

A personal perspective on giftedness

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Each of us has our own perspective on giftedness. Mine is from the perspective of knowing and learning in the classroom. How do those students we called gifted do this?

Learning involves forming mental models of the information to which we are exposed. Some students essentially convert Information to knowledge.

Others do more than this. They are intrinsically motivated to extend the knowledge by implementing spontaneously a range of thinking strategies. They infer, analyse, synthesise evaluate and generate intuitive theories about the information. These theories have the potential to lead to enhance knowledge and talented outcomes.

I will describe how we can identify and interpret gifted interpretations of the topics we teach in the classroom, and unpack how this model explains higher IQ scores, creativity and twice exceptionality.

Our pathway

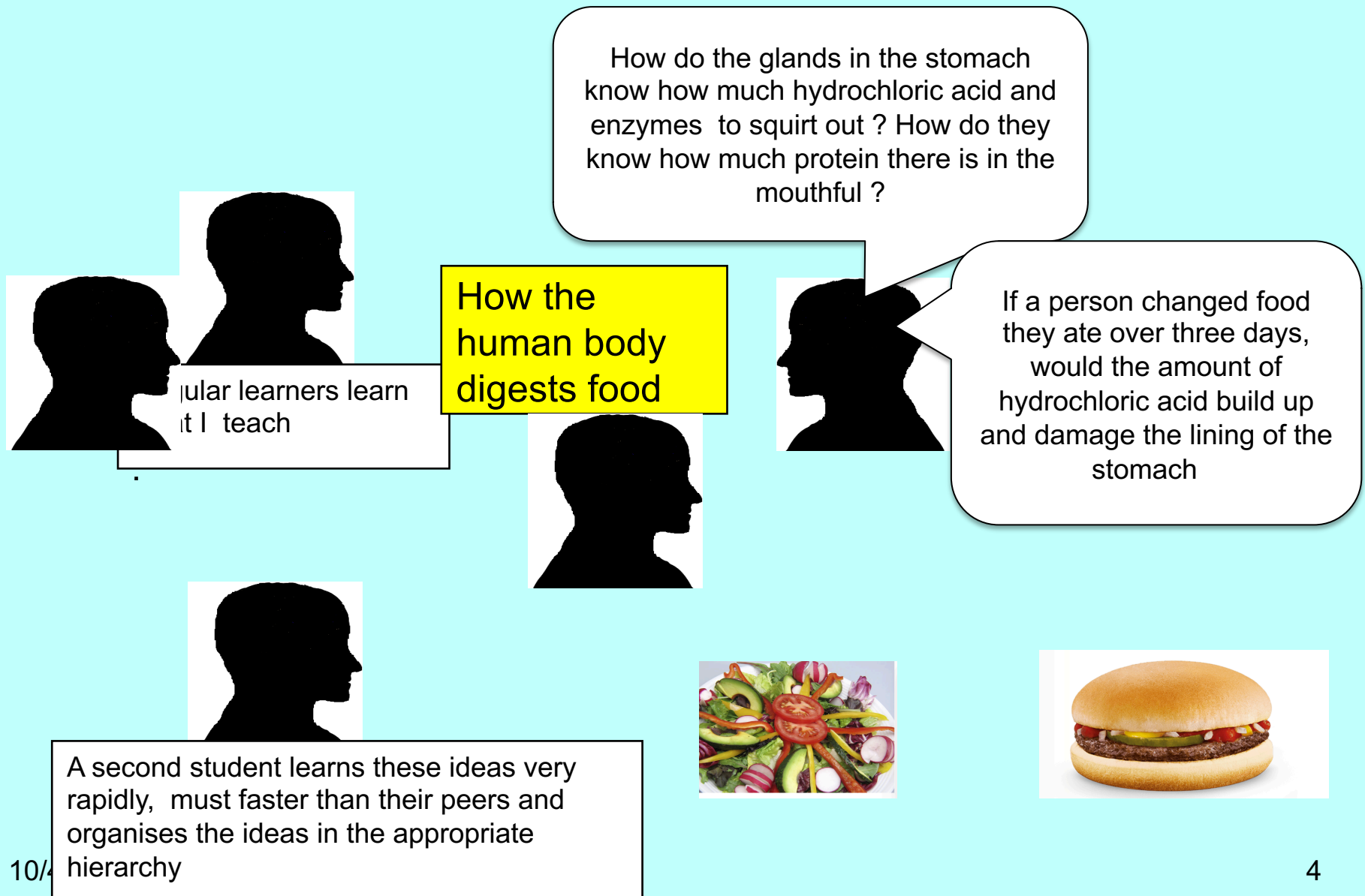
What gifted learning look like in the classroom

The characteristics of gifted learning

Multiple ways of being gifted

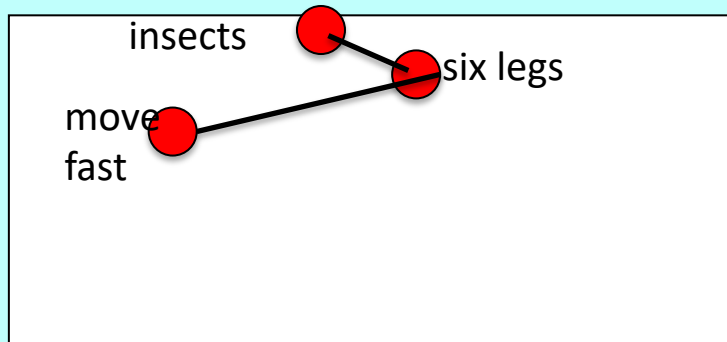
Application to gifted education

High ability interpretations of teaching

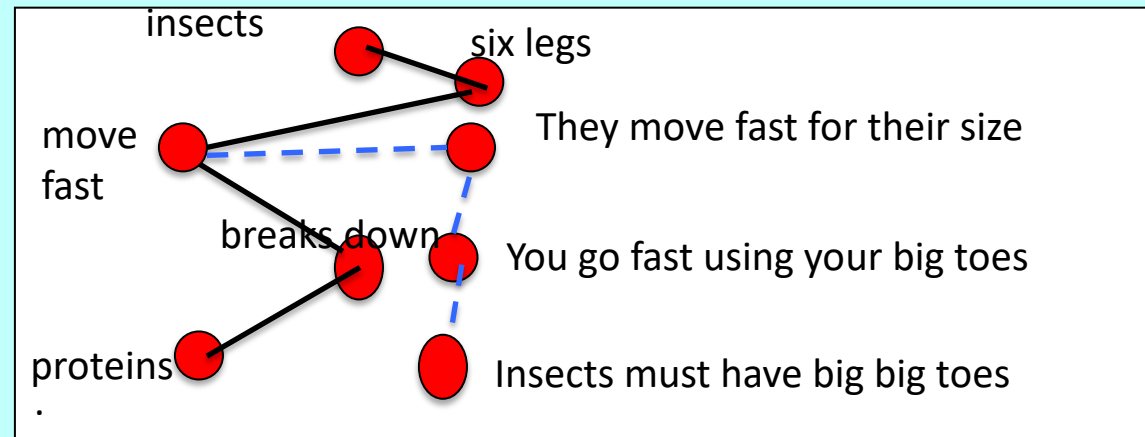


Describe change in understanding of insects

Regular learners are programmed by teaching.



Gifted learner extends the knowledge from the teaching



They form an essentially literal understanding of the teaching information.

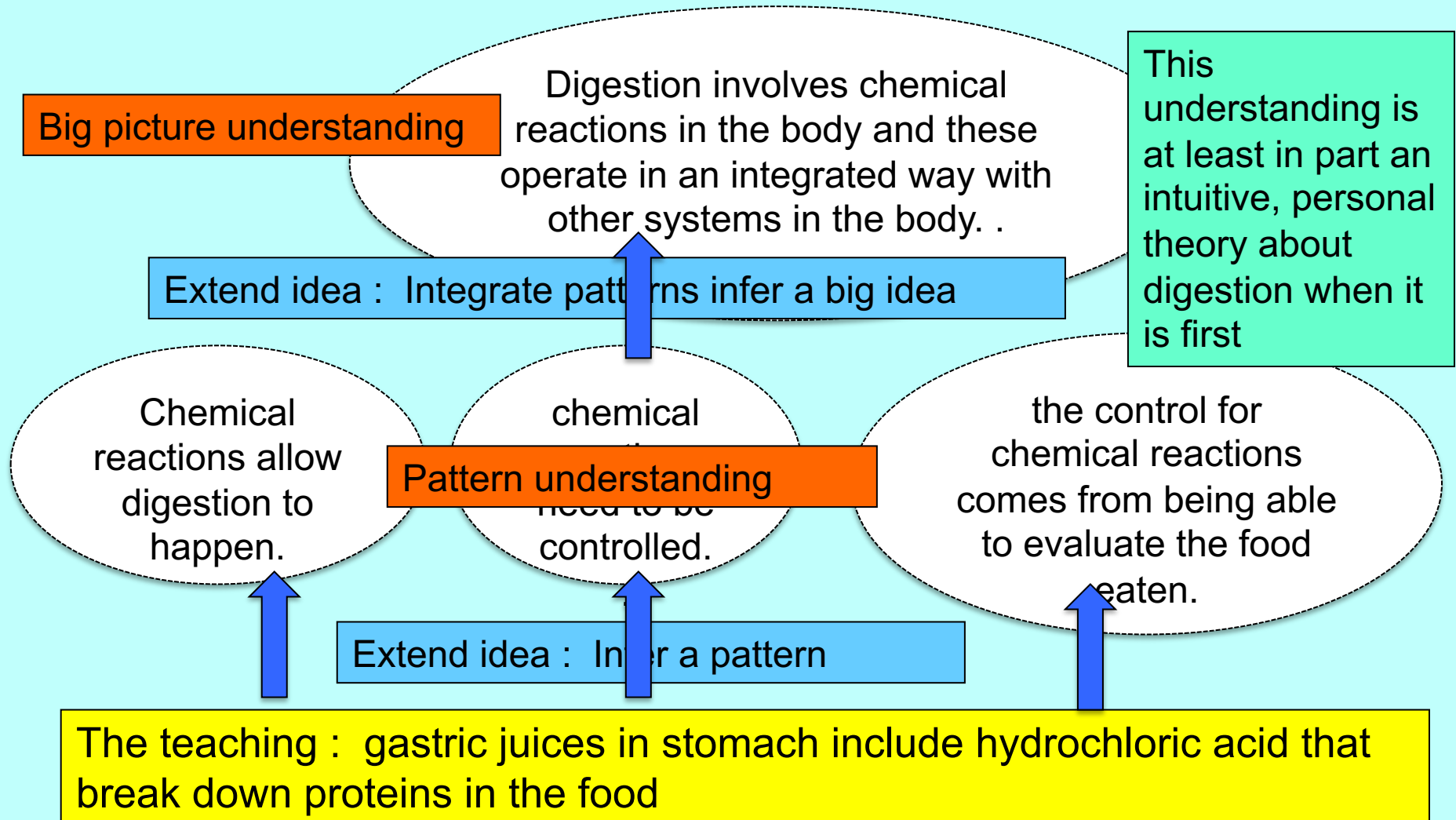
They may infer and extend spontaneously what they have learnt beyond the teaching but their inferences are usually low level.

Gifted learner infer an intuitive theory by making richer links.

Gifted responses comprise both links from the information and links made by the student. They

- analyse and extend the teaching information. Their responses show evidence of two or more inferences; they infer patterns that extend their knowledge
- synthesize the inferences into a big idea. They form a 'personal intuitive theory' about the information.

The characteristics of the gifted understanding



Characteristics of gifted interpretations of the teaching information

- They have more inferred concepts, often gained through fluid analogistic reasoning
- The concepts are organized into more semantically complex propositions.
- The propositions are organized around one or more inferred main or big ideas. The students are more likely to impose hierarchies or to hierarchicize subjectivity.
- The interpretations have the properties of an intuitive theory that can be tested by the learner. They may include propositions that are logically inaccurate.
- they are subjectively 'problem-solution' directed; the student is motivated intrinsically to 'know more' and to reduce uncertainty about the issue.
- an intuitive theory at any time is speculative; gifted thinkers are motivated intrinsically to test, evaluate and modify it.
- The interpretations can be analyzed in their complexity using semantic analysis procedures that compare and categorize the propositions and match them with the teaching information.

We need to look for these in our teaching.

Ways of thinking shown by high ability learners

Gifted students

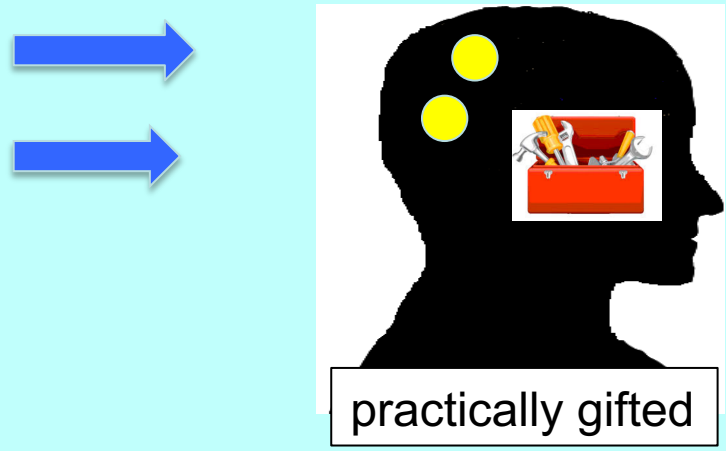
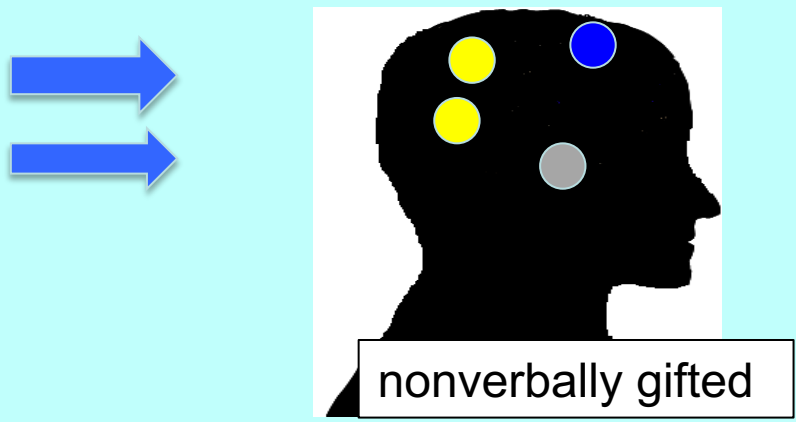
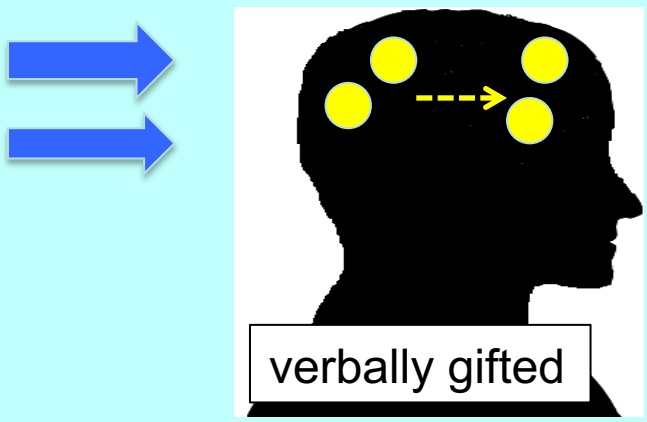
- use the thinking strategies spontaneously and independently. They direct or 'self-regulate' their thinking and learning spontaneously and efficiently. They set goals, plan, self-check, focus, persist.
- use higher level more complex thinking strategies such as problem-solving strategies more flexibly and shift from between strategy more easily.
- think in 'larger chunks' , retain more knowledge about a topic in their thinking spaces.
- scan and interpret the teaching more quickly and efficiently, search what they know more rapidly and re
an **The teaching in the classroom needs to facilitate and foster this** easily
- infer and synthesize at a higher level, form subjective patterns and personal rules for the information and 'big ideas' way.
- make analogies between topics that seem unrelated to others, 'see' similarities between topics that may seem superficially different, cross 'topic boundaries', make 'far transfer' between topics and link them in unexpected, lateral, novel ways and use what they know about one topic to comprehend a second topic.
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- differ in how they are programmed by the teaching. Some are easily programmed and need fewer learning experiences to acquire an idea. Others, particularly those who engage in analogical thinking, are more 'self programming'.
- organize and re-organize the ideas that comprise their new understanding in more complex ways. They recognize and infer the main idea/s in information more rapidly than their peers.

Ways of thinking shown by high ability learners

Gifted students differ in how they interact socially in the classroom culture:

- Some share what they know successfully with peers. They can 'read' well what others know, think and how they feel and align with it. They show high leadership awareness.
- Some have difficulty sharing what they know. They seek 'like thinking' peers (older students and adults) who accept their knowledge, their intense interest and commitment.
- Some hide their higher understanding. They haven't developed ways of sharing it and aren't sure of how the culture/s will respond to them. These are the *gifted hidden ability students*.
- Some are dis-engaged or alienated from particular cultures, such as the classroom. These are the *gifted emotionally disengaged students* described later.

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.

- structure and fit together the ideas in their own ways and check their interpretations against the information

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

Their inferring is in the general direction of the information

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

Texts use a

'Different s
for maths c

Verbal gifted

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.

Creative intellectual gifted

Visual –spatial gifted

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

- Their inferring is in directions unexpected by others

I wonder if X might cause Y?

- 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.

This matches Renzulli's (1981) 'creative intellectual giftedness', Tannenbaum's 'functional knowledge' and Sternberg's 'creative intelligence'

Creative intellectual gifted

Visual-spatial gifted

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.

The type of giftedness used on the internet

Multiple ways of being gifted: Procedural or action giftednesss.

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
 - integrate action se
 - modify their action
- Practically gifted = inferring through actions

Inferring is in directions unexpected by others

I wonder if I do it that way will I.....?

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 → 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'.

Fluctuating high achievement in the classroom –twice exceptional

Show high achievement
intermittently

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

Need to differentiate
teaching to match how
students learn

gifted students from
'minority' cultures

gifted students with
psychological issues

gifted disengaged students who are disengaged from the social context of the regular classroom and show an on-going negative emotional disposition to school because their knowledge is not valued or acknowledged and their lack of positive identity in it.

gifted hidden ability students who have low self or social identity and who seek to avoid appearing to be different from their peers.

How can we use this to describe the quality of a gifted student's understanding

How we can 'see the interpretations gifted students form spontaneously form about the teaching information that they link into intuitive personal theories about the ideas?

You can use this rubric to evaluate the intuitive theory formed by any student

The student's understanding or response shows they

- link the ideas only in ways that match the information presented in the teaching
- infer spontaneously one additional idea, attribute, or property or infers one unstated link between ideas in the information in the context
- infer two or more single additional ideas, attributes or infers two or more unstated links between ideas in the information in the context
- synthesize several (or all) of the inferred examples or attributes into a pattern? They 'get above' the examples and see the shared general feature in the context
- link the infer pattern with matching patterns in other contexts; make or infer far transfer and see it more generally or 'abstractly'.
- link two or more inferred patterns into trends, infer how one pattern might affect other patterns or show what is shared by the various patterns.
- identify what several patterns have in common or how they affect each other; did they 'think above' the separate relationships, they generalize the patterns
- form a 'big idea' understanding by generalizing the patterns.

What types of inferences and syntheses can we observe in the Year 8 science student's response

How we can 'see the interpretations gifted students form spontaneously form about the teaching information that they link into intuitive personal theories about the ideas?

How do the glands in the wall of the stomach know how much acid to squirt out?	this could indicate the intuitive theory if the other ideas are consistent with it and support it.
You said that too much acid could cause ulcers.	mentioned in the teaching
If I had a big Maccas today and a salad yesterday my stomach would need different amounts of acid.	inference by creating virtual experiences. Foods differ in their proteins and therefore how much acid they need.
I don't think I have ulcers in my stomach and so somehow my body controls it.	inferred a trend: that the release process must be controlled like other processes in her body.
Do I work it out with my eyes ? Do they somehow work out how much acid I would need for food I will eat?	inferred a possible trend
There may somehow be detectors in my stomach that see how much protein is in the food.	inferred another possible trend
I'm not aware that I do it. It must happen subconsciously.	infers common features of the trend

Diffuse social problem solving procedures shows gifted thinking

How students use their knowledge and thinking in an integrated, directed way to solve authentic problems appropriate to their culture' .

Problem solving helps gifted students show their ability to

- link ideas in richer, more differentiated and elaborated ways, show 'far transfer' links between concepts.
- reflect on what they know and to link problems or issues with what they know.

This ability typifies Sternberg's practical and tacit knowledge.

Example of diffuse problem

A situation that needs to be improved

Some people in Kenya live in places called slums. In slums, lots of people live close together. Their houses are tiny and are made of things they can get easily. They use mud, tin sheets and wood. In a slum it is also very hard to get clean water.

Many children in the Kibera slum catch killer diseases. These include malaria, scabies, trachoma and diarrhoea. They are caused by the pollution of water sources. The water has been polluted because animal wastes, sewage and rubbish has been put in it.

Young children are most likely to die from these illnesses. In slums, deaths from poor cleanliness and lack of safe water are much higher in slums than in non-slum areas.

Experts say a healthy childhood needs safe water and being clean. There are two parts to being clean. You can keep yourself clean and you can keep the area around you clean.

In houses in the slums, people don't do things that keep the water clean. They don't protect it from things that cause disease. They use unsafe ways of getting rid of rubbish and unhygienic food preparation. These make an unsafe environment that cause health risks.

Water scarcity makes it difficult to maintain personal hygiene. Both have harmful effects especially for children.

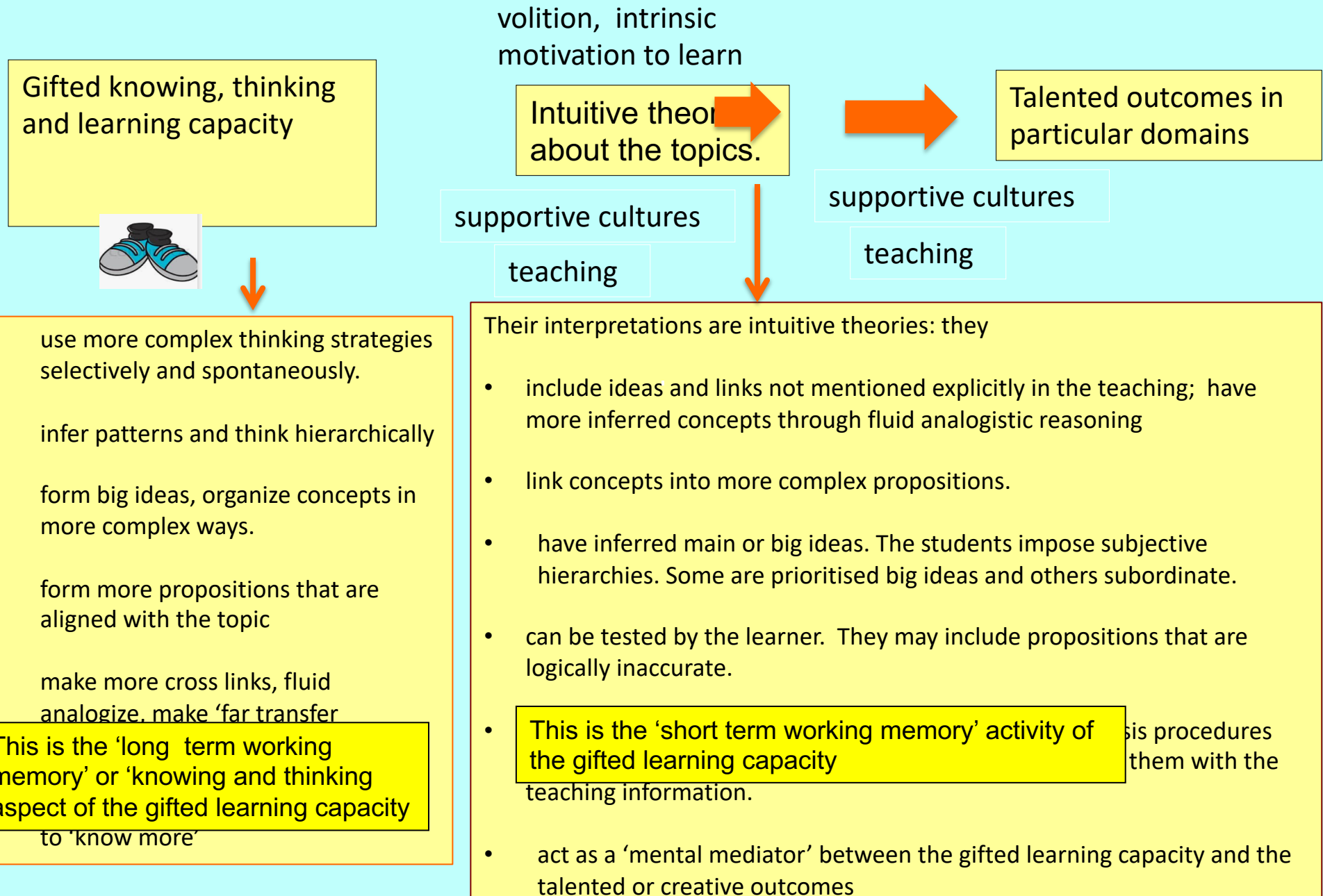
What are the problems describe in this situation ? How would you solve it. What problems could you face in solving it ?

How to probe each aspect of problem solving.

The questions used to cue student thinking about each aspect

Identify and describe	Cue questions
<ul style="list-style-type: none">the main problem	In your opinion, what is the problem?
<ul style="list-style-type: none">a solution.	What would the situation look like after the problem is solved?
<ul style="list-style-type: none">the actions needed to solve the problem.	What do you think you would need to do to solve the problem? List as many things as you can think of.
<ul style="list-style-type: none">the information/assistance you would need to solve problem.	What do you need to know to do these things? Say these as questions you want answers to.
<ul style="list-style-type: none">obstacles and difficulties in implementing their solution.	What things might make it harder to solve the problem? List as many as you can.
<ul style="list-style-type: none">ways of overcoming them.	What could you do to overcome these difficulties?
<ul style="list-style-type: none">people likely to be affected by your problem solving activity.	Pretend you have solved the problem. Which other groups of people may be affected by this?
<ul style="list-style-type: none">how your solution would affect the community.	What effect do you think your actions would have on these groups?
<ul style="list-style-type: none">how to monitor the effectiveness of the solution.	How could you tell if your solution was working?
<ul style="list-style-type: none">solution in an integrated, coherent way.	

Suggested modifications to DMGT for teaching



How can we use the intuitive theory to understand and support gifted students' well-being

Well-being is determined by

what you know about yourself (self identity)



what you know about how others value you (your appraisal of social feedback)

Not only do gifted students infer about topics at school. They often infer about life events more generally, what might happen in social situations, what might happen in the world, what might happen in the future.

Some gifted students through their interactions with others in their cultures

- develop feelings of a lack of acceptance, aloneness, social isolation,
- self-doubt,
- a mistrust of how others will respond to what they genuinely think and know.

These feelings come from the student thinking 'too far ahead', thinking abstractly but not having the experiences that say 'it will be OK'. They don't know what they will do in the inferred contexts – lack coping actions.

They perceived a threat that can lead to emotional stress, perceiving threats where others don't see threats, negative debilitating self talk, not taking risks, prevaricating and procrastinating.

All students have these fears. When a person can think about more ideas at the time, far transfer make a broader range of inferences and possibilities and think faster this can lead to more severe emotional instability

I think it is really important that gifted students identify as gifted and or talented to themselves. Be aware of how they project into the future and how to manage and use in functional ways their inferences. This is particularly important for their ongoing self acceptance, well-being and future thinking. It also impacts on how they try out their intuitive theories about the world, their preparedness to interact with others.

Implications for gifted learning in the classroom?

Where might gifted education provision in the classroom go in the future?

"Not more of 'is the cutoff at the top 2 %ile point'.
We describe gifted learning and knowing in terms of
how students know and think vs in terms of IQ.

How can we use IT to provide adaptive assessment
and identification criteria for the multiple forms of
giftedness. These can assess 'all that a student
knows' vs how well does the student go on
specified tasks.

How can we improve the professional knowledge of
educators and schools re gifted education? A key
aspect of this is mapping research into practise and
teacher decision making.

How can we make gifted learning more visible to
teachers in the classroom?

How can we include the gifted student voice in
teacher professional development activities?

How to construct a model of gifted learning and talent development that looks for the 'big ideas and
similarities as well as the differences in perspectives.

We ask: How are they gifted ? vs How gifted are they?

We differentiate both the teaching and the
curriculum in terms of the inferences, analyses and
syntheses we cue and scaffold.

We now have IT capacity to differentiate teaching
and also to provide learning opportunities.

Access to enhanced mentoring
learning opportunities

We provide an education that focuses on the gifted
student as an 'integrated whole', that draws on
models of networked knowing and learning systems.

The dialogue about 'needs'. Is it gifted students
who have needs or their educators? Students
have learning profiles.

My thank you for the award. I value greatly the recognition it brings.

My very best wishes with your important work in this area in the future