What is TECHNOLOGY?

Noun

• The application of scientific knowledge for practical purposes.
• Machinery and equipment developed from the application of scientific knowledge.

“Technology is just a tool. In terms of getting the kids working together and motivating them... the teacher is the most important.”

-Bill Gates

“It has become appallingly obvious that our technology has exceeded our humanity.”

-Albert Einstein

(Retrieved from Meriam-Webster.com)
"The real problem is not whether machines think, but whether men do." - B.F. Skinner

"Men have become the tools of their tools." - Henry David Thoreau

**Technophiles & Technophobes**

**Technophiles**
People who are enthusiastic about new technology

**Technophobes**
People who avoid, dislike, or fear new technology
(Ebrahime et al. 2009)

**Innovation**

"Innovation has nothing to do with how many R&D dollars you have. When Apple came up with the Mac, IBM was spending at least 100 times more on R&D. It's not about money. It's about the people you have, how you're led, and how much you get it."

- Steve Jobs
What is INNOVATION?

The most important innovations in school occur when a teacher learns something new and successfully applies that new knowledge in the sacred exchange between teacher and student.

Frederick Taylor: Scientific Management
- Enforced standardization of methods.
- Enforced improvement of working conditions.
- Enforced isolation.

“The duty of enforcing... rests with management alone” (Taylor, 1911).

Schools & The Early 20th Century
We need workers...

- Who work without questioning authority.
- Who work well ALONE.
- Who are ON TIME.
- Who have a high tolerance for boredom (Callahan, 1962).
How did Taylorism Shape Schools?
• Time as the ultimate measure
• Deliberate isolation of teachers
• Top-down management
• Conformity over creativity
• A culture of control

Taylorism Opposes...
• Teaming
• Local or frontline innovation
• Personalized professional practice
• Learning (unrelated to the job description)
• High-performing outliers

Strategies
1. Understand and acknowledge our past (a.k.a. re-engineer Taylor)
2. Embrace PLCs, virtual PLCs, and imagine tipping point possibilities
Virtual Teams & The PLC Process

1. Accelerated innovation
2. Deeper learning & capacity building
3. Stronger, more deeply interconnected teams
4. Enhanced levels of shared knowledge
5. New horizons and the potential for results

What is a VIRTUAL TEAM?
A team whose members interact primarily through electronic communications. Members of a virtual team may be within the same building or across continents.

What is Virtual Teaming?
A term utilized to describe the strategic approaches for strategically using technology to:

- Work interdependently to achieve shared goals
- Maintain mutual and enhance mutual accountability
Collaboration
A systematic process in which people work together, interdependently, to analyze and impact professional practice in order to improve individual and collective results.

What is Virtual Collaboration?
Embraces the essence of what is required for true face-to-face collaboration and uses technology to support and in some cases enhance this essential learning dynamic.

What is BLENDDED LEARNING?
Blended learning is a formal education program in which a student learns at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace.
The Advantages of Blended Learning

Blended learning may in some cases produce superior results (Bonk & Graham, 2005).

Challenges and Optimism

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Optimism</th>
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<tbody>
<tr>
<td>2. Unprecedented funding challenges (Baker, 2012).</td>
<td>2. Never before have so many resources been available to so many for free or nearly free.</td>
</tr>
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</table>

Challenges and Optimism

<table>
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<tr>
<td>3. Greater than ever need for training with lower training budgets than ever (Darling-Hammond &amp; Post, 2000).</td>
<td>3. Opportunities for continuous, 24/7 learning with the ubiquitous presence of technology (Bonk, 2009; Tu &amp; Corry, 2003).</td>
</tr>
<tr>
<td>4. Schools are faced with heightened expectations and no additional time to complete the job (Sparks, 2014).</td>
<td>4. Technology and asynchronous learning can make time challenges irrelevant (Bonk, 2009; Tu &amp; Corry, 2003).</td>
</tr>
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Growing Demographics in Social Media

- In 2014 Facebook had an estimated 1 billion users and Twitter had 271 million.
- From 2012 to 2014, Facebook’s fastest-growing demographic were users ages 45 to 54 (Pew Research, 2014).
- Their presence on Facebook jumped by 46%. In that same time period Twitter experienced a 79% growth in users aged 55-64 (Pew Research, 2014).

Virtual Teaming Strategies

- Level 1: Engineering the Strategic E-Connection
- Level 2: Follow the Rules for E-Collaboration
- Level 3: Enhancing the Learning with E-Acceleration

The Ten Dimensions for Engineering Strategic E-Connections

1. Membership
2. Connection
3. Scope
4. Forms
5. Orientation
6. Duration
7. Origin
8. Purpose
9. Size
10. Management
Dimension 1: Membership
1. Open
2. Closed

Dimension 2: Connection
1. Virtual
2. Face-to-face
3. Hybrid

Dimension 3: Scope
1. Team
2. School
3. Local District
4. Region/State
5. National/International
Dimension 4: Forms

1. Asynchronous (virtual)
2. Synchronous (face-to-face or virtual)
3. Hybrid

Asynchronous learning

A process that transfers knowledge and ideas between individuals or groups without the barriers of time and space. Participants can access conversations and lessons at their own pace and according to their own schedules, allowing for the appropriate think-time and reflection periods.

(Bonk, 2009; Tu & Corry, 2003)

Synchronous learning

A process that transfers knowledge and ideas between individuals or groups within the barriers of time and space. Participants must access conversations and lessons in real time, limiting reflection and think-time to the present moment.

(Bonk, 2009; Tu & Corry, 2003)
Dimension 5: Orientation
1. Grade Level or Content Area
2. Function
   A. Exploratory
   B. School Improvement
   C. Looking for Examples

Dimension 6: Duration
1. Ongoing
2. Term (short, long, mid-range, etc.)

Dimension 7: Origin
1. Planned
2. Organic
Dimension 8: Purpose
1. Ignite/Inform
2. Learn/Transform
3. Give voice/ Send a message

Dimension 9: Size
1. Limited
2. Unlimited

Dimension 10: Management
1. Direct
2. Facilitative
3. Minimal Intervention
E-Collaboration

• The steps educators take to follow accepted rules, roles, and protocols in relationship to learning and interacting in virtual learning spaces.

• E-collaboration also references the steps educators can take to maximize collaborative opportunities with appropriate strategies related to virtual collaboration.

Threaded Discussion

A threaded discussion is an interaction that occurs in a virtual collaboration/discussion space wherein commentary is posted and follow up commentary is likewise added. The term thread is used because as the conversation emerges most learner management systems represent these discussions in what appears to be a weaving thread down the screen of the users. Threaded conversations offer a written history of dialogue and interaction regarding any idea debated or discussed.

Engineering Strategic Connections: Decision Points

The Swellville, Michigan pre-K school had a long history of identifying learning delays and successfully intervening. Lately, their performance has suffered and the pre-K team is anxious to reverse this trend. Following are four options for the pre-K team.
### Idea #1: Modified Virtual Vertical Team

| Membership: Closed | Duration: Term |
| Connection: Hybrid | Origin: Planned |
| Scope: Local School District (Pre-K-Grade 3) | Purpose: Learned/Ignite |
| Form: Hybrid | Size: Limited |
| Orientation: Specific Function | Management: Facilitated |

### Idea #2: Closed International Group

| Membership: Closed | Duration: Term |
| Connection: Virtual | Origin: Planned |
| Scope: National/International | Purpose: Learned/Ignite |
| Form: Hybrid (Skype) | Size: Limited |
| Orientation: Specific Function | Management: Facilitated |

### Idea #3: Open Source Solutions

| Membership: Open (GPS-NEA) | Duration: Term |
| Connection: Virtual | Origin: Planned |
| Scope: National/International | Purpose: Learned/Ignite |
| Form: Asynchronous | Size: Unlimited |
| Orientation: Specific Function | Management: Minimal Intervention |
Idea #4: Virtual Teaming Within Traditional PLC

<table>
<thead>
<tr>
<th>Membership: Closed*</th>
<th>Duration: Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection: Hybrid</td>
<td>Origin: Planned</td>
</tr>
<tr>
<td>Scope: Team</td>
<td>Purpose: Learned/Ignite</td>
</tr>
<tr>
<td>Form: Hybrid</td>
<td>Size: Limited</td>
</tr>
<tr>
<td>Orientation: Grade Level or Content</td>
<td>Management: Facilitated/Directive</td>
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*Invited guests

The Rules for E-Collaboration

1. Remain faithful to the PLC process and components

2. Make the collaboration about people and process, not platform

3. Be ready to challenge the Facebook context.

The Rules for E-Collaboration

4. Make connections first, then collaborate

5. Check for errors and be careful with shorthand

6. Remain private and respect priv.
The Rules for E-Collaboration
7. Share the thoughts of others accurately and only with their permission
8. Never punish in public
9. Don’t assume your space is hack-proof

The Rules for E-Collaboration
10. Maintain appropriate commentary length
11. Commit to checking in consistently
12. Elicit responses from everyone

The Rules for E-Collaboration
13. Collaboration is everyone’s responsibility
14. Make sure every post elicits at least one more response
15. Use discussion threads to encourage collective inquiry and the pursuit of knowledge
The Rules for E-Collaboration
16. Create thicker threads
17. Use threaded conversations to strengthen the work of building-level teams
18. Ask for clarification and deeper analysis

The Rules for E-Collaboration
19. Synthesize thoughts and discussions to support an action orientation
20. Share sources and links
21. Avoid declarations of right or wrong and stay curious

E-Acceleration
The steps educators can take to accelerate the learning and innovation opportunities for the team or a broader audience by utilizing the tools of connectivity to reach beyond local school boundaries en route to discovering, generating, and applying new ideas and solutions.
Enhancing the Learning with E-Acceleration

Openness:

The philosophy of enhancing individual and team learning by utilizing technology to challenge old paradigms, reach out beyond local boundaries, and transform how teams think, learn and innovate.

Openness and How it Transforms

- From convenience to creativity
- The emergence of wisdom from the field
- Speed and openness to experts

Strategy: Open Sourcing

Open Source:

Open source strategies reach beyond the team or school level. In larger districts a team may elect to apply open source approaches to other buildings in their district. More commonly, however, the scope of open source strategies would be either regional/state or national/international.
Strategy: Establish a Personal Learning Network (PLN)

Personal learning networks are informal networks of people who interact for an indeterminate amount of time regarding some specific topic of interest (Bonk, 2011; Digenti, 1999).

How Teachers are Connecting Today

http://Learnzillion.com [C11] Provides brief YouTube style videos of master teachers presenting key concepts and skills in mathematics and language arts. It also includes resources and “coaches commentary” videos that explore how the lesson was presented.

http://betterlesson.com [C12] Provides over 5000 lessons for the Common Core created by 130 master teachers. The site includes downloadable resources for each lesson.

https://www.khanacademy.org [C13] The Khan Academy was created to provide students with access to self-directed learning. It provides over 6000 video tutorials lessons in mathematics, science, history, and other subjects. The site also features free resources and assessments.

https://www.teachingchannel.org [C14] The Teaching Channel offers videos of lessons and related materials in most subject areas and grade levels.

How Teachers are Connecting Today


http://mathflix.luc.edu [C16] Sponsored by Loyola University and the Chicago Gear Up Alliance, this site offers over 1000 video lessons of four to seven minutes each, organized by NCTM mathematics standards.

http://www.readwritethink.org [C17] Sponsored by the National Council of Teachers of English, this site offers lessons, web resources, student materials, and literacy engagement for K-12 language arts.

http://www.gpssnetwork.org [C18] The Great Public Schools Network is a place where teachers, parents, school support professionals, and community members share ideas and resources to improve student success. It is free and open to all.
References


