The 1:1 computing paradigm:-Lessons learned, wisdom shared on the Learning Journey.

Pedagogy, Technology and Mobility

Bruce Dixon
Chair, International Advisory, Partners in Learning

Some fundamentals…

- Deployment options
- Infrastructure-physical & services
- Systems, logistics & policies
- Security & connectivity
- Classroom management

Deployment options...

- **variety of paths to take**
  - a class
  - a grade level
  - a school
- **pilot vs. expanded program**
- **optional vs. mandatory**
- **mixed classrooms or laptop-only classrooms**

- **Start by setting yourself up for success, rather than scale.**

Infrastructure-preparing your environment

- **prerequisite, preferred and optional**
- **connectivity-**
  - networks
  - wiring standards
  - upgrading existing facilities
  - wireless issues
- **power, lighting & storage**
- **security...**

Peripheral considerations…

what matters…

..and what doesn't

- **CD and DVD's?**
- **digital cameras?**
- **Connectivity options- wireless/bluetooth?**
- **printers & scanners?**
- **projection options?**
- **"Smart" boards etc?**

Software issues

- **build around curriculum objectives**
- **tools, not ‘software du jour’**
  …keep it simple to start
- **licensing, costing & compatibility**
  - fundamentals-security,virus
  - common applications used across the curriculum
  - specialist areas
- **upgrades & the value of SoE**

Service and support management

- **Building a sustainable model**
  - Staffing, & logistics
  - Student helpers
- **Who is responsible for support, and to what level?**
  - in-house vs outsourced
- **SLA's-defining reasonable performance standards**
- **Tracking serial numbers, licensing etc?**
- **Hardware…warranty, insurance**
  - Loaners?
- **Software...helpdesk, outsourcing**
- **How is the support cost going to be covered?**

Systems, logistics & policies-Insurance

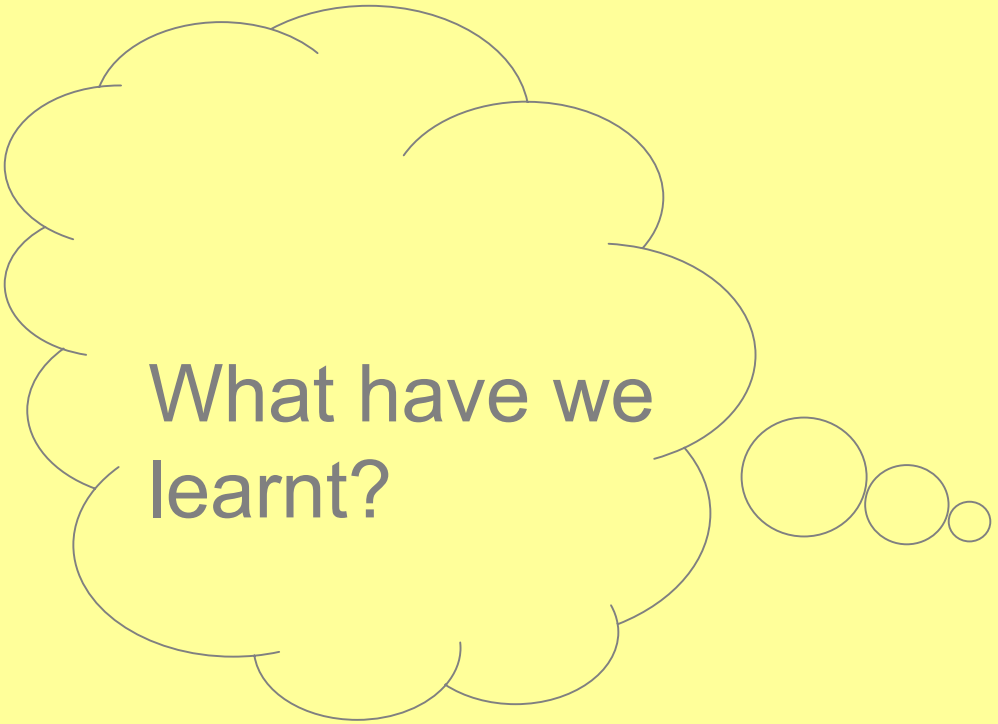
- **what is covered and what isn't**
  - demarcation..coverage specifications
    - homeowners policies vs speciality insurance packages
    - cost vs value
  - excess issues
  - claims processing
- **Mandatory**
- **school culture vs intent**

Security, storage and portability

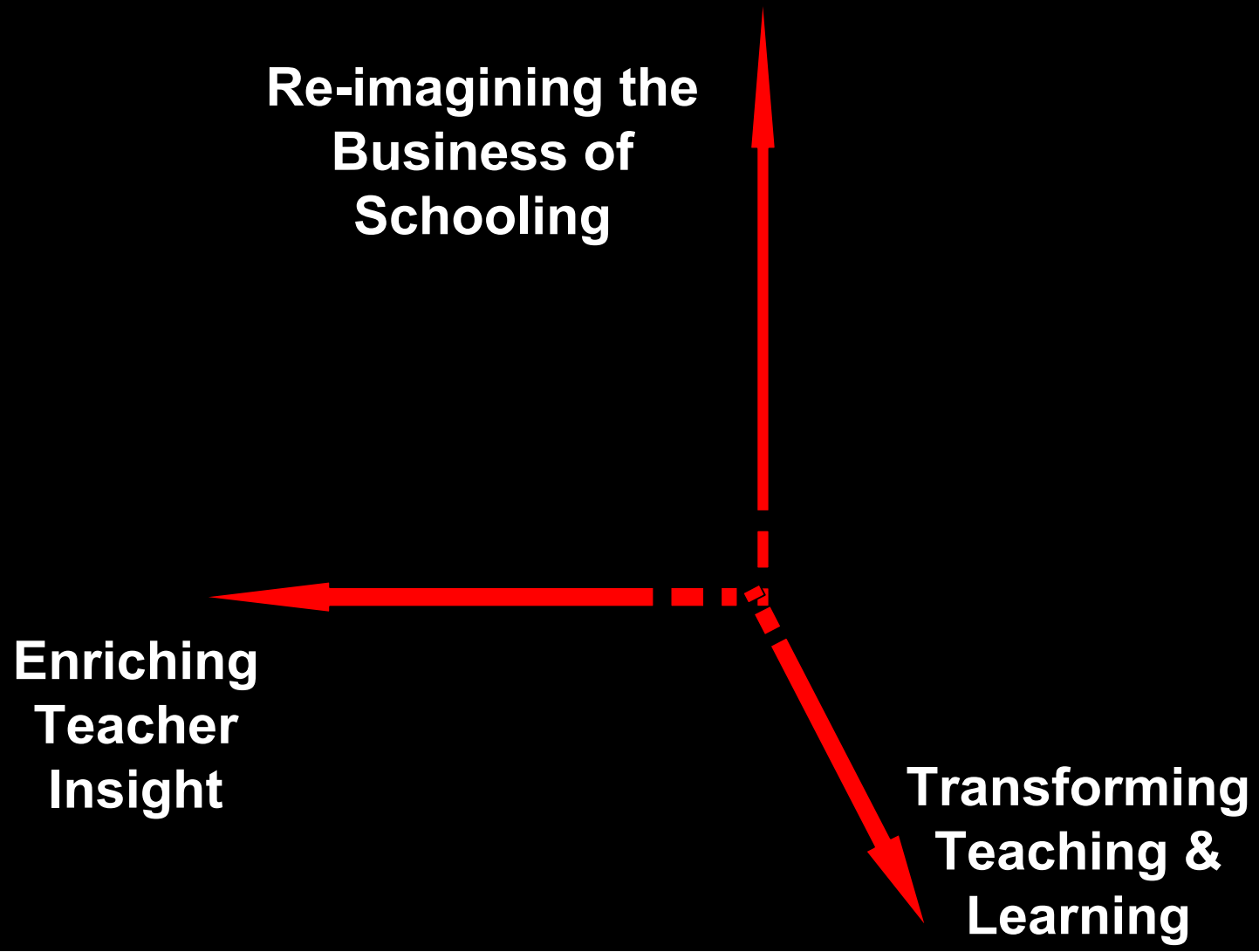
- **security…at school, at home, and between - the unexpected**
- **parents #1 concern…needs to be addressed effectively**
- **considerations**
  - what locked storage can be used?
  - class schedules and access to laptops
  - teachers flexibility with new patterns
  - role of parents, security, and police
- **carry bags, backpacks etc**

One-to-one Fundamentals

- ✓ Test vision and establish commitment
- ✓ Selecting an appropriate implementation model
- ✓ Selecting appropriate hardware
- ✓ Professional development as the No.1 priority
- ✓ Attend to parent & community liaison
- ✓ Infrastructure planning - connectedness
- ✓ Assess all software issues
- ✓ Considering finance options & insurance
- ✓ Project management - policies & procedures
- ✓ Advising on security
- ✓ Managing orders & program logistics
- ✓ Build a comprehensive service & support program


What have we learnt?

Framework for considering the impact of technology and schools



Lessons Learnt…

#1… The Myth of Technology and Reform

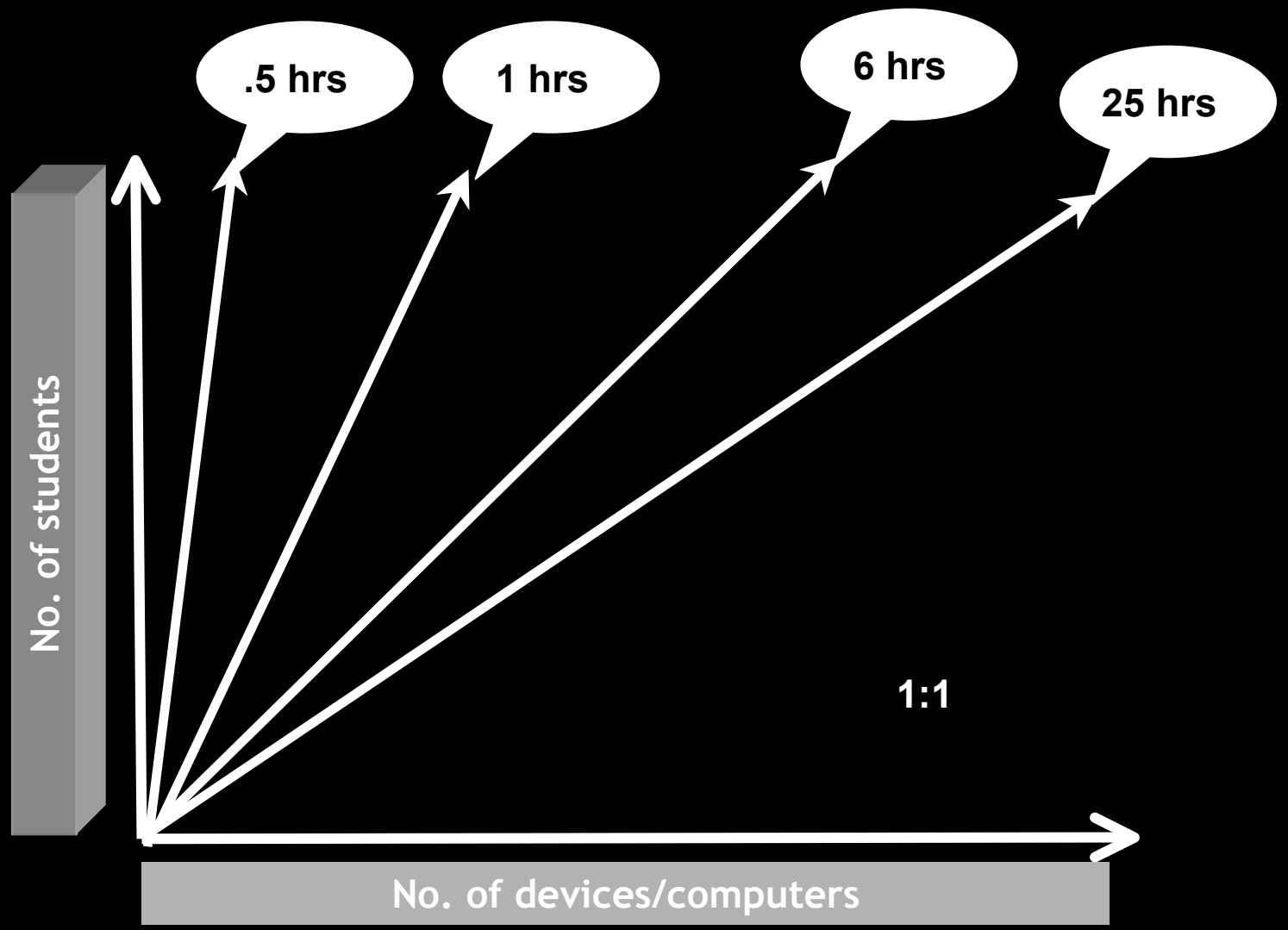
Lessons Learnt…

#2 More does not always mean better!

Over the past 10 years, ninety-nine percent of our schools have been connected to the internet with a **5:1 student to computer ratio**. Yet, we have not realized the promise of technology in education.

U.S. Department of Education National Education Technology Plan 2004

Think ECAT, not ratios…



Lessons Learnt…

#4 Be absolutely clear on the “why”!

Lessons Learnt…

#5 Be clear on what you mean by digital literacy

Digital Fluency and the fluency gap:

To be truly fluent in a foreign language, you must be able to articulate a complex idea or tell an engaging story; in other words, you must be able to "make things" with language.

Analogously, being digitally fluent involves not only knowing how to use technological tools, but also knowing how to construct things of significance with those tools

Papert and Resnick 1995

Lessons Learnt…

#7 The Role of the Teacher

- The more powerful technology becomes the more indispensable good teachers are.
- Technology generates a glut of information but is not pedagogically wise.
- Learners must construct own meaning for deep understanding to occur.
- To do this … teachers must become pedagogical design experts, (leveraging) the power of technology.

Fullan, 1998

Lessons Learnt…

#8 The Role of the Teacher

The more powerful technology becomes the more indispensable good teachers are.

Technology generates a glut of information but is not pedagogically wise.

Learners must construct own meaning for deep understanding to occur.

To do this … teachers must become pedagogical design experts leveraging) the power of technology.

Fullan, 1998

Don’t dumb teachers down with point-and-click!!

Lessons Learnt…

#9 Don’t lower the bar…
.. by viewing computing through school-coloured glasses

Lessons Learnt…

#10 Affordability vs Attitude and commitment

- **Building equity not inequality**.

Lessons Learnt…

#11 Content is not king, pedagogy is; and we do have to do more than just deliver it!

Lessons Learnt…

#13 The importance of leadership

Teaching & Learning with 1:1…

Transforming Teaching & Learning

Behaviourist

Knowledge consumption

Recall

Passive recipient

Ad hoc skill development

Compliance

Dependent learner

Broadcast mode

Theoretical

Focus on teaching

Focus on teacher

- **Constructivist**
- **Knowledge production**
- **Understanding**
- **Active learner**
- ***Fluency* built upon Foundation skills**
- ***Evaluative thinker***
- **Independent learner**
- **Interactive mode**
- **Authentic learning**

Transforming Teaching & Learning

Objectives…

- **Build compelling models for using technology to improve the learning experiences of students.**
- **Better understand which content is rooted in a medium of the past, and how that translates to the present.. eg Maths**
- **Build a collaborative, supportive peer community to explore collective best practices of the new medium.**
- **Integrate desktop technology tools into an effective learning management and accountability framework**
- **True differentiated instruction to the individual student**
- Time has been the constant, achievement the variable

…reverse it!

One student at a time

- Capturing the unique and different dimensions of each individual child.
- Personalizing learning in ways not before possible
- Celebrating and respecting diversity-valuing students as individuals.
- Building multiple forms of assessment
  - Formative
  - Narratives via Blogs
  - Grades
- Digital portfolios for metagognitive reflection.

So, teaching needs to change …

Teaching strategies must adjust along three dimensions:

- Teachers must draw out and work with the **pre-existing understandings** that their students bring with them
- Teachers must teach some subject matter in **depth**, providing many examples in which the same concept is at work and providing a **firm foundation of factual knowledge**
- The teaching of **metacognitive** skills should be integrated into the curriculum in a variety of subject areas

Bransford, Brown & Cocking, 2000

Beyond the classroom walls, and the traditional school day

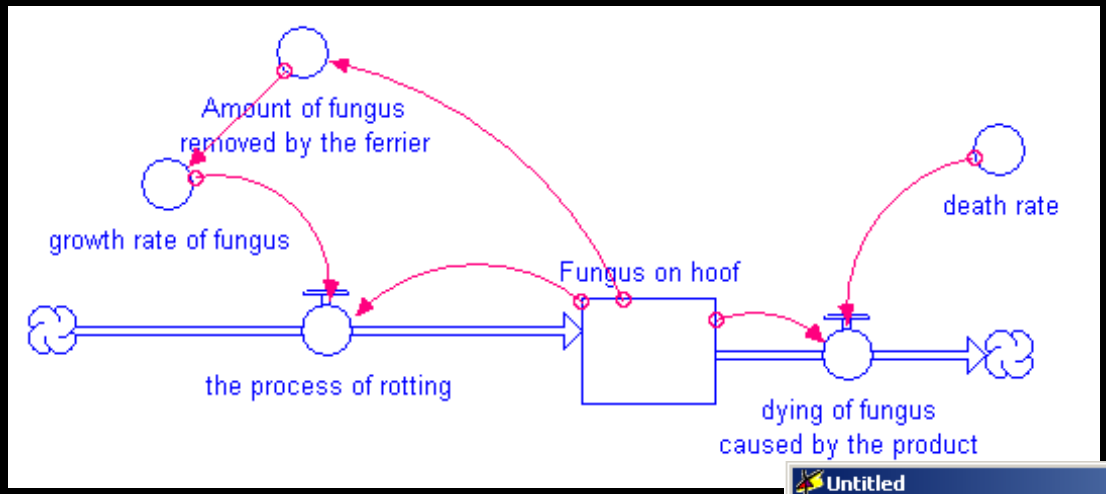
Taking It Global

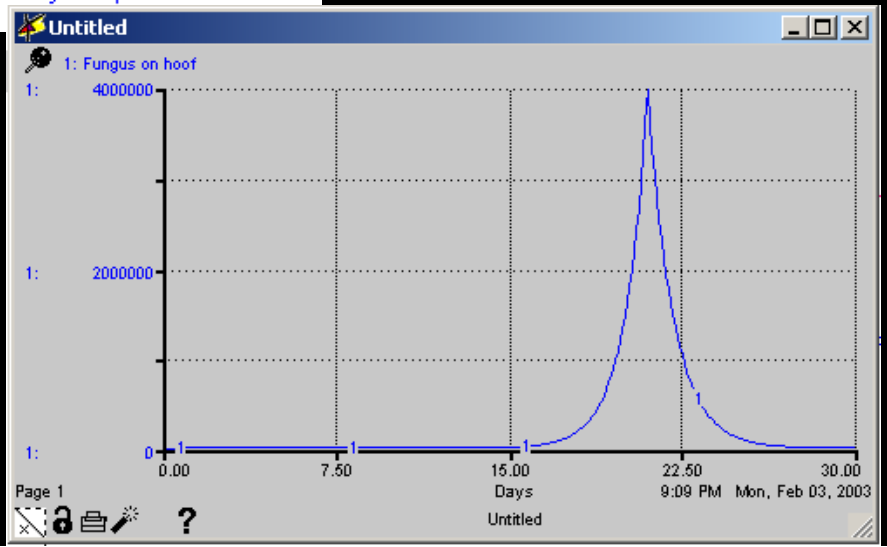
Learning in a 1:1 environment

The ability to genuinely scaffold thinking

- Periodic Table
- Similar Triangles
- Solar System
- Contours and Maps
- Standard Deviations
- Linear Regressions
- Normal Distributions
- Friction
- Ohm’s Law
- Times Tables

..thinking at another level..

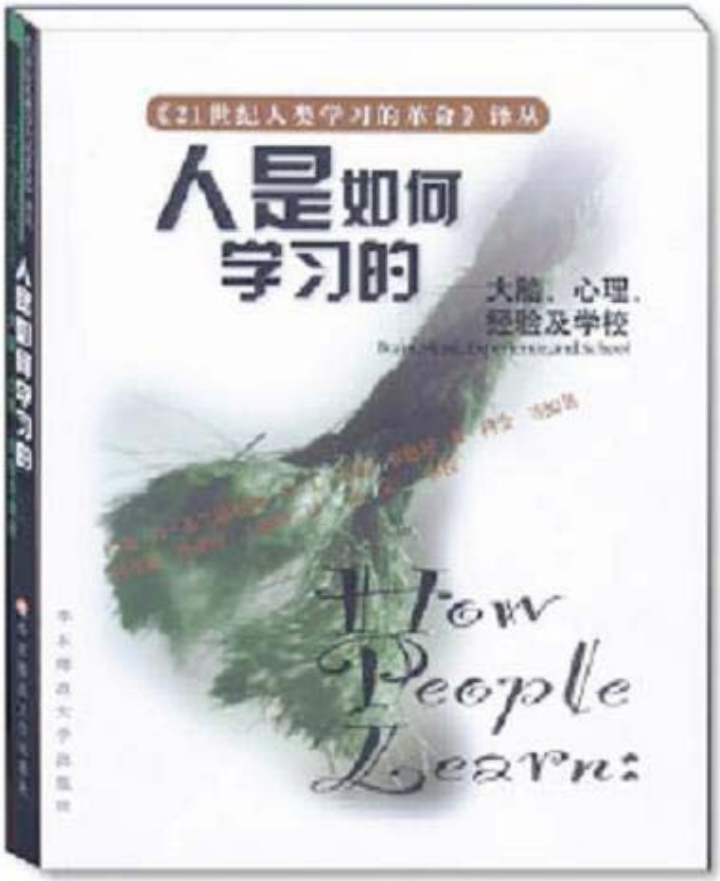


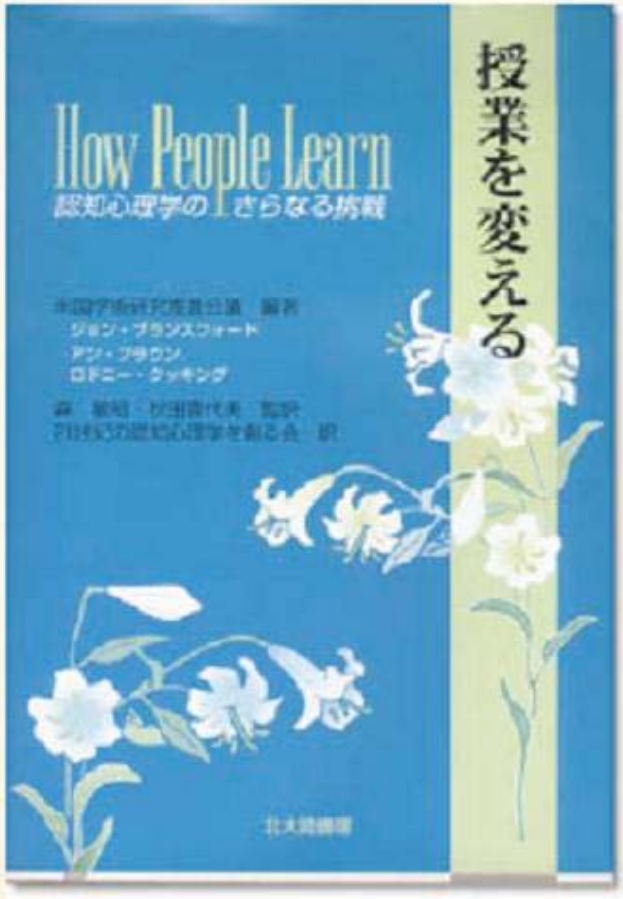


One student at a time

- Digital portfolios
  - A metacognitive tool that allows reflection on process *and* product
    - is student centered and *caters for the range of intelligences and learning styles*.
    - a reflective tool which demonstrates growth in ideas or learning of skills over time.
    - an illustration of student achievement.
  - The reflective element of portfolios can *direct the student towards a greater depth of learning.*
  - The portfolio *demonstrates learning and progress over time* rather than a comparison between students and is not just a haphazard collection of artifacts

Translations of HPL are promoting global conversations





From …Connecting Learning to.. Empowering Learners…

A natural and necessary shift in focus…

…the shift to thinking about learning beyond the classroom requires *a shift in our thinking about the fundamental organizational unit of education,* ***from the school, an institution where learning is organized, defined and contained,*** *to the learner* ***an intelligent agent with the potential to learn from any and all of her encounters with the world around her.***

Tom Bentley DEMOS

Thank You

bruce@educationcommunities.com
www.educationcommunities.com