Planning for extension - a process for designing from within the Australian Curriculum

John Munro

Session 2: Gifted learning in its multiple forms in the classroom

Our pathway

Multiple ways of being gifted

Convergent or verbal giftedness

Divergent or nonverbal giftedness

Performance or action giftedness

Fluctuating giftedness: Twice exceptional students

Recognising the multiple forms of giftedness in the classroom

What are the implications of this for my setting? Who are some students I might be missing? How could we work towards noticing more of these students at my school?

Participant activity:

Share the story of a student gifted non academically How would current assessments classroom activities pick up this student?

Multiple ways of being gifted by inferring and synthesizing



Multiple ways of being gifted: Convergent or verbal gifted

Verbally gifted knowing: gifted in text comprehension.

Form intuitive theories that have the properties of text : high level text comprehension, production and use.

Examples of a text: a film, a written text, a football game, a drama or play or plumbing routine. Each text

- has a topic and a genre, details and discourse or section meanings
- uses abstract meanings and symbols.
- was designed for a purpose
- has rules and conventions for linking the ideas. These come from the culture/s.

In the classroom verbally gifted students learn faster. They

- form the intended understanding faster than their peers. Their more elaborated and differentiated concept networks allow them to learn in larger chunks and deal with more information at a time.
- use high level text- type thinking. They infer spontaneously the topic, details, section meanings and the intended purposes. This allows them to 'jump ahead'. They make link with other texts they know. They add ideas that were not mentioned in the text. They form more elaborated and extensive interpretations.
- analyse spontaneously aspects of a text at a high level, evaluate, contrast themes in two or more texts, compare evidence to find a common element in an argument, compare texts within and across genres, interpret characterization in imaginative text, make within- and between text links.
- want to be self-programming and to manage their own learning. They learn the rules and conventions for a text rapidly. They use them to organize the ideas in the intended ways.

Multiple ways of being gifted: Convergent or verbal gifted

Verbally gifted knowing: gifted in text comprehension.

- in a given time can form more knowledge and are ready to explore it sooner than peers. They form a network of concepts that is programmed more rapidly by the information. They don't wait to be programmed in a 'bit by bit' way.
 - Verbal gifted' = inferring and synthesizing rapidly in any of these contexts
- structure and incregence the locas in their own ways and creek their interpretations against the information. Prior to the checking, their initial interpretations are likely to be intuitive.

Texts use a range of symbolic systems such as mathematics (V= pr^2h , $x^2-5x+6=0$), music and in gestures. 'Different symbolic systems are handled by different parts of the brain. A person may show 'verbal gifted ability' for maths or music symbolism but not for oral language.

Verbal gifted' = inferring and synthesizing rapidly in any of these contexts.

This matches

- Renzulli's school-house giftedness,
- Tannenbaum's 'consumers of knowledge', (2005) and
- Sternberg's 'analytical intelligence'.

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Multiple ways of being gifted: Nonverbal or divergent gifted knowing

Nonverbal or Divergent gifted knowing

Nonverbal giftedness. Nonverbal thinking is in time and space, noting the outcomes, inferring patterns, possible 'big ideas' and then 'intuitive theories' about what is possible in time and space. You can imagine ideas changing in

- their attributes or properties; they imagine items in a context changing in what they look/sound like, what they do, the effect they have, their size or shape
- where they are (they transfer them to other contexts),
- how, why and when and where the ideas move, alternative actions they could take,
- the contents of the context; they imagine what would happen if the contents changed, for example, new entities entered the context, entities were removed,
- the sequence or order in which events in the context occur.

Visual –spatial gifted

Creative intellectual gifted

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Multiple ways of being gifted: Nonverbal or divergent gifted knowing

Nonverbal or Divergent gifted knowing

In the classroom these gifted students form outcomes that are different, lateral or creative. They

- think about the ideas in time and space contexts at a high level, infer patterns by linking with other sets of images and time and space contexts they have. 'Fluid analogies or 'far transfer' allows them to see shared features or possibilities that others don't see: 'insight'. They don't use only what they've been taught: they Nonverbally gifted = inferring in time and space imagery across contexts and synthesizing indeas not mentioned in the teaching.
- synthesize the inferred patterns into 'big ideas' and form intuitive theories that are based on dynamic timespace thinking. Their outcomes and understanding are creative and novel, often unexpected or unusual, because time-place thinking is unique to an individual. Their theories are about what might be possible.
- engage in 'possibilistic thinking'. Their theories are about what is possible. Their understanding at this time is an intuitive theory about the topic and has not yet been validated. Parts may be inaccurate or illogical, because the student has not yet tested it. Given the opportunity, they can test their theories and see the extent to which they are supported. They link questions with the various aspects that they can investigate.
- may have difficulty sharing their unusual ideas in words and 'show' them in drawings, act them out or make models. Examples are the Feynmann diagrams in modern physics.

Rather than using what they've been taught by their cultures, these individuals are using their experiential or episodic knowledge. This is unique to them.

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Storphorg's 'creative int	Creative intellectual diffed		Visual –spatial difted	Suge and
Sternberg's creative int	ereative intellectual gitted		vioual opatial gitted	

Kekule : the father of aromatic organic chemistry



Multiple ways of being gifted: Procedural or action giftedness.

Some individuals learn new motor sequences very easily and rapidly automatize these. These students show practical and innovative giftedness that is associated with applying and implementing what they know in novel ways, usually through action sequences.

Any action sequence comprises a set of component actions that achieves a particular outcome or production. You can get a different outcome by

- doing the components in a different sequence or by doing components simultaneously,
- combining actions from different sequences,
- changing the duration for each components.

The action sequence can be used to produce a new musical improvisation, a new art style, a new way of cutting grass, solving a maths task, a set of gestures to communicate 'being a schemer', a set of actions for growing vegetables using less water or actions for kicking goals in football.

In the classroom these gifted students form outcomes that are different, lateral, original or creative productions or ways of solving problems. They use action thinking in novel ways. They are the 'problem-solving innovators'. They include the students who are gifted in information technology and its applications. They

infer in actions to form new action sequences that may lead to products that are creative.

can see how to act in creative innovative ways They learn to make far transfer between sets of perceptual-motor action sequences.

Creative intellectual gifted

integrate action sequences to form 'big idea' action sequences

Visual –spatial gifted

Multiple ways of being gifted: Procedural or action giftedness.

In the classroom these gifted students form outcomes that are different, lateral, original or creative productions or ways of solving problems. They use action thinking in novel ways. They are the 'problem-solving innovators'. They include the students who are gifted in information technology and its applications. They

- infer in actions to form new action sequences that may lead to products that are creative.
- Practically gifted = inferring in time and space imagery across contexts and synthesizing motor action sequences.
- integrate action sequences to form 'big idea' action sequences
- modify their action sequences rapidly to match new or changed contexts.

The advanced problem solving ability is often in practical, everyday contexts and matches Sternberg's practical aspect of intelligence. These students understand their world in unique ways and use their knowledge in culturally 'street wise' ways, to adapt to, shape and construct their environment and solve real life problems in everyday contexts by using their experiential knowing.

Creative actions in producing music \rightarrow talented music outcomes, skilled in learning music action sequences, automatize these to produce new or novel action sequences.

This matches Sternberg's 'practical' or 'street wise intelligence'.

Your turn 4 : Analysis of the content

Mentimeter Slide 4 (Open-ended)

• What are the implications of the multiple ways of being gifted for my setting?

Mentimeter Slide 5 (Open-ended)

• Which type/s of gifted learning are most/least likely to be recognised in your teaching? Who are the gifted students I might be missing?

Mentimeter Slide 6 (Open-ended)

• How could we work towards noticing a broader range of gifted students in our teaching and in our schools more generally?

Gifted sometimes? Fluctuating high achievement in the classroom –twice exceptional

Show high achievement intermittently

gifted students who have learning difficulties often due to a specific analytic sequential processing difficulty associated with using phonological and symbolic information and organizing ideas

gifted hidden ability students who have low self or social identity and who seek to avoid appearing to be different from their peers. gifted students who are disengaged from the social context of the regular classroom and show a negative emotional disposition to school because their knowledge is not valued or acknowledged and their lack of positive identity in it.

gifted students from 'minority' cultures

gifted students with psychological issues

Learning profile to understand twice exceptional learners ?



How do gifted underachievers learn? The global-analytic dimension



All teaching makes assumptions about how students learn

Learning occurs when teaching scaffolds students to change what they know in particular ways.

All teaching, by necessity, makes assumptions about how people learn.



A mis-match can be transitory. The teacher recognizes it and modify their teaching to achieve a closer match.

It can also last longer, when the teacher doesn't successfully modify the teaching.

3/12/21

Teachers understand the assumptions their teaching makes. Without this, differentiation is more random or accidental.

Two perspectives on twice- exceptional students

Twice- exceptional students are gifted but do not benefit from learning in the regular classroom.



What are some assumptions teachers make that lead to twice exceptional learning?



Your turn 5 : Analysis of the content

Mentimeter Slide 7 (Open-ended)

• How could you work towards noticing more of these students at your school?

Mentimeter Slide 8 (Open-ended)

• How could you work towards noticing a broader range of gifted students in your teaching?

Padlet 3 Activity - https://padlet.com/markeoliver/zha4wrs3z8uvpwkh

- How can you give TELs ...
 - Alternative ways of learning?
 - Alternative ways of sharing their gifted thinking and intuitive theories?
 - The opportunity to learn to improve how they can learn and share their knowledge in conventional ways while supporting their unique gifted understanding?

Mentimeter Slide 9 (Wordwall)

What are factors that can mask the outcomes of TELs in the classroom?

Mentimeter Slide 10 (Sliding scale)

- How often do we analyse link the following descriptions with TELs:
 - 'laziness',
 - 'boredom',
 - 'classroom management issues'?

Noticing verbal or textual giftedness

Verbally gifted students are easy to identify in the classroom. They learn what is taught at a higher level. They show high level outcomes on conventional achievement tests and tasks in the domain of their gifted learning. They also do well on tests of reasoning ability (that is, the 'general ability' or intelligence tests).

recall ideas easily, hold more ideas at once in their thinking space and comprehend them in more complex ways. learn quickly and are 'one step ahead' of their teachers. They don't wait to be programmed 'bit by bit'

Infer rapidly its topic, the direction in which it is going

Verbal gifted' = inferring and synthesizing rapidly in any of these contexts

show ar differen

Their inferring is in the general direction of the information

domain

I wonder if X could lead to /means the same as Y

question ideas spontaneously and study to extend their knowledge. They experiment and play with ideas in the domain

their elaborated knowledge to 'take in' teaching information in larger chunks. They need fewer practice tasks.

- do well on conventional tests and tasks
- learn and apply the rules and conventions for communicating easily and quickly and use this to organize their knowledge and understanding. Some learn the rules or conventions for linking the meanings in maths, others for music, art, science or English.
- show 'self-drive' and intrinsic motivation to 'want to know'.

Noticing nonverbal, creativity or imagery giftedness

Nonverbally gifted student in the classroom spontaneously 'go beyond' the teaching to form their intuitive theories of it by inferring using mental imagery in 'time and place'.

Their interpretations and understanding is often unusual, unexpected and often catch teachers 'off guard' and may question the teaching. While the verbally gifted students infer in the direction of the teaching text, the non-verbally gifted students tend to be the opposite.



Their intuitive theories may contain ideas that are inaccurate or illogical. When they have research them theories, these students can correct their misconceptions and validate their theories.

They may bring in an idea that can challenge the context, the direction or the content: "But what about....?" "Where does fit in?" or "That shouldn't happen because ...?" The teacher may not have made the same analogistic links as this student and won't see where they are coming from.

Nonverbally giftedness may not learn conventions.

These students frequently do not learn academic or social conventions well.

They need to learn how to learn academic and social conventions

You use academic conventions to speak and listen, read, write and spell. Some have difficulty learning these conventions and have difficulty sharing their unexpected or unusual ideas.

They need to have the opportunity to display what they know and receive positive feedback for it.

Teachers can modify the conditions under which the students show their understanding. Use multimodal approaches to show their knowledge. Students 'show' it by drawing them, acting them out 'in situ', or making models.

As well, teachers can ask: "I'd like to know what you can see in your mind. Could you tell me what you see? Say what it looks like? Could you draw it /act it out?" learning how to behave socially and interact interpersonally requires the use of social contentions. These students often show antisocial, unacceptable classroom behaviours.

To learn these conventions, a student needs to be 'programmed by their culture'. These students are often not programmed easily externally; they are more self-programming; they are often twice exceptional.

Noticing nonverbal, creativity or imagery giftedness

Imagery gifted students show the following learning characteristics in the classroom: they

- learn in larger 'steps', often skip "steps" and miss details. They show whole-part learning strategies rather than progressing from simple to complex ideas in step-by-step way.
- use imagery in time and space to form ideas by combining disparate elements. They synthesize several concepts in a 'big picture' way and form an intuitive grasp of complex ideas.
- create personal interpretation of the teaching rather than learning the culture's interpretation.
- generate their own ways of organizing ideas and solve problems intuitively to generate unusual solutions. They may not show 'steps on the way'.
- learn well by identifying meaningful relationships rather than by rote memorization, drill and repetition.
- learn difficult concepts easily but struggle with easy skills; they don't progress from easy to difficult content;
- develop asynchronously, may have uneven grades vs develop in a uniform way, consistent across grades
- perform better in untimed situations vs perform well in timed tests
- show advanced outcomes on nonverbal intelligence tests tasks, that assess the skill to infer visual and spatial patterns. Standard IQ and achievement tests are not always the most appropriate measure, particularly when they assess how well a person has acquired knowledge.

Nonverbally gifted = inferring in time and space imagery across contexts and synthesizing

Their inferring is in directions unexpected by others

I wonder if X might cause Y?

•

Classroom assessments usually don't assess this; they test how well students have learnt the teaching, not what additional knowledge the students have added

Noticing procedural or practical giftedness

The action or procedural gifted learning profile involves individuals forming intuitive theories about how to act strategically and creatively to achieve their goals at any time. Individuals with this profile

• learn new action or motor sequences very easily.



 Infer how a set of actions that works in one type of situations can be modified to work in a different type of situation to lead to creative, innovative or talented outcomes. Integrate actions used in multiple domains, combine actions from different sequences, make 'fluid analogies' or 'far transfer' between action sequences.

•	Create novel	Practically gifted = inferring through actions	ys of achieving a goal or
	an outcome, it.	Inferring is in directions unexpected by others	plem and acting to solve
•	Analyse and e	I wonder if I do it that way will I?	ar situations and suggest

- Analyse and evaluate now an action sequence might work in particular situations and suggest how it could be modified to achieve improved outcomes.
- Combine two or more action sequences to form 'big idea' actions. They can see how two or more action sequences are similar and use this understanding to organize their knowledge of actions.
- doing component actions in a different sequence or by doing components simultaneously,
- changing the duration for each components.

Noticing procedural or practical giftedness

These students display their gifted learning capacity by doing or acting. Their talent is shown in the quality, complexity and sophistication of the action sequences they perform, particularly in solving real life problems in everyday contexts.

See the challenges or problems in a situation

Clarify, define what the problem is

gather relevant information about it

generate multiple possible solution pathways

These students invest motivation and personal interest in the problem-solving process.

Classroom usually do not foster learning by acting or doing or by solving self-defined problems. Problems and challenges in teaching are usually formulated by others and are clearly defined and presented with all the necessary information needed to solve them. They usually have a single correct solution pathway. They are often removed from everyday experiences.

Classrooms value abstract knowledge. These students show their advanced thinking and understanding when the classroom is in a practical, everyday context such as an excursion, a drama, 'hands-on' activities in science, art or technology, or a school camp. They are creative mechanically and technologically.

Some procedurally gifted students have difficulty sharing their knowledge and understanding by writing or speaking. They can show it better 'in situ' through demonstration their interpretations and thinking.

During an interactive class discussion, for example, they may not share their understanding by talking. Their understanding is in an action form and they need time to compose it in a verbal way. Ask them to 'describe the picture' they've made in their mind, or to use their hands and body to show what they are thinking. They need time to do this.

Noticing procedural or practical giftedness

Procedural giftedness is identified by using open-ended tasks that assess practical or everyday problem solving. The problems used have been drawn from multiple domains:

- verbal-linguistic (for example, persuasive writing, analogies, verbal relationships, letter puzzles and verbal reasoning),
- quantitative-number (arithmetic, number concents logic proportional reasoning patterns number theory),
- nonverbal-spatial reasoning and
- social dilemmas.

number of
relevant ideasliteralnear
inferentialfar
inferentialoneIIItwo or moreIII

You can assess the quality of a student's ability

- Identify and frame up the problem.
- Describe a possible solution.
- Compile the steps they would take to solve the problem.
- Describe the additional information they may need to solve the problem.
- Identify difficulties and obstacles might make the problem hard to solve.
- Infer how they might overcome these difficulties?
- Identify who might be affected by the problem solving activity.
- Infer how they might lead these people to support their solution.
- Describe how they could see if their solution was working?

Which types of gifted learning are more likely to be identified in classrooms in your school?

A range of factors can affect how well we notice or identify instances of each type of gifted learning in the classroom. We need to be aware of the factors that can mask each type of gifted learning, so that we reduce the likelihood that they will restrict/prevent gifted students from being noticed in the classroom.

The factors may include the following

- Teachers may not be sure about what each type of giftedness 'looks like' in the classroom. Which type/s are we more/less likely to notice?
- When we plan to teach a topic or an activity, how often do we think about how each type of giftedness
 might interpret the topic or activity? How often do we build inferential tasks into our teaching that match
 each type? How often do we demonstrate a valuing of each type? How do we typically respond to the
 lateral, unexpected, quirky responses of many nonverbally gifted students to the teaching are often
 dismissed as irrelevant. How often do we probe their unusual interpretations and ask them to unpack
 their thinking or look for the intuitive theories that underpinned their responses in our classrooms?
- How often do our assessment tasks work for the multiple ways of being gifted and invite all students explicitly to tell us all that they now know and believe about a topic they've been learning?
- How often do we invite students to share and unpack their interpretations of the teaching? How often do we provide a window of opportunity for this?
- How often do we recognize the factors that can mask the outcomes of their gifted learning in the classroom? How often do we analyse instances of 'laziness', 'boredom', 'classroom management issues'.

Identifying gifted learning and thinking in the classroom

Characteristic of topic learning	What would this look like for		Frequency			
	a topic you are teaching ?		ever	V	'ery	often
Show high understanding, take the ideas apart rather than low level		1	2	3	4	5
interpretation or application, add new ideas to what you've taught						
Link ideas in lateral, broad unexpected ways,		1	2	3	4	5
Keep track of several ideas at one and think in several directions		1	2	3	4	5
rather than simply following the direction you've set						
Think in larger jump, skipping steps in the thinking		1	2	3	4	5
See novel, unusual connections between ideas quickly, infer		1	2	3	4	5
Solve problems or finish tasks in unusual or novel ways, add more		1	2	3	4	5
knowledge than what you taught						
Spontaneously ask complex questions about ideas		1	2	3	4	5
Use imagination or fantasy, show 'intellectual playfulness'.		1	2	3	4	5
Show focused, intense interest in some topics, persevere		1	2	3	4	5
Self – motivated to think and learn about the topic, intense interest in		1	2	3	4	5
some topics						
Differ in how easily they spontaneously and selectively use these ways		1	2	3	4	5
of making sense.						
Monitor and direct their learning; can plan how they will learn,		1	2	3	4	5
monitor their learning, review progress. They don't wait to be told						
how to do tasks.						
Show 'uneven' patterns of learning and thinking		1	2	3	4	5
Show a more extensive vocabulary for topics						

What can make gifted learning difficult to identify in the classroom?

A range of factors can affect how well we can identify instances of gifted learning in the classroom.

The risk of not recognising these instances means that some gifted students will not have their knowledge and understanding valued and validated in the classroom and that they will not receive the appropriate teaching. We need to be aware of the types of factors that can mask gifted learning, so that we reduce the likelihood that they will restrict/prevent gifted students from being noticed in the classroom.

The factors may include the following

1. Teachers may not be sure about what to look for. We often focus on the middle 70 to 80% of students. How often

- do we look for examples of intuitive theories in the responses of our students?
- do we look for the students who are thinking ahead of us as we teach?
- when we are planning to teach a topic or an activity do we think about what gifted interpretations of the topic or activity might 'look like'?
- do we build inferential tasks into our teaching, note the students who respond at a high level to these do we encourage demonstrate valuing of having students and encourage them to do this?

The lateral, unexpected, quirky responses of many nonverbally gifted students to the teaching are often dismissed as irrelevant. How often do we probe their unusual interpretations and ask them to unpack their thinking or look for the intuitive theories that underpinned their responses in our classrooms?

What can make gifted learning difficult to identify in the classroom?

A range of factors can affect how well we can identify instances of gifted learning in the classroom.

2. How often do our assessment tasks invite students explicitly to tell us all that they now know and believe about a topic they've been learning? Many assessment tasks assess how well the students have mastered the content we taught.

3. We don't have formative and summitted assessment tools that allow us to unpack what they know. If a teacher doesn't know how to analyse, evaluate, unpack the interpretations of the students to see what they do know, they won't recognize the student's advanced understanding. The interpretations of these students can be confusing and challenging for teachers who are looking for the "right answer" or an answer to the question: 'How well has my teaching worked?'

4. Our teaching may not provide a window of opportunity for the students to share what they know. How often does our teaching welcome students to share their intuitive theories, possibilities about ideas? How often do we give students like Tom the opportunity to take us on a journey through what they've learnt about a topic and to tell us all that they know or believe about it?

5. We don't know how to modify or differentiate our teaching to respond to how the students learn and what they know. When we aren't sure of how to respond to a challenge we tend to ignore it.

What can make gifted learning difficult to identify in the classroom?

A range of factors can affect how well we can identify instances of gifted learning in the classroom.

7. Other gifted students may also have learning profiles that mean they have difficulty learning literacy and or numeracy skills. Restricted reading and spelling skills limit a student's ability to engage effectively in the classroom teaching and to share and display their knowledge. Teachers can focus on the student's poor spelling or word reading and not 'see' the higher level understanding

8. Some gifted students may also have difficulty actually sharing their advanced understanding with their teachers. Some nonverbally and procedurally gifted students may lack the words necessary for talking about their imagery or action understanding. If the teacher doesn't ask the student: "Just tell me what you see in your mind", "Draw a picture to show me what you're thinking" or "Act out what you are thinking", the student may simply not bother communicating their understanding.

What are the implications of not noticing? Ultimately we deny students the optimal life options. To what extent do these factors these factors impact on gifted learning in your school?

What are the implications of not noticing? Ultimately we deny students the optimal life options. To what extent do these factors these factors impact on gifted learning in your school?

Your turn 6 : Infer from the content

Padlet 4 Activity - https://padlet.com/markeoliver/aqofe5teulp3129b

- How might you identify instances of all types of gifted learning in the future?
- How might your teaching in the future provide a window of opportunity for all types of gifted students to share what they know?
- How do our assumptions about how students learn match students' learning profiles?
- How often do our assessment tasks work for the multiple ways of being gifted and invite all students explicitly to tell us all that they now know and believe about a topic they've been learning?

Mentimeter Slide 11 (Multiple Choice)

• When we plan to teach a topic or an activity, how often do we think about how each type of giftedness might interpret the topic or activity?

Mentimeter Slide 12 (Open-ended)

• How often do we build inferential tasks into our teaching that match each type?