



## 4 Proactive Design Theories of Sign Use Reflections on Gunther Kress

*James Paul Gee*

### TWO THEORIES

Gunther Kress has long argued (1989, 1997, 2003, 2010b) that people actively make the signs they use. They do not just recover them from a passive store in their heads. We humans are active designers. Very young children, as Kress (1997) has shown, actively invent signs that are “apt” for their purposes (e.g., a child making a circular drawing motion to “signal” a wheel or using a word like “goed”). But, as I read him, Kress also argues that proficient users of language and images also create signs apt for their purposes on the spot and at the moment of communication in specific contexts.

This view of communication as active, creative, and design-oriented is radical. The traditional view (Gee, 2004) is that words and images and their associated meanings are stored in our heads and extracted from this store for routine use in communication. Our cultures have already done much of the work for us, filling our heads with words and conventional images. While children may, in a sense, reinvent some of this cultural storehouse of words and images, adults simply possess it in their heads and use it much as they do ready-to-hand tools like hammers and screwdrivers. Of course, they have to pick the right word or image (like the right tool) to do the job, though even this is on the traditional view, in most cases, a pretty routine and conventional matter.

Let’s call Kress’ view the “Proactive Design Theory” (PDT for short). We can call the traditional view the “Cultural Storehouse Theory” (CST for short). The traditional view, at least in the case of language, has a great hold on our minds because it is based on an analogy that we have all experienced, namely, looking up words in a dictionary. The traditional view is that we have a dictionary (called a “lexicon” by linguists) in our heads and look up words when we need to say or write them, though at lightning speed. A lexicon is a list of mental words, each correlated with its possible pronunciations and meanings. The same is held true of conventional images like using a circle to mean a wheel, the sun to mean light, or light to mean spiritual enlightenment. On the CST we have a list of images and their correlated meanings in our heads as well. We, by and large, replicate what others have done before.

Today, there is a PDT in current cognitive science, as well, though I do not recall Kress citing this work and his own early statements of a PDT predate it. A number of cognitive scientists have argued that any use of semiotic resources is, for us humans, always and everywhere *situated* (Barsalou, 1992, 1999a, 1999b; Gee, 1992, 2004, 2007b; Glenberg, 1997; Glenberg & Robertson, 1999). By this is meant that the meaning of any word or phrase (or other sign) is not a general or generic meaning or concept, but is actively “assembled on the spot” on the ground of practice. Sometimes this assembly process is fairly routine; other times it is more novel. To feel this assembly process at work, in a routine case, consider what happens in your head when I say, “The coffee spilled, get a mop” versus “The coffee spilled, get a broom” (A. Clark, 1989). In the first case, we assemble a meaning for “coffee” as a liquid; in the second case we assemble a meaning for “coffee” as beans or grains. Of course, in an ice cream parlour, “The coffee spilled, go get a mop” may mean coffee ice cream.

We assemble “situated meanings” customized to the contexts we are in and/or seeking to create. Further, we engage in this assembly process in order to prepare for action or goals, to fulfil our purposes. We dovetail meanings to our needs. Often this process is collaborative and interactive. We assemble meanings in a dynamic way based on interactions and negotiations with others when engaged in joint action and communication.

I am not sure how close, in any detailed way, Kress’ version of the PDT and the one from cognitive science are. One (Kress) talks about creating signs apt for our purposes, and the other (cognitive science) talks about assembling meanings that prepare us for action and goals in specific contexts of use. In my own work I have looked at each of these views through the lens of the other. But, in any case, let me make clear what I think it really means to say that meanings are not stored but assembled.

A sign is made of a signifier (a spoken or written word or a drawn image) and a signified (a meaning). It does seem, for the most part, we inherit signifiers even if we do assemble meanings proactively in context on the spot of communication. Of course, each of us can invent new words. But this is relatively rare and surely none of us invented the words “cookie” or “cat.” Kress, however, does talk about at least young children inventing or reinventing the signifiers that are in the cultural repertoire of adults.

However, there are, in actuality, two different ways to look at words. We can see the word “cat” as a material substance (made out of the sounds [k] [ae] [t] or the letters c-a-t). This substance can be placed on a list by orally saying words or writing them down. Words in this sense are objects, not signs, not even signifiers, since they are not signifying anything (at best we could call them potential signifiers). The only intention associated with words when we treat them as a list is to create an ordered set of things.

But we can also see a word like “cat” as a signifier meant to signify something. We can see it as not just an object but as the vehicle for an intention to communicate a certain meaning. This intention can be and usually is

formed and transformed in and through social communicative interaction. It can come to be a shared feature of conversation and interaction among two or more people.

In this sense, it seems apparent that speakers and writers must shape the meaning intention (what we might call the meaning direction or the meaning spin) of a word to be apt for a specific context of use. Furthermore, the context is always both simultaneously there (what is physically present and shared knowledge among participants) and construed by the participants as they interpret the context and what is relevant in and to it in certain ways.

It is not, then, just a matter of choosing a word—though that is an important part of our actions as designers of our meanings—but it is also a matter of construing the meaning of the word, its situated meaning or specific meaning in a specific context in an apt way for our purposes. At the same time we always also have to signal to our listeners or readers how we intend the word to be taken, how we want its meaning “spun,” so they can spin it that way too. In this sense, we create the word “cat” as a signifier signifying a specific situated meaning apt for our purposes each time we use the word.

Let me give a specific example of what I mean. Consider the word “democracy” and the way in which it is used in the different quotes that follow:

1. “. . . yet I believe [Milton] Friedman is right that thoroughgoing restrictions on economic freedom would turn out to be inconsistent with **democracy**” (G. Becker, 2006, n.p.).
2. “If **democracy** is about creating processes that allow people to empower themselves, then pirates [people running illegal pirate radio channels] are clearly the perfect catalyst for such processes” (Mason, 2008, p. 47).
3. Penalosa [Mayor of Bogota, Columbia] observes that “high quality public pedestrian space in general and parks in particular are evidence of true **democracy** at work” (Brown, 2008, p. 193).
4. “That is the fate of **democracy**, in whose eyes not all means are permitted, and to whom not all the methods used by her enemies are open” (Weisberg, 2008, pp. 181–182).

In the first quote, it is not clear if “democracy” even means majority rule, since a majority of voters would seem to be able to vote in any economic restrictions they wished. Quote 2 manages to equate democracy and an illegal activity, even though, presumably, laws reflect the wishes of the electorate. Quote 3 uses the term “true democracy” and takes public parks as the litmus test of a true democracy, while quote 4 sees not torturing people as a litmus test of a democracy.

There are three ways to look at what is happening in the preceding quotes. First, perhaps the authors do not agree on what the word “democracy” means. But, at a general level, they all do seem to believe it means that people vote for their leaders who represent them, though it must be

said that people do disagree how many people need to be able to vote in order to call something a “democracy,” since many authors use the word for ancient Athens (often called “the birthplace” of democracy, where only about 10 percent of the population, namely, free males, could vote) and the early United States (where women, African-Americans, and people who did not own land could not vote). Indeed, we can say that the dictionary-like meaning of “democracy” (as public voting) is the type-meaning of the word, that is, the general meaning or constraints (never iron clad) on its possible token-meanings, that is, situated or contextually specific meanings.

Second, we could say that the authors of these quotes each hold a different theory of “democracy” or what makes something a “real” or “true” democracy beyond voting. Third, we could say that each author is giving the word “democracy” a different situated meaning (assembling different specific situated meanings for the word shaped for and by different contexts of use). I am not sure, myself, that these two choices—different theories or different situated meanings—actually differ much. In reality, people use a word like “democracy” with certain communicative purposes (situated meanings) based on how they see the world and the contexts in which they are communicating (i.e., their formal and informal theories). It is their view of the world and of the contexts they are in that make them see a particular “meaning intention” or “meaning spin” as apt for their purposes, one which they seek to convince others to accept.

So now I have developed, perhaps, an additional PDT. I see the active design work a communicator does with words or other signs as forming socialized, interactively shaped, and transformable intentions to direct, shape, and spin the meaning of a sign in certain ways that are apt for the actions, goals, and purposes the communicator has. No other person or book can do this for us. People and their theories, as well as contexts, are too variable for a system that was simply based on retrieval from a preset and relatively static storehouse.

What I have said about words and signs is equally true of syntax. We speakers and writers have to make choices about how to create structures in our language (combinations of words and phrases) and infuse them with socialized meaning intentions. In fact, when we concentrate just on words we miss a good deal of the design action in communicating. It is by combining words that speakers and writers can make their most novel contributions and really direct the nuances of their meaning “spin.” This is why combinations like “real democracy” or “true democracy” work so well. They allow us to mitigate or even change the type-meaning constraints of the word. Or note the different possible meaning intentions between “Microsoft’s new operating system is loaded with bugs” and “Microsoft loaded its new operating system with bugs.”

Let me turn now to two examples of where a PDT has been essential to an official argument about words and word meaning. First, consider the written passage that follows. This is from a paper written by a Mexican-American

academic about a controversy that arose in a court of law as to whether a burrito was a sandwich or not (Ruiz, 2008). A “sandwich” store in a mall had an arrangement where no other sandwich store could open to compete with them. When a shop selling burritos opened, the sandwich store sued and claimed burritos were sandwiches.

A few months ago, a judge in Massachusetts declared that a burrito was not a sandwich. It is not clear what his credentials were to make this decision. His name does not lead me to conclude that he had the kind of intimate personal experience with Mexican food that I and many others like me have had, although I fully acknowledge that names are not a good way to determine national origin. (I went to school with a Mexican-American named Plunkett and I work with a Puerto Rican who counts Schwartzkopf as one of his family names.) The judge’s decision was explicitly legal, but it still brings us to question what social and cultural considerations might have gone into this determination.

It is not new that judges and courses decide questions for which their backgrounds may be deemed inadequate. Some of these decisions are much more important than resolving the ontological status of burritos. In 1896, a court decided that a law requiring Black and White people to use separate public facilities was constitutional; the plaintiff was Homer Plessy, a man who was one-eighth Black. In 1927, in a test case challenging the Plessy decision in the area of school segregation, a court decided that a Chinese girl was legally black (actually “negro,” the term of the day). In 1954, a court in Texas declared that Mexican-Americans were Caucasians. (I now know the cause of the brief bout of cold shivers resulting from the chemical reorganization I went through when I became white as a young boy.) In retrospect, many of us would now agree that the judges had no special qualification to decide these questions, and that they were just wrong to boot. (Ruiz, 2008, n.p.)

Ruiz is pointing out not only that we choose how to direct meaning, but that these choices have real consequences. He points out, as well, that we should ask what qualifications a person brings to making these choices. And here Ruiz is arguing that these qualifications are connected to our cultural storehouse, to the experiences we have had in the world as part of different social and culture groups. While the cultural storehouse does not determine meaning and we communicators design our own meanings, we have an ethical responsibility, nonetheless, to the cultural storehouse as it has been constructed and experienced by different people in a diverse society. This is a quite different view of the cultural storehouse, not as a list of meanings, but as a repository of experiences and values, different in different groups, to which we all need to be sensitive, both in terms of what we do know and what we do not.

My second example concerns a word that is not “fancy” like “love,” “honour,” or “democracy.” It is the word “sausage.” Consider what the African-American activist and lawyer Patricia Williams (1991) had to say in court once about this seemingly simple word. Williams was prosecuting a sausage manufacturer for selling impure products. The manufacturer insisted that the word “sausage” meant “pig meat and lots of impurities.” Williams, in her summation, told the jury the following:

You have this thing called a sausage-making machine. You put pork and spices in at the top and crank it up, and because it is a sausage-making machine, what comes out the other end is a sausage. Over time, everyone knows that anything that comes out of the sausage-making machine is known as a sausage. In fact, there is a law passed that says it is indisputably sausage.

One day, we throw in a few small rodents of questionable pedigree and a teddy bear and a chicken. We crank the machine up and wait to see what comes out the other end. (1) Do we prove the validity of the machine if we call the product sausage? (2) Or do we enlarge and enhance the meaning of “sausage” if we call the product sausage? (3) Or do we have any success in breaking out of the bind if we call it something different from “sausage”?

In fact, I’m not sure it makes any difference whether we call it sausage or if we scramble the letters of the alphabet over this thing that comes out, full of sawdust and tiny claws. What will make a difference, however, is recognition of our shifting relation to the word “sausage,” by:

- (1) enlarging the authority of sausage makers and enhancing the awesome, cruel inevitability of the workings of sausage machines—that is, everything they touch turns to sausage or else it doesn’t exist; or by
- (2) expanding the definition of sausage itself to encompass a wealth of variation: chicken, rodent, or teddy-bear sausage; or, finally, by
- (3) challenging our own comprehension of what it is we really mean by sausage—that is, by making clear the consensual limits of sausage and reacquainting ourselves with the sources of its authority and legitimation.

Realizing that there are at least three different ways to relate to the facts of this case, to this product, this thing, is to define and acknowledge your role as jury and as trier of fact; is to acknowledge your own participation in the creation of reality. (Williams, 1991, pp. 107–108)

It’s pretty clear that Williams approves of option 3. But, exactly what are the consensual limits of a word’s meaning? When does sausage cease to be sausage? How far can a company stretch the meaning of the word? What

are the sources that authorize and legitimate the meaning of a word? These are not the sorts of questions we are used to thinking about in regard to words and meaning when we are tempted to just open a dictionary to settle what the meaning of a word is. Furthermore, they suggest that the limits are social and ethical (“consensual”) and that meaning intentions emerge from social negotiation and contestation.

It is clear, then, that there are a number of sources for—perhaps different—PDTs, though Kress has been the most forceful, radical, and influential proponent here. Taking some version of a PDT for granted in regard to words and other signs, I want now to move on to how the modern world of digital media is bringing the notion of people as designers to the forefront of culture.

## GAMES

Gunther Kress (2003, 2010b) has spent a good deal of time discussing multimodality in his works. There is no other more multimodal media today than video games (save, perhaps, for opera, ironically). Video games—like *Half-Life*, *Civilization*, *Halo*, *World of Warcraft*, *Spore*, and *The Sims*—are virtual worlds replete with most of the modalities at play in the real world (including interactions with real people in multiplayer games).

A video game is a designed object designed by people we call “game designers” (Gee, 2007a, 2007c). Game designers use a set of usually now 3D tools to make a world of words, images, sounds, actions, and interactions between the player and the virtual world, as well as between virtual characters within the world. These tools are called “game engines.”

Game design is a semiotic process of an interesting sort. Game engines allow game designers to construct grammars for their games. The syntax of these grammars (made out of code) are a set of rules about items (images, words, sounds, actions) and how they can interact and be combined in the game world. These are the rules of the game. But what do the images, words, sounds, actions of a game signify? What do they mean? For example, what does a crate mean in a game? The rules say that the crate can be interacted with by the player in certain ways and that it can interact with other objects in the game in certain ways (and this is different for different games). The crate means—signifies—all the things you can do with it in the game to accomplish goals and purposes, some of these set by the game itself (by its designers, goals you are given) and some determined by the players themselves (based on free choices they make).

For example, crates in games are often things the player can break to get a “power up” (e.g., healing). In this sense, one possible meaning of a crate is “breakable object with healing potion inside.” But a gamer can decide to forego all such power ups to see how far he or she can get without this help.

Now the player has made the crate mean “purposely missed opportunity to show my prowess as a player.” The semantics of a game grammar is a very Wittgensteinian thing (Wittgenstein, 1958), the meaning of a sign is what you can do with it, how you can use it in the game.

A good player must play around and explore a game world in order to hypothesize what its rules are (what sort of semiotic system it is) and how they can be used for the player’s own purposes and goals. The player builds a model in his or her mind of the underlying rule system in the game and how using these rules and their interactions in certain ways can not only accomplish the player’s goals, but even give rise to emergent properties, to novel results that even the game’s designer may not have anticipated or other players may not have discovered. In this way, a computational, algorithmic process—that at first seems fixed—becomes the ground for freedom, choice, and emergence (much as in language).

So, ironically perhaps, what players are really paying attention to in a game are not the pretty images, amazing sounds, and exciting action, but the underlying rules that produce them as things that can be used for actions and purposes in ways that are apt for the player’s goals, skill level, and desires. That is why gamers will accept a game with good game mechanics and poor graphics over one with good graphics and poor game mechanics.

This is basically to say that good players are paying attention to what the game’s images, sounds, words, and possible actions, and their possible combinations—things that the game’s code and rules give rise to—can be used to signify in specific contexts of game play for specific goals and purposes. This really means that players are creating the signs (determining what the signifier will signify) and that what the game designers are really giving players is the potential to create their own signs under certain constraints (that good players always push against).

This seems to be a good picture of Kress’ view of language and signs. But what “designer” created language as a constrained set of potentials for sign design? Perhaps evolution played a role here and culture certainly did. For other sorts of sign systems, culture was clearly the designer. But, here again, we get a view of culture not as a passive storehouse of what others have done, but as a set of constrained potentials and opportunities for everyone to design, produce, and transform.

Of course, these potentials and opportunities have historically been opposed by elites when it comes to “everyday” people being producers and not just consumers. Elites historically have tried to restrict who can speak consequentially on consequential topics, who can read or whose interpretations are authoritative, and who can write and publish (Gee, 2007b; Gee & Hayes, 2011). This is a topic for another chapter, but we can say that elites have tried to sell non-elites on a CST for non-elites while reserving a PDT for themselves. Neither Kress’ work, nor the way modern media is allowing everyone to produce and not consume (Shirky, 2010)—a topic to which we will now turn—is good news for the elite.



## MODDING

Many video games today come with a version of the game engine with which they were made. Players can then go beyond playing the game and actually use the engine to modify—or in gamer terminology “mod”—the game. They can make small changes in the game, or design new environments or levels of play, or they can transform the game totally into a different game (e.g., a game about zombies can become a game about World War 2). Such total transformations (total mods) are a good example of how the engine is basically a potentiator of sign design and not a store of signs. Modders then circulate their modded versions of the game to others via the Internet. In some cases, these consumer-designed games have become very popular and even in some cases bought by commercial companies and distributed as commercial games for great profit (e.g., *Counter Strike*, a mod of *Half-Life*).

Game companies allow modding for financial reasons. To use a modded version of a commercial game, the consumer must own the original game. Further, the modders extend interest in the game being modded and in game design. Nonetheless, modders represent an even more radical version of a PDT. Here players are using a grammar for sign-making to make new grammars for sign-making. They are designing not just signs but grammars for sign-making, sign systems, potentiators for producing meaning.

Modding is often part of a larger fan community that builds up around a game and engages in discussion about strategy, game play, and the statistical or algorithmic properties of the underlying game engine (Gee & Hayes, 2010). Such fan communities keep a good number of people devoted to a game for a long time and eager to play its sequel.

However, modding is part of a larger trend in popular culture. In many areas today digital media are allowing people of all ages, without official credentials and as amateurs, to produce their own designs, products, services, and knowledge (Gee & Hayes, 2011; Shirky, 2010). We are entering an age of “Pro-Ams”: amateurs who have become experts at whatever they have developed a passion for (C. Anderson, 2006; Leadbeater & Miller, 2004).

Many of these are young people who use the Internet, communication media, digital tools, and membership in often virtual, sometimes real, communities of practice to develop technical expertise in a plethora of different areas. Some of these areas are digital video, video games, digital storytelling, machinima, fan fiction, history and civilization simulations, music, graphic art, political commentary, robotics, anime, fashion design (e.g., for Sims in *The Sims*). In fact, there are now Pro-Ams in nearly every endeavor the human mind can think of.

These Pro-Ams have passion and go deep rather than wide. At the same time, Pro-Ams are often adept at pooling their skills and knowledge with other Pro-Ams to bring off bigger tasks or to solve larger problems. These are people who don't necessarily know what everyone else knows, but do

know how to collaborate with other Pro-Ams to put knowledge to work to fulfil their intellectual and social passions.

Let me give one specific example of what I am talking about (Gee & Hayes, 2010): A young rural girl, quite unaffiliated with school, is in an out-of-school program to encourage girls' interest in technology. In the program she has learned that she can use Photoshop to turn real clothes into fashions for her Sims in the game *The Sims*, though this is something of a technical feat. Nonetheless, this is something she wants badly to do. She has learned that she can do it, but not how to do it. This she has to learn on her own—actually not on her own, because there is much help available on the Internet—because the people who run the program do not themselves know how to do it.

After much effort, the girl eventually designs virtual clothes from real clothes for her friends (her status in her peer group goes way up) and then discovers she can upload her clothes on the Internet so that people across the world can see them and use them. Soon hundreds of people are seeing her designs and heaping her with praise (she now has “global” status).

This girl originally did not sell her clothes, but gave them away. But soon she opened a shop in *Second Life* (a virtual world built by its own “players”), a shop which she designed and built (using a 3D engine in *Second Life*) herself. She started selling her clothes there for Linden dollars, which can be traded for real money. She has become a classic example of what the Tofflers (Toffler & Toffler, 2006) call a “prosumer,” a consumer who produces and transforms and does not just passively consume.

Such prosumers produce originally for off-market status and as part of a community of like-minded experts. But, as the Tofflers point out, such prosumer activity often impacts on markets when people like this girl eventually sell their goods or services. In fact, the Tofflers believe such activity, though unmeasured by economists, is a big part of the global economy and will be a yet bigger part in the future.

This young girl has actually joined several Pro-Am communities or what we also call “passionate affinity spaces” (Gee & Hayes, 2010, 2011)—non age-graded social groups that mentor and norm domains dealing with things like designing clothes for *The Sims* or designing and selling in *Second Life*. The standards are high here. Others in these passionate affinity spaces have mentored her, but they hold her to very high standards if she is to be accepted as an “insider.”

Some educators confronted with this example might well decry getting this girl interested in fashion, since this is such a gendered stereotype. However, when she was asked how this experience had made her think differently about her future, she said—not that she wanted to become a clothes designer, but, rather, that she wanted to “work with computers,” because she had seen that they are a source of “power.” She saw working with computers, too, as a source of innovation and creation. We do not know what identity transformations are happening to people as they engage with real standards in real domains unless we ask.

In designing and selling her clothes, the girl has learned some important 21st century skills, ones taught more commonly today out of school than in. She has learned how to use a technologically sophisticated product like Adobe Photoshop; how to think about the visual system (e.g., colour, hue, texture), a mainstay of research in cognitive science; how to design clothes; how to upload her clothes to the Internet; how to build her own website; how to communicate with people across the world about her designs; how to use *Second Life*'s building tools to design a store; how to manage the store and become an entrepreneur; and how to be a member of and move across various passion communities and, in the act, “transfer” her learning and knowledge from one place (domain, institution) to another (an important sense of “transfer”).

Leadbetter and Miller (2004) sum up the Pro-Am situation well:

The twentieth century was shaped by the rise of professionals. . . . From education, science and medicine, to banking, business and sports, formerly amateur activities became more organized, and knowledge and procedures were codified and regulated. . . . But in the last two decades a new breed of amateur has emerged: the Pro-Am, amateurs who work to professional standards. . . . The Pro-Ams are knowledgeable, educated, committed and networked, by new technology. The twentieth century was shaped by large hierarchical organisations with professionals at the top. Pro-Ams are creating new, distributed organizational models that will be innovative, adaptive and low-cost. (p. 12)

Ironically modern capitalism has let loose a plethora of tools that allow “everyday” people to produce and not just consume (Shirky, 2010). Modern capitalism has finally discovered that it's good for profit to tell people that a PDT of signs is correct and that people should relish and revel in their creativity. Yet, as we might suspect, there is a real danger that the Pro-Am phenomenon will primarily fuel more privileged young people, kids who already feel empowered, for their success in the 21st century. Indeed, there is already evidence that this is happening, as it did with literacy (Gee & Hayes, 2011; Hargittai, 2010). Yet, as many of us—most certainly Gunther Kress—have tried to do with literacy, we have the capacity to fight back, to stress once again that meaning-making is a design and production act that all humans are or can be masters of. Kress has fired the first and best shots in this battle. But the battle must go on.