Lucidly Functional Language

James Paul Gee
Mary Lou Fulton Presidential Professor of Literacy Studies
Arizona State University
Tempe, AZ

Introduction

Success in school requires children to comprehend the complex academic language found in the content areas (e.g., science, math, social studies). This, in turn, requires a good school-based vocabulary and familiarity with the syntactic and discourse features of such language. It is best to get ready for these language demands early in life at home before coming to school and to sustain home-based support for such academic language development thereafter, because it is difficult to develop a good school-based vocabulary starting late without such early and on ongoing home-based support (Gee, 2004). To remedy such a vocabulary problem requires lots of reading—which people with a poor vocabulary are often not motivated to do—but, unfortunately, lots of reading, while important, is neither highly efficient nor totally effective, by itself, as a way to learn vocabulary (Gersten, Fuchs, Williams, & Baker, 2001).

Types of Words

We can divide vocabulary into three types of words (Beck, McKeown, & Kucan 2002). First, there are “everyday”, “vernacular”, or “informal words” such as “hot”, “nice”, “happy” and so forth. Everyone knows such words as part of the process of becoming a native speaker. Second, there are “technical words” such as “generative” in mathematics or linguistics, “mitocondria” in biology, “quark” in physics, or “power up” in video gaming. Such words are best learned as part of the process of learning the domains in which they are technical terms. Third, there are what I will call “formal words” such as “perceive”, “assertion”, “insinuate”, “advocate”, “simultaneous” and so forth. Such words are found in a variety of different specialist areas or public sphere activities (e.g., philosophy or social activism), in literature, in the content areas of school, and in the more formal vernacular of some speakers (i.e., those heavily influenced by school-based sorts of books).

Formal words have a wider application than technical terms, though they sometimes have more technical uses within a given specialist area (e.g., “sensitivity” in physiological psychology or “assertion” in linguistics—in fact, even informal words can have a technical meaning in some domain, for example, “work” in physics).

Formal words—like all words—take on somewhat different meanings in different contexts (Gee, 2005). In particular, they may mean somewhat different things in different sorts of situations, activities, texts, or academic or specialist areas of concern (e.g., consider the different meanings words like “process”, “system”, and “formal” might take on in different contexts of use). Thus, it is not effective to teach these words out of context and leave things at that. Children need in and out of school-based activities to see and hear them in a variety of different contexts.

Many children see and hear formal words in various texts and content areas in school far more than they hear them in everyday forms of talk at home or in their communities (though children from highly educated homes hear a good number of them in talk). I will suggest below, however, that many children, rich and poor, see and hear a good number of both technical terms and formal words in some of their popular culture practices.

Specialist Language

I will refer to forms or styles of language that use lots of technical terms or formal words or both (and recruit characteristic forms of complex syntactic and discourse structures) as "specialist language". Academic content areas (like biology or literary criticism) use specialist forms of language. School content areas (like social studies, math, language arts, or science) use specialist forms of language. Some types of literature—the types we tend to use in school—use a good many formal words, as well as complex syntactic and discourse patterns, and so I will call this specialist language, as well. Some popular culture practices also use lots of technical words and formal words, as well as complex syntactic and discourse patterns, and so, these, too, are specialist forms of language. Remember, though, that there are people who, in some contexts, use lots of formal words in their everyday vernacular speech when they are not talking as specialists of any sort, but these people have picked up this vocabulary because of their exposure to the sorts of specialist texts and talk often found in school and books.

Early Oral Vocabulary Correlates with School Success

Phonemic awareness and early practice with literacy are the most important factors before school that predict a child's success in first grade (Dickinson and Neuman, 2006). However, the most important factors that predict a child's success past the first grade, essentially for the rest of schooling, are the child's early home-based oral vocabulary and early skills with complex oral language (Dickinson and Neuman, 2006; Senechal, Ouellette, and Rodney, 2006).

There is an important qualification that needs to be made here. Decades of research in linguistics has shown that every normal child develops a perfectly adequate oral language, the child's "native language" (Chomsky,1986; Pinker, 1994)—and, of course, sometimes children develop more than one native language. When I say, that children's early vocabulary and skills with complex language are crucial correlates of success in school, I am not talking about children's everyday ("vernacular") language. I am talking about their early preparation for language that is not "everyday", for language that is "school-based", "specialist", or "academic" (Gee, 2004; Schleppegrell, 2004). I am talking about the difference between saying something like "Hornworms sure vary a lot in how well they grow" (vernacular) versus "Hornworm growth displays a significant amount of variation" (specialist).

Let me give an example of what I am talking about in terms of getting ready early in life for the demands school will eventually make for specialist language. Kevin Crowley has talked insightfully about quite young children developing what he calls "islands of expertise" (Crowley & Jacobs, 2002). Crowley and Jacobs (2002, p. 333) define an island of expertise as "any topic in which children happen to become interested and in which they develop relatively deep and rich knowledge." In this respect, then, consider, a mother talking to her four-year-old son, who has an island of expertise around dinosaurs (the transcript below is adapted from Crowley and Jacobs, 2002, pp. 343-344). The mother and child are looking at a replica fossil dinosaur and a replica fossil dinosaur egg. The mother has a little card in front of the boy that says:

- Replica of a Dinosaur **Egg**
- From the Oviraptor
- Cretaceous Period
- Approximately 65 to 135 million years ago
- The actual fossil, of which this is a replica, was found in the Gobi desert of Mongolia

The child says "This looks like this is a egg" and the mother responds "That's exactly what it is! How did you know?". The child says: "Because it looks like it" and the mother responds: "That's what it says [on the card], see look **egg egg** … replica of a dinosaur **egg**. From the oviraptor". Here the mother asks the child the basis of his knowledge ("How did you know?"). Then she publicly displays reading of the technical text, even though the child cannot yet read. This reading uses print to confirm the child's claim to know, showing one way this type of print (descriptive information) can be used in an epistemic game of confirmation, and demonstrates the primacy of print as evidence. Specialist domains are almost always "expert" domains that involve claims to know and evidence for such claims, evidence that is very often tied to print.

Here and elsewhere in the interaction, the mother also uses elements of non-vernacular, specialist language. For example, here: "**replica** of a dinosaur egg"; "from the **oviraptor**"; and later: "from the **Cretaceous period**"; "the **hind claw**"; "their **prey**".

In the interaction as it proceeds, the mother makes a number of other moves that facilitate the early development of specialist language. For instance, the mother relates the current talk and text to other texts the child is familiar with when she says at one point: "You have an oviraptor on your game! You know the egg game on your computer?" and, at another point: "And remember they have those, remember in your book, it said something about the claws". This sort of intertextuality helps the child to connect words, the world, images, technologies, and written texts.

The mother explicates hard concepts by saying things like: "And that's from the Cretaceous period. And that was a really, really, long time ago". This signals to the child that "Cretaceous period" is a technical term and displays how to explicate such terms in the vernacular. She also offers technical-like definitions when she says things like: "And this is . . . the hind claw. What's a hind claw? (pause). A claw from the back leg from a velociraptor". This demonstrates a common language move in specialist domains, that is, giving relatively formal and explicit definitions (not just examples of use).

This interaction is a language lesson, but not primarily a lesson on vernacular language, though, of course, it thoroughly mixes vernacular and specialist language. It is a lesson on specialist language. It is early preparation for the sorts of school-based language children see ever more increasingly, in talk and in texts, as they move on in school.

All this, however, raises the issue of what happens to children who come to school without such informal specialist language teaching, and, often, too, without other important aspects of emergent literacy. My view is that this deficit cannot be ignored. We cannot just move on to reading instruction of the "decode and literally comprehend" sort as if it just doesn't matter that these children have missed out on early specialist language learning. For these children language teaching for "academic language" (one form of specialist language) needs to start with and sustain itself throughout the course of reading instruction (Zwiers 2007).

If Your Vocabulary is Poor, It Is Not Easy to Get A Better One

When children end up with poor vocabularies late in their schooling, it is a very hard problem to remedy. In fact, vocabulary learning involves a paradox: if you have a poor vocabulary, the only way to remedy the matter is to engage in lots of independent reading (something people with poor vocabularies often don't want to do). However, reading is really not all that effective a way to learn vocabulary:

> … the variety of contexts in which words can appropriately be used is so extensive, and the crucial nuances in meaning so constrained by context, that teaching word meanings in an abstract and decontextualized manner is essentially futile and potentially misleading. … The only realistic chance students with poor vocabularies have to catch up to their peers with rich vocabularies requires that they engage in extraordinary amounts of independent reading (Baker, Simmons, Kameenui, nd; see also Anderson & Nagy, 1991).

It may be somewhat surprising to learn that most researchers agree that although students do learn word meanings in the course of reading connected text, the process seems to be fairly inefficient and not especially effective (Beck & McKeown, 1991). Beck and McKeown state that “research spanning several decades has failed to uncover strong evidence that word meanings are routinely acquired from context” (Gersten, Fuchs, Williams, & Baker, 2001, p. 799).

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So we face an interesting problem: How to get children to learn academic or specialist vocabulary when they may not want to engage in lots of reading and when that reading will not necessarily be highly effective in solving the problem. Perhaps oddly, I want to suggest an unorthodox place to look to help address this question (not as the only way to address it, but as one way): to learn from and even use popular culture practices for literacy development.

Specialist Language in Popular Culture

Something very interesting has happened in children’s popular culture. It has gotten very complex and it contains a great many activities that involve highly specialist styles of language (Gee 2003, 2004, 2007). For me, learning is always about learning a “language” (a representational system) and real learning—learning that leads to understanding and the ability to apply one’s knowledge—always requires what I will call "situated understanding". Situated understanding involves being able to associate images, actions, feelings, experiences, goals, and dialogue, with words and other symbols.

It turns out that certain sorts of games in popular culture today do an excellent job at producing situated understandings. Further, they do so in ways that, I believe, hold out lessons for those of us interested in education. The argument I want to make is two fold: First. we can learn something from games about how to teach language and literacy in the content areas for situated understandings, whether or not we actually use games or game-like technologies in our teaching. Second, we can imagine designing games and game-like technologies with the good properties of commercial games for educational purposes.

"What Everyone Needs to Know" & The Content Fetish

It is common these days to point out the powers of "informal learning"—for example, children learning to play a complex card (and video) game like *Yu-Gi-Oh*—in comparison with "formal learning" in school (Gee 2003, 2004). It is often assumed, however, that this division (informal/formal) is inevitable. School is a place where everybody is supposed to learn the same things, the things that "everyone needs to know". Some form of formal regimentation and standardization appears, then, to be necessary within this framework. Outside of school different people play different games, but in school there are supposed to play the same games.

However, despite—perhaps even because of—this "what everyone needs to know" philosophy, in the United States today we live in a society in which more than half the population believes in astrology, but not in evolution, and the level of "science literacy" is small (Gross 2006).

The "what everyone needs to know" philosophy has an additional problem. In our schools today, it is based on a "content fetish", the idea that a branch of science, for example, is composed of "facts" (information). If one has mastered the facts (in a textbook or on a test, say) then one has mastered the science or, at least, become "literate" in it.

Let's apply this "content fetish" perspective to *Yu-Gi-Oh*. *Yu-Gi-Oh* is an immensely complicated, technical, and strategic card game, played by children as young as seven, as well as by older children and adults (see http://www.pokezorworld.com/yu-gi-oh/yugioh_game_rules.htm for a summary of the rules and information on the game). *Yu-Gi-Oh* is often played face-to-face with two players, sometimes in formal competitions, more often informally, though it can be played as a set of video games, as well. The language used in the game is clearly as complex—or more so—than what many young children today see in school

Imagine, then, we thought everyone should know about *Yu-Gi-Oh*, so we taught everyone the names and properties of some of the 10,000 *Yu-Gi-Oh* cards, as well as the basic rules of the game. This seems pretty silly. After all, knowing facts and rules doesn't come close to ensuring you can play the game or even really understand the point of the game.

Surely, we would suggest that if we wanted people to know *Yu-Gi-Oh* we would have them play the game. Surely we don't think *Yu-Gi-Oh* is first and foremost a set of facts, rather than a set of activities and strategies for solving problems in a distinctive domain. *Yu-Gi-Oh* facts are just tools for carrying out these activities and strategies. Surely the same thing is true, as well, of any domain of science.

But on this alternative view—the "let's play the game" anti-content fetish view—problems appear to arise as well. Someone is sure to say something like: "Well, if we should be teaching distinctive domains ('games') composed of activities and strategies for solving problems, surely not all students can engage with all the relevant domains". People say this because, of course, they believe everyone should know all the same things and they are confronted with the fact that there is lots and lots of possible stuff to know. When we put the emphasis on activities and strategies, and not just facts, the situation seems to get worse. There is too much stuff to know, too many games to play, too little time to do it all in.

Another problem: Someone will also surely say, "Most kids are not going to become scientists of any sort, so why argue that they should engage in 'playing the game' rather than just mastering some facts? Isn't it a waste of time, especially since most of them will never play the game 'for real' or at the level of a 'real scientist'"?

Well let's go back to *Yu-Gi-Oh*. Let's imagine again that you thought *Yu-Gi-Oh* was something that it was important for people to understand in the way in which I (and you) think biology is. We would, of course, concede that not everyone will get really good at *Yu-Gi-Oh* and not everyone needs to. What we would want is for people to understand *Yu-Gi-Oh* as an enterprise—as a "form of life"—a distinctive way of being/doing/valuing with other people. You would want *Yu-Gi-Oh* to make sense for people as a meaningful enterprise. You would want them, as well, to have choices about going further with *Yu-Gi-Oh* should they ever wish to and to be able to learn more later on if and when they had to or wanted to. Ditto with biology or a branch of biology.

You would go further. You would probably realize that, given there are lots of card games of the *Yu-Gi-Oh* sort, not to mention other types of more or less related games, that it might be ok for some people to start with *Magic the Gathering*, some with *Yu-Gi-Oh*, and still others with *Pokemon*, and others still with yet other games. There are deep "family resemblances" among these games (because, in fact, they are historically related), so at the level of learning about a "form of life" (the distinctive meaningfulness of a human enterprise) they will each work. Ditto with science, for exampe.

You might even go further and argue that once some people have learned *Yu-Gi-Oh* and others *Magic the Gathering*, they could discuss and reflect on the family resemblance, gaining a somewhat more abstract perspective. Going yet further, they could, perhaps, eventually discuss and reflect on yet higher order family resemblances among *Yu-Gi-Oh* like card games and games like *chess*. Things could go even further. But it would all be about forms of life and family resemblances, not facts. Soon people would become veritable philosophers of games. Ditto with science.

But then we may have to abandon the "what everyone needs to know" philosophy. We may have some people playing some games—engaging with some domains of science—and others with others. We may even see it as a strength that they might later get together and talk about family resemblances.

The content fetish—and the "what everyone needs to know" philosophy—has something else going against it. If you teach people facts, they usually cannot actually do anything with them (just write them down on a test) and they don't even retain the facts very long (Gardner 1991). If you engage people with a domain as activities and strategies (and with facts as tools), they can, at some level, play the game/domain and, more important, understand what the game/domain is all about as a human endeavor (Shaffer 2007). They will, then, even retain the facts or many of them.

Situated Understandings

There is an important distinction to be made between two ways of understanding a word or concept (Gee 2004, 2005). A word or concept can be understood in a largely verbal way or in a situated way (or both, of course). When people understand a word or concept verbally they can phrase its meaning in other words in a dictionary like way. When they have a situated understanding of a word or concept they can offer not just words for words, but associate the given word or concept with images, actions, feelings, experiences, goals, and dialogue, making different associations for different contexts of use. You can feel your head switch between different situated meanings of the word "coffee" when I say "The coffee spilled, go get a mop" versus "The coffee spilled, go get a broom". In each case, you attach different images and actions to the word.

Kids who play *Yu-Gi-Oh* understand technical terms in *Yu-Gi-Oh* (of which there are a great many) in a situated way. They don't just have definitions, they have images, actions, feelings, experiences, goals, and dialogue. They associate the words with physical moves and dialogical arguments in and around the game. For example, consider the text below, which appears on a *Yu-Gi-Oh* card:

> **Armed Ninja**
>
> **Card-Type:** Effect Monster
>
> **Attribute:** Earth **| Level:** 1
>
> **Type:** Warrior
>
> **ATK:** 300 **| DEF:** 300
>
> **Description:** FLIP: Destroys 1 Magic Card on the field. If this card's target is face-down, flip it face-up. If the card is a Magic Card, it is destroyed. If not, it is returned to its face-down position. The flipped card is not activated.
>
> **Rarity:** Rare

The “description” is really a rule. It states what moves in the game the card allows. Note how complex the meaning is here: First, if the target is face down, flip it over. Now check to see if it is a magic card. If it is, destroy it. If it isn’t, return it to its face-down position. Finally, you are told that even though you flipped over your opponent’s card, which in some circumstances would activate its powers, in this case, the card’s powers are not activated. This is “logic talk”, a matter, really, of multiple related “either-or”, “if-then” propositions. It is the type of explicit specialist language children will see often in school in the content areas.

Why can even young children understand such language? Because the logic of this language is associated step-by-step with the logic of action and goals in the game. Each word and structure (if-then clauses) is associated with an image of action and goal-directed purpose in the game, thanks to its rules and the structure of its play—and thanks to how lucidly clear all this is made by the design of the game itself (more on this below). Further, each word and structure is associate with images and experiences from game play, with former victories and losses (and reasons why). And each word and structure is also associated with a great deal of interactive talk in which players engage as they argue the finer points of the game (and strategy) with each other, during and after play.

That is also how a physicist understands a word like “work”, not just in terms of other words, but in terms of images, actions, feelings, experiences, goals, and dialogue and, importantly, relations among them, for different problem solving contexts. That’s why the *Yu-Gi-Oh* player and the physicist can use their technical words as tools with which to see the world in a certain way and to solve problems of a certain sort (including debates/arguments with others).

Let me give another example of situated meaning at work in an area where we will all understand it and see it clearly. Imagine a woman breaking up with a man by saying: “Relationships shouldn’t take work” (and this one does). Now imagine another case where a woman says: “Relationships are hard work” (and you aren’t doing any). You have no trouble understanding these sentences and you can even easily give them meanings in terms of which they do not necessarily contradict themselves.

But think about what you do to understand them. You call up images, experiences, feelings, values, dialogues—you consider family resemblances among the meanings “work” can have in other sorts of situations—you run something very like a simulation in your mind—you situate these sentences and the word “work”, you don’t just substitute other words for “work”. In fact, only after you have run the simulations and situated the meanings, different ones for each situation, can you offer rough paraphrases if you were asked to do so (e.g., “Relationships should not feel like a job that one does just to make ends meet” and “Relationships require effort of the sort that we experience when we have worked hard on a task we want to accomplish and accomplish well”).

Additionally, you also know when you are doing this situating process that you should not start calling up images, experiences, and dialogue from physics, since the word “work” works very differently in that domain (think about what “works” now means here as a verb!). You can engage with the situating process in the relationship sentences because—and only because—you have had experiences in the world and/or heard about such experiences (e.g., having people like me as a boy friend).

Meaning works just the same way in *Yu-Gi-Oh* and in biology or any other domain, though in technical domains like *Yu-Gi-Oh* and biology certain forms of “explicitness” (e.g., in argumentation) are part of the form of life (part and parcel of certain activities and strategies). But explicitness (at the verbal level) does not save you from the need to situate. I, for one, know verbal definitions of the word “work” in physics, but do not know how to use the word to solve problems or even really why physicists define it the way they do. For me it is just like a technical term in *Yu-Gi-Oh* that I cannot associate with any actual (successful) move in the game.

A physicist sees how a concept like “force” operates in a variety of specific situations (problems) and sees the family resemblances across the situations, as well. The physicist can also give (or look up) a very explicit definition of the word “force”. Knowing the definition is almost useless for enabling one to see how force operates as a feature of different situations or problems in relation to other features. Seeing how it does so (after a lot of practice) is, however, a great way to learn the definition and remember it. Though, of course, the verbal meanings can sometimes serve as a guide to what to look for in specific situations.

Lucidly Functional Language

I want young people in and out of school to learn, for any important domains—say, for example, some domain of science—some of the words and concepts of that domain in a situated way, to have situated understandings. Only then can they appreciate those domains as meaningful human enterprises. I will say more about this below. But, for now, I want to introduce the notion of what I will call "lucidly functional language". Situated meanings are cases where people can associate a word with specific images, actions, feelings, experiences, goals, and dialogue, not just other words. In lucidly functional language, the image/action/dialogue with which the word is associated mediates between the word and a particularly clear and apparent "function" (a specific goal, step in a procedure or process, or task). To see an example of lucidly functional language, consider the material below printed on a *Yu-Gi-Oh* card:

DCR-011

Cyber Raider

Card-Type: Effect Monster

Attribute: Dark **|** **Level:** 4

Type: Machine

ATK: 1400 **|** **DEF:** 1000

Description: "When this card is Normal Summoned, Flip Summoned, or Special Summoned successfully, select and activate 1 of the following effects: Select 1 equipped Equip Spell Card and destroy it. Select 1 equipped Equip Spell Card and equip it to this card."

Rarity: Common

“Normal Summoned”, “Flip Summoned”, “Special Summoned”, “equipped”, and “destroy” here are all technical terms in *Yu-Gi-Oh* (and just as explicit as terms in science). They have formal definitions and these can be looked up in *Yu-Gi-Oh* rule books on line (which read like PhD dissertations or legal treatises). But children know what these terms mean in a situated way because they associate them quite clearly with specific actions they make with their bodies in the game (placing cards in certain areas, turning them over, pointing or naming opponent’s cards), actions that have specific functions in the game. They also associate these terms with specific argumentative moves or strategy talk in which they can engage with others, moves and forms of talk that also often have clear functions (e.g., as a guide in selecting a deck good for a specific set of strategies).

The child associates “Flip Summoned” with a well practiced (physical, embodied) move in the game and that move has a very clear point or function (accomplishes a specific goal within the rules of the game). Ties between words, actions, and functions are all lucid. Everything is situated, but still explicit and technical (and even, in a sense, abstract). In this way, a very arcane vocabulary becomes lucidly meaningful to even small children. I cannot pass up the urge to ask why we cannot do something similar and as well in science and math instruction in school.

Lucidly functional language is set up for learners when someone (a teacher or game company) has gone out of their way to render the mappings between words and functions clear by showing how the meanings are spelled out as “moves in a game” (where “move” is both a physical act and a semiotic outcome). Lucidly functional language goes beyond situated meanings (which just require images, actions, experiences, feelings, and/or goals) in that people are crystal clear on how the images, actions, experiences, or dialogue they associate with a word in a specific situation ties to a clear function, goal, accomplishment, “move in a game”.

Teaching

From what I have said thus far, it may well sound as if I advocate “hands on”, activity-based, “inquiry” in classrooms. But situated instruction is, in my view, neither “anything goes” immersion in activities without much direction or direct telling without immersion. When young people learn *Yu-Gi-Oh*, no one just lets them muck around and “inquire” on their own; nor, of course, does anyone try to tell them all they need to know before they can play. Rather, learners enter a group that already contains lots of knowledge. The player is immersed in practice, but also guided and directed down certain paths and not others. Direct instruction is given “just in time” or “on demand”.

People learn best—if the goal is not just facts, but situated understandings—not via abstract calculations and generalizations, but through *experiences* (Barsalou 1999a,b; Clark 1997; Hawkins 2005; Kolodner 2006) So, of course, immersion in necessary (but not sufficient). People store these experiences in memory—and human long-term memory is nearly limitless—and use them to run simulations in their minds to prepare for problem solving in new situations (precisely because these simulations lead to situated understandings). These simulations help them form hypotheses about how to proceed in the new situation based on past experiences (Glenberg 1997; Glenberg, Gutierrez, Levin, Japuntich, & Kaschak 2004; Glenberg & Robertson 1999).

However, there are strong conditions experiences need to meet to be truly useful for learning. Immersion alone is not enough (Kolodner 1993, 1997, 2006; Schank 1982, 1999). While I follow Kolodner closely here on how experiences can be made more meaningful for learning, I am not endorsing a view that the mind "stores" experiences or "cases" as word and sentence like descriptions or verbal networks, see Gee 2004). First, experiences are most useful for future problem solving if they are structured by specific goals.

Second, for experiences to be useful for future problem solving, they have to be interpreted in the sense that the learner thinks—in action and after action—about what sorts of reasoning and strategies worked and did not work to reach goals in the situation.

Third, people learn best from their experiences when they get immediate feedback during those experiences so they can recognize and assess their errors and see when and where their expectations (predictions, hypotheses) succeeded or failed. It is important, too, that they are encouraged to explain why their errors and expectation failures happened and what they might have done differently.

Fourth, learners need ample opportunities to apply their previous experiences—as interpreted—to new similar situations, so they can "debug" and improve their interpretations of these experiences, gradually generalizing them beyond specific contexts.

Fifth, learners need to learn from the interpreted experiences and explanations of other people, including both peers and more expert people. Being able to compare and contrast their experiences and explanations with those of others seems crucial.

So goals, interpretations, practice, explanations, debriefing, and feedback are some of the elements of good learning experiences. But here is the rub: Where do these come from? How, for instance, does a learner know what is a good goal? How does the learner know what, after having taken an action, is a good or bad outcome? How does the learner recognize a fruitful interpretation, good reasoning, an effective strategy? A helpful explanation? How does the learner know what to make of feedback and how to respond to it? After all, the learner is a beginner and can't make this stuff up all by him or herself.

These elements—goals, interpretations, practice, explanations, debriefing, and feedback—flow from participation in a social group of some sort, a group who has over time developed conventions (values, norms) about how things are done and what they mean. If there are no conventions there are no goals, interpretations, explanations, debriefing, and feedback that count for or as anything other than a "private language" (Wittgenstein 1958). And conventions are connected to organized groups of people.

Another way to put this matter is this: What we might call a "social identity" is crucial for learning. To see the importance of a social identity, consider, as an example, learning to be a SWAT team member (in real life or in the video game *SWAT4,* for instance). The sorts of goals one should have in a given situation; the ways in which one should interpret and assess one's experiences in those situations; the sorts of feedback one should receive and react to; the ways in which one uses specific tools and technologies, all these flow from the values, established practices, knowledge, and skills of experienced SWAT members. They all flow from the identity of being or seeking to become such a person.

Good learning requires participation—however vicarious—in some social group that helps learners understand and make sense of their experience in certain ways. It helps them understand the nature and purpose of the goals, interpretations, practice, explanations, debriefing, and feedback that are integral to learning. Conventions are like rules of a game. They are discovered and used in joint practice with people whose conventions they are. The conventions of a SWAT team are clear (though, of course, always changing and adapting to new circumstances), clear enough for learning. So are the conventions in various branches of science. They are not always at all clear in classrooms. We can always argue about conventions—dispute them even—but not if there aren't any or we have no idea what they are.

Conclusion

I have, of course, been trying, in part, to use games like *Yu-Gi-Oh* metaphorically—to let them help us think about issues in education. I have wanted to argue that we can gain some clear ideas about how learning might work in education from these games, ideas about situated meaning, lucidly functional language, and learning where content flows from identity defined in terms of goals, norms, and values. At the same time, I have meant to suggest that games and game-like technologies hold out promise as one vehicle through to build situated learning (when embedded in good curriculum).

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