Dyslexia and Music

Presented by Glynis Lavington

‘Practically There!’ Conference
University of Southampton
12th May 2007

Independent Dyslexia Services™

Overview

- Contemporary musicians
- The language of music
- Specific difficulties
- What to look for as an assessor
- Case studies
- Strategies to help/compensations

Contemporary Musicians

- Have often taught themselves to play by ear
- Are not as likely to have had formal lessons using the written language of music
- Have often failed in academic subjects
- May be highly compensated when using their first language
- Includes production of music using a computer e.g. often student cannot play an instrument

The Language of Music

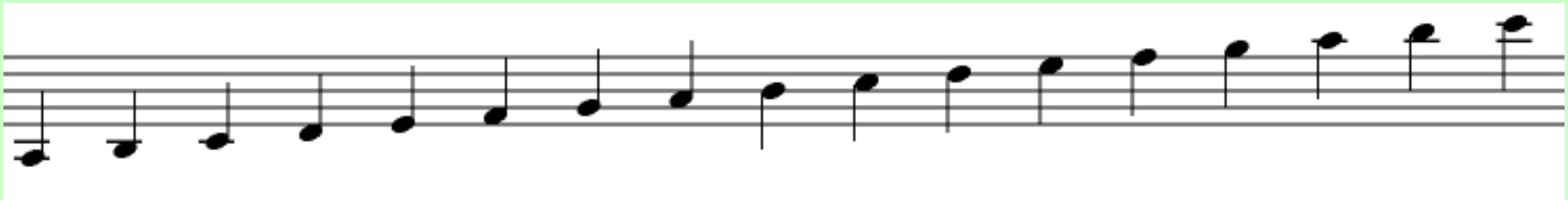
- ‘Notation’ relates to the symbols written down to represent the notes & directions. It is a code just as the alphabet is used as a code.
- The notes on the stave are symbols which are used to represent the sounds
- Processing these symbols can cause confusion for the dyslexic musician

Reading music

- Symbols used to represent the notes are very small and similar in shape & configuration
- The musician needs to remember the names of these notes & the names of the lines & spaces on the stave
- Alphabetical names for notes do not correspond to the alphabetic sequence H does not come after G

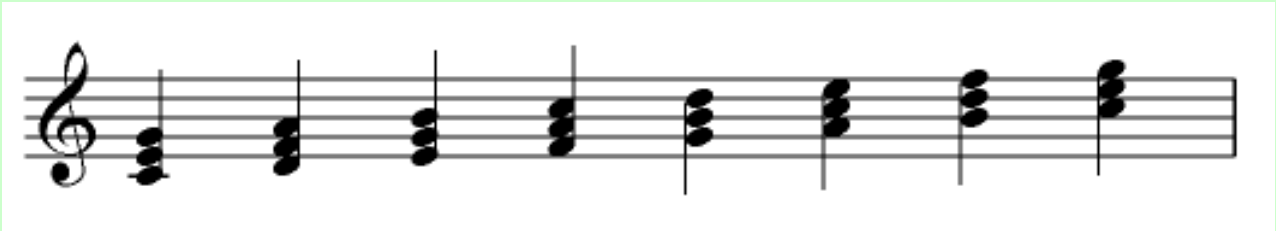
Examples of potential problems

1



Additional ledger lines

2



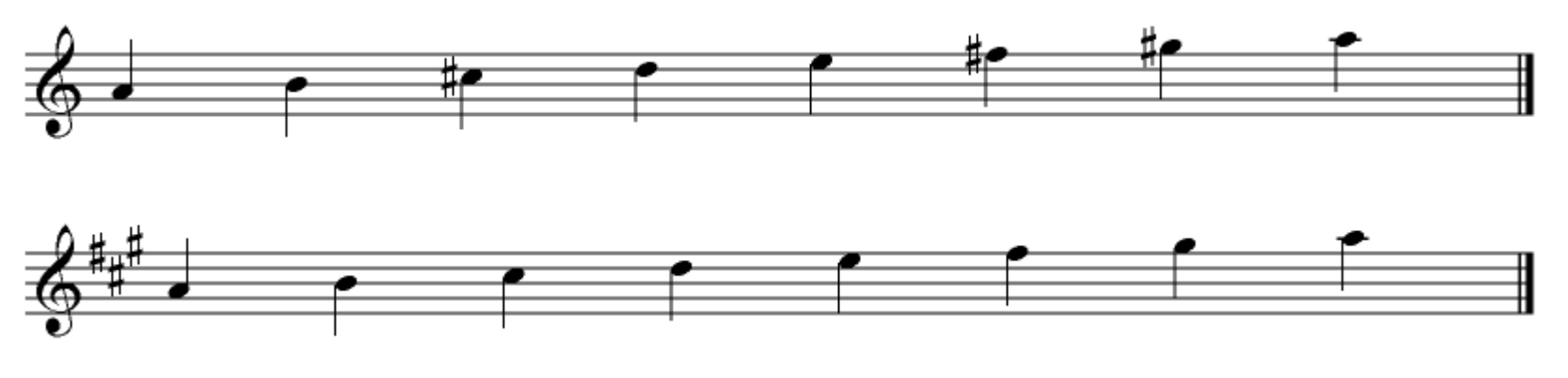
Chords in particular triads – remembering the names
Identifying the root note, 3rd and 5th above it, which scale?
Roman numerals cause additional problems

Time signatures, key signatures, clefs

- Reading the time signature, which looks like a fraction. Which number goes at the top? Which number at the bottom?
- Key signature, tells the musician what key e.g. if it is in G major every ‘F’ note he meets will be F# not F natural
- Treble or bass, both notated on the same lines of the stave but the notes have different letter names

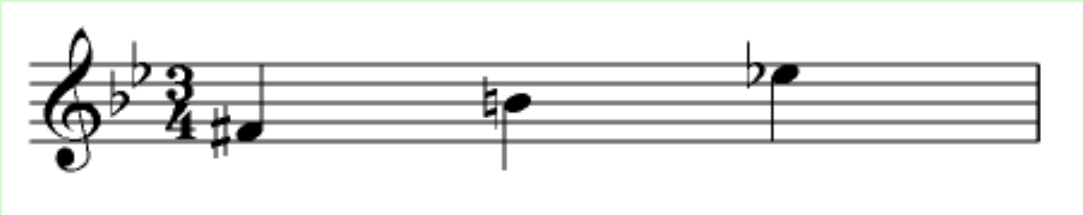
3

4



Use of key signatures – without = individual notes marked
With = student needs to remember key signature from
Beginning of piece

5

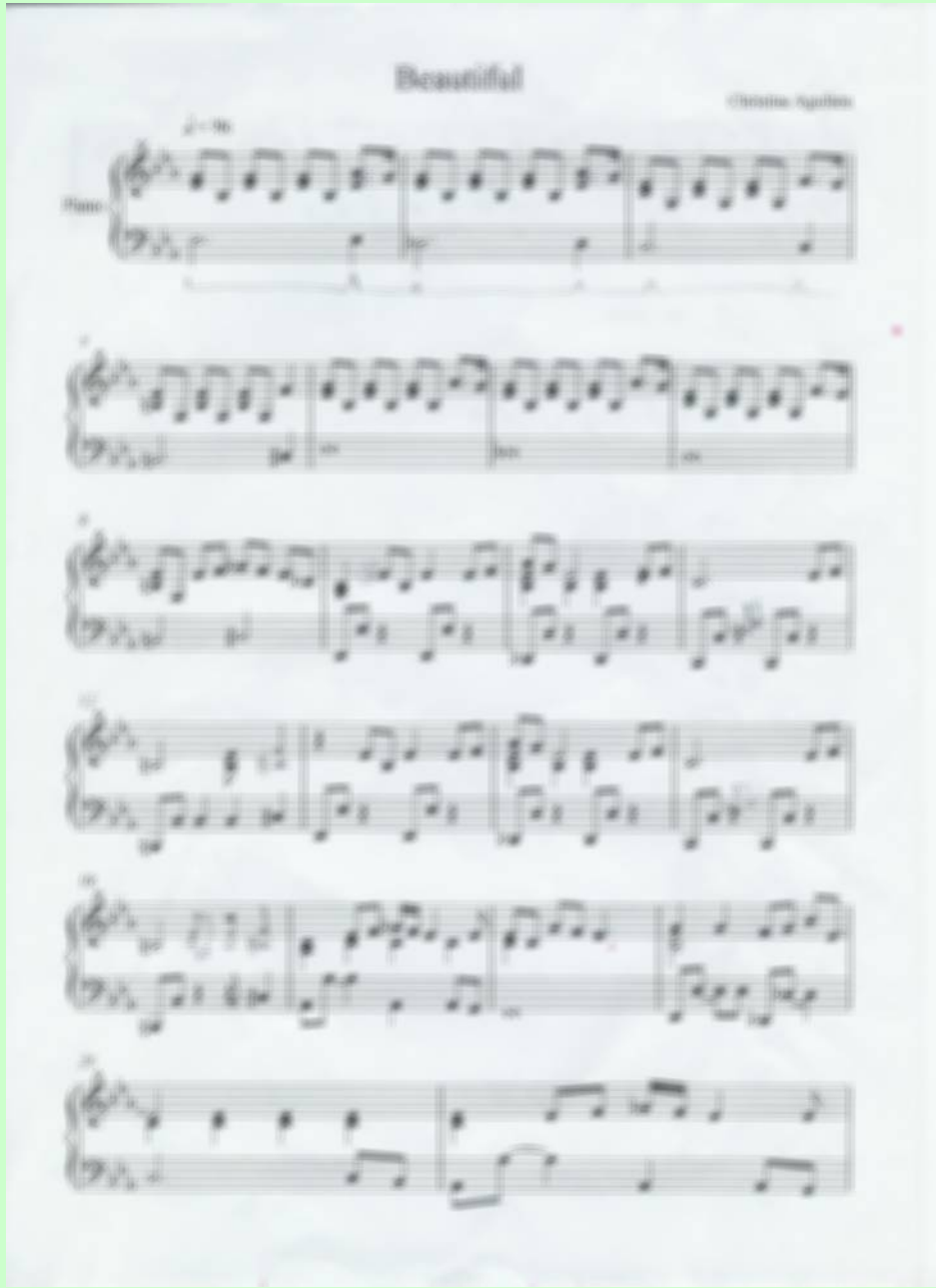


Accidentals = can cause further confusion

Names the notes to be played and as such overrides the key
Then reverts back to the key signature which was?

What problems does a dyslexic musician have?

- It feels like sight reading every time I look at it
- I look at a note and then I play the wrong one
- The lines blur and move
- I loose my place
- I lost count
- I sometimes play a line of music with my right hand and it should have been my left!


Beautiful
Christina Aguilera
Piano

Writing notation

- Students with handwriting difficulties have problems with notation
- The symbols need to be placed in the correct place on the stave
- Some rests are very difficult to notate by hand
- The stems can go up or down, on left or right, exceptions e.g. single quaver

Aural perception

The musician listens to a tune and then writes down the correct notes & needs to;

- Remember the sound – to recall the name of the note
- Remember the name of the note – to recall the shape to write
- Remember the sequence
- ALL BEFORE the next bar is played! And they run out of time

Vocalists

- Have to read the notation and lyrics simultaneously
- Are often asked to sing lyrics by singing the vowels only - the artificial separation of syllables
- Have to learn yet another alphabet, Doe,far,so,la,te,doe etc

What causes these difficulties?

- Lack of automaticity
- Speed of processing
- Memorisational problems
- Sequencing difficulties
- Visual perceptual difficulties
- Distractibility
- Loss of concentration
- Fear

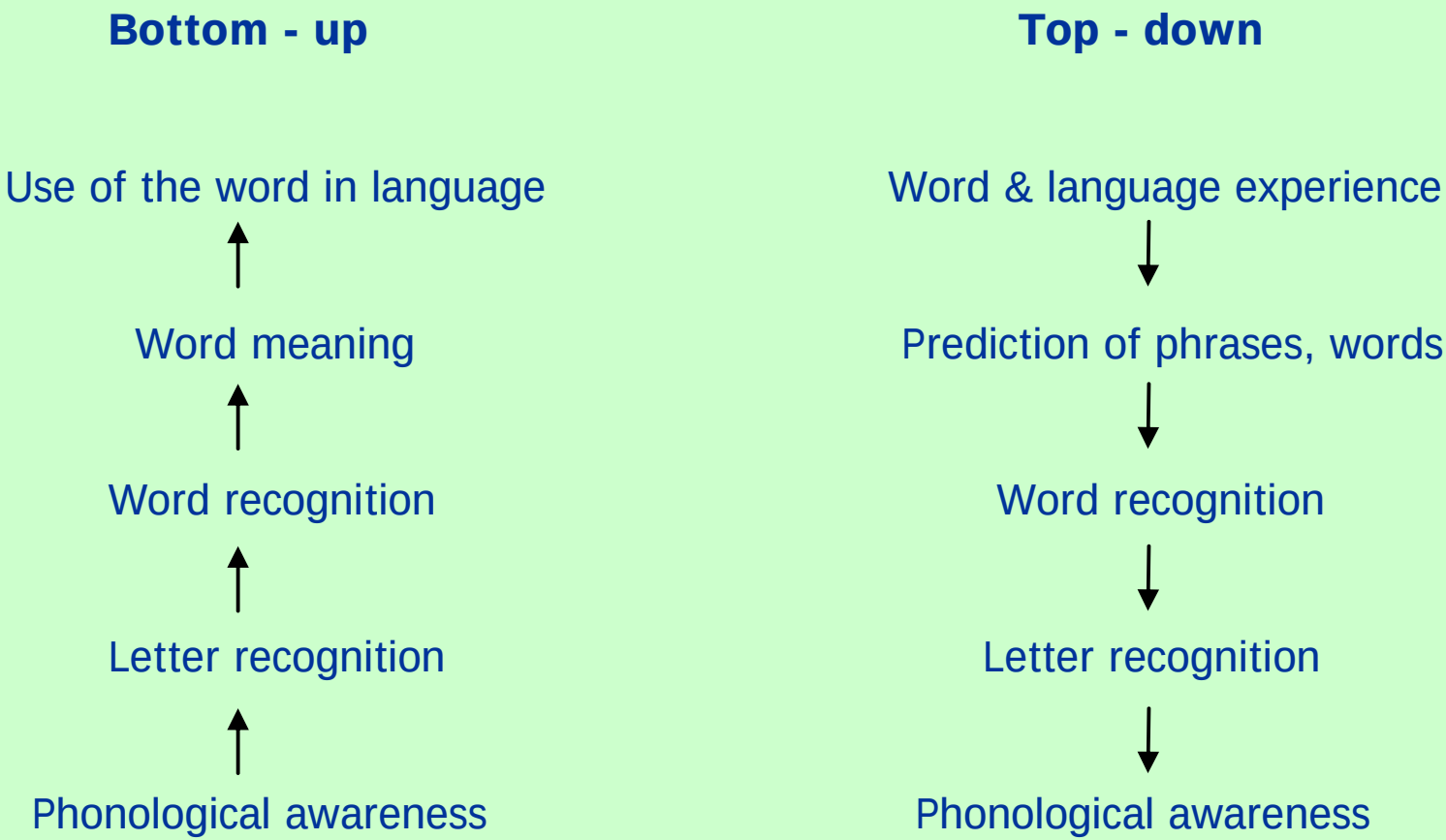
The reading process

- Both language & music have syntax
- Two principle models of the reading process

  Bottom – up processing

  Top – down processing

Bottom – up and Top – down models



Environmental & social economic factors

- Learning environment
- Previous education
- Knowledge of the sounds of the language
- Exposure to the sounds of the language at an early age

Secondary characteristics

- Organisational difficulties
- Lack of confidence
- Low self esteem
- Fear

What to look for?

- Ask questions relating to the language of music e.g. tell me what happens when you are reading music
- What happens when you are writing music score?
- Be careful about asking about sight reading – nearly everyone has difficulties with this

What to look for as an assessor

- Information from the student that indicates they have a difficulty within the context of their course e.g. music
- Evidence within the students profile that supports what the student has told you
- Individual scores of the sub tests will inform which cognitive functions are weak
- If the verbal ability is weak look for additional information from phonological processing tests

What tests are helpful?

- Verbal analogies/similarities
- Vocabulary
- Digit span
- Visual/matrix reasoning
- Coding/SDMT
- CTOPP

Verbal Analogies/Similarities

- Measures verbal abstract reasoning
- Requires – concept of likeness and difference
- Possible difficulties – making analogies, linking information together, seeing the big picture ‘overview’
- In this context – starting in the middle of a piece, linking information, concept that the same chord on a guitar can be played in various ways

Vocabulary

- Measures word meaning and receptive language
- Requires – verbal fluency
- Possible difficulties – ability to verbalise knowledge, auditory memory (especially under a time constraint)
- In this context – lack of fluency when reading score, difficulties with aural perception

Digit Span

- Measures – ability to hold and manipulate auditory information
- Requires – immediate auditory memory, sequential memory, visualisation ability
- Possible difficulties in this context – retaining a pattern of sounds in correct order, retaining instructions and following the order of orally presented lesson, copying from the board

Visual – Matrix reasoning

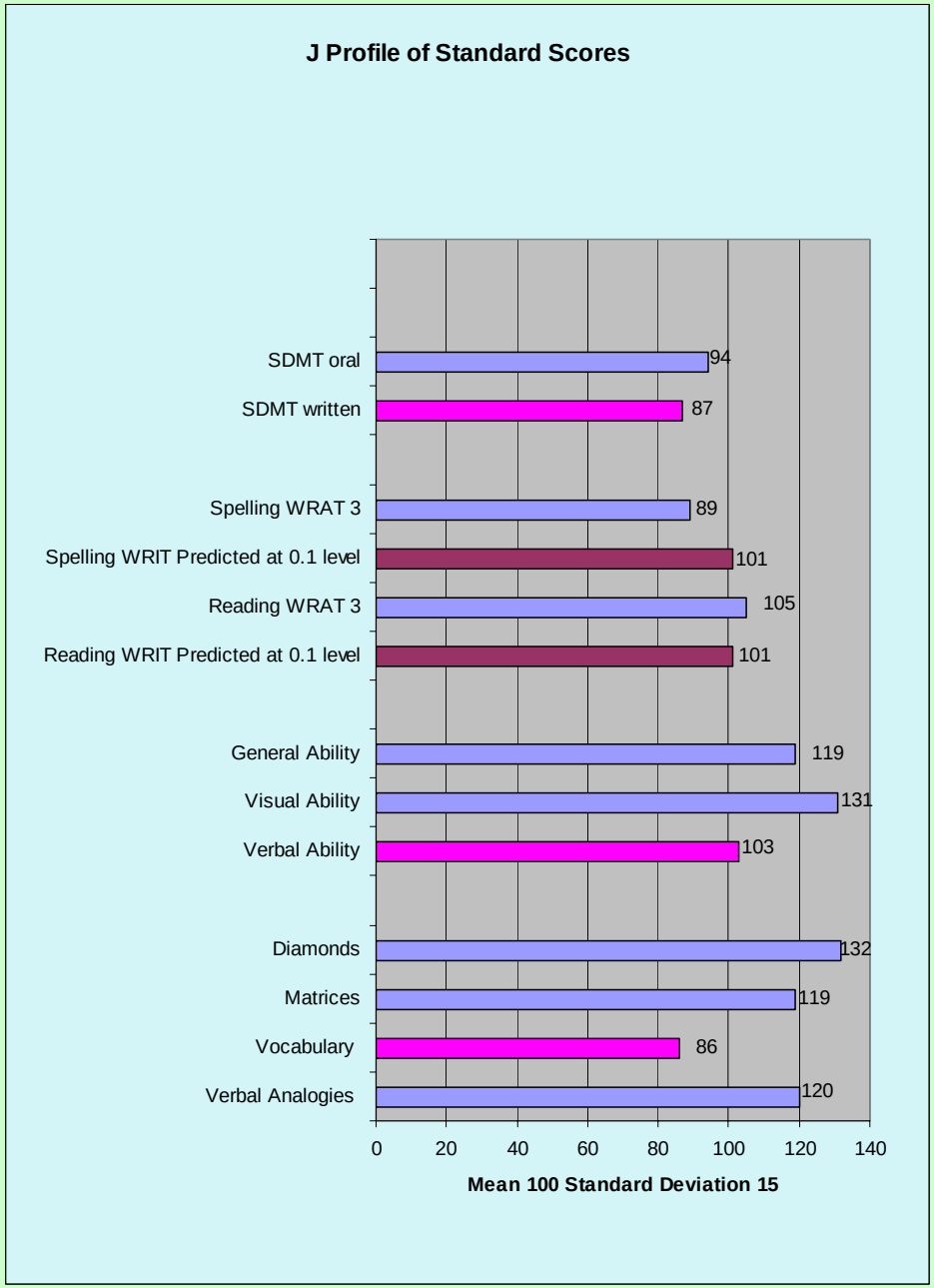
- Measures visual analysis and sequencing skills
- Requires – perception of part to whole in logical sequencing, noting of details
- Possible difficulties in this context – following a sequence of instructions in a diagrammatic form, breaking the whole piece into component parts

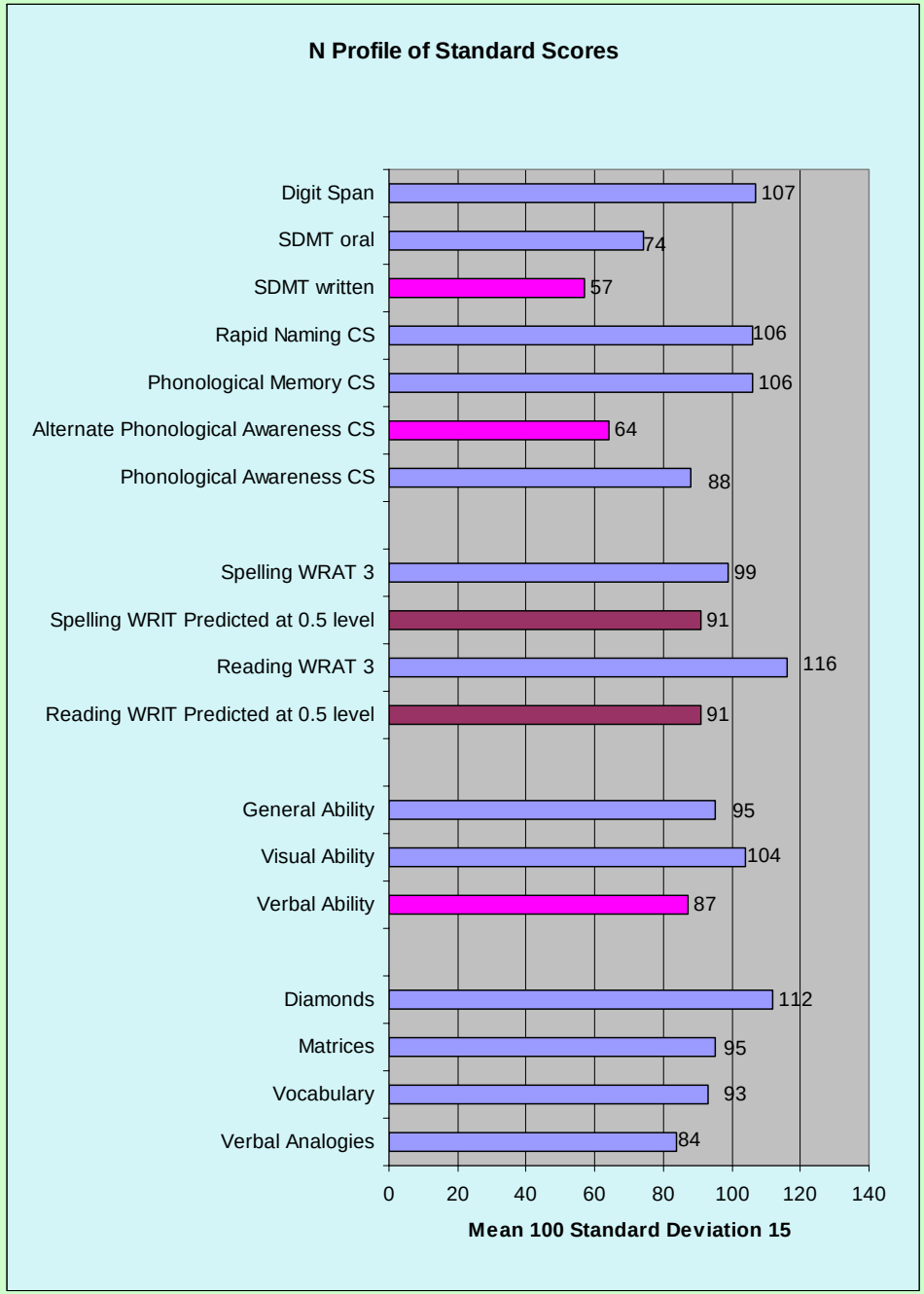
Coding / SDMT

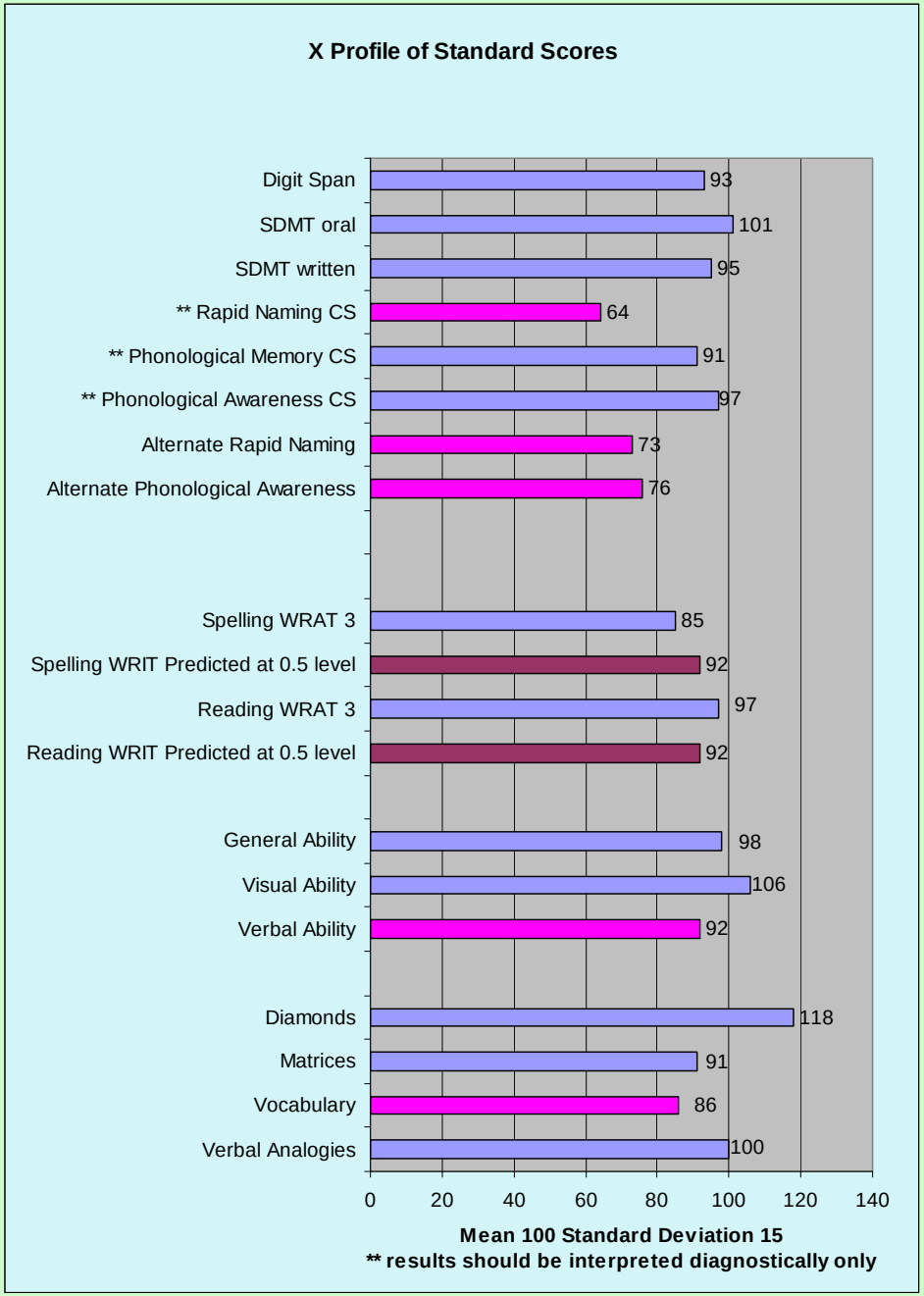
- Measures – ability to discriminate, recall and learn associations between abstract symbols, short-term visual memory, fine motor skills, eye hand co-ordination
- Possible difficulties – fixation ability to keep one's place in music score, slow processing speed & fluency, copying from board, speed of writing

CTOPP

- Measures – phonological awareness and memory, rapid naming
- Alternate tests very useful when student is compensating – significantly lower scores indicate that student will have comprehension difficulties in this context
- Possible difficulties – rapid naming = difficulties with aural perception under a time constraint


J Profile of Standard Scores
SDMT oral
SDMT written
Spelling WRAT 3
Spelling WRIT Predicted at 0.1 level
Reading WRAT 3
Reading WRIT Predicted at 0.1 level
General Ability
Visual Ability
Verbal Ability
Diamonds
Matrices
Vocabulary
Verbal Analogies
94
87
89
101
105
101
119
131
103
132
119
86
120
0
20
40
60
80
100
120
140
Mean 100 Standard Deviation 15


N Profile of Standard Scores
Digit Span
107
SDMT oral
74
SDMT written
57
Rapid Naming CS
106
Phonological Memory CS
106
Alternate Phonological Awareness CS
64
Phonological Awareness CS
88
Spelling WRAT 3
99
Spelling WRIT Predicted at 0.5 level
91
Reading WRAT 3
116
Reading WRIT Predicted at 0.5 level
91
General Ability
95
Visual Ability
104
Verbal Ability
87
Diamonds
112
Matrices
95
Vocabulary
93
Verbal Analogies
84
0
20
40
60
80
100
120
140
Mean 100 Standard Deviation 15


X Profile of Standard Scores
Digit Span
93
SDMT oral
101
SDMT written
95
** Rapid Naming CS
64
** Phonological Memory CS
91
** Phonological Awareness CS
97
Alternate Rapid Naming
73
Alternate Phonological Awareness
76
Spelling WRAT 3
85
Spelling WRIT Predicted at 0.5 level
92
Reading WRAT 3
97
Reading WRIT Predicted at 0.5 level
92
General Ability
98
Visual Ability
106
Verbal Ability
92
Diamonds
118
Matrices
91
Vocabulary
86
Verbal Analogies
100
0
20
40
60
80
100
120
140
Mean 100 Standard Deviation 15
** results should be interpreted diagnostically only

Strategies to help

- Multi-sensory
- Holistic
- Mnemonics
- Coloured overlays or music score
- Highlighter pens
- One to one training to learn strategies to help learn music theory
- Metacognition

Compensations

- Enabling technology
- Software e.g. Sibelius/ Logic Pro 7/ Auralia / G7
- Familiarisation and training – software specific
- Means of recording the lecture – and training in how to do so

Examinations

- If the student profile indicates it is necessary consider if they need special provision e.g. sight reading & aural perception exams
- Extra time? Separate room? Consideration to minimise auditory distractions?

References and further reading

- Associated Board of the Royal Schools of Music - www.abrsm.org
- Music and Dyslexia, Opening New Doors. Edited by Tim Miles & John Westcombe. April 2001 – *contributors to the book relate personal experiences*