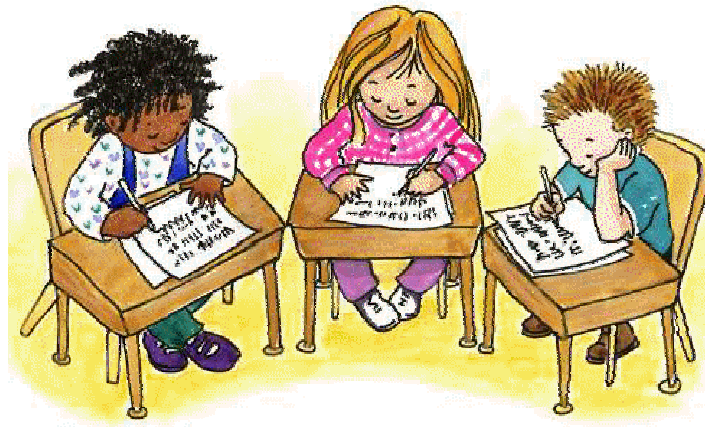# Profiling developmental pathways of learning for students with additional needs (SWANS)

A joint ARC-funded research project between the Assessment Research Centre, University of Melbourne, the Department of Education and Early Childhood Development, and the Centre for Advanced Assessment and Therapy Services

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Department of Education and Early Childhood Development
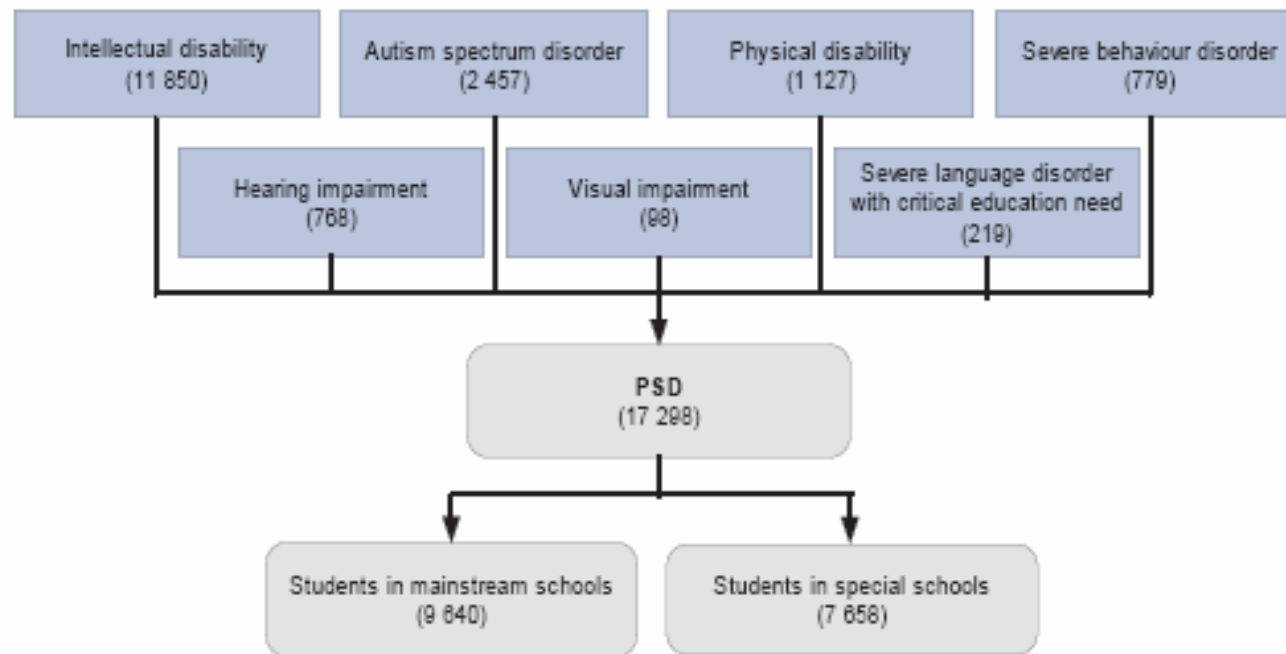
What is the SWANS project?

- Profiling developmental learning pathways for students with additional learning needs, using the knowledge and understanding of experienced teachers

- Designed to help teachers (in both mainstream and specialist schools) to monitor student development and plan teaching programs for students

- Addresses an area of educational assessment that has been overlooked or treated as 'too hard'

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Research Questions

- **What capabilities should we be seeking to support and monitor in students with additional learning needs?**

- **To what extent can the designated capabilities be represented on an ability continuum?**
  - To what degree does this ability continuum map the progression of a diverse group of students with additional learning needs?

- **To what extent can teachers across a variety of educational settings use the continuum, questionnaire or learning profiles to inform their teaching practice?**
  - How do they assist teachers in targeting their teaching strategies?
  - To what extent are they useful for monitoring and reporting on student progress?

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Students with Additional Learning Needs

PSD-funded students and disability categories, 2007

Intellectual disability (11 850)	Autism spectrum disorder (2 457)	Physical disability (1 127)	Severe behaviour disorder (779)
	Hearing impairment (768)	Visual impairment (98)	Severe language disorder with critical education need (219)

PSD
(17 298)

Students in mainstream schools (9 640)	Students in special schools (7 658)

Source: Victorian Auditor-General's Office, from information provided by DEECD for the 2007 calendar year.

PLUS approximately 68,000 students, who do not currently receive PSD funding, but who are below the state benchmark. This group includes students with a diverse range, severity and/or combination of learning, language or social-emotional difficulties.

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1. Development of Observation Questionnaires

Learning Domains for Students with an Intellectual Disability

What are the needs of teachers – assessment, reporting & targeted intentions?

What are the most appropriate goals for these students?

What is an essential area of learning these students require?

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We Must Also Consider the Constructs

- Constructs that are
  - Based in theory
  - Suitable to be operationalised
  - Suitable for evaluation
  - Conducive to the integration or development of intervention programs

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Three foundational domains of learning

**Attention
Self-Awareness
Memory
Flexibility of Thinking
Task Organisation
Emotional Self-Regulation**

**Communication
Reading
Writing**

**Social Interaction
Social Responsibility
Transcending Social Difficulties**

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Who developed the survey questions?

- Teachers from specialist schools
- Teachers from mainstream schools
- Special education researchers
- Consultants
- Assessment specialists
- Psychologists
- Representatives of DEECD and CEO
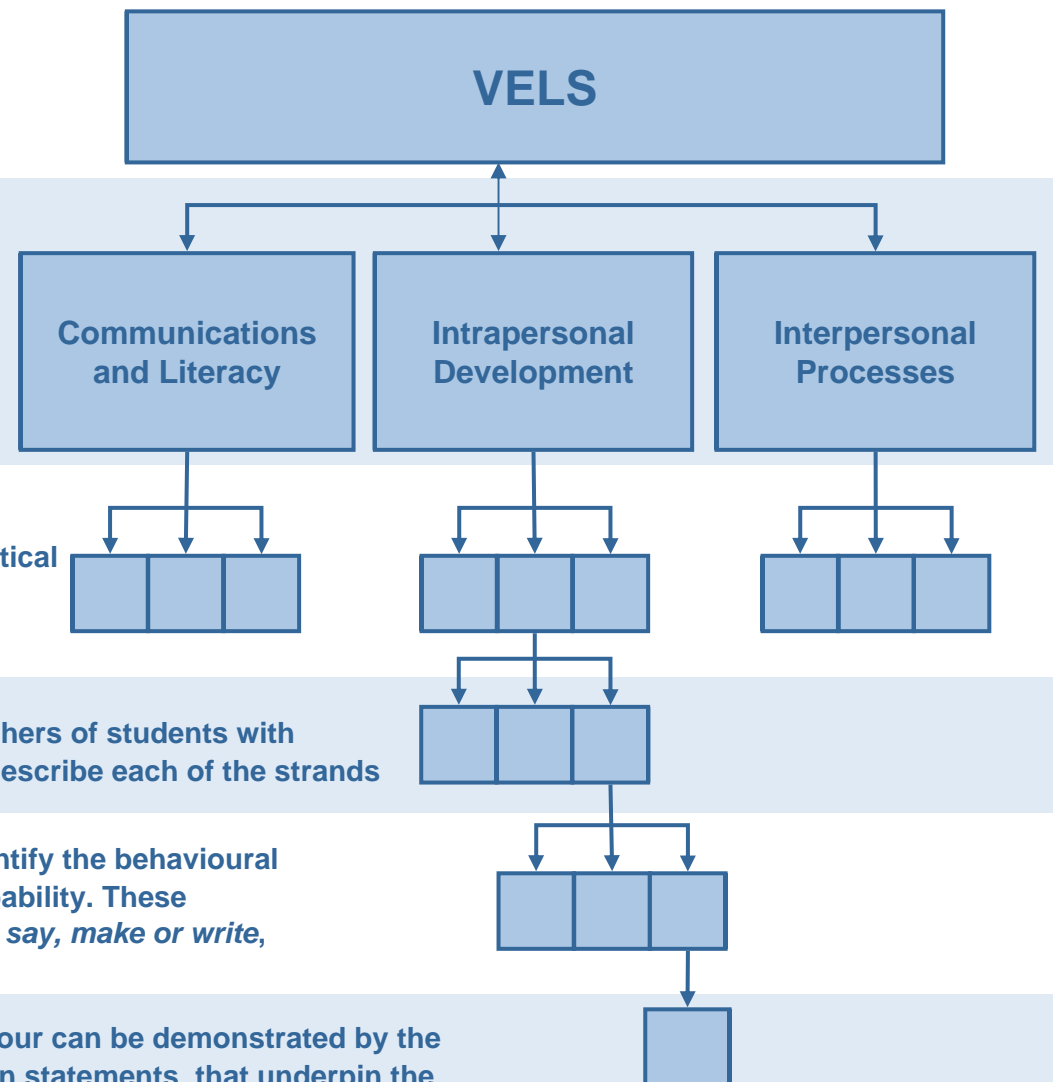
Building the SWANS Framework

DOMAINS: These learning domains were agreed as foundational skills that a student needs in order to progress to other areas of the curriculum

STRANDS: The first task was to agree upon the critical skills that make up each of these foundational domains
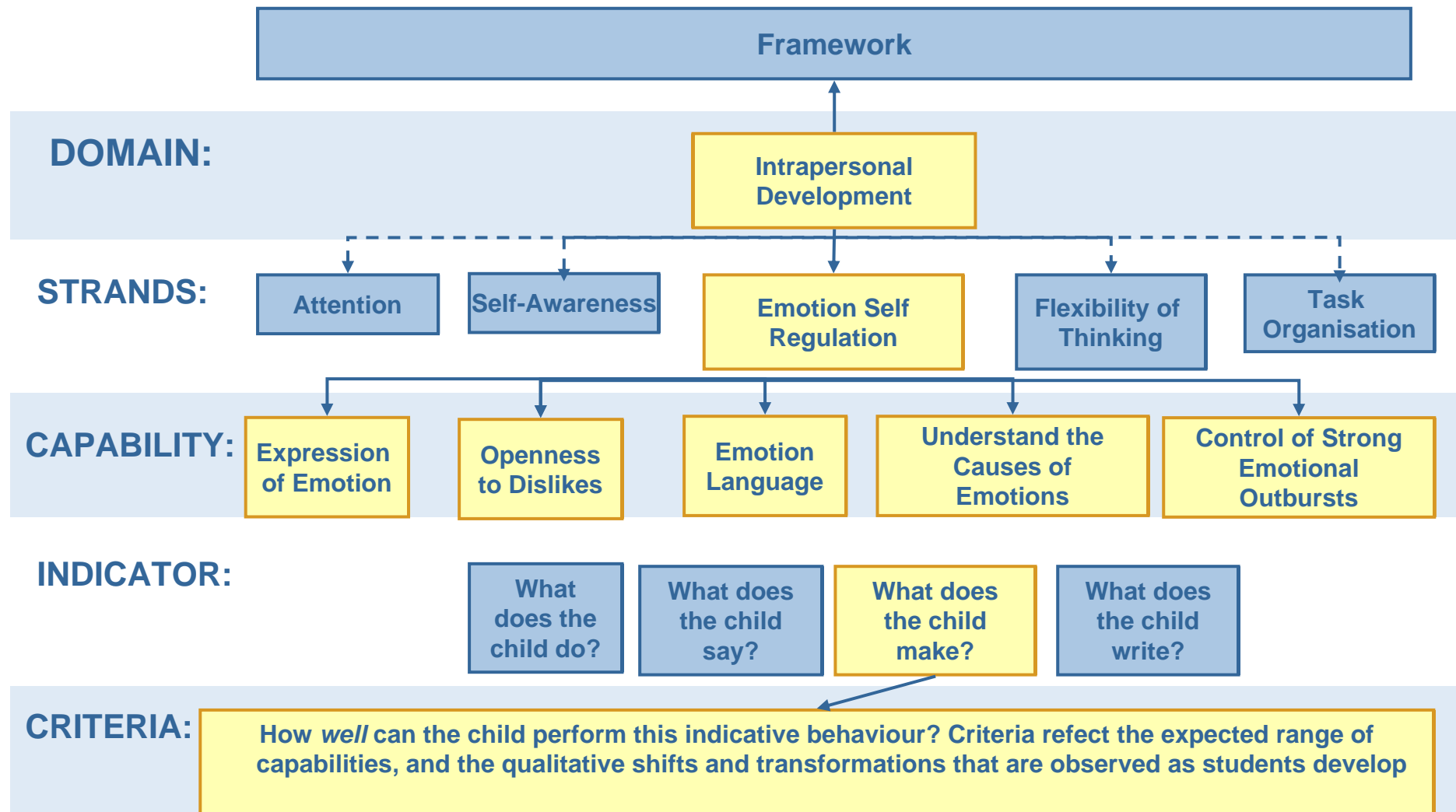
CAPABILITY: Then, working with experienced teachers of students with additional needs, we identified the key capabilities that describe each of the strands

INDICATOR: Next, we worked with teachers to identify the behavioural indicators that lead to a judgment about a student's capability. These indicative behaviours are the things that a child can *do, say, make or write*, and from which we *infer* their capability.

CRITERIA: Finally, we asked 'how well' each behaviour can be demonstrated by the students. The criteria were used to create the observation statements that underpin the development of the learning standards

VELS

Communications and Literacy

Intrapersonal Development

Interpersonal Processes

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An example: Intrapersonal Development Domain

Framework

DOMAIN:

Intrapersonal Development

STRANDS:

| Attention | Self-Awareness | Emotion Self Regulation | Flexibility of Thinking | Task Organisation |

CAPABILITY:

| Expression of Emotion | Openness to Dislikes | Emotion Language | Understand the Causes of Emotions | Control of Strong Emotional Outbursts |

INDICATOR:

| What does the child do? | What does the child say? | What does the child make? | What does the child write? |

CRITERIA:

How *well* can the child perform this indicative behaviour? Criteria refect the expected range of capabilities, and the qualitative shifts and transformations that are observed as students develop

Working together to develop the observation statements

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Example: Capability, Indicator & Criteria

EMOTION LANGUAGE

Identifies and describes the emotional experience of others

Orients/gestures towards a person who is expressing emotions

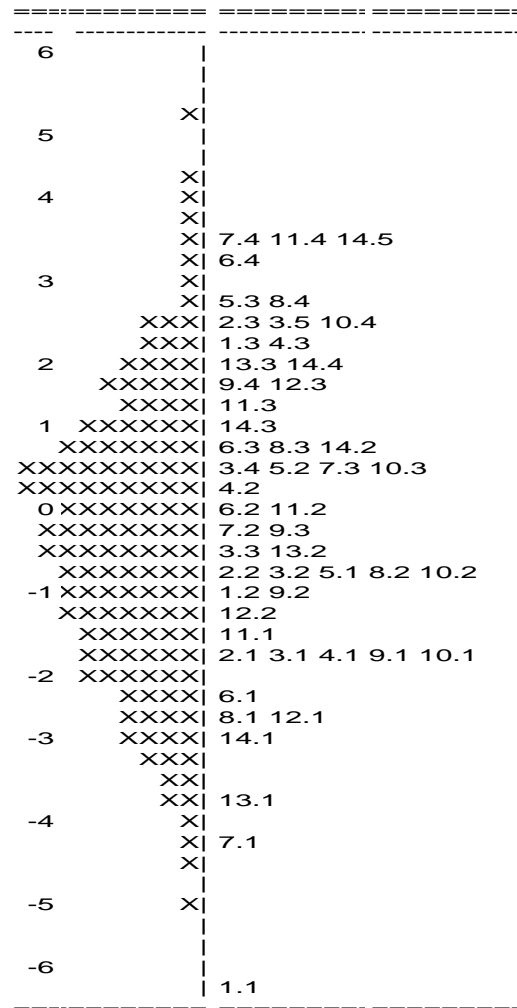Requires others to label the emotion that is being expressed

Names the emotion that others are expressing

Describes how another person may be feeling

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2. Calibration of Learning Standards and Pathways

Example of a Variable Map

```
MAP OF LATENT DISTRIBUTIONS A
===:=======  ========: =========:
----  ------------  -------------- -------------
 6                 |
                   |
             X|
 5                 |
             X|
             X|
 4           X|
             X|
             X| 7.4 11.4 14.5
             X| 6.4
 3           X|
             X| 5.3 8.4
           XXX| 2.3 3.5 10.4
           XXX| 1.3 4.3
 2       XXXX| 13.3 14.4
        XXXXX| 9.4 12.3
        XXXX| 11.3
 1   XXXXXX| 14.3
      XXXXXXX| 6.3 8.3 14.2
  XXXXXXXXX| 3.4 5.2 7.3 10.3
XXXXXXXXX| 4.2
 0 XXXXXXX| 6.2 11.2
  XXXXXXXX| 7.2 9.3
  XXXXXXXX| 3.3 13.2
    XXXXXXX| 2.2 3.2 5.1 8.2 10.2
-1 XXXXXXX| 1.2 9.2
    XXXXXXX| 12.2
     XXXXXX| 11.1
     XXXXXX| 2.1 3.1 4.1 9.1 10.1
-2  XXXXXXX|
        XXXX| 6.1
        XXXX| 8.1 12.1
-3     XXXX| 14.1
         XXX|
          XX|
          XX| 13.1
-4         X|
           X| 7.1
           X|
           |
-5         X|
           |
           |
-6         |
           | 1.1
===:=======  ========: =========:
```

How well do items describe student proficiency?

Cumulative Probability Curve(s)
item:2 (2)

Weighted MNSQ 0.97

Threshold(s): -2.61 -1.39 -0.18 0.91
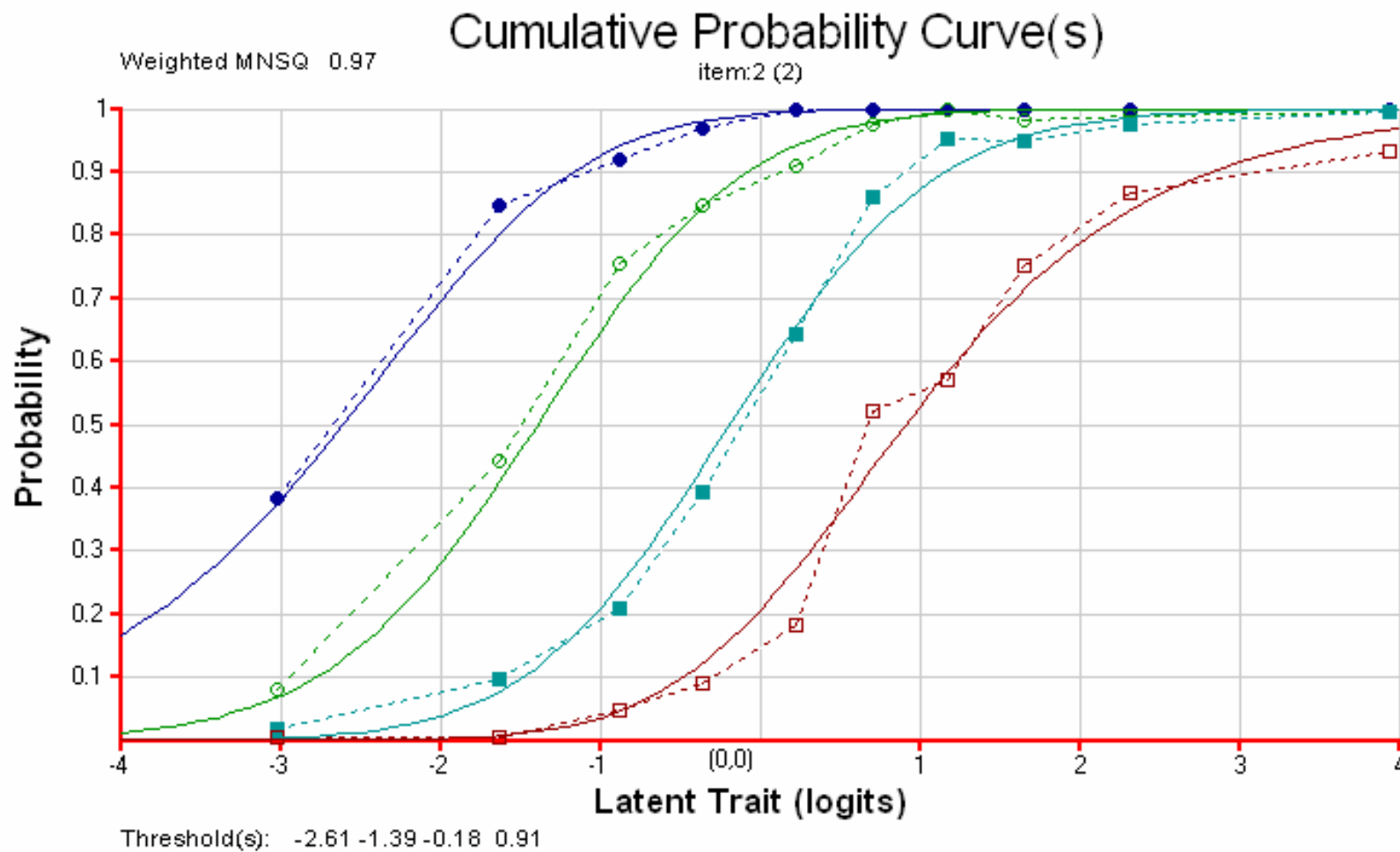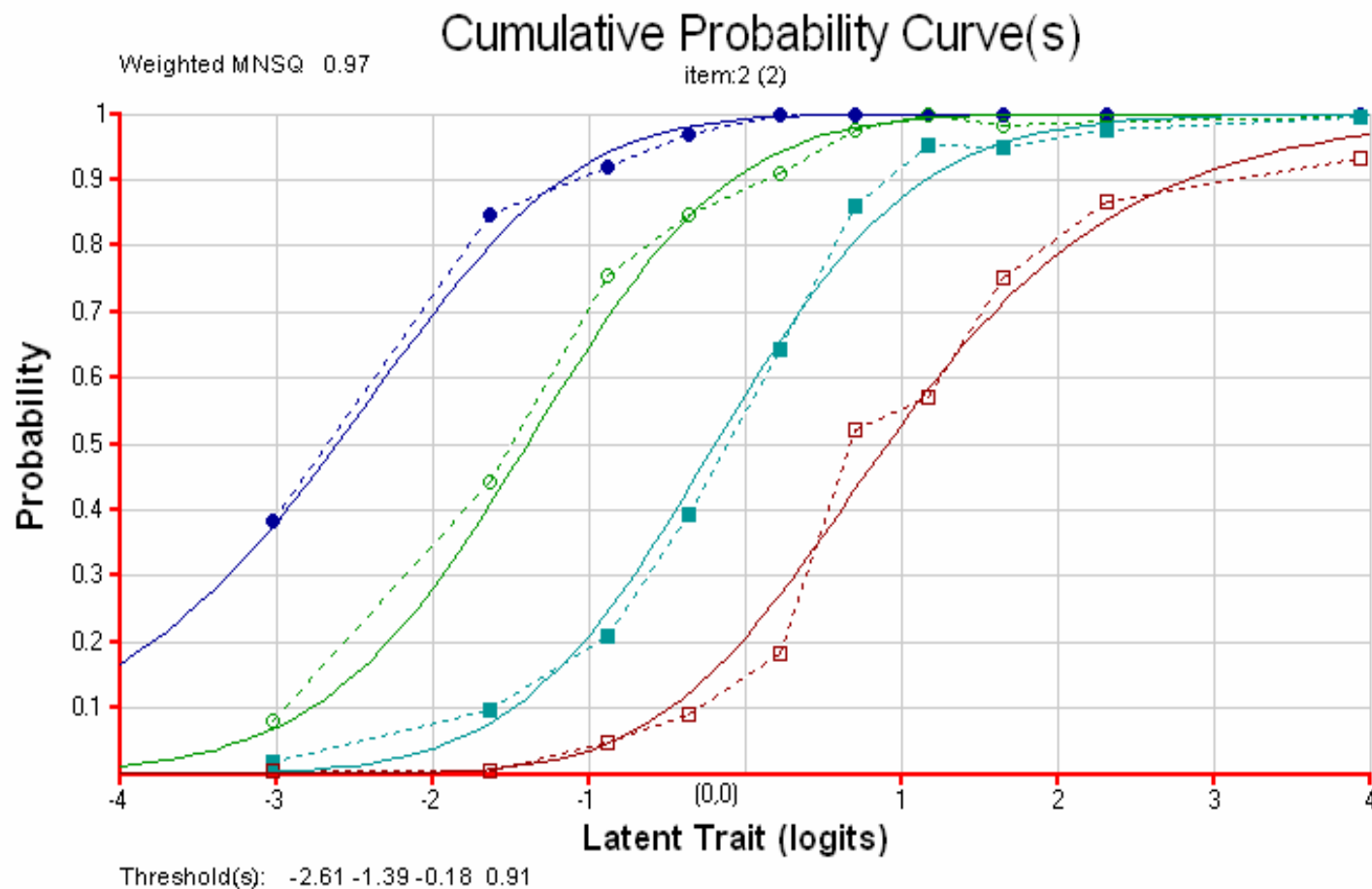
Referring the attention of another to an object, person or action
….Includes another in his/her focus of attention
….Draws another person's attention to something by pointing/vocalisation
….Directs another person's attention towards a named and specific object or person
….Describes, indicates and/or comments upon a specific object, person or action

Cumulative Probability Curve(s)
item:16 (16)

Weighted MNSQ   0.96

Threshold(s):   -1.70 1.14 2.17 3.44
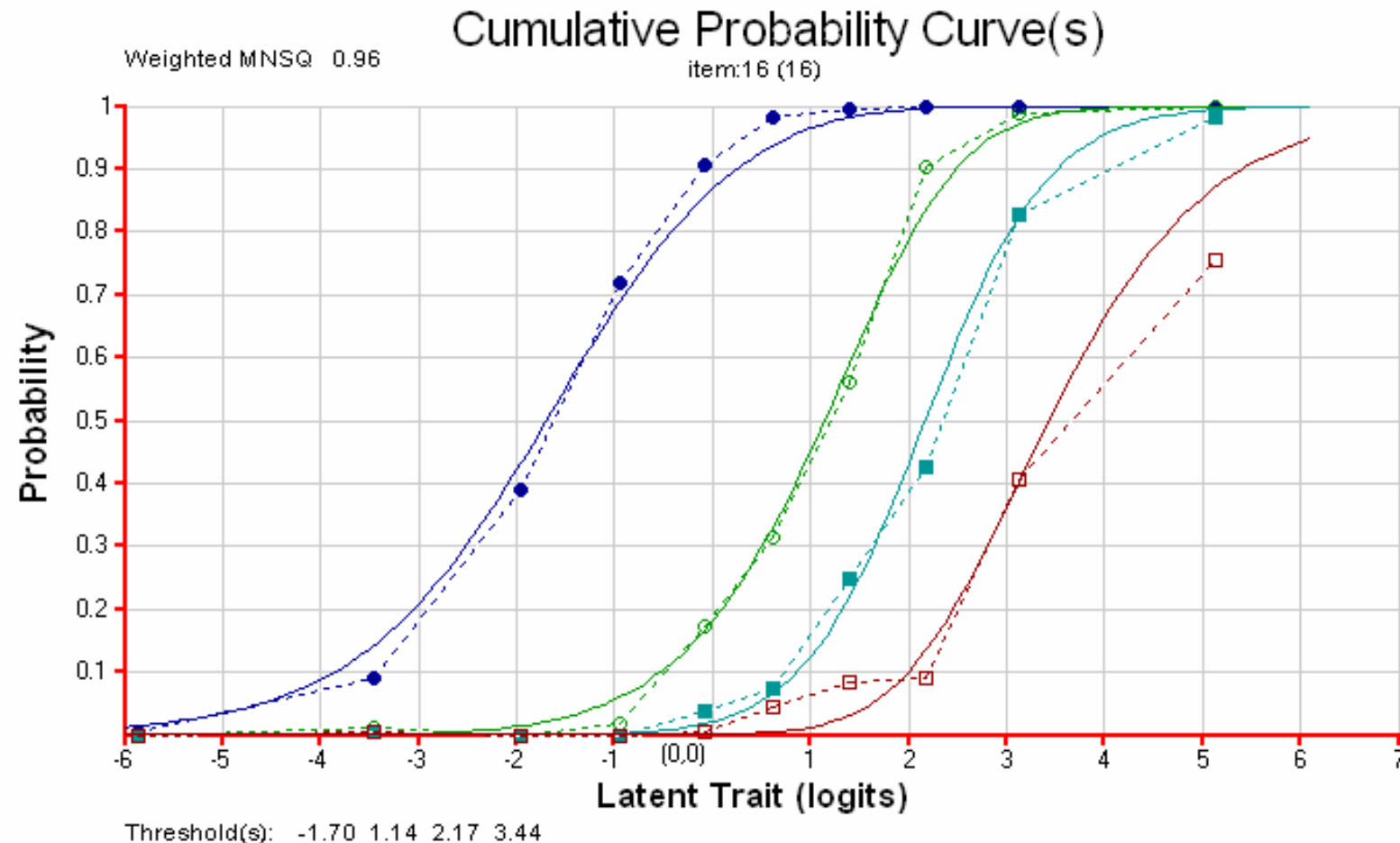
Recognising the form of words and parts of words
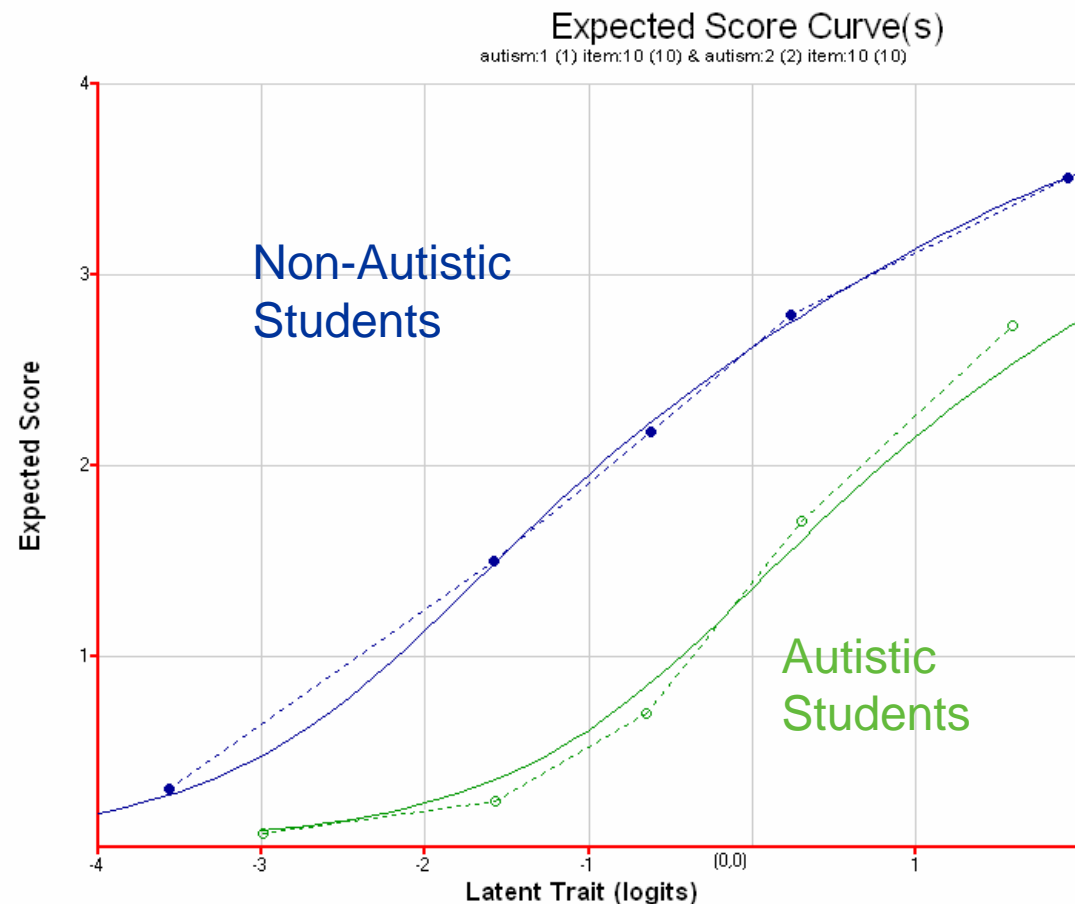….Recognises some very familiar words by sight
….Recognises some common blends and combinations of letters
…. Matches sounds to clusters of letters and spelling patterns that are common in English
….Decodes unfamiliar words using known clusters or letters and spelling patterns
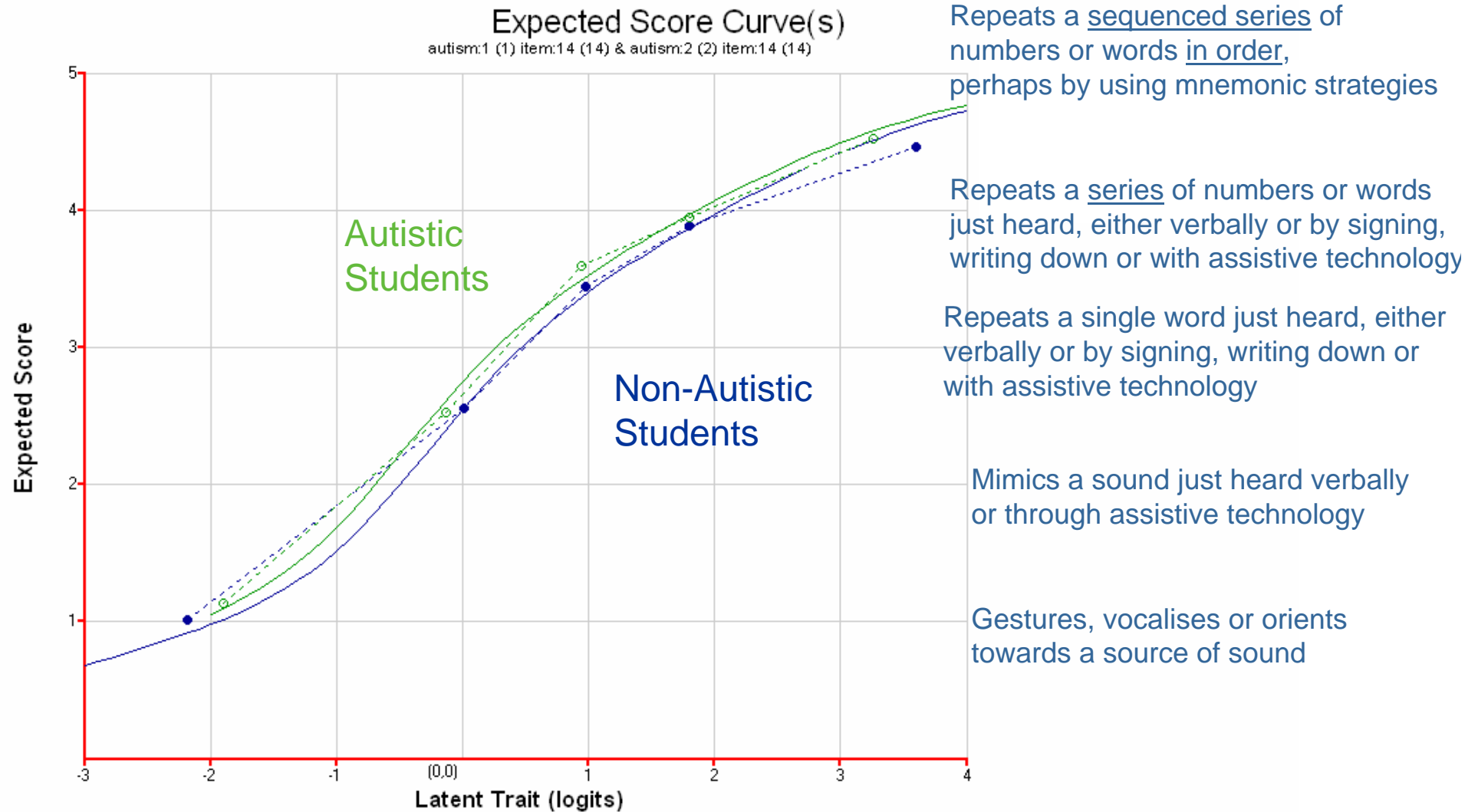
Are the items fair and unbiased?

Expected Score Curve(s)
autism:1 (1) item:10 (10) & autism:2 (2) item:10 (10)

Non-Autistic Students

Autistic Students

Explores and describes causes of own <u>conflicting</u> emotions

Explains generalised causes of own feelings

Indicates the immediate and present cause of own feelings

Allows causes of own feelings to be explained by others

46. Indicates the cause of own emotional experience

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Expected Score Curve(s)
autism:1 (1) item:14 (14) & autism:2 (2) item:14 (14)

Autistic Students

Non-Autistic Students

Expected Score

Latent Trait (logits)

Repeats a sequenced series of numbers or words in order, perhaps by using mnemonic strategies

Repeats a series of numbers or words just heard, either verbally or by signing, writing down or with assistive technology

Repeats a single word just heard, either verbally or by signing, writing down or with assistive technology

Mimics a sound just heard verbally or through assistive technology

Gestures, vocalises or orients towards a source of sound

14. Short term memory for auditory material

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