



## Can Technology-Rich Learning Close the Digital Participation Gap?\*

The short answer to the question this article addresses is: “No, technology-rich learning cannot close the digital participation gap”. Something else can, but that something else would require a political will missing in the United State today.

What is the digital participation gap? It is a gap between the rich and the poor. It is not a gap that can be solved by equipment. While it is true that poor kids have access to less and less good technology, solving this problem will not get rid of the gap. We can see this if we look at books and the reading gap before we look at technology (really, other technologies, since literacy is a technology).

We have long had a reading gap. Poor kids learn to read less well than rich ones. Just giving poor kids books does not begin to close the gap. How much good giving books does—even if it does any good at all—depends on what you DO with the books. The same is true of computers, video games, and other forms of media and multimedia. It is not what you have, but what you do with what you have and who you do it with.

What makes books good for preparing for and doing well in school? Many things, of course, but two are most important. First is interactive talk of a certain sort. Second is experience of a certain sort. Talk and experience are crucial to book-rich learning. They are, as we will see, crucial to technology-rich learning, as well.

The sort of interactive talk around books that is good for and in school is sustained dialogic talk that: a) stresses connections among books and the world; b) stresses thinking about thinking and language about language (“going meta”); and c) that helps young people read like writers (Why is this written this way? How would I say it, write it? This is a form of “going meta”).

It is essential, too, that this talk be done in a context of respect, support, and nurturing that we associate with “attachment parenting” for younger kids. Such “attachment mentoring” can lead to so-called “non-cognitive skills”, skills like confidence, persistence, conscientiousness, dealing with failure, accepting challenges, and delayed gratification. These non-cognitive skills correlate with success in school, finishing college, and success in work better than does IQ.

The sorts of experiences that are good for and in school are ones that give a learner what I call “situated (or embodied) meanings” for words in oral and written language. And, by the way, oral and written language should never be detached from each other. Special forms of writing and reading, like the language of physics or of video gaming, are associated with special forms of talking and vice-versa.

Any language like English is composed of a great many different styles of language (or what linguists call “registers” or what I have called elsewhere, “social languages”). These styles are things like the “language of law”, “the language of physics”, the “language of video gamers”, “the language of street gangs”, and so on through a long and ever growing list. School and life are about learning new styles of language tied to new identities and new activities as we learn new ways of being in the world.

If a person can associate images, actions, experiences, goals, or interactive dialogue with words, that person has situated meanings for those words. If a person can only associate other words (definitions, paraphrases) with words, then that person has only verbal meanings for those words, not situated meanings.

If you try to read a video game manual before you have ever played a game, you can, at best, associate definitions and paraphrases with the words in the text. The manual is boring and close to useless, when it is not simply inexplicable. If, however, you play the game for hours—you do not have to play at all well—then when you pick up the manual again everything will be clear.

Now you will be able to associate images, actions, experiences, goals, and dialogue from the game with each of the words in the text. You will have lived in the world the manual is about and will know how the words of the text apply to that world to describe it and allow you to solve problems in it.

The same thing is true for any text, for example, for a middle school science text. If you have lived in (mucked around in) the world it is about and applies to, you have situated understandings for the words in the text and can use the text to facilitate problem solving. If you have not had such experiences, then all you have, at best, are verbal meanings. These may be fine for passing skill-and-drill paper-and-pencil tests, but they are not fine for deep understanding or problem solving.

Because situated meanings are important for real understanding and problem solving, today most games build the manual right into the game. The game gives language “just in time”, when you can immediately put it to use and see how it applies in the virtual world. Or it gives language “on demand”, when the player needs it, wants it, and can cope with large blocks of it out of the context of the game (as, for example, with the virtual encyclopedia that comes with the game *Civilization*). Language should work the same way in school: just in time and on demand.

We humans communicate in oral and written language (and extensions thereof, like the language of mathematics). Any understandings we have gained from the world, technology, art, or science have to be communicated in language (or some other representational system) to be shared and become a “common wealth”.

Knowledge is not pure thought. It is thought and the work of inquiry translated into appropriately communicative styles of language (like the special languages of literary criticism, video games, law, anime, or physics). So technology-rich learning is always and also language-rich learning. We cannot close the digital gap without closing the literacy gap and we must close them together.

Learning to use any technology—whether this be video games, digital video, digital fabrication, social media, blogs, web quests, or anything else—is a “literacy” in the sense that, just as with books, we need to learn to “read” (consume meanings) and “write” (produce meanings). There are ways to “read” (play) video games that lead to success and ways that do not. There are ways to “write” them well or poorly.

In fact, for video games, “reading” (playing) is already a type of producing (thinking like a designer). Good gamers must think critically about how a game is designed in order to leverage that design for their own goals. But that is true of books too: good readers read like writers (designers).

There are ways to “write” video games, to design them. In fact, today many video games come with a version of the software by which they were made and players can “mod” (modify) them, redesigning small or large parts of the game. Such “writing” (modding) is the higher value-added end of gaming. It can lead to 21<sup>st</sup> Century skills with technology.

But, then, writing has always been the higher value-added end of print literacy. Unfortunately, both writing and modding tend to be the preserves of the more privileged kids, though popular culture today does offer more kids the opportunity to write (e.g., fan fiction) or mod (e.g., interest-driven web sites devoted to fans of a give game) than ever before. However, less privileged kids often need mentoring to enter these sites and often, too, need higher literacy skills.

When I say experiences in the world are the foundation for situated meanings for language, I am pointing to the importance of images, actions, goals, and dialogue. I am, in a sense, repeating what Paulo Freire said long ago when he argued for the priority and importance of “reading the world” to “reading the word”. However, not all experiences in the world are equally good for creating situated meanings.

Humans think and learn best when the experiences they have in the world have certain key properties. Some of these properties are:

- a) learners have clear goals for taking an action in the experience, an action that they care about;
- b) learners gain good feedback as they seek to accomplish the goal, including feedback that might make them rethink their goals;
- c) learners are actively encouraged to compare and contrast this experience to other related experiences in order to find patterns (generalizations) in experience;
- d) learners are encouraged to think about and talk about their assumptions, hypotheses, and strategies while acting and after action; e) learners hear others talk about their assumptions, hypotheses and strategies as they attempted to accomplish the same or a similar action (often in an “after action review session”);
- f) learners are encouraged to persist past failure, explore, take risks, and innovate (and, thus, the cost of failure cannot be too high);
- g) learners hear language—sometimes specialist or academic form of language—that fits the experience and the actions and goals that are an integral part of it; and h) learners are assessed on multiple variables sensitive to growth across time (which can be “U-shaped”, that is go up, then down, the up again) and useful for planning new actions and experiences.

Experience missing these features—which is too often the case when learners are left free in an “anything goes” environment as a way to empower them (it doesn’t)—is not as effective for learning, especially for newcomers. Texts minus well-designed experiences are equally bad and create a significant equity gap when poor children have the text but little experience and richer children have both.

Technology rich learning also needs to have these features—and indeed technology can be used to create and enhance these features—or the technology can be dispensed with. It will have no good lasting effects and it may well create more gaps than it closes.

So back to our question: Can technology-rich learning close the digital gap? The answer is no, no more than books can close the literacy gap. These gaps are caused by access to sustained interactive talk with a adults and peers; practice diverse styles of oral and written language, including academic styles; attachment mentoring; and well-designed, well-mentored experiences in the world.

These factors are most effective when they start early in the home well before school has begun. Their absence is extremely hard to make up for when they have been missing early, though not impossible. As a country, if we want to close gaps, we need to ensure that all children get these factors early in life. They are the foundations of learning, language development, school success, and success in work and in society as an effective civic participant.

Early and late, we need to use books and technology—anything we can get our hands on, well integrated—to give learners situated meanings. These are the meanings that give people power over texts and the world.

Our current paradigm of schooling, which stresses age-grading, assessing by standardized amounts of time, and texts torn out of the worlds they are about, are not up to this task. That is why we still have the gaps in the first place.

Today, out of school in popular culture young people (really everyone) can enter a new and different educational system. They can enter what I call the “passionate affinity school system”. This system is technology-rich, language-rich, literacy-rich, and socially-rich when it operates at its best. At its best it is a gold standard to which schools can aspire and which can help us think about real paradigm change for school.

For any interest you can think of—making digital video, designing all sorts of things, women’s health, pet care, video gaming, fan fiction, citizen science, robotics, anime, and many more—people today can enter interest-driven web sites to discuss, interact over, and produce things in the service of this interest. Better yet some people on these sites gain a real passion for this interest, put in thousands of hours of practice, and become real masters—often better than credentialed experts—of the domain. On such sites people are helped and mentored to fan their interest into a real passion that fuels lots of practice and growth towards mastery.



These sorts of interest-driven sites I call “passionate affinity spaces”. I call them this because everyone in them is there, not because of their age, race, background, or skills, but because of an interest that might be fueled into a passion. They have an affinity for others with this interest and respect for the passion even if they choose to stay at the level on interest alone. They come to share common goals, values, skills, and endeavors. Their differences in life experiences are leveraged for the good of the space as it pools difference to create an expansive collective intelligence that draws on far more experiences and skills than any one person or one type of person could have.

To take one example of a passionate affinity space: people young and old using 3D software of various sorts on various web sites to design (and sometimes sell) virtual clothes, houses, furniture, and landscapes for the video game *The Sims*, a life and community simulator and the bestselling video game in history. Thanks now to digital fabrication tools, by the way, any of these virtual things could be or soon will be able to be “printed” into real objects. Further, thanks to reality capture tools, any physical object can be made into a digital one, transformed, and made back into a physical object. Bits and atoms are now interchangeable.

In passionate affinity spaces age does not matter. Time does not matter. What matters is interest, passion, practice, mastery, talk, shared experiences, feedback, mentoring, production and not just consumption. Leadership is porous, on some days a person leads or mentors and on other days he or she follows or gets mentored. People construct tutorials and learning for each other and they discuss, negotiate and set high standards. They pick up 21<sup>st</sup> century skills—skills like the ability to design and innovate, to collaborate, and to deal with complexity, technical

information, and new technologies—in the context of clear actions and clear goals fueled by interest or passion. On a design site for *the Sims*, people use a plethora of specialist language concerned with *the Sims*, design, and software, but their understandings are always situated in experiences, interactions, and mentoring.

Books and digital technologies can be tools for better social interactions, richer experiences, and new styles of oral and written language. When they are such tools, then learning is rich and it is not only the rich who lean. When they are not such tools, they can create gaps, but they cannot close them.

\*For research relevant to the claims in this article, see: Gee, J. P., *Situated Learning and Language* (Routledge, 2004); Gee, J.P. & Hayes, E.R., *Women as Gamers: The Sims and 21<sup>st</sup> Century Learning* (Palgrave/Macmillan, 2010); Gee, J.P. & Hayes, E.R., *Language and Learning in the Digital Age* (Routledge, 2011); and Tough, P., *How Children Succeed* (Houghton Mifflin, 2012).