

# Why Do Gifted and Able Students Need to Learn to Think about the Future?

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In our current fast-changing world it is our obligation as educators to prepare the students for life, meaning give them the right tools and skills to prepare for the future and control their lives. This is true for every student, but particularly important for the gifted and able ones who will be the next generation of leaders, scientists, and academic scholars taking humanity to the next level of development (Vidergor, 2018).

## What is Future Thinking Literacy?

Developing future thinking according to Vidergor (2018) involves the development of different literacies. These literacies include: Language literacy (Keefe & Copeland (2011); Scientific literacy (Dillon, 2016); and information/digital literacy (Buckingham, 2015). It also involves thinking processes like: critical thinking (Halpern, 2014); creative (de Bono, 2006; Ferrari & Wyse, 2015); inventive thinking (Eberle, 1996); and future thinking (Passig, 2004, 2013). In order to develop future thinking the teacher is advised to apply the following teaching-learning strategies: Project Based Learning (Bell, 2010); Problem Based Learning (FPSP, 2001); and Transdisciplinary/Phenomenon Based Learning (Symeonidis & Schwarz, 2016), using latest technology in a blended learning environment (Christensen, Horn & Staker, 2013).

## How Can We Teaching Future Thinking?

The Multidimensional Curriculum Model (MdCM) which was developed by Vidergor (2010, 2015, 2018a, 2018b 2019) derived from general learning theory and development, current curriculum models for teaching gifted and able students, and teaching and learning of the future. The model is comprised of 6 dimensions: Content, process, product, personal perspective, global perspective and time perspective.

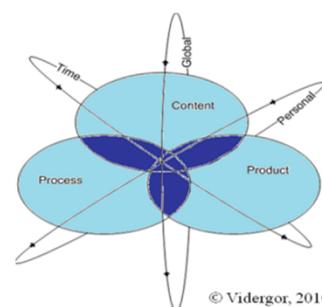


Figure 1: The Multidimensional Curriculum Model (MdCM)

*The content dimension* is comprised of themes, issues, and concepts preferably relating to large interdisciplinary or multidisciplinary concepts.

*The process dimension* consists of working on more than one perspective using different teaching strategies and thinking tools, in a blended learning environment.

*The product dimension* should be multi-categorical, and needs to reflect the new knowledge, or skill gained and accumulated, researching the concept or issue using the various perspectives selected.

*The personal perspective* stresses personal involvement and self-awareness of students and creates interest and intrinsic motivation.

*The global perspective* challenges gifted and able students to look at an issue from the macro point of view, analyze events and concepts by examining similarities and differences, involving cultural, geographical, and other aspects influencing global events and trends.

*The time perspective* prepares gifted and able students to better predict and cope with future changes based on past and present knowledge using certain tools which help them analyze and predict, as well as think about possible personal or global consequences.

### **Thinking Processes Developed by MdCM**

The three thinking processes developed by MdCM are: Scientific thinking – inquiry; Creative thinking – problem solving and inventive thinking; and future thinking.

*Scientific thinking – inquiry, and Creative thinking –problem solving and inventive thinking*, need to be addressed and developed as they lead to *Future thinking*.

### **How can we Design Curriculum Which Enhances Future Thinking?**

As teachers we can use different thinking tools, and teaching learning strategies incorporating latest technologies.

*Tools for developing thinking skills.* The tools for developing thinking skills are:

1. TASC Thinking Wheel (Wallace, 2015);
2. Complex problem solving (Maker, Zimmerman, Paz Gomez-Arizaga, Pease & Burke, 2015);
3. The six thinking hats (De Bono, 2006);
4. Thinking maps (Hyrele, 2011);
5. S.C.A.M.P.E.R (Eberle, 1996); and

6. Future scenario writing (Vidergor, 2018b)

**Teaching-learning strategies.** Teaching strategies utilized by MdCM include:

1. Project-based learning (Bell, 2010);
2. problem-based learning (Isaksen & Treffinger, 2004; Savery, 2015); and
3. Phenomenon Based Learning (Silander, 2015a; Silander, 2015b; Symeonidis & Schwarz, 2016)

**Incorporating latest technology.** Creating flexible blended learning environments, enhancing the use of technology and authentic use of language, and dealing with relevant issues (Christensen, Horn & Staker, 2013) could be enhanced by the use of:

1. Mobile phones as part of Bring Your Own Device (BYOD);
2. using game-like apps, tablets, learning apps (An, 2014);
3. MOOCS (Brahimi & Sarirete, 2015);
4. Collaborative game-based leaning (Sung & Hwang, 2013);
5. 3D printers (Schelly, Anzalone, Wijnen & Pearce, 2015); and
6. Communicating with guest scholars and debating future issues (Palmer, 2014).

**For more details and elaboration on:**

- the curriculum model, application and professional development for teachers; and
- final product named Future Scenario written in groups

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