Describe key characteristics of digital learners.

Draw out implications for curriculum and instruction in Catholic schools.

What differences have you observed in how your students learn now compared to 10 years ago?
Our students’ brains are different.

Old Brain Science Beliefs

• Born “hard-wired” at birth, stable by age of 3 with fixed number of brain cells.
• Fixed memory, Fixed processing power, Fixed intelligence

Neuroplasticity

Brain is plastic throughout our lives based on...
• experiences we have
• intensity and duration of inputs

By age 21, this digital generation will have:

• played more than 10,000 hours of video games
• sent and received 250,000 emails and text messages
• spent 10,000 hours on the phone
• watched more than 20,000 hours of TV
• seen more than 500,000 commercials

Fun Facts

• Eye processes images 60,000 times faster than words
• Nerve cells in brain devoted to visual processing = 30% of cortex
• 8% = touch
• 3% = hearing

Digital bombardment has a particularly strong effect on the visual cortex.
University of Rochester Study

When information is presented orally, remember only 10% after 72 hours.

a.k.a. ---3 days after lecture, retain 10% of content.

Add pictures with the content, students remember up to 65%

Remember content of over 2500 pictures with 90% accuracy several days later; 63% after one year.

3M Study

- 100 photos to Digital Natives = 90% recall
- 100 photos to Digital Immigrants = 60%
- 100 photos to Digital Dinosaurs = 10%

We are used to black text on white background

This generation prefers these combinations

COLOR

Visual Kinesthetic
21st Century Fluency Project

http://www.21stcenturyfluency.com/

Natives prefer...
1. to access information quickly from multimedia sources
   A.K.A
   Use internet
   Use cell phones
   Use lap tops

Immigrants prefer...
1. slow and controlled release of info from limited sources
   A.K.A
   Print handouts
   Power points
   White boards
   Ban digital devices

Natives prefer...
2. parallel processing and multitasking
   A.K.A
   Problem/task approached in multiple ways, using multiple tools, choices, different sequences

Immigrants prefer...
2. linear processing and single or limited multitasking
   A.K.A
   One topic at a time, step by step sequence, whole class response, teacher-directed Q & A

Natives prefer...
3. processing pictures, sounds, color, and video before text
   A.K.A
   MORE visuals
   Multimedia at the start of learning, Images and video carry the message

Immigrants prefer...
3. to provide text before picture, sound, video
   A.K.A
   Read first
   Anchor work in text

Natives prefer...
4. random access to hyper-linked multimedia information
   A.K.A
   Problems first, finding links, “clicking around” on handhelds, web-spiration

Immigrants prefer...
4. to provide info linearly, logically, sequentially
   A.K.A
   Paper-bound, single path of thought, processing text from beginning to end

Natives prefer...
5. to network simultaneously with others
   A.K.A
   Work together, create together, re-mix, edit and add on

Immigrants prefer...
5. students to work independently before they interact and network
   A.K.A
   Individual student work more highly valued
Natives prefer...
6. to learn “just in time”
A.K.A Problem/task -- what do we need to know to do this

Immigrants prefer...
6. to teach “just in case”
A.K.A Fixed bodies of content, defined subject matter and skills, this content for all in this time

Natives prefer...
7. instant gratification and immediate rewards
A.K.A Active, engaged doing, make decisions often and get good, quick feedback on what they did

Immigrants prefer...
7. deferred gratification and delayed rewards
A.K.A Teacher-directed, paced and structured input, Q & A individual response

Natives prefer...
8. learning that's relevant, active, instantly useful, and fun
A.K.A Problem-driven, real-life connected, using digital tools

Immigrants prefer...
8. feel compelled to teach memorization of content in the curriculum guide
A.K.A Content driven

How could you add more
- Choice
- Visuals
- Relevance
- Problem-solving
- Collaboration
- Creativity
- Feedback
- Real-life

21st Century Skills (www.21stcenturyfluency.com)
- New or 21st century Skills
- Traditional Skills of Increased Emphasis
- Traditional Literacy Skills
- Traditional Skills of Decreased Emphasis
- Obsolete Skills
Teaching trends to embrace

1. Build in more discovery.....

2. Give context to the content.....

3. Give fewer conclusions.....

4. Pose problems first, teach second.....
   - problems lead to questions
   - questions lead to ownership
   - ownership leads to independent thinking
   - independent thinking leads to a culture of autonomy

   The 21st Century Fluency Project
   www.21stcenturyfluency.com

5. Build in a digital component.....
Youth aren’t waiting for traditional models of learning. Peer-based, self-directed and informal learning online squares with my beliefs. Something that squares with my beliefs. Three points to remember. A question still circling.

Ultimately, there are two kinds of schools: learning enriched schools and learning impoverished schools. I have yet to see a school where the learning curves...of the adults were steep upward and those of the students were not. Teachers and students go hand and hand as learners...or they don’t go at all.”

Roland Barth