Cultural Models: Do You Want to Be the Blue Sonic or the Dark Sonic?

James Gee

Context

This essay is a chapter from my book, What Video Games Have to Teach Us About Learning and Literacy, (Palgrave/Macmillan, 2003), which was written because watching my then six-year-old son play video games inspired me to try playing them myself. I was amazed by how hard they were and yet, at the same time, deeply motivating and engaging. When I stuck with them, I also became fascinated by how well they dealt with learning as part of the deep pleasure of playing.

Speaking of Games

Cultural Representation

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Content in Video Games

Chapter 2 discussed a case where a grandfather said that a six-year-old playing *Pikmin* was wasting his time, because he wasn't learning any "content." But, of course, video games *do* have content. *RollerCoaster Tycoon,* for instance, is about building, maintaining, and making a profit from an amusement park. *Medal of Honor Allied Assault* is about World War II and includes an absolutely hair-raising invasion of Omaha Beach, reminiscent of the opening scenes of the movie *Saving Private Ryan. Civilization III* is about world history and the dynamics of building and defending a society from the ground up. A great many video games, such as *Half-Life, Deus Ex,* and *Red Faction,* are about conspiracies where powerful and rich people or corporations seek to control the world through force and deception. In fact, the content of video games is nearly endless.

One of the things that makes video games so powerful is their ability to create whole worlds and invite players to take on various identities within them. When players do this, two things can happen: On one hand, their presupposed perspectives on the world might be reinforced. For example, if someone thinks war is heroic, *Return to Castle Wolfenstein* will not disabuse him or her of this viewpoint. If someone thinks that the quality of life is integrally tied to one's possessions, *The Sims* (a best-selling game where you build and maintain whole families and neighborhoods) will not disabuse him or her of this perspective, either.

On the other hand, through their creation of new and different worlds and characters, video games can challenge players' taken-for-granted views about the world. Playing through the invasion of Omaha Beach in *Medal of Honor Allied Assault* gives one a whole new perspective on what a full-scale battle is like. The movie *Saving Private Ryan* did this as well, but the game puts the player right in the midst of the action, pinned to the ground, surrounded by deafening noise and wounded, sometimes shell-shocked, soldiers, and facing the near certainty of a quick death if he or she makes one wrong move. As players make choices about people, their relationships, and their lives in *The Sims* (and sometimes players have made real people, such as their friends, into virtual characters in the game), they may come to realize at a conscious level certain values and perspectives they have heretofore taken for granted and now wish to reflect on and question.

This chapter is about the ways in which content in video games either reinforces or challenges players' taken-for-granted perspectives on the world. This is an area where the future potential of video games is perhaps even more significant than their current instantiations. It is also an area where we enter a realm of great controversy, controversy that will get even more intense as video games come to realize their full potential, for good or ill, for realizing worlds and identities.

Sonic the Hedgehog and Cultural Models

Sonic the Hedgehog—a small, blue, cute hedgehog—is surely the world's fastest, most arrogant, and most famous hedgehog. Originally Sonic was the hero in a set of games for the Sega Dreamcast game platform. However, now that the Dreamcast has been discontinued, he has shown up on the Nintendo GameCube in the game *Sonic Adventure 2 Battle.* Sonic can run really really fast. He can go even faster—like a blurry blue bomb—when he rolls into a ball. Either way, he can race around and through obstacles, dash into enemies, and streak through the landscape, leaping high in the air over walls and barriers.

The back story for *Sonic Adventure 2 Battle* is that the sinister Dr. Eggman, while searching the remnants of his grandfather's laboratory, uncovers a dark form of his arch-nemesis, Sonic, namely a black hedgehog named Shadow. Together the two conspire to unleash the Eclipse Cannon, a weapon of mass destruction. The government, unable to tell the blue Sonic from the dark Shadow (they look alike) arrests Sonic for Shadow's evil doings. Sonic escapes and has to free the world of Dr. Eggman and Shadow's evil to clear his name.

Players can play *Sonic Adventure 2 Battle* in two different ways. They can be "good" and play as the blue Sonic, or they can be "bad" and play as Sonic's look-alike, Shadow. If they choose Sonic, they play as Sonic, together with his friends Knuckles (a boy echidna) and Tails (a boy squirrel), trying to stop Dr. Eggman and Shadow from taking over the world. If they choose Shadow, they play as Shadow, together with his friends Rouge (a girl bat) and Dr. Eggman, trying to destroy the world. Players can switch back and forth, playing part of the Sonic quest and then changing to play part of the Shadow quest.

The six-year-old from chapter 2 also plays *Sonic Adventure 2 Battle.* When he originally got the game, he first played a few episodes from the Sonic quest and then started playing episodes from the Shadow quest. When he was playing as Shadow, he commented on the fact that "the bad guy was the good guy"—an odd remark. What he meant, of course, is that when

you are playing as a virtual character in a video game, that character (you) is the hero (center) of the story and in that sense the "good guy" no matter how bad he or she might be from another perspective. This boy had never before played a game where the hero (himself) was, in terms of the story behind the virtual world, a bad or evil character.

Of course, video games are just as easy to design to allow you to play a sinner as a saint. Indeed, this fact has generated a good deal of controversy. While the video game world is replete with heroes who destroy evil, it also contains games where you can be a mob boss, a hired assassin, or a car thief. For example, in the notorious *Grand Theft Auto 2*, you play a budding young criminal, striving to make a name for yourself in a near-future world filled with drugs, guns, and gang wars. Your city is populated by three different gangs, each of which runs a different section of the city. Each gang has a set of pay phones that you can use to take on odd jobs stealing cars. The problem is that a gang will assign you work only if it respects you. You earn this respect by driving over to a rival gang's turf and shooting as many of their members as you can. Here you are certainly not a "good guy" in any traditional mainstream sense. (*Grand Theft Auto 2* was followed by the highly successful sequels *Grand Theft Auto III* and *Grand Theft Auto: Vice City*.)

What our six-year-old discovered was that there are (besides still others) two different models of what counts as being or doing "good." In one model, what counts as being or doing good is determined by a character's own goals, purposes, and values, as these are shared with a particular social group to which he or she belongs. Shadow and his group (Rouge and Dr. Eggman) have a set of goals, purposes, and values in terms of which destroying the world is their valued goal.

If you want to play *Sonic Adventure 2 Battle* from Shadow's perspective you must act, think, and value (while playing) from this perspective, a perspective that makes Shadow "good" or "the hero." After all, you are fighting numerous battles as Shadow and feel delight when winning them and dismay when losing them. It would be absolutely pointless to play as Shadow but purposely lose battles because you disapprove of his value system. If you played that way, Shadow would die quickly in the first episode and you'd never see anything else in the Shadow part of the game.

In the other model, what counts as being and doing good is determined by a wider perspective than just a character's own goals, purposes, and values, as these are shared with a particular social group. Rather, what counts is determined by the values and norms of a

"wider society" that contains multiple, sometimes competing, groups as well as more or less generalized rules and principles about behavior. In terms of this model, Sonic is fighting for social order and the survival of the majority, things that are considered good from the perspective of many different groups and in terms of rather general principles of right and wrong.

By "models" of what it means to be and do good, I do not mean "professional" philosophical positions on ethics or theological ones on morality. I just mean "everyday" people's conceptions. The first model, which we might call the group model, can be captured by something like the following: "I am acting like a good person when I am acting in the interests of some group of which I am a member and which I value." The second model, which we might call the general model, can be captured by something like this: "I am acting like a good person when I am acting according to some general conception of what is good and bad, a conception that transcends my more narrow group memberships."

These two models regularly come into conflict in real life and cause all sorts of interesting issues and questions to arise. Some people readily believe that their group interests and values are or ought to be the general good. Others think that general conceptions of good really just hide the narrow interests of particular groups in a society that has cloaked them as general goods. Yet other people believe their interests and values represent future, rather than present, general conceptions of good and may see going against current conceptions of good as a necessary evil for a greater future good. And, of course, there are multiple ideas about what general conceptions of good and bad are.

The six-year-old, in playing *Sonic Adventure 2 Battle*, has been confronted with these two models. He has realized that when you act in (or think in terms of) the role of someone else (even a hedgehog), this involves not merely taking on a new identity but sometimes thinking and valuing from a perspective that you or others may think "wrong" from a different perspective. He also has learned that experiencing the world from that perspective (in one's mind or in a video game) does not mean that he accepts it in the sense that he wants, in his real-world identity, to adopt the values and the actions that this perspective underwrites.

These two models of what it means to be good are examples of what I will call *cultural models*. Cultural models are images, story lines, principles, or metaphors that capture what a particular group finds "normal" or "typical" in regard to a given phenomenon. By "group"

here I mean to single out anything ranging from small groups to the whole of the human race with everything in between. Cultural models are not true or false. Rather, they capture, and are meant to capture, only a partial view of reality, one that helps groups (and humans in general) go about their daily work without a great deal of preplanning and conscious thought. After all, if many things were not left on "automatic pilot," we would spend all our time thinking and never acting.

So, for example, something like "People are good people when they are acting so as to help their group (family, church, community, ethnic group, state—pick your group)" is a cultural model for many different groups. It is a version of what I called the group model of good. Something like "People are good when they are acting according to general principles of morality (pick your principles)" is another cultural model that many groups use, though they may accept different cultural models about what are typical general principles of morality. This is a version of what I called the general model of good. And, of course, the two models can and sometimes do come into conflict.

Since cultural models are usually not conscious for people and since people rarely, if ever, try to formulate them definitively and once and for all in words, there is no exactly right way to phrase them. If forced to formulate them, people will put them into different words in different situations. The best researchers can do, then, is study people's behavior and words when they are acting as members of a certain sort of group and acting within certain sorts of situations and eventually conclude that, given what they do and say, they must accept a certain cultural model for a given phenomenon, a cultural model we formulate in words the best we can. Of course, when they are acting as members of different groups in different situations they may not act according to the cultural model we have hypothesized but in terms of another one.

Social groups do not usually pay much overt attention to their cultural models, unless one is threatened. Of course, when cultural models are challenged or come into conflict with other such models, then they can come to people's conscious awareness (even to the conscious awareness of the group as a whole). If someone comes to think that the actions he or she is taking for the family's good conflict with general conceptions of morality (not even necessarily the person's own general conceptions), this can give rise to discomfort and conflict, discomfort and conflict that can be resolved in various ways.

A number of pervasive cultural models about gender have become conscious to people thanks to the fact that these models have been openly challenged in society. For example, a cultural model that holds that unmarried women are unfulfilled "spinsters" because they do not have families has long been challenged by feminists, single women with children, lesbian couples with children, and perfectly fulfilled single women with good careers with which they are satisfied. Of course, all these people existed before, but as long as they did not speak out and make themselves visible, they were easily rendered invisible and marginal by traditional cultural models. Once they did speak out, those models and the social work they did came to people's consciousness and had to be overtly defended or changed.

The world is full of an endless array of ever-changing cultural models. For example, what do you think of a teenage child who tells his or her parents to "F___ off?" Perhaps you apply a model like "Normal teenagers rebel against their parents and other authority figures" and are not too concerned. Perhaps you apply a model like "Normal children respect their parents" and conclude the teenager is out of control. Who is to say what a "normal" or "typical" teenager is or does? Different cultural models hold different implications.

What do you make of a toddler who throws a tantrum when you, in a hurry to get your chores done, open a heavy car door that he or she wants to try to open, no matter how long it takes? Perhaps you apply a cultural model like "Young children go through sometimes-difficult 'stages' in their urge for growing self-reliance and independence" and conclude your child and the situation you are in is quite "normal." Perhaps you even encourage the child. Or perhaps you apply a model like "Young children are naturally willful and selfish and need discipline to learn to get along with and cooperate with others." Again, you would conclude you have a "normal" child, but one in need of discipline.

When you see a beggar on the street, your first reaction might stem from a cultural model like "People are responsible for themselves and when they fail it's their own fault" and go on your way, ignoring the person's pleas for money. Or you might apply a model something like "Down-and-out people are victims of problems that have overwhelmed them in a harshly competitive society" and give the person some money. Or you might apply a model like "Giving people money just encourages them to seek more help from others rather than seek to help themselves" and give the beggar an address of a foundation that can help him or her get a (probably quite bad) job.

When you have an argument with someone, do you apply a model something like "Arguments are a sort of verbal conflict" (helped along in this case by metaphors in our language like "I won the argument" or "I *defeated* her positions")? When you are in a romantic relationship, do you apply a model something like "Relationships are a type of work" (helped along in this case by metaphors in our language like "I've put a lot of *work* into this relationship" or "He has *worked hard* to be a good lover")? When you talk about people's jobs, do you apply a model something like "Working with the mind is more valuable to society than working with one's hands" and find yourself valuing even an academic who debates how many angels can sit on the head of a pin over your plumber? Perhaps the answer is no in all these cases, in which case you operate, at least sometimes and in some places, with different cultural models.

There are several important points to be made about cultural models. They are not just in your head. Of course, you store images and patterns in your head that represent cultural models, but they are also represented out there in the world. For example, the cultural model that said that "Young children go through sometimes-difficult 'stages' in their urge for growing self-reliance and independence" exists in a lot of self-help guides on babies and childrearing. The words and images of the magazines, newspapers, and other media all around us represent many cultural models. The models also are represented and acted out in the words and deeds of the people with whom we interact and share memberships in various groups.

Different cultural models are associated with different groups in the larger society, though some are also shared widely by many, perhaps all, groups in that society. For instance, the cultural model about children going through "stages" toward independence is associated more closely (though not exclusively) with the modern middle class, and the cultural model that said "Young children are naturally willful and selfish and need discipline to learn to get along with and cooperate with others" is associated more closely (though not exclusively) with the traditional working class.

Cultural models, which cannot be stated in one definitive way, are stories or images of experience that people can tell themselves or simulate in their minds, stories and images that represent what they take to be "normal" or "typical" cases or situations. In this sense, they are like theories, theories about things like children, childrearing, relationships, friendship, being and doing good, and everything else. These theories are usually unconscious and taken for granted. However, like all theories, even overt ones in science, they are not meant to

be detailed, blow-by-blow descriptions of reality. Reality is too complex to be described accurately in every detail. Rather, cultural models and formal theories both are meant to capture general patterns in such a way that we can do things in and with the world, whether this is to accomplish a goal with others or to make successful predictions in an experiment.

Cultural models are picked up as part and parcel of acting with others in the world. We act with others and attempt to make sense of what they are doing and saying. We interact with the media of our society and attempt to make sense of what is said and done there, as well. Cultural models are the tacit, taken-for-granted theories we (usually unconsciously) infer and then act on in the normal course of events when we want to be like others in our social groups. People who have no cultural models would have to think everything out for themselves minute by minute when they attempt to act. They would be paralyzed. And they certainly would not be social beings, since part of what makes us social beings is the set of cultural models we share with those around us.

Cultural models can be used for many different purposes and they can sometimes conflict with each other. For example, the anthropological psychologist Claudia Strauss found that working-class men she studied behaved in their daily lives according to what she called a bread-winner model. This model can be phrased something like this: "Men take care of their families even if this means sacrificing their own interests." On the other hand, Strauss found that many upper-middle class people operate with a cultural model that stresses their own self-development over the interests of those around them, including their own families. When such people were faced with moving to take a new and better job, they often did so, even if this damaged their families and relationships. The working-class men Strauss studied, when faced with the same choice, gave up the new career opportunity for the benefit of their families.

These working-class men also used what Strauss and others have called the success model to judge their own behaviors. This model says something like "In the United States, anyone can get ahead if they work hard enough." The working-class men saw that they did not hold jobs the wider society considered successful and used this model to condemn themselves, saying they had not worked hard enough or weren't smart enough. They used the success model to judge themselves negatively even though this model exists in some degree of conflict with the bread winner model on which they led their lives in action, a model that would not let them take the "selfish" steps often required by the success model.

Since this conflict did not surface to consciousness for these men, it did not come out into the open. They simply felt bad about themselves, at least when forced to think about themselves in relation to the society as a whole. In other settings, of course, they may have felt quite differently—remember, people take on different identities in different situations and all people are members of many different groups.

Are cultural models, then, "good" or "bad"? They are good in that they allow us to act and be social in the world without having to constantly reflect and think. They are bad when they operate so as to do harm to ourselves or others but go unexamined. Certain circumstances can, however, force us to think overtly and reflectively about our cultural models. We certainly don't want or need to think overtly about all of them. But we do need to think about those that, in certain situations or at certain points in our lives, have the potential to do more harm than good.

Sonic Adventure 2 Battle forced the six-year-old overtly to realize and confront two different, and sometimes conflicting, cultural models of what constitutes being and doing "good." Of course, this realization was only beginning. Many other experiences, not the least in video games, will give this child other opportunities to think more about these two models. And, indeed, they are models that bear a good deal of thinking about, since they have done and have the potential to do a lot of harm in the world.

Under Ash

The sort of thing that the six-year-old experienced can go much further and deeper. Consider the case of Arab children. After the terrorist attacks of September 11, 2001, a number of video games came out, initially on the Internet and thereafter as packaged games, featuring U.S. soldiers killing Arabs and Muslims. These games, for obvious reasons, were not entirely palatable to Arab children. In response, the Syrian publishing house Dar Al-Fikr designed a video game called *Under Ash.* Its hero is a young Palestinian named Ahmed who throws stones to fight Israeli soldiers and settlers. The game, of course, involves the player deeply in the Palestinian cause and Palestinian perspectives.

In the game, Ahmed initially must reach Jerusalem's Al-Aqsa mosque, an important Islamic holy site, avoiding or fighting Israeli soldiers and settlers along the way. Once he reaches the mosque, Ahmed has to help injured Palestinians, find weapons, and expel Israeli soldiers. There are many other episodes to the game, including ones where Ahmed infiltrates

a Jewish settlement and where he serves as a guerrilla warrior in southern Lebanon. As is typical of such video games, Ahmed only attacks those he does not consider "civilians." (In this case, occupation forces, settlers, and soldiers do not count as "civilians.") "Civilians" (all others) are left unharmed.

Of course, it is clear that in video games who does and does not count as a "civilian" is based on different perspectives embedded in the game's virtual world. I was originally surprised (which shows I was operating with a different cultural model) that settlers (since they are not in the army) didn't count as civilians. But then I realized that this game accepts a cultural model in terms of which the settlers are seen as the "advance" troops of an occupation army.

The general manager of the company that produced *Under Ash,* Adnan Salim, considers the game, one that is violent in just the way many U.S. shooter games are, "a call for peace." In an Internet site devoted to the game, Salim says that "Slaying and shedding blood have been the worst of the Human's conducts [*sic*] since the beginning of creation." I got Salim's views from Google's (a search engine) cache of www.underash.com/emessage.htm. (A cache is a snapshot that the people at Google took of the page as they "crawled the web.") This site, like several others devoted to *Under Ash,* no longer exits. Opponents of the game have destroyed many sites devoted to it. I have no idea whether this was true of this site or not. Salim goes on to say that "[i]n spite of the Human's endeavor and struggle to get rid of the crime of murder since he appeared on Earth, Israel has been practicing collective killing and eradication."

On the other hand, he claims that:

> *Under Ash* is a call to humanity to stop killing and shedding blood. After all its awful experience and global destructive wars, the whole world has become aware of the fact that wars never solve problems....
>
> *Under Ash* is a call to dialogue, coexistence and peace. Justice is the deeply-rooted human value that God Almighty enjoined.... On the other hand, nations perish, states stabilize and civilizations collapse according to the amount of aggression, injustice and harm they practice....
>
> *Under Ash* is a call to justice, realizing truth, preventing wronging [sic] and aggression. God made all mankind as equal to each other as the comb teeth....

> Such is the philosophy of *Under Ash*. The idea on which it was based repulses violence, injustice, discrimination and murder, and calls for peace, justice and equality among people.
>
> This idea, accompanied by the best available technology, is still handy to our youth, trying to dry up their tears; heal their wounds; remove all the feelings of humiliation, humbleness and wretchedness from their souls, and draw the smile of hope and the sense of dignity and efficiency on their faces.

If you find these remarks odd in regard to a violent video game (remember that there was no outcry in the United States over shooter games where the enemies were Arabs), that is because these remarks and the game itself take for granted a number of cultural models foreign to many Americans (just as American games and remarks about them take for granted different cultural models). For example, consider that Salim says that, after having experienced the violence of global wars, the world: "turned back to the patient dialogue around the table of negotiation which resulted in the establishment of a *European Union* among nations which previously hated one another and went on fighting for centuries. Then they agreed to coexist peacefully within a union under whose authority none is harmed and every one benefits."

One cultural model that seems to be at work here is something like this: "The experience of violence will make people seek peace." In terms of this model, we can see the guerrilla fighter as trying to push more powerful entities (i.e., states), entities that the guerrilla cannot defeat outright, to settle their differences through negotiation rather than war. A cultural model something like "The experience of overwhelming violence will make less powerful entities give up and give in to more powerful entities" seems at play in both some U.S. video games and much U.S. media devoted to warfare in the modern world. Note that like all cultural models, these are not "true" or "false." (History is replete with examples and counter-examples to both.) They are meant to help people make sense to themselves and others and to engage in joint activity with others with whom they share these cultural models.

Now, you might very well not want to play *Under Ash*. If you did play the game, you would be placed in a situation where you took on the virtual identity of a character whose cultural models about many things are different from yours. If you not only adopted this virtual identity while you played but took on what I called in chapter 3 a projective identity vis-à-vis your virtual identity (Ahmed), you would surely come to understand what it feels like to be

among those angry young people who are "trying to dry up their tears; heal their wounds; remove all the feelings of humiliation, humbleness and wretchedness from their souls, and draw the smile of hope and the sense of dignity and efficiency on their faces."

Would this mean you would, all of a sudden, want to kill Israeli settlers or even that you would support the Palestinian cause over the Israeli one if you had not before? Certainly not. But it would mean that, far more interactively that you could in any novel or movie, you would have experienced the "other" from the inside. Even more interesting, since the cultural models built into the game are not yours, you would be able to reflect on them in a more overtly conscious way than young Arabic players for whom the models are taken for granted (as U.S. game players take for granted different models that fit their own sense of reality). In turn, this might make you contrast these models to ones you have taken for granted and bring them to consciousness for reflection.

What if *Under Ash* allowed you to play through the game twice, once as Ahmed and once as an Israeli settler, just as *Sonic Adventure 2 Battle* allows you to be Sonic or Shadow, or *Aliens vs. Predator 2* allows you to be a Marine fighting off the Aliens and Predator or either an Alien or Predator trying to survive by killing the Marines? My guess is that if you had taken on both the projective identity of you as Ahmed and you as Israeli settler, you would find the whole thing much more complex than you do now and would be a bit more reluctant to take the death of either side for granted. Such complexity is bad, I admit, for people and states trying to wage war.

Video games have an unmet potential to create complexity by letting people experience the world from different perspectives. Part of this potential is that in a video game, you yourself have to act as a given character. As you act quickly, and not just think leisurely, and as you (while playing) celebrate the character's victories and bemoan his or her defeats, you must live in a virtual world and make sense of it. This making sense of the virtual world amid not just thought but also action in the world amounts to experiencing new and different cultural models. Furthermore, you may experience these models much more consciously—and render some of your own previous models conscious by contrast in the process—than is typical of our daily lives in the real world. In the next section I turn to an example that is less esoteric for Americans than *Under Ash.*

I am well aware that this potential of video games—if and when it is more fully realized—is liable to be very controversial. An Israeli or Palestinian who has lost a loved one

to violence is not going to want to play both sides of my make-believe *Under Ash* game. Indeed, the Israeli and Palestinian may each revel in playing "their" side and getting virtual revenge. Each may think it immoral to "play" the other side, to take on such a perspective on the world even in play. I, too, think that certain perspectives are so repugnant that we should not take them even in play. But who decides? And if we are willing to take none but our own side, even in play, then violence would seem inevitable.

We do not have to imagine games that most of us would find entirely repugnant, regardless of our political perspectives. Such games actually exist. For example, a game called *Ethnic Cleansing,* put out by the Virginia-based National Alliance, has players killing African Americans, Latinos, and Jews as they run through gritty ghetto and subway environments. The game is quite sophisticated technologically. (It was built using free game development software called Genesis 3D.) Hate groups like the National Alliance have long recruited members through the use of web sites, white-power music, and books and magazines. However, there is concern, for just the reasons we have discussed, that interactive media like video games are a more powerful device than such passive media. But if they are, then they are potentially more powerful for both good and ill.

Whether we like it or not, new technologies make it easy to design realistic and sophisticated video games that allow players to be almost any sort of person or being living in almost any sort of world that any designer can imagine. Eventually this capacity will be used to allow people to live and interact in worlds where violence plays no role and is replaced by conversation and other sorts of social interactions. (*The Longest Journey,* a game whose lead character is an 18-year-old woman named April Ryan, is one such game; *Siberia,* whose protagonist is a female lawyer wandering around a town full of automatons, is another.)

The same capacity that will allow us to enact new identities and learn to act according to new cultural models can also allow us to renew our hate or even learn new models of hate. In the end, who is to decide what identities you or I can enact and whether enacting them will be a good or bad thing for us? Publicly the issue usually is couched in terms of children and teens, where parents surely bear a major responsibility, but the average video-game player is in his or her late 20s or early 30s. I don't want politicians dictating what identities I can enact in a virtual world. At the same time, I worry about people who play *Ethnic Cleansing.* But any attempt to stop the flow of identities that new technologies allow presents the danger of locking everyone into their most cherished identities, and that has brought us a great deal

of ethnic cleansing of its own. I have no solid answers to offer, only the claim that video games have the potential to raise many such questions and issues.

Going to War

Both *Return to Castle Wolfenstein* and *Operation Flashpoint: Cold War Crisis* are shooter games played out in military settings. *Castle Wolfenstein* is a first-person shooter. (You see only the weapon you are holding, unless you look in something like a mirror when you then see yourself.) *Operation Flashpoint* can be played either in the first-person or in the third-person (where you see your character's body as if you were just a bit behind him). In *Castle Wolfenstein* you play Major B. J. Blazkowitz in World War II fighting against the Nazis. In *Operation Flashpoint* you start the game as Private David Armstrong, though you (Armstrong) go up in rank during the game. Private Armstrong is involved as a U.S. soldier representing NATO in a war against a resistance movement on an island nation.

While all this makes these two games sound similar, they are in a great many respects entirely different. In *Return to Castle Wolfenstein,* Major William J. "B.J." Blazkowicz is a highly decorated Army Ranger recruited into the Office of Secret Actions (OSA) and given the task of going to Castle Wolfenstein to thwart Heinrich, the reincarnation of a tenth-century dark prince, Henry the Fowler (also known as Heinrich), and an army of genetically engineered super soldiers.

As in most shooter games, your character (B. J. Blazkowitz) can take a great deal of damage before he dies. It takes a number of bullets to kill him, and he can find health kits throughout the game to replenish his health. While he faces tough enemies, the fact that he can dish out a great deal of damage with special weapons (like a Venom Gun, which fires dozens of bullets at once) and sustain a good deal of damage makes you, the player, feel like quite a superhero. Indeed, when you have successfully finished the game, you see a cut scene (video) where Blazkowitz's superiors in Washington are discussing what a great job he has done and how he is currently taking some well-deserved R and R, imagining him relaxing on some tropical isle. But then the video cuts away to a dramatic scene where we see Blazkowitz jumping from a ledge, machine gun in hand, entering the fray in yet another battle against multiple Nazis, a sly grin on his face. This is *his* form of R and R.

Games like *Return to Castle Wolfenstein* trade on several pervasive cultural models that are part of their allure. They play on cultural models that treat heroes as superhuman

people and that see warfare (for the "right" cause) as heroic. Also they play on a cultural model that is quite pervasive particularly among males, namely one that sees fighting (and even losing) against all odds—standing alone against the horde no matter what—as romantic (a model often triggered when people watch a bad sports team against a good one). And, of course, they play on cultural models, pervasive particularly in United States, that romanticize the individual against the group.

There is nothing particularly wrong with this. People get pleasure out of seeing their cultural models confirmed and, in the case of video games, actually getting to act them out. After all, a good many of these models have been picked up not so much from one's actual experiences in the world as through experiences with books and the media. However, I believe there is something wrong when these sorts of models are never challenged or overtly reflected on.

Some modern shooter games have begun to play against these sorts of pervasive models in interesting ways. Games like *Thief: The Dark Project* and *Metal Gear Solid 2: Sons of Liberty,* in their entirety, and parts of *Deus Ex* and *No One Lives Forever 2: A Spy in H.A.R.M.'s Way,* and a good many other modern sophisticated shooter games, stress stealth and cunning over fighting. A shooter game like *Anachronox* and many fantasy role-playing games (like *Baldur's Gate II: Shadows of Amin*) stress teamwork. At times *Anachronox* plays to hilarious effect against cultural models about heroism and individuality.

In fact, these trends are strong enough that games like *Duke Nukem* and *Serious Sam* bill themselves as nostalgic returns to the "good old days" of shooters where you just rushed in and shot up everything around you. (Duke Nukem's motto in his more recent game, *Duke Nukem: Manhattan Project,* is "It's my way or ... Hell—it's my way.") In many a modern shooter game that's a strategy that will lead quickly to your death. Finally, we can mention that the very popular *No One Lives Forever* games star a female James Bond figure and parodies (in a very playful way) the conventions of the Bond genrè and 1960s.

But none of this prepares you for a game like *Operation Flashpoint: Cold War Crisis;* a realistic military game that quickly disabused me of all the cultural models about warfare I had picked up from books and movies. Its contrast with games like *Return to Castle Wolfenstein* is so stark that a player cannot help but be confronted consciously with the cultural models heroic shooter games reinforce.

Operation Flashpoint is set in the Cold War period just as Soviet President Mikhail Gorbachev is elected into power. The game follows a fictional story line centered around the battle between a disgruntled rogue Soviet military group that has seized control of an island community and a NATO peace-keeping force, sent in at the request of the Soviets. The player assumes the role of Private David Armstrong in over 30 missions that have you assaulting small towns as a member of a large squad, commandeering vehicles, launching sniper attacks, and, later, serving as a squad leader. In the early parts of the game, you follow a computer AI-controlled leader as you and other squad members try to survive to later missions, where you move up the ranks, eventually becoming a battle-hardened commander.

Operation Flashpoint is fully realistic. One bullet is usually enough to kill or disable you pretty fully. Opposing soldiers can shoot at you from far away, can snipe you from hiding places that are hard to discover, and often appear as small deadly spots on the horizon, not as larger-than-life foes confronting you face-to-face. There are no health kits to be found, only the very occasional medic on the battlefield if you are lucky enough to find one and get to him quickly enough. Very often, if you are not very careful, you get shot and die without even having seen what direction the bullet came from.

Needless to say, if you try to be Rambo in *Operation Flashpoint* and run out heroically firing all guns, you will, as a review on gamezilla.com put it, "find yourself in a black body bag being shipped to the USA, next day air." Cooperation from and with your computer-controlled squadmates is a must for survival. Many times there are more of the enemy than there are of you, and they are well trained. When things go wrong—and they often do—you can hide from enemies, for example, in bushes, especially when you are in camouflage. But once you fire, there's a good chance the enemy will hear it and attack your position, with predictable results. (You die.)

Playing *Operation Flashpoint: Cold War Crisis* let me experience what it would be like to have quite different cultural models about warfare. Early on, I found myself (as Private Armstrong) with my squad following my commander as we skirted the edges of forests and open fields in search of the enemy. I really had no idea how I should move. My inclination as an "everyday" person was to stand up and move forward briskly. I died, shot from afar. In fact, I never saw the enemy soldier who shot me.

Replaying the game, I watched how my (computer-controlled) squadmates moved. Often they moved forward in a crouching position, staying low to the ground. They rarely moved in straight lines and frequently stopped and checked the horizons all around them. When they sensed any danger, they hit the ground and crawled forward for a while. Progress was punishingly slow. You had to develop a sense of possible danger everywhere, knowing that the enemy might very well see you before you saw them. For long periods nothing happened and a sense of boredom overcame me. Then all of a sudden information would come over my radio or the commander would shout out orders and there would be firing and mayhem. Often I barely had time to get excited before I died, having failed to think beforehand of possible avenues of protection or retreat.

During the game's early episodes, as I moved (ever more skillfully and "paranoidly") with my squad, I went into missions with high expectations and optimism. After all, we were the "good guys," weren't we? We were in a well-trained professional army with highly qualified officers (I was, after all, only a private), weren't we? But time and again, things did not go as planned. We had to change plans, retreat and regroup, or even be evacuated in defeat. Winning was no simple matter, and every step forward seemed to portend two possible steps backward. While I often got orders directly from the commander of my squad or over my radio, I didn't always know what the "big plan" was, if there was one, only what my group was supposed to accomplish and that changed under the conditions of the actual battle on the field.

Speaking of orders: As I said, I often got them under conditions where I had to act fast. But many times these orders left me in quandaries. In one case, for example, an officer got killed only moments after ordering me to move in a certain direction and take up a certain position. Should I follow the order now that he just got shot—which, of course, didn't inspire great confidence? In other cases, there were clearly much safer—and sometimes, from my perspective, smarter—things for me to do than follow the order to the T. What to do? How exactly need I follow orders? What room is there for my own judgment? Sometimes when I hesitated, I got yelled at. At other times, I was too far away for the officer to observe the details of my behavior.

When we did accomplish our goals in fine fashion, I did not know how much or how little I had contributed to the "victory." For example, once we assaulted an enemy position on the outskirts of a town. I and others were ordered to move forward under fire, while some of

our fellow soldiers stayed behind sniping at the enemy positions from farther back. I moved forward, firing my gun and evading return fire. We "won," but I never knew if I had disabled any of the enemy or contributed to the task (partly because I was not the first soldier over the top—see the next paragraph). The whole squad got praised, but I didn't know how good (or bad) to feel about the matter.

Finally, early on, I discovered an important but very uninspiring principle. I have already pointed out that I learned a good deal by observing my squadmates—for example, how to move. But I also learned that the safest position is to move with but behind other squadmates. The people in front have to make the snap decisions and take the fire first. But it felt very "unmanly" staying behind the others. I particularly liked moving behind (not too close, though) some of the officers on the field who seemed to know the most about how to proceed and often made the best decisions.

Enough said; this is not war as romantic and heroic. Here are some of the cultural models I was beginning to pick up about warfare from playing this game, none of which is remotely part of the experience of playing *Return to Castle Wolfenstein:*

- War is, for the most part, boring.
- Soldiers need to move as if they are constantly paranoid.
- When war is exciting, it is also confusing.
- Following orders is a vexed matter.
- Things don't go as planned.
- Situations on the ground don't resemble people's generalities and plans about them.
- No one really knows what people at the top know and whether they really know what they're doing.
- The guys next to you on the actual battlefield often do know what they're doing. It's hard to know what you can take credit for as an individual.
- "Manly" behavior often gets you dead quickly, Rambo-type behavior even quicker.

These are cultural models, because they are images, principles, or story lines that I don't really "know" are true. I picked them up from my own experience, and one's experience

is always limited, local, connected to particular groups and situations, and never scientifically "valid." Such models help organize and make sense of experience and help one move on and get on with the job at hand (in this case, staying alive long enough to go on fighting a war). Of course, people and game players differ. In my case, I have never had the slightest desire to be a real soldier, and playing *Operation Flashpoint* certainly does not inspire me to change my desires in this regard. It does make me worry about media depictions of war and gives me loads of sympathy for anyone who has to fight one, especially bottom up in the ranks. (The U. S. Army has created a massive multiplayer realistic game called *America's Army* but I do not know what effect it has on players, save to say a number have wanted to sign up.)

Cultural Models in School

Cultural models play a crucial role in school. Let me give you a specific example from a science classroom. High school students taking a physics class were having a discussion about whether a ball rolling on a level plane would keep moving at constant speed. They had previously heard from their teacher Galileo's arguments that under ideal conditions (i.e., leaving out friction and assuming no force acts to accelerate or retard the ball's progress) the ball would keep moving at a constant speed.

During the discussion, one student asks, "What's making the ball move?" Another answers, "The forces behind it." The student who asked the question responds, "The force that's pushing it will make it go." Yet another student says, "Where'd that force come from, because you don't have a force" (which, of course, is Galileo's and modern physics' assumption), and another student answers, "No, there is force, the force that's pushing it, but no other force that's slowing it down." The teacher comments that some students say there are no forces on the ball, while others say there is "a force that's moving it." One student now says, "There's an initial force that makes it start, giving it the energy to move."

What is happening here—and it happens in many physics classrooms—is that some (most) of the students are assuming that things in motion stay in motion either because some force is constantly acting on them (they are being "pushed" by this force) or because they have stored up energy from some initial force (a "push") that acted on them, a stored energy that is a kind of "impetus" (which itself is like an internal force acting on the object, one that gradually "runs down"). However, in terms of the semiotic domain of physics, any object stays at rest or in constant motion unless some force acts to change its state. When its state is

changed, it stays in the new state (in motion or at rest) until some other force changes this state. In physics, there is no need to explain why things stay in constant motion or at rest. Thus, there is no need to appeal to any "impetus" moving objects have stored up (a "force" that doesn't exist). We only need to explain the situation when things in motion accelerate or slow down or things at rest move. In these cases, we must assume some force has acted on the object.

Of course, in the real world, things rarely stay in constant motion for any length of time, since forces almost always act on them to change (speed up or slow down) their motion. And when things stay at rest in the real world, often it takes a number of forces to keep them that way and oppose forces that are attempting to change them. Galileo was assuming an ideal world, for instance a world with no friction between surfaces and nothing in the environment to perturb the motion of the ball. Furthermore, the ball is assumed to be rolling horizontally on level plane to make the force of gravity irrelevant to the problem. (If the ball were falling down it would be accelerating, thanks to gravity.) He wanted to think about things in a certain idealized way so that the basic pattern or fundamental principle at work would show itself clearly, namely, the principle that things at rest stay at rest and things moving at a constant speed stay moving at a constant speed unless some force acts on them to change their state.

This is a new and different way of looking at the world. In physics, things moving at constant speed or at rest don't need explaining. What needs explaining is change. In the world of our "everyday" experience, since things are always changing, what often has to be explained is how certain things resist these changes to remain in a constant state.

Physicists want to think in terms of such ideal worlds so that they can discover elegant mathematical models that can later be applied to the real world. When they are applied to the real world, we have to think about things that were left out of the model (like friction). Such elegant models, when these other things are added in, make a multitude of correct predictions about the real world.

Most other academic disciplines operate in a similar way. They leave out a myriad of details to formulate a basic pattern that later can be made more complex to apply in different ways to different situations. For example, some branches of economics operate with the assumption that people are always rational when they act within free markets. This lets these economists think about and discover principles about how markets work in an ideal sense. Of

course, when they want to make predictions about the real world, they have to add in adjustments for different situations where people display different kinds of irrational behavior or where markets are not fully free. Their idealized assumption is good if, when they add back in these different adjustments (different ones for different situations), they are able to make good predictions.

Ironically, this way of proceeding—i.e., leaving out a lot of details to get to the basic pattern—is not all that different from how cultural models work. People form cultural models from their experience by leaving out many of the details to capture what they take to be the typical cases. Scientific models are formed through the socially organized process of scientific investigation (e.g., formal research and peer review), not through largely unconscious encounters with daily life. Furthermore, scientific models and cultural models exist for different reasons. Scientific models attempt to explain how some aspect of the world works as an answer to a formal and consciously formulated question, and sometimes the aspects of the world that they deal with are not ones we experience in our everyday lives (e.g., atoms). Cultural models exist to help us get on with our "everyday," less specialized and often less consciously reflected on social and cultural business and our everyday lives in the material world.

In the high school physics class, the cultural models of some students were in conflict with the scientific models used by physicists. They did not realize this and could not turn off (for the time being) their conflicting cultural models and begin to think and act through the physicists' models. Let me discuss for a moment, then, one of the conflicting cultural models that these students were using.

A number of studies in science education have found that students often bring to the physics classroom, in one form or another, a conception that *motion is caused by force*. They believe that if an object is moving, then there must be a force on it causing that motion. It is common to read in this literature that this is a "misconception," a mistake commonly made by people who don't know physics. The problem is that often students continue to make this "mistake" even after they have taken a good deal of physics and learned that it is a "mistake."

The reason why the idea that motion is caused by force is so hard to remove is that it is not, in reality, a "mistake." Rather, it is a type of cultural model, a model built up from our experiences in the material world. Most or all humans hold a model something like this: "Things keep working because they are continually supplied with some form of power or

agency." Like all models, this model is neither wrong nor right. Rather, it works in a lot of situations. Because it does, we usually can get by perfectly well by assuming it without much conscious thought. For example, we assume (correctly in this and the following cases) that a car keeps running because its engine keeps powering its wheels. Lights keep working because electricity keeps flowing into them. Humans move because, at one level, they (continuously) "will" it and, at another level, because the energy reserves from their food fuel their cells and limbs.

While it is fair to say this is a physical model, it applies to social affairs as well and, thus, is also a social model. In fact, it is really just a cultural model that applies both to the physical and the social world. We assume that students keep working because something is motivating them or that relationships last because people put effort into them. In general, people do what they do and keep doing it, when they do keep doing it, because they are "agents" empowering themselves (through will or desire or whatever) to do and keep doing. The model that says, "things keep working because they are continually supplied with some form of power or agency" is deeply rooted in our physical and social experience. Of course, different cultural groups have different cultural models about what sorts of things can or cannot be sources of power or agency (e.g., spirits).

This cultural model—in its specific physical instantiation as *motion is caused by force*—happens to be wrong in physics, no matter how accurate it may be in a great many other areas. However, you do not get people to realize it is wrong in physics and then pick up other models that work better in physics, if you don't realize the power of this model or if you abuse people for holding it (e.g., tell them they are stupid or misguided). You must bring the model to consciousness and juxtapose it to other ways of thinking appropriate for the new situation, without implying that the model is wrong in all situations.

You must also make the way physicists think—a way that does not use this cultural model, at least when they are doing physics—sensible and clear by letting students understand it not just as words but in terms of embodied thought and action in the same physical world in which they got their original model. After all, just as people's cultural models come from their everyday experience of the world, physicists' scientific models come from their experiences (in problem solving, thinking, dialoging, and carrying out experiments in and on the world) within the semiotic domain of physics as it applies to the world. This domain, like

all specialized domains, looks at and operates on the world in a different way from "everyday" people do, but it operates in and on the material world nonetheless.

Students bring to their classes a great many cultural models. For example, cultural models about what counts as "good English" (e.g., something like "Educated people speak good or correct English") cause lots of trouble when students are trying to learn linguistics and discover that, to a linguist, a dialect of English that says things like "My puppy be following me everywhere I go" is just as rule governed and "good" as a dialect that doesn't say such things. (In fact, this sort of construction, using a form like "be" to mean that something happens repeatedly or habitually, is not at all uncommon across the world's languages.)

However, students also bring to classrooms cultural models about school subject matter (e.g., what "physics" as a school subject is) and about learning (e.g., what learning is or should be like in school). For example, in regard to physics or other academic domains, many students bring with them a cultural models that says: "Learning is a matter of mastering a set of facts." They may bring, as well, a model that says: "Learning is a matter of memorizing information from teachers and books."

These models are not "wrong"—indeed, a great many schools operate so as to reinforce them daily. Nonetheless, if you have gotten this far in this book, you know that I believe they are in many situations unfortunate models of learning. However, if students are to adopt different models of content learning in school, teachers need to know that these unfortunate models exist. Students need to think about them, why they have them, where they do and do not work, and new and different models and why they might want to adopt these in word and deed. Of course, the newer models I am advocating involve the sorts of active and critical learning I have been stressing throughout this book.

Cultural Models of Learning and Video Games

Good video games have a powerful way of making players consciously aware of some of their previously assumed cultural models about learning itself. In fact, good video games expose a whole set of generational models of what constitutes typical ways of learning. Since the baby-boomer models are still quite prevalent in schools as teachers, administrators, and parents, children today are most certainly exposed to them and often adopt these models uncritically and unconsciously, at least when they are at school.

Consider, for instance, the famous game *Metal Gear Solid* (a game that has a sequel called *Metal Gear Solid 2: Sons of Liberty*). In this game you are Solid Snake (one of the most famous video game characters of all time), a genetically enhanced antiterrorist, who has been called on to infiltrate an Alaskan military base that has been taken over by terrorists. The terrorists are also genetically enhanced and some are foes Solid Snake has confronted in the past (in earlier games), such as his brother Liquid Snake. The terrorists have fitted a massive robot called "Metal Gear" with nuclear warheads and are threatening to fire them at the United States if their demands are not met. As Solid Snake goes about infiltrating the military base and ultimately trying to destroy Metal Gear, he finds out a great deal about himself and about love and loyalty. In fact, in the middle of the game, if Solid Snake does not give in under torture, his great love and fellow warrior, Meryl, survives, and they eventually head off into the sunset together at the end of the game. (If he does give in and ask for the torture to stop, Meryl does not survive and the game has a different ending.)

Early in the game, you (as Solid Snake in a third-person view) are standing in the shadows looking at a massive building with many doors and balconies, fronted by a courtyard with many additional rooms coming off it. There are searchlights fixed atop the building and guards everywhere. You must sneak past the searchlights, staying in the shadows, get into the building, and move unseen through it to your goal.

If the player is inclined to move as straightforwardly and efficiently as possible toward the goal, this game and almost all other video games, will punish this inclination. The player needs to take the time to explore, even if this means moving off the main line toward the goal and delaying getting there. If Snake does not head right to his goal of entering the main building but instead moves carefully into a side room off the courtyard, he finds important items (e.g., weapons, ammunition, tools). When he sneaks into the back of a truck parked in the courtyard, he not only avoids the searchlights, he also finds more good things. As he sneaks around the perimeter of the courtyard and the edges of the building, he can check out less obvious ways into the building.

Even when he gets in, lingering over grates in the floor of an overhead duct he is moving through allows him to overhear important information and see various things (including Meryl in a cell with not too many clothes on). Sneaking to other nooks and crannies in the building allows him to gain crucial information. All the while Snake is receiving, via a com-

munication device that only he can hear, orders to move forward and information about how to do so.

When I played the game, I was tempted to rush guards, guns firing, to clear my path, since they seemed like such clear and straightforward targets. But, of course, if there were more of them than there was of me, I usually died or took too much damage. Even when there was only one and he seemed an obvious and easy target, often an alarm sounded, set off by a hidden camera triggered when I had snuck out into the open behind the guard, an alarm that quickly brought a good many other guards to his rescue.

This and other games have brought home to me that I hold cultural models about learning something like this: "The final goal is important, defines the learning, and good learners move toward it without being distracted by other things" and "Good learners move quickly and efficiently toward their goal." I also hold other models: "There is one right way to get to the goal that the good learners discover (and the rest of us usually don't)" and "Learning is a matter of some people being better or worse than others, and this is important."

These models all get entrenched in school repeatedly. They are linear models that stress movement ever forward toward greater skill until one has mastered one's goal. They are competitive models, as well, that stress better and worse and sorting people into categories along the lines of better and worse.

Video games tend not to reward these models. They stress both nonlinear movement—exploring all around without necessarily moving forward toward one's ultimate goal and the mastery defined by that goal—as well as linear movement, which, of course, eventually happens, greatly deepened, sometimes transformed, by the horizontal movement. They stress multiple solutions judged by a variety of different standards, some of which are internal to the game (different things happen when you take different tacks) and some of which are set by the player (who wants to solve the problem on his or her own terms and may play scenes over to solve problems in different ways).

Unless segments of games are timed, and they usually are not (save for special problems or races within certain games or in some aspects of real-time strategy games), how quickly you proceed is not a big value, unless you choose to make it one. (And then you may well miss some of the best stuff in a game.) Finally, while there are certainly better and worse video-game players, and players can and do play competitively with each other via the

Internet, games are most certainly playable by a wide variety of people who set their own standards and worry about how well they are doing by those standards, not by who out there in the world is better or worse than they are at defeating Liquid Snake in the fight atop the tank.

Video games challenged a number of other cultural models I held about learning. For one last example, I held a model something like: "When faced with a problem to solve, good learners solve it quickly, the first time they try or soon thereafter. If you have to try over and over again, this is a sign that you are not very good at what you are attempting to learn." All good shooter games have "bosses," particularly strong opponents with far more life than your character. Players regularly spend lots of time and effort trying to kill these bosses. They have to discover new strategies in their various failed attempts and not give up.

When players do succeed at killing the bosses, some (after they have played the game through) set the difficulty level higher, to make getting the bosses even harder. (Many games can be played at a relatively easy, normal, hard, or even harder level; the difficulty level determines things like how many enemies there are and how strong they are.) I once watched a younger lawyer refight a final boss from a PlayStation 2 version of *Baldur's Gate* at the highest level of difficulty. He was a real expert. His character ran up to and away from the boss (a dragon) repeatedly, moving all around a complex dungeon space, hiding here and there, coming out to attack and running away, coaxing the boss into tight corners or close spaces where it could be better attacked. All the while, the player used various potions and healing spells to gain stronger arrows and more health. The battle lasted 20 intense minutes. In the end, with the dragon on its last legs, the lawyer ran out of both magical arrows and healing potions and he died.

Far from being dismayed at his failure (as a school learner might after such a struggle), he responded with some nasty language as he died but also with a big smile on his face. In video games, losing is not losing, and the point is not winning easily or judging yourself a failure. In playing video games, hard is not bad and easy is not good. The six-year-old mentioned earlier was once asked whether easy or hard was better in a video game. Without a pause, he said hard is always good, easy is not. Would that children said such things about learning science in school.

There is a wonderful moment in *Metal Gear Solid,* which is a quite difficult game, where Solid Snake, as he infiltrates the military base, is talking via his built-in communication

system to a young Asian woman who is an expert on mapping and radar systems. She and Solid Snake joke with each other, and she usually ends each talk session with him with a Chinese proverb that applies both to his situation in the virtual world of the game and to the player in the real world. At one point she says to Solid Snake something that is not a proverb, of course, but is meant to have much the same effect: "Aren't you glad that you have the time to play a video game? Relax and enjoy yourself."

When players hear this, they might very well realize that they are intensely involved in solving quite hard problems and often failing. Yet they are playing, having fun, enjoying themselves. Wouldn't it be great if we could say to children in school when they were struggling mightily with hard problems in physics: "Aren't you lucky you have the time and opportunity to do science?" and have them smile and nod?

Learning Principles

A variety of learning principles are built into good video games, yet there is still immense potential for future developments. Certain areas—for example, the ways in which video games allow for the free creation of virtual identities and worlds—cause a great deal of controversy and will undoubtedly cause a great deal more in the future.

Some of the learning principles this chapter has implicated follow. Again, each principle is relevant to both learning in video games and learning in content areas in classrooms. The cultural models about the world principle says that learners should have the opportunity to think reflectively about their cultural models about the world (e.g., the ways in which *Operation Flashpoint* made me rethink my cultural models of warfare). The cultural models about learning principle says that learners should have the opportunity to think reflectively about their cultural models about learning and themselves as learners (e.g., the ways in which *Metal Gear Solid* and a great many other games made me rethink the values of exploration and delaying getting to the major goal). The cultural models about semiotic domains principle says that learners should have the opportunity to think reflectively about their cultural models regarding the nature of semiotic domains they are trying to learn—for instance, about what a given type of video game is or should be like, or what makes something a game in the first place (e.g., Is *Under Ash* a video game or terrorist training? What about *Ethnic Cleansing?*) or what physics is (e.g., A set of facts? A way of thinking about and acting on the world? A set of social practices in which certain sorts of people engage?).

30. Cultural Models about the World Principle

Learning is set up in such a way that learners come to think consciously and reflectively about some of their cultural models regarding the world, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models that may conflict with or otherwise relate to them in various ways.

31. Cultural Models about Learning Principles

Learning is set up in such a way that learners come to think consciously and reflectively about their cultural models of learning and themselves as learners, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models of learning and themselves as learners.

32. Cultural Models about Semiotic Domains Principle

Learning is set up in such a way that learners come to think consciously and reflectively about their cultural models about a particular semiotic domain they are learning, without denigration of their identities, abilities, or social affiliations, and juxtapose them to new models about this domain.

Bibliographic Note

Major sources in the literature on cultural models include D'Andrade 1995; D'Andrade & Strauss 1992; Holland, Lachicotte, Skinner, & Cain 1998; Holland & Quinn 1987; Shore 1996; and Strauss & Quinn 1997.

The example from the high school physics class comes from Hammer (1996a). For the relationships between everyday ways of understanding the world and scientific ways, and how to bridge between them, see diSessa 2000; Hammer 1996a, b; and Minstrell 2000.

The review of *Operation Flashpoint* is dated March 18, 2002 at www.gamezilla.com/reviews/o/ofp.asp.

References

D'Andre, R. (1995). *The development of cognitive anthropology.* Cambridge: Cambridge University Press.

D'Andre, R. & Strauss, C., Eds. (1992). *Human motives and cultural models.* Cambridge: Cambridge University Press.

diSessa, A. A. (2000). *Changing minds: Computers, learning, and literacy.* Cambridge, Mass: MIT Press.

Hammer, D. (1996a). More than misconceptions: Multiple perspectives on student knowledge and reasoning, and an appropriate role for educational research. *American Journal of Physics* 64 1316–1325.

Hammer, D. (1996b). Misconceptions of p-prims: How many alternative perspectives of cognitive structure influence instructional perceptions and intentions? *Journal of the Learning Sciences* 5: 97–127.

Holland, D., Lachicotte, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds.* Cambridge: Mass.: Harvard University Press.

Holland, D., & Quinn, N. Eds. (1987). *Cultural models in language and thought.* Cambridge: Cambridge University Press.

Minstrell, J. (2000). Student thinking and related assessment: Creating a facet-based learning environment. In N. S. Raju, J. W. Pelligrino, M. W. Bertenthal, K. J. Mitchell, & L. R. Jones, Eds., *Grading the nation's report card: Research from the evaluation of NAEP.* Washington, D.C.: National Academy Press, pp. 44–73.

Shore, B. (1996). *Culture in mind: Cognition, culture, and the problem of meaning.* New York: Oxford University Press.

Strauss, C., & Quinn, N. (1997). *A cognitive theory of cultural meaning.* Cambridge: Cambridge University Press.