflection and Insight Scale (SRIS) for use with adults. The Insight subscale of the SRIS (SRIS-IN) was found to demonstrate good convergent and divergent validity, in that it was negatively associated with measures of psychopathology and positively associated with a measure of cognitive flexibility. The Self-Reflection subscale (SRIS-SR) was positively correlated with a measure of anxiety, which was seen to indicate a possible overlap with rumination. In a more recent study by Roberts and Stark (2008), exploratory and confirmatory factor analyses of the SRIS administered to a sample of medical students ( $n = 462$ ) suggested that three factors best fit the data: two self-reflection subscales (Engagement in Self-Reflection and Need for Self-Reflection) and an Insight subscale. While Grant and colleagues (2002) found no gender effects, Roberts and Stark (2008) reported that males scored higher on the Insight subscale relative to females, and they found a positive correlation between age and Insight. The findings reported by Grant and colleagues (2002) and Roberts and Stark (2008) provide confirmation of both the content and construct validity of the SRIS. Both research teams concluded that further research is needed to explore the predictive validity of the measure. Nonetheless, based on the encouraging findings, Grant and colleagues (2002) concluded that the SRIS can be regarded as an "advance" on other measures of PM, in that it allows for the examination of self-reflection and insight as two distinct components of PM (2002, p. 833).

In summary, self-reflection and insight are two cognitive capacities relevant to the practice of CBT, including the practice of CBT with young people. A major emphasis in the clinical and research literature on CBT with young people is the need to consider the influence of CBT-relevant cognitive capacities on engagement in treatment (Grave & Blissett, 2004; Quakley et al., 2004). In order to facilitate research into the relationship between self-reflection, insight, and the outcomes of CBT with young people, an empirically-tested measure of self-reflection and insight in young people is required. The aim of the current study was to translate and adapt the SRIS for use with a child and adolescent population. Study 1 focused upon the adaptation of the adult measure for use with young people, including piloting to test the comprehensibility of the adapted measure (Self-Reflection and Insight Scale for Youth; SRIS-Y). Study 2 explored the psychometric properties of the SRIS-Y in a community sample, including evaluation of its reliability and structural, convergent, and divergent validity. Based on the findings associated with the adult measure (Grant et al., 2002; Roberts & Stark, 2008), it was expected that the structural, convergent, and divergent validity of the SRIS-Y would be adequate. Age and gender trends in self-reflection and insight were analysed exploratively.

<sup>6</sup> For a diagrammatical representation of the model, see Grant (2001).

## Study 1: Development of the SRIS for a Dutch child and adolescent population

### Method

#### Participants

One hundred and thirty-eight children and adolescents (60 boys and 78 girls), aged 9 to 18 years ( $M = 13.83$  years,  $SD = 2.68$ ) participated in Study 1. These young people were drawn from primary schools ( $n = 58$ ) and secondary schools ( $n = 80$ ) in the region South Holland, the Netherlands. Almost the entire sample was of Dutch origin (94.2%).

#### Procedure

Permission to translate and adapt the SRIS was granted by the original author prior to commencing the study. The English version of the SRIS was translated according to guidelines for the translation of instruments in cross-cultural research (Van Widenfelt, Treffers, de Beurs, Siebelink, & Koudijs, 2005). Items which were seen to contain difficult words (e.g., aware of; reflect) or to have a complex sentence structure were adapted so as to be more suitable for use with children and adolescents. An example of an adapted SRIS-Y item included "I usually notice that I have thoughts" (original: I am usually aware of my thoughts). To further increase the developmental appropriateness of the questionnaire, a practice item was added to allow respondents to gain familiarity with the response format.

The study was carried out with the approval of the Psychology Ethics Committee of the University. Permission to conduct the study was received from school principals, and parental and child consent was obtained. A randomly selected subset of participants ( $n = 34$ ) answered a number of piloting questions following completion of the questionnaire in the classroom in order to assess the comprehensibility of the items. Two questions were posed in relation to each item in the questionnaire: "Did you understand the question?" (yes; a little; not at all), and "Did the item contain any difficult words?" (none were difficult; some were difficult; all were difficult). Participants were also asked: "Did you understand the instructions?" (yes; a little; not at all).

#### Instrument

The Self-Reflection and Insight Scale (SRIS; Grant et al., 2002) is a 20-item self-report instrument which comprises two subscales: Self-Reflection and Insight. The SRIS assesses individuals' propensity to reflect on, and their level of insight into, their thoughts, feelings, and behaviour. Items are answered with a 6-point scale (1 = disagree strongly to 6 = agree strongly). The authors reported that the SRIS is a valid and reliable measure of self-reflection and insight in adults (Cronbach's  $\alpha$  SRIS-SR = .91 and Cronbach's  $\alpha$  SRIS-IN = .87). The test-retest reliability was .77 for the Self-Reflection subscale and .78 for the Insight subscale.

#### Data analysis

Two cases with more than 25% of items missing on the SRIS-Y questionnaire were excluded from analyses. The remaining missing values (17 participants had 1 item missing) were replaced by extrapolated values using the person mean substitution method (Hawthorne & Elliott, 2005). The responses to the piloting questions were examined to determine whether the SRIS-Y items were comprehensible. The internal consistency of the questionnaire was assessed with the Cronbach's alpha statistic (acceptable  $\geq .70$ ; Field, 2005). SRIS-Y items were assessed with respect to means, standard deviations, floor and ceiling effects, the proportion of participants with a missing value on an item, and the skewness and kurtosis of the item response distribution. Items should be restructured or removed if they show extreme skewness and/or kurtosis (i.e., less than -1 or more than 1; Noom, Deković, & Meeus, 2001). In addition, item-total correlations were examined to check for homogeneity of the scale. If items correlate less than .15 with the total test score, it is likely that they do not measure the same construct as the scale and may need restructuring (Field, 2005).

### Results

#### Piloting

T-tests revealed no significant differences on total and subscale scores between the total sample and the final piloting sub-sample (all  $p$ 's  $> .15$ ). Analyses of the piloting data revealed that 85.6% of the participants did not find any of the words in the items of the SRIS-Y to be 'difficult'. Of the respondents reporting difficulties, the words 'reflect' (Item 16), 'evaluate' (Item 5), 'analyse' (Item 2), and 'self-reflection' (Item 8) were most often cited. Relative to the older participants (14-18 years), the younger participants (9-13 years) rated the items of the questionnaire as more difficult to comprehend,  $t(31.61) = 2.06$ ,  $p = .05$ , and had more trouble understanding the instructions,  $t(29.94) = 2.22$ ,  $p = .03$ .

#### Internal validity and item analysis

The Cronbach's  $\alpha$  for the whole questionnaire was .60. Item response statistics and item-total correlations are displayed in Table 1. For all but one item (Item 13), there was a low rate of non-response, indicating good comprehensibility of the questionnaire. There was a broad range of responses for the SRIS-Y items, with low rates of floor and ceiling effects. The majority of items (16 out of 20) demonstrated acceptable skewness and kurtosis, and 14 items correlated adequately with the total score.

**Table 1.**  
*Item Response Statistics of the SRIS-Y, n = 138*

	<i>M</i>	<i>SD</i>	Mis.	Skw	Krt	Min/Max	CITC	Alpha if item deleted
1. I don't often think about my thoughts	2.70	1.35	0.69	.57	-.34	21.00/4.30	-.07	.63
2. I'm not really interested in analyzing my behaviour	2.89	1.35	0.00	.38	-.92	14.50/1.40	-.21	.65
3. I'm usually aware of my thoughts	3.86	1.49	0.00	-.23	-1.04	0.70/14.50	.01	.62
4. I'm often confused about how I really feel about things	3.14	1.49	0.69	.23	-1.04	13.80/6.50	.37	.57
5. It's important to me to evaluate the things I do	3.99	1.26	1.38	-.67	.04	5.80/8.00	.23	.59
6. I usually have a very clear idea about why I have behaved in a certain way	4.44	1.17	0.00	-.73	.16	1.40/16.70	.14	.60
7. I find it really interesting to examine what I think about	3.88	1.53	0.00	-.42	-.80	10.00/14.50	.40	.56
8. I rarely spend time 'self-reflecting'	3.59	1.43	0.00	-.12	-.86	8.70/8.70	-.20	.65
9. I often notice that I'm feeling something, but often I don't know what exactly I'm feeling	3.40	1.49	0.00	.04	-.92	11.60/10.10	.26	.58
10. I often examine my feelings	3.10	1.43	0.00	.09	-1.04	15.90/3.60	.44	.56
11. My behaviour often puzzles me	2.46	1.25	0.00	.80	-.22	21.70/0.70	.36	.57
12. It's important for me to try to understand what my feelings mean	4.29	1.25	1.38	-.79	.23	3.60/13.80	.47	.56
13. I don't really think about why I behave in the way that I behave	3.11	1.36	4.35	.14	-1.09	10.90/2.20	-.01	.62
14. Thinking about my thoughts makes me more confused	2.86	1.36	0.00	.45	-.92	13.80/2.20	.10	.61
15. I have a definite need to understand how my mind works	3.63	1.37	0.00	-.23	-.77	7.20/7.20	.54	.54
16. I often take time to reflect on my thoughts	3.31	1.49	0.69	.12	-.98	12.30/8.00	.43	.56
17. I often find it difficult to really understand how I feel about things	3.08	1.30	1.38	.36	-.62	8.70/4.30	.20	.59
18. It's important for me to be able to understand how my thoughts arise	3.84	1.46	0.00	-.41	-.75	7.20/10.90	.30	.58
19. I often think about how I feel about things	4.25	1.28	1.38	-.87	.05	3.60/10.90	.51	.55
20. I usually know why I feel the way I feel	4.20	1.16	0.00	-.64	-.46	0.70/7.20	-.10	.63

*Note.* SRIS-SR = Self-Reflection subscale; SRIS-IN = Insight subscale. *M* = Mean; *SD* = Standard Deviation; Mis. = Proportion of participants with any item missing on the scale; Skw. = Skewness; Krt. = Kurtosis; Min/Max = % Responses in minimum/maximum response category; CITC = Corrected item-total correlation.

## Discussion

Overall, the majority of the items of the SRIS-Y posed no difficulty for the participants. Younger participants reported more problems than their older counterparts. While the scale had a less than adequate internal consistency (Field, 2005), the item response descriptives derived from Study 1 demonstrated that the SRIS-Y is a psychometrically adequate measure. It was anticipated that adaptations to the items deemed to be problematic would result in better comprehensibility, and enhanced psychometric properties of the SRIS-Y.

## Study 2: Evaluation of the psychometric properties of the SRIS-Y

### Method

#### Participants

The final sample in Study 2 consisted of 215 children and adolescents (102 boys and 113 girls), aged 9 to 17 years ( $M = 13.66$  years,  $SD = 2.23$ ). The participants attended urban and rural schools in the region South Holland, the Netherlands. Most were of Dutch origin (93.5%). The sample included 82 participants from primary school and 133 participants from secondary school.

#### Procedure

Feedback from the Study 1 participants led to the inclusion of a definition of 'self-reflection' in the introduction to the questionnaire. The responses to the piloting questions and the results of the item response analyses in Study 1 led to the restructuring and adaptation of several items in an effort to improve the internal consistency of the questionnaire (Table 2). In addition, the readability of the new questionnaire was assessed according to Dutch reading grade levels (Van den Berg & te Lintelo, 1977) and was found to be suitable for young people from Grade 6 and older.

**Table 2.**  
*Adaptations to Items Based on the Results of Study 1.*

	Adaptations to Items
Item 2 (R)	'Analyze' replaced with simpler alternative (i.e., 'study')
Item 3	'Aware of' replaced with simpler alternative (i.e., 'notice')
Item 4 (R)	Word order of item adapted to allow Dutch translation to best reflect meaning of item
Item 5	'Evaluate' replaced with simpler alternative (i.e., 'weigh up')
Item 6	Word order adapted to allow for better comprehension
Item 13 (R)	Word order adapted to allow for better comprehension
Item 15	As there is no Dutch equivalent for the concept 'mind', an extended explanation was added to the item
Item 16	'Reflect on' replaced with simpler alternative (i.e., 'think back on')

*Note.* All items with *r* are reverse scored. Items 1, 10, 14 and 20 were not restructured for reasons concerning the content of the item.

Study 2 was carried out with the approval of the Psychology Ethics Committee of the University. Permission to conduct the study was received from school principals, and parental and child consent was obtained. The participants completed the questionnaire package in their classroom.

### Instruments

To explore the convergent validity of the final version of the SRIS-Y, two additional measures of CBT-relevant cognitive capacities were administered. The first capacity, abstract reasoning, was assessed via the *Shipley Institute of Living Scale – Abstraction Subscale* (SILS; Shipley, 1940; Dutch translation and adaptation by Schmand & Smeding, 2000). The SILS consists of 20 incomplete sequences of numbers, letters, or words which are completed by the participants. Good test-retest reliability, validity, and internal consistency have been reported in research using the SILS. In the current study, the Cronbach's  $\alpha$  for the SILS was good ( $\alpha = .80$ ). The second capacity, cognitive flexibility, was assessed via the *Cognitive Flexibility Scale* (CFS; Martin & Rubin, 1995). The CFS assesses an individual's flexibility in thinking, decision-making, and problem-solving on a five-point Likert scale (1 = strongly disagree to 6 = strongly agree). The authors of the instrument reported good internal consistency (.76), test-retest reliability (.83), and construct and concurrent validity. In the current study a shortened version was used so that the entire test battery could be completed during one school lesson. Six items of the CFS which were seen to be most relevant to cognitive development (i.e., they addressed thinking and problem-solving) were translated and adapted for use with Dutch children and adolescents (Sauter & Heyne, 2007). In the current study, the Cronbach's  $\alpha$  for the six items of the CFS was .48.

To explore the divergent validity of the SRIS-Y, the *Strengths and Difficulties Questionnaire* (SDQ; Goodman, 1997; Dutch translation and adaptation by Van Widenfelt, Goedhart, Treffers, & Goodman, 2003) was administered. The SDQ is a 25-item questionnaire that assesses the psychosocial adjustment of children and adolescents. For the purposes of this study, the 5-item Emotional Symptoms subscale was used as an index of internalizing problems. Previous studies using the SDQ have reported adequate psychometric properties (Van Widenfelt et al., 2003). In the current study, the Cronbach's  $\alpha$  for the Emotional Symptoms subscale of the SDQ was satisfactory ( $\alpha = .77$ ).

### Data analysis

Prior to data analysis, five cases with more than 25% of the items of a measure missing were excluded from the data set. Two further cases with more than 10 items missing across all questionnaires were excluded, resulting in a final sample of 215 cases. For cases with  $\leq 3$  items missing on the questionnaires (SRIS,  $n = 18$ ; CFS,  $n = 6$ ; SDQ,  $n = 19$ ), values to replace missing values were extrapolated using the person mean substitution method (Hawthorne & Elliott, 2005). Because the SRIS-Y was an adult measure adapted for use with a child and adolescent population, exploratory

factor analysis was deemed the most suitable method of assessing its structural validity. The Kaiser-Meyer-Olkin measure and Bartlett's Test of Sphericity were calculated to examine the suitability of the data for conducting a principal component analysis with varimax rotation. The scree-plot was used to determine how many components to retain (Stevens, 2002). Internal consistency was assessed with the Cronbach's alpha statistic for the total scale as well as for the resulting factors. Subscale-total correlations and inter-subscale correlations were calculated, as well as the skewness and kurtosis of the items. Convergent and divergent validity was examined using correlation coefficients between scores on the SRIS-Y and measures of CBT-relevant cognitive capacities (i.e., the CFS and SILS), and scores on the SDQ respectively. Age trends and gender-related trends in the data were explored using t-tests and correlations. For the age-related analyses, the sample was divided into two groups, namely childhood to early adolescence (8-13 years;  $n = 110$ ) and mid- to late adolescence (14-18 years;  $n = 105$ ).

### Results

Due to time limitations, a number of participants did not complete all measures included in the package ( $n = 93$ ). T-tests revealed no significant differences on questionnaire scores between the group of participants which completed all measures, and those who did not (all  $p$ 's  $> .12$ ). Therefore, cases were excluded pairwise to allow for the maximum number of respondents in the analyses. The number of cases in each analysis is presented in Table 4.

**Table 3.**  
Factor Loadings and Cronbach's Alphas for the SRIS-Y Subscales ( $n = 215$ )

Items	Factor Loadings	
	F1	F2
I often examine my feelings	.74	-.19
I often think about how I feel about things	.69	-.01
I find it really interesting to examine what I think about	.69	-.02
I often take time to think back on my thoughts	.66	-.04
I have a definite need to understand how my mind works	.64	-.28
I'm not really interested in studying my behaviour	.62	.00
I rarely spend time 'self-reflecting'	.60	.10
It's important for me to try to understand what my feelings mean	.60	-.21
I don't often think about my thoughts	.59	.23
It's important for me to be able to understand how my thoughts arise	.55	-.24
I don't really think about why I behave in the way that I do	.46	.23
I'm often confused about how I really feel about something	-.13	.71
I often find it difficult to really understand how I feel about things	-.19	.69
I often notice that I'm feeling something, but I often don't know what exactly I'm feeling	-.08	.68
My behaviour often puzzles me	-.13	.66
I usually know why I feel the way I feel	.12	.58
Thinking about my thoughts makes me more confused	.25	.57
	$\alpha = .84$	$\alpha = .77$

Note. All items with R are reverse scored. Factor loadings above .40 appear in bold.



### Principal component analysis

The Kaiser-Meyer-Olkin measure (.86) and Bartlett's Test  $\chi^2(190, n = 215) = 1071.24$ ,  $p < .01$  confirmed that the data were suitable for conducting a principal component analysis (PCA). Four factors were found with eigenvalues greater than 1, but inspection of the scree plot revealed two factors above the point of inflexion. These two factors accounted for 39.3% of the total variance. After varimax rotation, factor loadings were all greater than or equal to 0.40, with the exception of two items (Items 5 and 6). The two factors reflected constructs similar to the Self-Reflection and Insight factors reported in the Grant et al. (2002) study. The first factor included all twelve of the items from the original Self-Reflection subscale. The second factor comprised seven of the eight items from the original Insight subscale. Item 3 from the Insight subscale loaded on the first factor, rather than on the second factor.

After removing Item 3 and the two items with a factor loading  $< .40$ , a second principal component analysis with varimax rotation was conducted. The results of the analysis are shown in Table 3. This time, the two factors accounted for 43.1% of the total variance, and the factors were in keeping with the subscales of the original questionnaire. The alpha for the whole scale was .77. The alphas for the subscales are presented in Table 3. Separate factor analyses were also carried out with the two age groups (8-13 years and 14-18 years) to verify the consistency of the factor structure. Each analysis yielded a two factor solution in which the Self-Reflection and Insight subscales comprised exactly the same items as found for the group as a whole.

Examination of the skewness and kurtosis of the 17 items revealed two items with slightly elevated negative kurtosis (Item 16 kurtosis = -1.07; Item 9 kurtosis = -1.06). It was decided to retain these items since these were regarded as essential to the scale. Correlations between the SRIS-Y total score and each of the factors yielded the following: Self-Reflection ( $r = .82$ ,  $p < .01$ ), and Insight ( $r = .48$ ,  $p < .01$ ). There was a non-significant negative correlation between the Self-Reflection and the Insight factors.

### Convergent and divergent validity

To investigate convergent validity, scores on the SRIS-Y subscales were correlated with scores on the CFS and SILS (Table 4). As expected, scores on the Self-Reflection subscale and the Insight subscale correlated moderately and significantly with scores on the CFS. No significant associations were found between scores on the SRIS-Y subscales and the SILS. With respect to divergent validity, scores on the Self-Reflection subscale were positively correlated with scores on the Emotional Symptoms subscale of the SDQ (Table 4). The Insight subscale and the Emotional Symptoms subscale were negatively correlated.

### Gender and age trends in self-reflection and insight

On average, girls scored higher on the Self-Reflection subscale relative to boys,

$t(213) = -2.79$ ,  $p < .01$ . There were no significant gender differences on the Insight subscale. No age effects were found when younger (8-13 years) and older (14-18 years) participants' subscale scores were compared in a t-test. Closer inspection within the two age groups revealed a weak but significant correlation between age and Self-Reflection subscale scores in the 14-18 year age group ( $r = .31$ ,  $p < .01$ ,  $n = 105$ ).

**Table 4.**  
Correlations between SRIS-Y Subscales, Measures of Cognitive Capacities and an Index of Internalizing Problems

	CFS	SILS	SDQ Emotional Symptoms
SRIS-SR	.34**	.05	.19**
SRIS-IN	.27**	-.12	-.51**

Note: SRIS-SR = Self-Reflection subscale; SRIS-IN = Insight subscale; CFS = Cognitive Flexibility Scale ( $n = 215$ ); SILS = Shipley Institute of Living Scale - Abstraction Subscale ( $n = 119$ ); SDQ = Strengths and Difficulties Questionnaire ( $n = 205$ ).

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

### Discussion

An initial exploratory factor analysis identified three poorly functioning SRIS-Y items. One of these items (Item 3: 'I usually notice my thoughts') was also found to be a problematic item in the studies by Grant et al. (2002) and Roberts and Stark (2008). The three items were removed and a second PCA was conducted. Unlike Roberts and Stark (2008), who found that a three factor solution was the best fit, we found two factors which mirrored the Self-Reflection and Insight subscales of the adult SRIS (Grant et al., 2002). There was a non-significant negative correlation between the two factors, echoing the results of the study by Grant and colleagues (2002). The internal consistency of the SRIS-Y in Study 2 was considerably higher than in Study 1, and was comparable to the adult SRIS (Grant et al., 2002), and to other measures of psychological mindedness for adolescents (e.g., Boylan, 2006).

The convergent validity of the SRIS-Y was supported by the associations with items from a measure of cognitive flexibility (CFS), also used in Grant and colleagues' (2002) evaluation of convergent validity. As Grant and colleagues (2002) found that only Insight scores correlated positively with CFS scores, the findings of the current study may reflect either the exclusion of a number of the CFS items in the current study, or the application of the measure with a younger, Dutch population. Contrary to expectations, there was no relationship between scores on the Insight subscale and a measure of abstract reasoning (SILS), which may indicate that these are non-overlapping cognitive capacities. This interpretation was also noted in a study by Hatcher and colleagues (1990), who reported complex patterns of correlations between scores on measures of abstract reasoning and psychological mindfulness.

Study 2 provided support for the divergent validity of the SRIS-Y. Mirroring the results of Grant et al. (2002), a negative correlation was found between the Insight



subscale and an index of internalizing problems. This suggests that the Insight subscale may indeed be measuring psychologically adaptive self-awareness. Similar results have been reported in adult populations using related measures of insight (e.g., the Internal State Awareness subscale of the PrSCS; Kingree & Ruback, 1996). As in Grant and colleague's (2002) study, a positive association was found between the Self-Reflection subscale and an index of internalizing problems. While the aim of the SRIS was to measure constructive rather than dysfunctional self-reflection, it seems that the Self-Reflection subscale may measure a ruminative self-focus, which is associated with emotional symptoms both in adults and in young people.

Girls scored significantly higher than boys on the Self-Reflection subscale. Although this finding contrasts with the results of Grant et al. (2002) and Roberts and Stark (2008), it is in line with studies into various PM-related constructs in adults, which report that females are generally more open to introspection (e.g., Csank & Conway, 2004). The presence of gender differences in rumination from as early as 12 years of age (Jose & Brown, 2008) may also contribute to the relationship between gender and the Self-Reflection subscale found in the current study.

Age-related trends in self-reflection were only found in young people aged 14 to 18 years. These results seem to indicate that the development of self-reflection skills may intensify in mid- to late adolescence, rather than there being a linear progression in skill development. This is in contrast to the findings of research into the related construct of PM, which suggest that PM continues to develop throughout adolescence (Hatcher et al., 1990). The lack of age effects on the Insight subscale may reflect the notion that insight is an individual disposition, rather than a capacity which ripens over time. Indeed, the development of insight may be unrelated to the development of self-reflection.

## General discussion

The results of the present study suggest that the SRIS-Y, a measure of self-reflection and insight adapted for use with children and adolescents, is applicable with young people and is psychometrically adequate. Study 1 involved the adaptation of the adult SRIS to make it suitable for a younger age group. Overall, the items of the SRIS-Y were understandable for the participants. Younger children in the sample had more problems with the measure than older participants. Use of the SRIS-Y may therefore be most appropriate with adolescents and older children. With younger children, interactive and concrete tasks aimed at measuring self-reflection and insight may be more suitable than pen-and-paper measures. A potential lead for the development of such tasks is found in the 'thought/feeling/behaviour card sort task' which is aimed at assessing another CBT-relevant capacity, namely distinguishing between thoughts, feelings, and behaviours (Quakley et al., 2004).

Following modifications suggested by Study 1, Study 2 reported on the factor structure, internal consistency, and validity of the SRIS-Y. In addition, gender

and age trends in SRIS-Y scores were also explored. Similar to the results of the factor analysis reported by Grant et al. (2002), the SRIS-Y was found to comprise two non-correlated and internally consistent subscales measuring self-reflection and insight. Support for the convergent validity of the SRIS-Y subscales was evidenced by associations with a measure of a CBT-relevant cognitive capacity, corresponding with findings from the evaluation of the adult SRIS (Grant et al., 2002). Divergent validity was demonstrated for the Insight subscale, but not for the Self-Reflection subscale. Rather than using the whole SRIS-Y as a measure of 'adaptive' self-reflection, the Insight subscale may provide the best estimate of the type of cognitive capacities most relevant to participation in CBT.

The findings of the current study are promising with respect to the administration of the SRIS-Y with children and adolescents, but several limitations warrant consideration. In terms of the sample, the majority of the participants were of Dutch origin, and therefore the reliability and validity of the SRIS-Y when applied in more diverse populations or in other cultures and countries requires investigation. Second, the generalizability of the findings to a clinical sample is uncertain, given that the current study made use of a community sample of young people with low levels of self-reported psychopathological symptoms. Third, the deletion of several items following the exploratory factor analysis may have influenced the content validity of the measure, calling for further examination of the structural and convergent validity of the 17-item version of the SRIS-Y.

The results of the present research have both research and clinical implications. Following the work of Roberts and Stark (2008), confirmatory factor analyses can be conducted to clarify whether a two or three factor structure best fits data gathered via the SRIS-Y. Further, convergent validity can be re-assessed using other measures of PM and, given the low Cronbach's alpha's in the current study, the full version of the CFS. Finally, research should investigate the relationship between self-reflection, insight, and measures of rumination, given that the current study provides evidence for a link between the Self-Reflection subscale and internalizing problems. Researchers can begin to assess the predictive validity of self-reflection and insight in young people, relative to other possible predictors of treatment response, in order to better understand the mediating or moderating role that such cognitive capacities may have during treatment. For clinicians, client responses to the SRIS-Y may provide an indication of the extent to which the young person is able to engage in behavioural and cognitive therapeutic interventions such as CBT. Clinicians may choose to adapt the delivery or timing of cognitive therapeutic interventions based on their knowledge of available self-reflection and insight skills. For example, young people with low levels of self-reflection and insight may benefit from additional emphasis in treatment on training in self-monitoring of thoughts, feelings, and behaviours (Sauter et al., 2009).

In conclusion, the findings of Study 1 and Study 2 support the use of the

SRIS-Y as a psychometrically sound and developmentally-appropriate measure of cognitive capacities in young people. This measure provides a much-needed means to facilitate the exploration of self-reflection and insight in children and adolescents by researchers and CBT clinicians. The administration of the SRIS-Y in both research and clinical contexts can allow for developmentally-informed treatment delivery with the aim of enhancing the efficiency and effectiveness of cognitive-behavioural interventions.

