

Strategies for Increasing Choice and Voice of Gifted Learners

Wendy Behrens
State Director of Gifted Education
St. Paul, Minnesota
wendy.behens@state.mn.us

Diane Heacox Ed.D.
Professor Emerita
St. Catherine University
St. Paul, Minnesota
dgheacox@gmail.com

Behrens, Heacox 2019

Essential Elements for Increasing Highly Capable Students Interest and Passion in Academics

- cognitively complex tasks that are meaningful and challenging
- posing and solving real problems
- opportunities to incorporate outside interests and future plans
- choice over the kind of activities they work on
- some control over how they complete tasks.

Fredricks 2010



Behrens, Heacox 2019

The Processes of Differentiated Instruction

Differentiate **Content**

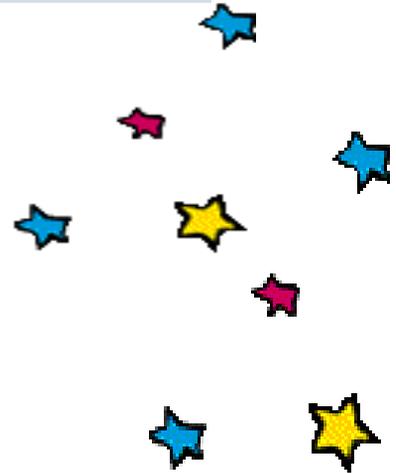
How students will access content.

Differentiate **Process**

How students will actively work with the content.

Differentiate **Product**

How students will exhibit their learning.



Behrens, Heacox 2019

Meta-analysis of 41 Studies on Choice

There is a strong link between giving students choices and their *intrinsic motivation* for doing a task, their *overall performance* on the task, and their *willingness to accept challenging tasks*. (Patall, Cooper & Robinson 2010)



Teachers may consider offering fewer choices to less experienced students and expanding choices with more **advanced learners**. But the transition from fewer to more choices should be *gradual*, sometimes spanning several months. (Guthrie, Wigfield, & Perencevich, 2004)

Behrens, Heacox 2019

Access to Content Choices	Process Choices	Product Choices	Work Arrangement
<i>Learning from:</i>	<i>Learning how, learning through:</i>	<i>Exhibit learning through:</i>	<i>Working:</i>
Textbook pages Website Articles from news source Simulation Podcast Primary documents Video/film clip Lecture Speech TED talk Story Essay Letter Newscast Face to face Interview Phone or skype interview Webinar Online tutorial Online or onsite research Observation Display/artifacts Experiment/lab Timeline <i>Graphic</i> non-fiction Graphic narrative Journal or diary entry Chart/table/graph Annotated poster or illustration Photograph etc.	Discussion Demonstration Modeling Inquiry Topic web Graphic organizer Notetaking strategies Summarizing Collaborative task Data collection, analysis Drawing conclusions Examining viewpoints Determining fact/opinion Judging accuracy (error analysis) Identifying relationships Compare/contrast Making analogies Determining metaphors Examining alternatives Making inferences Predicting results Keeping a log Recording data Identifying cause/effect etc.	Verbal Linguistic Dialogue Essay Letter/email Brochure Logical Mathematical Chart/graph Survey Venn Diagram Hypothesis Visual Spatial Illustration Model Photograph Cartoon Bodily Kinesthetic Demonstration Invention Dramatization Labs Musical Composing lyrics Rap Slogan/jingle Music montage Interpersonal Organizing others Interview Message board Debate Intrapersonal Diary/journal Opinion Review/critique Blog Naturalist Collections Classifications Simulation Observations Existential Moral & ethical dilemmas Care, concern for others Examining beliefs, viewpoints <i>Consult expanded Multiple Intelligences or modality lists.</i>	Alone With a partner of your choice In a small group no larger than three members of your choice.

Behrens, Heacox 2019

Access to Content:

Student are shown video clips and photographs of marble runs.

Process: Learning through...

Using the design process, the student may choose to:

- Examine alternatives to improve an existing marble run.
- OR
- Formulate a plan for constructing an original marble run.

Product:

Alone or with a partner, construct a model of your marble run and participate in a marble run contest in our classroom



Behrens, Heacox 2019

Grade 5 Engineering/STEM

Access to Content

Teacher reads the **story** *A House is a House For Me* to the students.

Process: Learning through...

Class **discussion**: Examples of the house and home from concrete to abstract concepts. A new idea is **modeled** with the teacher. “What could a hat be home for?” e.g. haircut, thoughts, a magician’s bunny, warmth, dandruff.

Product

Individually, students construct either a **poster or flip book** with words or sentences to extend the house is a home concept.

Behrens, Heacox 2019

Access to Content

The teacher shares a **chart** with characteristics of two planets.

Process: Learning through

The teacher **models** the process of **comparing and contrasting** how planets are alike and different.

Students engage in a *table top discussions* using the chart to consider how these two planets are alike and different. Tables share their conclusions with the class and a like/different chart is constructed on the interactive whiteboard.

Product

Independently, students choose and consider two other planets and determine how they are alike and different. And:

- create an email from one planet to the other talking about how they are alike and different (VL)
- draw a cartoon strip sharing how they are alike and different (VS)
- construct a Venn Diagram of how they are alike and different (LM)

Behrens, Heacox 2019

Grade 3 Science

Access to Content:

Review the engineering design process. Watch and discuss an online video about inspiration and creative processes used in invention.

Process: Learning through...

Using the inquiry process as well as the design process, identify an household or school object that would benefit from improvement. Examine alternatives, consider problems with the object and improve it by doing one of the following:

- Combine your object with another existing object (s) to improve it.
- Eliminate or substitute part of the object to improve its function.
- Design a totally new object that solves the problem.

Product:

Individually, create a model or an annotated sketch of your improved object.

Behrens, Heacox 2019

Grade 4 STEM engineering

Access to Content:

Review textbook pages or a targeted webpage on changes on the surface of the Earth. Choose two causes from the following: weathering, earthquakes, coastal erosion, glacial erosion, volcanic action, hurricanes, draught, landslides, wild fires, water erosion, sand and sediment deposits, monsoon rains, katabatic Antarctic winds.

Process: Learning through...

Choose *one* of the following:

- Identifying critical attributes of two causes and comparing and contrast them.
- Identifying critical attributes of two causes and assemble evidence of how each changes the surface of the Earth.

Product:

Individually, create a presentation with graphics utilizing your choice of technology.

Behrens, Heacox 2019

Grade 4 geography

Access to Content

With a partner, watch a **newscast** or **read an online article** from two different sources relating the same incident. (e.g. CNN, BBC, FOX, MSNBC, NBC, CBS, NY Times, Boston Globe, Huffington Post)

Process: Learning by...

Examine the factual information provided as well as the **viewpoints or perspectives** presented on the incident.

Product

Compare and contrast the two reports and share your perspectives and viewpoints through:

- **charts and graphs** LM
- **an email to the news sources** VL
- **a point/counterpoint argument** INTRA

Behrens, Heacox 2019

Access to Content

Observation of an **everyday event of your choice**. e.g. meal choices, backpack or book bag, kinds of sneakers, number of students using the bus in a particular week (grades??).

Process: learning by...

Students **record data** about their event.

Product

Share your data and conclusions through:

- presentation with **graphs, charts** produced with technology LM
- **Prezi** presentation VS VL
- video presentation of a **news story** VL BK

Work Arrangement

Choice of working independently or with a partner

Behrens, Heacox 2019

What are the most effective scoring strategies in football?

Access to Content

Interview with world cup winner

Highlights video clips

Online article with an interview with football coaches

Process: learning by...

Discussion with content alike partner.

Product

Share your conclusions through:

- Training **brochure** VL VS
- Least effective/most effective **charts and graphs** LM
- **Annotated illustrations** VS VL

Work Arrangement

Working independently, discussion **with partner**, independent product

Problem based learning involves the student in defining the problem that is answered through their work. There is no predetermined outcome.

However, the student follows specific, prescribed steps in the process. (What would be the essential elements to include in a plan for the school garden?)

The student investigates the problem using their prior knowledge as well as new knowledge built from their research. The duration of the process is usually short term but depending on the scope of the investigation may be lengthy. The study itself may be the result of their work. The study may be presented or shared with others.



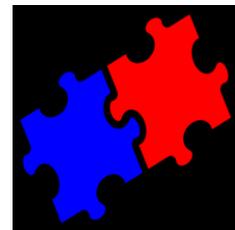
In project based learning, the student defines the final result of their work prior to its start. (I want to design a plan for the school garden.) Then students establish a way to pursue the work. The student is given some general but flexible steps in their work process. Students typically combine current knowledge with their research or experimentation results. The duration of the project is most frequently several weeks or even months. Project based learning results in a tangible product or performance.



Behrens, Heacox 2019

Problem Based Learning and Project Based Learning Commonalities

- Student centered learning
- Focus on open-ended tasks grounded in real life applications
- Emphasis on student independence and *inquiry*
- Teachers as facilitators
- Requires critical reflection and analytical thinking
- Advances student prior knowledge on a topic or idea
- Requires goal setting
- Encourages hypothesis testing
- Delivers content and skills reflecting academic standards
- Authentic applications of content and skills



Behrens, Heacox 2019

Steps in Problem Based Learning

Adapted from L.D. Spence, Pennsylvania State University



1. Explore the issue.

The teacher introduces a relevant, engaging problem that lacks a single course of action or answer. Problems relate to required academic standards. Students explore the significant parts of the problem and gather additional information related to the problem. Students engage with content, learn new concepts, principles, or skills as they proceed through the problem solving process.

2. List what you know.

Make a list of what you now know based on your exploration.

Behrens, Heacox 2019

3. Develop a problem statement.

The problem statement must reflect what you know as well as what you will need to know in order to solve the problem. Following are formats for the problem statement.

Write a problem statement choosing one of the following formats:

< In what ways might we (statement of the problem, challenge, issue) ... so that (what will result from the resolution)...

In what ways might we convince students to stop bullying so that all students can learn in a safe school community?

< How might we (statement of the problem, challenge, issue)...so that (what will result from the resolution) ...

How might we convince students to stop bullying so that all students can learn in a safe school community?

Behrens, Heacox 2019



4. List all possible solutions.

Once listed, order your solutions from your strongest to your weakest solution.

5. Now...what do you need to know?

Analyze the information and/or data that you collected.

What else do you need to know or do to solve the problem?

Consider if there is additional information you need to move your solution into action. What resources, materials, experts, websites etc. may you still need to find?



Behrens, Heacox 2019

6. Write your “best” solution and provide support for your decision.

Share the information and/or data you collected and your analysis of that information or data.

7. Present and be able to defend your solution.

Demonstrate your learning by sharing your findings with teachers and classmates as well as other individuals or groups as appropriate to the problem and solution.

8. Reflect on the strengths of your work.

Consider what you would change if you did the work again.



Behrens, Heacox 2019

Science, Technology, Engineering and Math (STEM)
Identify and solve an engineering design problem.

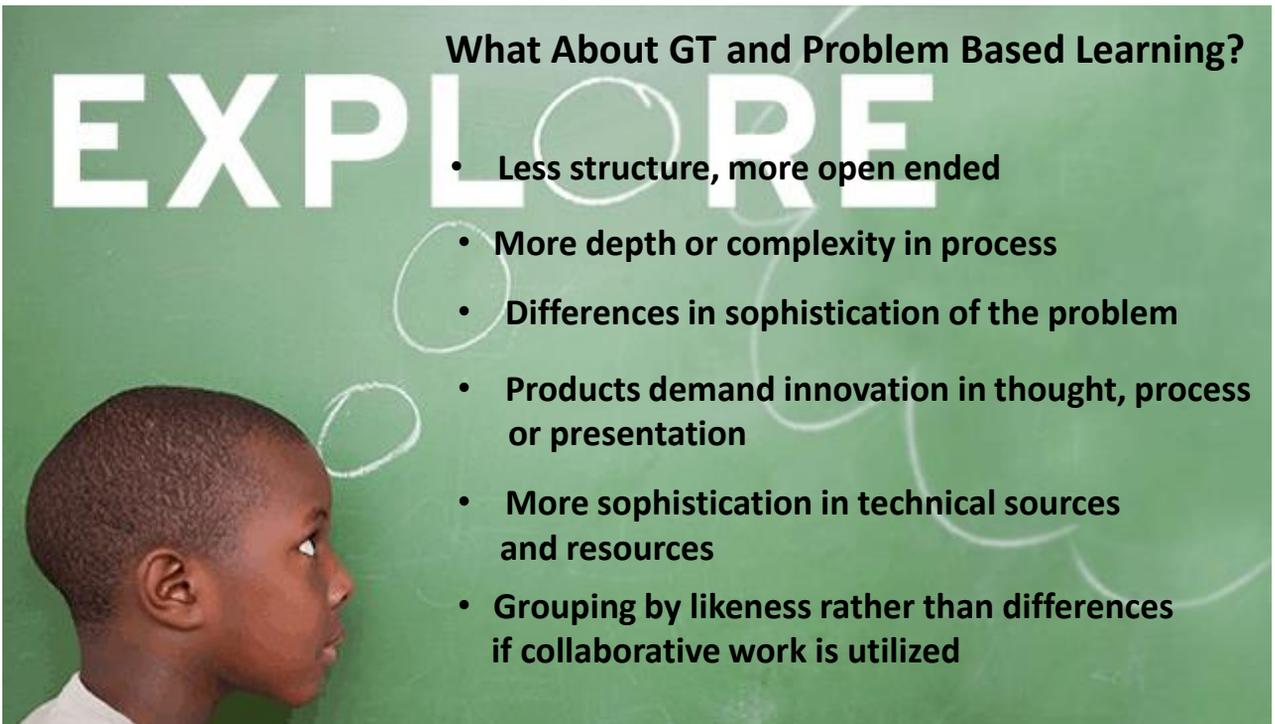
Task One

1. Identify an engineering design problem. Refine the design to ensure quality, efficiency, and productivity.
2. Create a *prototype, construction paper model, clay sculpture or simulated model* of your product.
3. Write an explanation of your design process and describe the ways in which the product was refined.

Task Two

1. Identify an engineering design problem. Refine the design to ensure quality, efficiency, and productivity of the final product.
2. Create a *mechanical drawing* of your product.
3. Write an explanation of your design process and describe the ways in which the product was refined.

Behrens, Heacox 2019

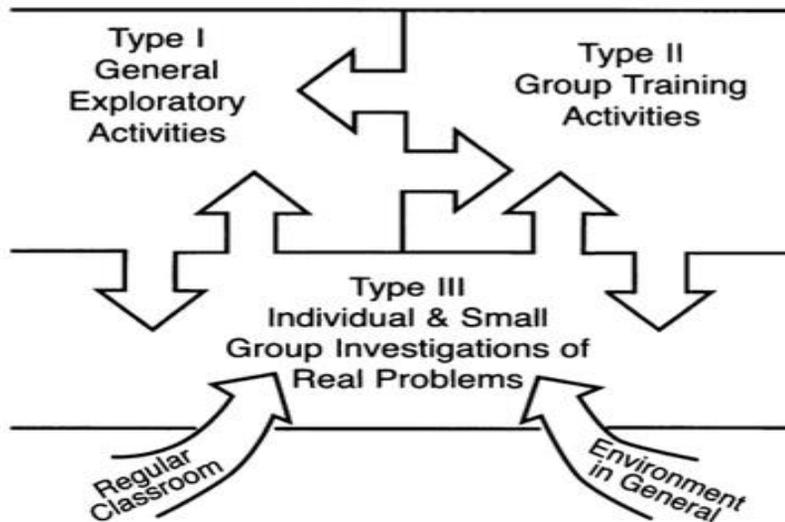


What About GT and Problem Based Learning?

EXPLORE

- **Less structure, more open ended**
- **More depth or complexity in process**
- **Differences in sophistication of the problem**
- **Products demand innovation in thought, process or presentation**
- **More sophistication in technical sources and resources**
- **Grouping by likeness rather than differences if collaborative work is utilized**

Renzulli Triad



Project Based Learning in Classroom Practice

High quality project based learning reflects:



- Key knowledge, understanding, and success skills
The project is focused on academic standards and skills such as critical and creative thinking, problem solving, collaboration, and self-management.
- A challenging problem or question
The project seeks to solve a meaningful, open-ended, engaging driving problem or question posed at an appropriate level of challenge.

Behrens, Heacox 2019

- Sustained inquiry

The project involves the student in an active, rigorous, in-depth process over time. The student continually poses questions and seeks and locates resources as the answer is developed.

- Authenticity

The project is set in a real-life context, uses real world processes, tools and standards, and makes an impact and/or reflects personal questions, concerns, interests or issues in the students' life.



Behrens, Heacox 2019

- Student voice and choice

The project allows the student to make decisions related to how they will work and the products they create. They are guided by the teacher in the process.

- Reflection

The students actively reflect on their learning, the effectiveness of their progress and the quality of their work.



Behrens, Heacox 2019

- Critique and Revision

Students receive descriptive feedback on their work to enable them to revise and refine process and product as necessary and appropriate.

- Public Product

Students demonstrate what they have learned by explaining, displaying and/or presenting it to people beyond their classroom.

Buck Institute for Education (2015)



Buck Institute for Education (2017) Retrieved from www.bie.org Project Based Learning

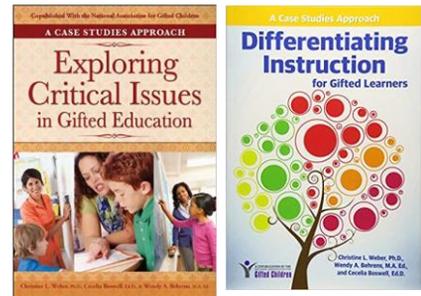
Behrens, Heacox 2019

EXPLORE

What About GT and Project Based Learning?

- Innovation in thought, ideas, processes or projects is expected.
- Less scaffolding of the process.
- More sophisticated, technical or varied sources and resources.
- Freedom to think outside the box, go beyond typical responses.
- Greater depth and/or complexity in projects.
- Grouping by likeness rather than differences if collaborative work is utilized.

Wendy A. Behrens
 Minnesota Department of Education
wendy.behrens@state.mn.us
books available in exhibit hall Prufrock Press



Diane Heacox Ed.D.
 Professor Emerita
 St. Catherine University
dgheacox@gmail.com
*books available at
 freespirit.com
 25% discount & free shipping
 Use code DIFFGIFT*

