

Chapter 4: Interpretation

In this chapter, interpretation of SEDAL results is discussed, with the aid of parts of the report generated by the scoring program. Because SEDAL developmental ages can also be calculated manually, the use of the scoring program is not a requirement for analysis at domain level. As further illustration of interpretation possibilities for the SEDAL, a case study is also provided.

Prior to the interpretation of the results, the test user should consider whether there are certain expectations or questions to answer, e.g. with regard to (a hypothesis about) the diagnosis. These could be at the dimension level; for example, questions such as, 'Are there grounds to look at the subject's moral development?' 'Is there something problematic in the way the subject deals with his/her fears?' The test user can also focus on whether a subject's social and emotional development takes a chronological course. In principle, behaviour observed during the younger phases will form the basis for future behaviour. However, behaviours do not always follow each other according to expectation; sometimes, a certain behaviour will be observed at a younger age level than expected, even when its 'preparatory' behaviour has not been observed. Interpretation in such cases must be done with utmost care, so as not to overinflate the developmental age level.

Of course, a test user does not need to have expectations or questions prior to reading the report, and can instead be led by the findings expressed therein.

Domain level

SEDAL results are provided initially at domain level: the scores for the Social Development and Emotional Development domains are expressed in developmental ages. Following this, the SEDAL Developmental Age is given, which is a summary score of the average developmental age of both domains (Figure 4.1). The percentage of 'Characteristic' items per each developmental phase for both domains is also provided (Figure 4.2). This table provides useful insight into the resultant developmental ages for each domain.

When interpreting developmental ages, a level of caution is necessary to ensure accurate and responsible diagnosis. The following should be kept in mind:

- The SEDAL and its scoring program are aids to diagnosis. It is obvious that the qualified professional administering the assessment must also refer to information from other sources: results from other assessments,

Figure 4.1: Analysis at the domain level – SEDAL developmental ages

Developmental ages SEDAL	
Social Development Domain	10 years
Emotional Development Domain	12 years
SEDAL Developmental age *	11 years
* 90% confidence interval ± 1.3 years	

Figure 4.2: Analysis at the domain level – percentages of ‘Characteristic’ items per developmental phase

Developmental age	Social Development	Emotional Development
0 months - 6 months	60%	100%
6 months - 12 months	83%	67%
12 months - 18 months	100%	0%
18 months - 2 years	33%	50%
2 years - 2½ years	0%	100%
2½ years - 3 years	0%	0%
3 years - 4 years	0%	100%
4 years - 5 years	67%	83%
5 years - 6 years	0%	0%
6 years - 7 years	0%	25%
7 years - 8 years	0%	17%
8 years - 9 years	100%	100%
9 years - 10 years	50%	100%
10 years - 12 years	0%	50%
12 years - 14 years	40%	0%

clinical observation, consultation with parents, carers, teachers, etc. The qualified professional must interpret the results responsibly within their full and proper context.

- The larger the discrepancy between the developmental ages of the two domains (Social and Emotional), the less significant the SEDAL Developmental Age will be (by nature of it being an average of the two domain scores). In other words, when the scores in both domains are divergent, the developmental ages of both domains are more important than the summary SEDAL Developmental Age. The disharmony between both domains could well be a reason to carry out an additional qualitative analysis to investigate further.
- In cases where the results suggest a developmental age which is clearly lower than the (adult) subject’s chronological age, it should be recognised that although the

social-emotional development is comparable to children/teenagers of that age, the subject in question will have greater life experience and will therefore not function in exactly the same way as a child/teenager with that chronological age.

- The resultant developmental ages are summary measures for a subject’s social and emotional functioning. In children with normative development, these developmental levels will usually give a good impression of their functioning across the entire width of social-emotional development; the reason being that in general, social and emotional development develop at a relatively even pace. However, for individuals with intellectual disability or developmental delay, social and emotional development may not develop in such a harmonious way. Progress might have been made in some dimensions of social or emotional development that is not seen in other, comparable dimensions.

Such nuances are not teased out in a domain-level analysis of the SEDAL, and only become visible through further additional qualitative analysis. Analyses at the dimension and item level will provide the test user with a detailed picture of the specific areas in which development might be faster or slower.

Dimension level

Each SEDAL item represents behaviour that can be allocated to a certain dimension. Besides determining the SEDAL developmental ages, in many cases test users. Now you test for the difference between the two Fisher z scores with the following formula:

$$z = \frac{z_1 - z_2}{\sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}}$$

In this example, you have:

$$z = \frac{0.55 - 0.34}{\sqrt{\frac{1}{19} + \frac{1}{39}}} = \frac{0.21}{0.279} = 0.75$$

On the graphs shown in Figures 4.3 and 4.4, the following applies for each dimension:

- The left-hand bar (tinted red) shows the percentage of items within each dimension in which the subject is delayed in development with respect to the developmental age. The items contributing to this percentage are those marked ‘Not characteristic’ that are actually representative of the resultant developmental age, and items marked ‘Characteristic’ that are actually representative of a lower developmental age (and therefore the behaviour should actually have stopped occurring).
- The middle bar (tinted yellow) shows the percentage of items within each dimension that correlate correctly with the resultant developmental age. The items contributing to this percentage are those marked ‘Characteristic’ that are representative of the resultant developmental age.

Suppose that Studies A and B yield results in opposite directions, and neither is ‘significant’. One *p* is .075 one-tailed and the other *p* is .109 one-tailed, but in the opposite tail. The Z’s corresponding to these *p* values, found in Tables 4.1 and 4.2, are +1.44 and -1.23 (note the opposite signs which indicate results in opposite directions). To find the Z scores, subtract the *p* value away from .5000 as the Z table covers only half the normal distribution. For example, a *p* of .075 subtracted from .5000 = .4250. Looking in the body

Table 4.1: Correspondence between assessors for item 3 of the Social Development domain

		Assessor B		
		Characteristic	Not characteristic	Total
Assessor A	Characteristic	9	8	17
	Not characteristic	8	33	41
	Total	17	41	58

Table 4.2: Correspondence between assessors for item 66 of the Social Development domain

		Assessor B		
		Characteristic	Not characteristic	Total
Assessor A	Characteristic	46	2	48
	Not characteristic	7	3	10
	Total	53	5	58

Figure 4.4: Analysis at the dimension level – Emotional Development domain

Emotional Development <i>Developmental age = 12 years</i>		
Emotional independence	53%	47%
Moral development	63%	37%
Impulse control	50%	50%
Self image	55%	45%
Sense of reality	59%	41%
Fears	60%	40%
Regulation of emotions	58%	42%

of the table the closest we get is .4251 that gives a Z = 1.44. Our equation is then:

$$z = \frac{z_1 - z_2}{\sqrt{2}} = \frac{1.44 - (-1.23)}{\sqrt{2}} = \frac{2.67}{1.41} = 0.189$$

Here is another example. Imagine the *p*-values (one-tailed) for Study A and B are: *p* = .02 (significant), *p* = .07 (not significant). Its *p* value is .341 (one-tailed) or .682 (two-tailed). Compute new Z as:

$$z = \frac{z_1 - z_2}{\sqrt{2}} = \frac{2.06 - 1.48}{1.41} = 0.41$$

Case study

Interpretation of a more complex case will now be discussed with the aid of a case study. This will include a sample report for the case study and also how the report may be used to aid interpretation and to identify the next steps for support and/or targeted intervention.

In discussing the case study, the below steps will be followed:

1. How do the scores in both domains relate to each other, to the subject's chronological age and to his/her cognitive development?

Figure 4.5: Analysis at the item level – Social assessment skills (Social Development domain)

Social assessment skills <i>Developmental age = 10 years</i>				
Developmental age	Upper age limit	Item (short display)	Characteristic?	Behaviour appropriate?
3 - 4 years	14 +	39 Can role play in a simple manner, e.g. play house.	No	Behind in development
3 - 4 years	14 +	41 Actively plays with others (rather than alongside them).	No	Behind in development
3 - 4 years	14 +	42 Can deduct something from certain conditions, e.g. Christmas tree means it is Christmas.	No	Behind in development
4 - 5 years	14 +	48 Checks whether person of trust feels or thinks similarly to himself/herself.	No	Behind in development
5 - 6 years	14 +	53 Can play with peers and has consideration for others.	No	Behind in development
6 - 7 years	14 +	55 Can explain how boys and girls usually behave.	No	Behind in development
7 - 8 years	14 +	58 Can talk about someone else's friends and how they typically behave.	No	Behind in development
8 - 9 years	14 +	62 Does not judge others on visible behaviour alone, but relies more on the intentions underlying it.	Yes	Yes
9 - 10 years	14 +	65 Can express himself/herself critically about the attitudes or behaviours of adults.	Yes	Yes
10 - 12 years	12 yrs	69 Talks a lot with peers about variations on the theme 'courting'.	No	Behind in development
10 - 12 years	14 +	70 Can talk to others about what is 'right' or 'wrong' and accepts that opinions can vary greatly.	No	Behind in development
12 - 14 years	14 +	73 Can become uncertain about how to behave in new or unexpected situations.	No	Yes
12 - 14 years	14 +	74 Seeks contact with opposite sex.	No	Yes

Figure 4.6: Analysis at the item level – Moral development (Emotional Development domain)

Moral development				
Developmental age = 12 years				
Developmental age	Upper age limit	Item (short display)	Characteristic?	Behaviour appropriate?
18 months - 2 years	3 yrs	17 Views the trusted person as 'good' or 'bad', without nuances.	No	Yes
2 - 2½ years	5 yrs	26 Is embarrassed when caught breaking the rules.	Yes	Behind in development
2 - 2½ years	5 yrs	27 Becomes upset and agitated when someone else breaks the rules.	Yes	Behind in development
2 - 2½ years	4 yrs	28 Shows intense interest and alarm when something is 'broken' or different to how it 'should' be.	Yes	Behind in development
2½ - 3 years	5 yrs	33 Hesitates when doing something against the rules.	No	Yes
3 - 4 years	5 yrs	42 Puts the blame on others; "It's so-and-so's fault".	Yes	Behind in development
4 - 5 years	14 +	44 Can keep a (little) secret.	Yes	Yes
4 - 5 years	14 +	46 Abandons forbidden behaviour because it makes him feel ill at ease/guilty.	Yes	Yes
4 - 5 years	7 yrs	47 Judges 'naughty' behaviour by its consequences.	Yes	Behind in development
5 - 6 years	14 +	50 Can admit (some of) his/her own part or guilt in conflicts.	No	Behind in development
6 - 7 years	14 +	53 Can feel sorry about something and can express this.	No	Behind in development
6 - 7 years	14 +	54 Tries to disguise own mistakes, fears or inabilities out of shame.	No	Behind in development
7 - 8 years	14 +	60 Does not blame other people for making a mistake, if that person offers an explanation/apology.	No	Behind in development
8 - 9 years	14 +	62 When told to, can finish unpleasant chores before his/her own wishes are met.	Yes	Yes
9 - 10 years	14 +	66 Can take on chores or duties on own initiative and out of a sense of responsibility.	Yes	Yes
10 - 12 years	14 +	71 Regards 'being wrongly accused of something' as an important injustice and feels hurt by it.	No	Behind in development

- How are the scores divided across the developmental phases?
- Which dimensions contain many items where the subject is behind or ahead in development in relation to his/her developmental age?
- Which are the items where the subject is behind or ahead in development in relation to his/her developmental age?
- Are there items that are scored as 'behind' in development but that possibly should be interpreted as 'ahead' in development?

It is important to note that the guidelines provided above are a suggestion only; the SEDAL is a versatile tool and interpretation of its results can be undertaken in a variety of ways.

Qualitative analysis

Peter is a 35-year-old man who has moderate intellectual disability and an autistic spectrum

disorder. A qualitative analysis of Peter's case follows in the order of the steps given above.

1. How do the scores in both domains relate to each other, to the subject's chronological age and to his/her cognitive development?

It is clear from the scoring program report that Peter's SEDAL Developmental Age is 5½ years, with a developmental age of 8 years for the Social Development domain and a developmental age of 2½ years for the Emotional Development domain (Figure 4.7). The discrepancy between the developmental ages in both domains is substantial; a clear disharmony between Peter's the development in each domain is evident. This consequently means that the SEDAL Developmental Age is not an appropriate summary score in Peter's case. Further, the resultant developmental ages deviate strongly from his chronological age of 35 years, signifying a fairly severe developmental delay. Peter has a moderate

Figure 4.7: Analysis at the domain level – Peter’s SEDAL developmental ages

Developmental ages SEDAL	
Social Development Domain	8 years
Emotional Development Domain	2½ years
SEDAL Developmental age *	5¼ years
* 90% confidence interval ± 1.3 years	

intellectual disability; nothing concrete is known about his level of cognitive development, but it is likely that his social-emotional developmental age is lower than his cognitive developmental age. It is also clear that Peter’s social development has reached a higher level than his emotional development. A possible explanation for this would be that aspects of social development can be ‘learnt’ more easily than aspects of emotional development. Peter’s ASD may also play a role in this discrepancy.

2. How are the scores divided across the developmental phases?

Figure 4.8 displays an analysis of Peter’s results at the domain level, taken from page 1 of his report. In this table, the age categories in which 50% or more of the items were marked ‘Characteristic’ are shaded dark grey. Based on this, the developmental ages can be determined (see ‘Determining developmental age’ in Chapter 3). The developmental age of the Social Development domain is marked with a pair of

Figure 4.8: Analysis at the domain level – Peter’s ‘Characteristic’ items percentages for each developmental age

Developmental age	Social Development	Emotional Development
0 months - 6 months	20%	40%
6 months - 12 months	33%	67%
12 months - 18 months	43%	25%
18 months - 2 years	67%	83%
2 years - 2½ years	33%	100%
2½ years - 3 years	83%	33%
3 years - 4 years	50%	50%
4 years - 5 years	0%	17%
5 years - 6 years	50%	0%
6 years - 7 years	100%	0%
7 years - 8 years	75%	17%
8 years - 9 years	0%	33%
9 years - 10 years	25%	25%
10 years - 12 years	33%	25%
12 years - 14 years	40%	0%

green lines; the developmental age of the Emotional Development domain is marked with a pair of red lines. The SEDAL Developmental Age (the average of the developmental ages of both domains) is indicated by a dotted blue line.

It is striking that Peter scores 'Characteristic' for items in developmental phases which lie far above his developmental ages. In the Social Development domain, a relatively large number of items are marked 'Characteristic' in the developmental phase of 12–14 years (40%); this is also seen in the Emotional Development domain, where 25% of items are marked 'Characteristic' in the developmental phase of 10–12 years. This does, however, highlight the mismatch between Peter's social and emotional development. In addition, it is evident from the Social Development domain that no items were marked 'Characteristic' in the developmental phase of 4–5 years. This is striking, because the behaviour described in these items should not have died out (see the estimated upper age limits in the scoring booklet). It is possible that at around this (developmental) phase, a certain step in development has not been taken, which has led to non-emergence of the behaviour assessed by these items. The support, care or guidance given to Peter could therefore be focused in this area. It can also be seen that within the Emotional Development domain, the developmental phase of 3–4 years has 50% of items marked 'Characteristic', obviously lying above the developmental age of 2½ years calculated for Peter. In fact, if the 33% score for the developmental phase of 2½–3 years had reached 50% (which actually equates to marking one more item 'Characteristic'), Peter's developmental age for this domain would have been 4 years, rather than 2½. This provides better insight into Peter's relatively low developmental age for this domain; highlighting that by nature, social-emotional development is a fluid concept, particularly within the 0–14 years age range measured by the SEDAL, and care should always be taken to interpret SEDAL results as part of a wider context.

3. Which dimensions contain many items where the subject is behind or ahead in development in relation to his/her developmental age?

A breakdown at the dimension level for the Social Development domain is shown in Figure 4.9.¹ The percentage of items in which Peter is behind in development appears to be rather high in a large number of dimensions (left-hand bars, shaded red). For the Social aspects of sexual development dimension, there is also a large number of items in which he is ahead in development (right-hand bars, shaded blue). The percentage of items that match Peter's resultant social developmental age (central bars, shaded yellow) appear to be rather low for most of the dimensions (lower than 50%). It is important to realise that being 'behind' or 'ahead' in this context relates to the resultant developmental age for the Social Development domain, i.e. 8 years, and not to Peter's chronological age (35 years).

It is clear from the results in Figure 4.9 that, at the dimension level of the Social Development domain, Peter has a notably fluctuating score pattern. A structured development programme might therefore be useful in tackling the delays to his social development. It is often found that items within the Social skills dimension are particularly suited to targeted interventions. In this case, however, such an intervention (focusing on social skills) may not be as successful as hoped due to Peter's ASD.

4. Which are the items where the subject is behind or ahead in development in relation to his/her developmental age?

In the scoring program report, a table is provided for every dimension across both domains, covering all of the items belonging to each domain. Considering Peter is known to have ASD, some striking score patterns at item level for the Social assessment skills, Social skills, Initiating contact and Social independence dimensions should be expected. For the purposes of this qualitative analysis, the latter two dimensions will be covered here.

¹ Here we discuss only the analysis at the dimension level of the Social Development domain. The dimensions within the Emotional Development domain can be looked at in the same way.

Figure 4.9: Analysis at the dimension level – Peter’s Social development domain scores

Social Development <i>Developmental age = 8 years</i>		
Social independence	50%	45% 5%
Moral development	59%	33% 8%
Impulse control	69%	25% 6%
Initiating contact	47%	47% 6%
Self-awareness in social contexts	51%	44% 5%
Social assessment skills	31%	54% 15%
Social skills	53%	42% 5%
Relating to authority	50%	50%
Social aspects of sexual development	34%	33% 33%

Within the Initiating contact dimension, we see that Peter is behind in development in many of the behaviours, but concurrently is ahead in development for some items. Figures 4.10 and 4.11 show that Peter does not react positively to bodily contact (e.g. item 1) and that his contact with others is limited; he does not smile at people in close proximity, does not look at people’s faces and shows no signs of greeting (items 2, 5 and 10). Peter does not play with others (items 41 and 53) and has no interest in the wellbeing of others close to him (item 59). These are all examples of items where Peter is behind in his development, because, based on his social developmental age, it would be expected that these items are ‘Characteristic’ behaviours. Repeating certain actions (item 9) is a further example of behaviour where Peter is behind in development: this item has been scored

as ‘Characteristic’, but based on Peter’s social developmental age, this behaviour should already have died out. The fact that Peter is behind his social developmental age level in these specific items could well be explained by his ASD.

Table 4.3 shows that Peter is considered ‘ahead’ in development for the items related to group rules and discussing romantic relationships (items 67 and 69). However, it would be reasonable to interpret this behaviour mainly as imitation. Considering Peter’s chronological age, it is not unlikely that he would see and hear such behaviour by other adults, and, in this way, has learnt how he ‘should’ behave in adult peer groups. It is assumed (see Table 4.4, considering the substantial delays to other aspects of Peter’s development and the resultant scores in the

Figure 4.10: Analysis at the item level – Peter’s Making contact dimension scores (Part 1)

Initiating contact <i>Developmental age = 8 years</i>				
Developmental age	Upper age limit	Item (short display)	Characteristic?	Behaviour appropriate?
0 - 6 months	14 +	1 Reacts positively to physical contact.	No	Behind in development
0 - 6 months	14 +	2 Smiles at people standing within close proximity.	No	Behind in development
0 - 6 months	10 mos.	4 Makes contact with person of trust with the help of various forms of body language and/or sounds.	No	Yes
0 - 6 months	14 +	5 Looks at people’s faces and follows them when they move away.	No	Behind in development
6 - 12 months	1½ yrs	6 Retreats or starts crying when seeing a stranger.	No	Yes
6 - 12 months	3 yrs	8 Enjoys playing ‘peekaboo’.	No	Yes
6 - 12 months	3 yrs	9 Repeats certain actions or patterns of behaviour, presumably to evoke a reaction from others.	Yes	Behind in development
6 - 12 months	14 +	10 Shows person of trust signs of greeting through active physical contact, e.g. stroking, touching.	No	Behind in development

Table 4.3: Mean EPS scores (SD) across groups with varying educational attainments

Group category	EPS subscale	No qualification	O level/GCSE/CSE	A/AS level	Degree	Higher degree	Other	F(df)	p
Healthy community (UK)	Suppression	3.6 (1.8)	3.3 (1.9)	4.2 (2.1)	4.1 (2.0)	3.6 (2.1)	3.6 (2.4)	F(5, 981) = 4.84	< .001
	Unprocessed	4.7 (2.0)	4.0 (2.2)	4.9 (2.0)	4.4 (2.0)	3.9 (2.3)	4.6 (2.3)	F(5, 981) = 6.84	< .001
	Controllability	3.2 (1.6)	3.1 (1.8)	3.7 (1.9)	3.3 (1.8)	3.5 (1.9)	3.2 (2.0)	F(5, 981) = 2.93	0.012
	Avoidance	3.6 (2.1)	3.1 (1.7)	3.6 (1.6)	3.5 (1.6)	3.3 (1.9)	3.2 (1.7)	F(5, 981) = 1.81	0.107
	Experience	3.2 (1.9)	2.5 (1.9)	3.1 (1.8)	2.9 (1.6)	2.5 (1.7)	2.8 (1.8)	F(5, 981) = 3.33	0.005
	Total	3.6 (1.4)	3.2 (1.6)	3.9 (1.4)	3.6 (1.4)	3.4 (1.6)	3.5 (1.7)	F(5, 981) = 5.58	< .001

Notes: Information on qualifications is based on the UK educational system. Within this system, students typically enter school aged 5 and continue through primary and secondary school until the GCSE qualification (aged 16 years approx.) followed 2 years later by the A-level qualification. Further education consists of a 3 or 4 year bachelor's degree. Postgraduate/higher degrees include masters, PhDs, and doctorates.

Figure 4.11: Analysis at the dimension level – Peter’s Social independence domain scores

Social independence				
Developmental age = 8 years				
Developmental age	Upper age limit	Item (short display)	Characteristic?	Behaviour appropriate?
0 - 6 months	1½ yrs	3 Shows decrease in discomfort caused by hunger or pain at the arrival of person of trust.	No	Yes
6 - 12 months	8 mos.	7 Shows discomfort or protests when person of trust disappears from sight.	No	Yes
12 - 18 months	4 yrs	13 Copies simple actions from person of trust.	No	Yes
12 - 18 months	2½ yrs	14 Turns to person of trust for support while exploring its immediate environment.	Yes	Behind in development
12 - 18 months	3 yrs	16 Looks for a sign or reaction to clarify what is allowed and what is not allowed.	Yes	Behind in development
12 - 18 months	5 yrs	18 Shows envy when person of trust interacts with someone else.	Yes	Behind in development
18 months - 2 years	4 yrs	21 Wants immediate assistance with things he/she cannot manage on his/her own.	Yes	Behind in development
18 months - 2 years	5 yrs	23 Reacts in unfamiliar social situations by for example withdrawing.	Yes	Behind in development
18 months - 2 years	3½ yrs	24 Enjoys imitating others.	Yes	Behind in development
2 - 2½ years	4 yrs	26 Is stubborn. Can remain unyielding with regard to a request and can show contrary behaviour.	Yes	Behind in development
2½ - 3 years	14 +	32 Wants to do things independently which he/she considers himself/herself capable of doing.	Yes	Yes
3 - 4 years	8 yrs	40 Makes up rules on the spot in order to manipulate certain situations.	No	Behind in development
4 - 5 years	14 +	45 Asks for help with things he really is not able to do himself/herself.	No	Behind in development
4 - 5 years	14 +	46 Is capable of doing something with group members, without instructions from an adult.	No	Behind in development
4 - 5 years	14 +	48 Checks whether person of trust feels or thinks similarly to himself/herself.	No	Behind in development

Table 4.4: Inter-rater reliability – k% by domain and dimension

	Number of items	Average k%	Range k%
Social Development domain	76	63.9	23–100
Social independence	22	60.4	33–85
Moral development	12	72.0	34–91
Impulse control	16	64.9	43–83
Initiating contact	34	62.9	32–100
Self-awareness in social contexts	43	65.3	33–100
Social assessment skills	12	69.2	33–100
Social skills	39	65.3	32–100
Relating to authority	8	62.6	47–76
Social aspects of sexual development	6	69.0	23–100
Emotional Development domain	74 *	62.0	8–100
Emotional independence	31 *	60.5	8–85
Moral development	16	67.2	48–85
Impulse control	16	61.9	8–85
Self image	30 *	66.7	34–100
Sense of reality	17	61.5	35–92
Fears	14 *	55.4	8–82
Regulation of emotions	19 *	54.6	32–84

Note: *k% could not be calculated for two items in the Emotional Development domain.

report). Peter does not do certain chores only to seek praise. Because this behaviour is expected up to the developmental age of 5 years, the presence of this behaviour is qualified as 'Behind in development'. However, it is possible that this behaviour did take place in the past, but has subsequently died out. If this is the case, the absence of the behaviour described in this item should be regarded as 'ahead' in development. This type of nuanced interpretation can only be done accurately when using the SEDAL scores

alongside supporting information on the subject, and not when using the SEDAL scores alone.

Example report

Following the qualitative analysis of the scoring program report provided above, the below is given as an example case report for Peter (based on the SEDAL findings). The test user may wish create a case report similar to the example below to document.

Name: Peter

Sex: Male

Age: 35 years and 10 months

Date of birth: 1-1-1979

Notes: Peter has an autistic spectrum disorder and a moderate intellectual disability.

Results

Social Development domain age: 8 years

Emotional Development domain age: 2½ years

SEDAL Developmental Age: 5¼ years

Qualitative analysis

Social development

Peter's results show a social developmental age of 8 years, but there is a large discrepancy between the Social and Emotional Development domains. In the areas of Initiating contact and Social aspects of the sexual development, Peter scores relatively highly. However, this is mainly because he has learnt such behaviours from other adults and not because he has developed the insight or motivation underlying them. Because of this, Peter's rather high social developmental age level should be viewed with some caution. It is, however, useful to gain further insight in his development at the dimension level.

- *Social independence:* Peter is still very dependent on the people of trust in his life. Although he wants to do things on his own, he still requires immediate help with those things he cannot do himself. He withdraws in unknown situations and stays close to his person of trust. He asks – like a 1-year-old – for a reaction to establish what is and what is not 'allowed'. Like a 3–4-year-old, Peter will create his own rules in order to manipulate certain situations. He is not able to do something with other people for at least 15 minutes without an adult giving him instruction. This pattern of behaviour can be seen to fit with Peter's ASD.
- *Moral development:* Peter wants to behave 'well' to be appreciated by his person of trust, behaviour expected of a 2½-year-old. However, he does not often keep to the rules, even when supervised. Further, Peter is indignant when he believes another is being dishonest, though he will sometimes tell lies himself. Peter does not show empathy for others.

- *Impulse control*: Peter has a level of impulse control comparable to that of a 3-year-old. He can wait a little while whilst another is doing something, but often immediately wants attention for his own 'story' or experience.
- *Initiating contact*: Within this dimension, the scores again are quite varied. On the one hand, Peter would like to actively do things to be accepted by group members, just like a 6–7-year-old, but he lacks the skills to do so. The effects of his ASD are reflected in his inability to do things together with others and in the lack of reciprocity in his contact with others; Peter wants to share his experiences with others, but does not show any (sincere) interest in anyone else and also does not take account of other people. He speaks with peers about 'who-is-going-out-with-whom', and seeks contact with the opposite sex, which correlates to a developmental phase of 10–12 years.
- *Self-awareness in social contexts*: Peter tries hard to be accepted by group members by participating, and talking to them about 'courting', but he is not really capable of doing things together and taking other people into account. In unfamiliar situations, Peter withdraws like a toddler, and stays close to his person of trust.
- *Social assessment skills*: Peter seems to have a fairly high level of social assessment. He can deduct meanings from certain conditions (e.g. a Christmas tree means it is Christmas). Peter can explain how boys and girls usually behave (behaviour expected at 6–7 years), and he can also talk about someone else's friends and how they typically behave (behaviour expected at 7–8 years). Furthermore, he seeks contact with the opposite sex and talks about 'who-is-going-out-with-whom', but not in the manner of a 10–12-year-old. Peter can only judge others on visible behaviour, and not on the intentions that inform such behaviour, as this is too abstract for him. Peter's relatively well-developed social assessment skills do not necessarily mean that he has a conscious insight into them. It is part of his ASD to pay detailed attention to appearances and thus to notice changes.
- *Social skills*: Peter appreciates doing things with others, but his ASD does not accommodate for this very easily. He wants to share his experiences with others, but shows no interest in other people. Peter is not capable of imaginary play. He is aware of social rules or the rules of a game and he tries to follow them. He also points out breaches of the rules to others, like a 5–6-year-old.
- *Relating to authority*: Peter is stubborn, much like a 2-year-old, and wants to behave 'well' in order to receive appreciation from his person of trust. He takes the initiative to do things independently and does not want to be assisted.
- *Social aspects of sexual development*: Peter talks a lot about 'adult' sexuality with his peers and seeks contact with the opposite sex. This fits in the developmental phase of 12–14 years, although Peter seems to show this behaviour mostly because he sees it in others, and not out of natural interest. His manner of initiating contact is also not appropriate for his age.

Emotional development

Peter's results show an emotional developmental age of 2½ years. Socially, he has acquired many skills, but emotionally he has developed to a considerably lesser extent.

- *Emotional independence*: Peter is unable to proceed outside his familiar surroundings without his person of trust and is therefore emotionally very dependent, with a level comparable to a 3-year-old. He can continue to engage in play or activity while his person of trust is absent.

Peter shows his need for independence by insisting on doing things himself and imposing his will (behaviour expected at 2–2½ years).

- *Moral development:* Peter puts the blame on others and becomes upset and agitated when someone else breaks the rules, especially when that person is punished (behaviour expected at 2 years).
- *Impulse control:* Peter has little impulse control. He is easily distracted, and directs aggression or anger at whoever or whatever creates the most frustration (behaviour expected at 2 years). Recently, however, he has expressed disappointment or frustration by sulking or walking away, rather than through physical aggression (behaviour expected at 3–4 years).
- *Self image:* Like a 1½-year-old, Peter examines his own reflection in the mirror with interest. He describes himself in concrete terms (“I am strong”) and he always puts the blame on others (behaviour expected at 3–4 years). He understands that being a boy or a girl is irreversible (expected at 4–5 years). Peter cannot yet specify his strengths realistically.
- *Sense of reality:* Peter cannot yet distinguish between real and false expressions of feelings. Neither can he assess his own skills realistically, something which 4–5-year-olds can do fairly well.
- *Fears:* Peter can be calmed with verbal reassurance, behaviour expected of a 3-year-old. It is remarkable that he is afraid of war and death, which is classed as belonging to the developmental phase of 8–9 years. This could possibly be attributed to his higher chronological age and corresponding life experience.
- *Regulation of emotions:* Apart from basic emotions such as joy, fear and anger, Peter also shows self-conscious emotions: pride and envy (behaviour expected at 2 years). However, he cannot give an explanation for the cause of his own or another’s feelings. Remarkably, Peter can show signs of shame or insecurity about himself, for example regarding his acne (behaviour expected 10–12 years). This could possibly be influenced by what he hears about his or other people’s appearance in his daily life.

Care suggestions

Peter is still very dependent socially and emotionally on his person of trust, and therefore needs to be in close proximity of his carer. In situations familiar to Peter, the carer does not need to be constantly visible, but does need to be available to answer his questions, or occasionally to encourage him in his own activities. In unfamiliar surroundings, however, he needs more direct support from his carer; this person needs to be visible and close and, if necessary, Peter needs to be able to hold the carer’s hand. Despite this, Peter also needs personal space to gain autonomy. Peter is currently in a stubborn phase, comparable to a toddler, and wants to do more things independently. It is important that he is given the space to do things (that are at his level of performance) independently, and that he receives acknowledgement for his independent achievements. Through his experiences of success, Peter is developing a sense of independence and further gains the appreciation that he is looking for. Alongside such help and encouragement, Peter also needs clarity about what is and what is not acceptable behaviour. It is important to let this happen in a relaxed, straightforward way. The predictability and consistency of the behaviour of his carers has an especially positive effect on Peter. He requires a quiet space for his activities, because he is easily distracted by the stimuli within his environment. Because he cannot distinguish between real and false expressions of feelings in other people, he cannot be expected to understand ‘jokes’ involving emotions. These types of jokes can cause confusion, because Peter has difficulty interpreting them correctly (in large part due to his autistic spectrum disorder).

Further care advice

The above report can be extended with some further care advice. Based on the qualitative analysis of the SEDAL, we establish that Peter, a man with a moderate intellectual disability and an autistic spectrum disorder, could benefit developmentally by being taught certain behavioural patterns in social functioning. The reason for this is that, in general, social functioning is easier to 'learn' than emotional functioning, which has a much stronger psychological component. Peter is rather withdrawn and behaves in a dependent way, and this fits with his diagnosis of ASD. However, Peter has certainly been able to learn social behaviour already; in some cases, he has acquired behaviour that lies above his developmental age as measured by the SEDAL. Whether these behaviours are linked to corresponding feelings and insight would have to be explored further.

Nevertheless, the fact that Peter has already learnt various social behaviours offers an optimistic outlook for further success following a period of learning. This period could attempt to increase Peter's independence (see the Social independence dimension for potential target areas). Elements from the Moral development dimension, e.g. 'sticking to an agreement' (item 64), could also be incorporated. To reinforce learning, successfully learnt behaviours could be rewarded in some way, e.g. by complimenting Peter or by the prospect of getting a small material reward. Alternatively, specially-adapted behavioural therapy could be undertaken.

It is sensible to evaluate any targeted interventions by retesting with the SEDAL at a later date (or dates). It will then be possible to see whether, overall (at the domain and/or dimension level), progress has been made. Item-level analyses can also be used to explore in detail whether interventions have had the desired outcomes on specific areas of behaviour.