WIRED FOR GROWTH: A NEW PERSPECTIVE ON VIDEO GAME CULTURE AND ITS IMPLICATIONS FOR CHILD AND YOUTH WORK

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Introduction

Ours is a technological age of increasingly realistic and interactive media. Empirical studies often use children and teenagers to examine the effects of media but rarely use media to explore how the unique cognitive, social, and personality development of children and youth influence and are influenced by participation in mediated activities. Studies of media are predominantly content related and use the length of time involved with such activities to focus on negative effects of not spending such time on other activities without realizing that the hours spent engaged in such activities are also an indication of their importance in the lives of youth.

Video games are perhaps the most popular and controversial form of this media. This paper, however, is not an examination of the vices and virtues of video games. It does not attempt to condemn or glorify them. It does attempt to explore the nature and impact of video games in the development of pre-adolescent/adolescent youth, and the implications of these findings for those who work with children and youth in various settings. Through a series of interviews and observations, this exploratory study examines the semiotic mediation of video games in a group of adolescent youth and the implications of this for a population at a critical developmental threshold between childhood and maturity, and those who work with them.

Theoretical Foundations

Literature on the use of video games is surprisingly sparse. Most of what is available centers on issues of attention span and self-control (Kappes and Thompson, 1985), personality (McClure and Mears, 1984; Silvern and Williamson, 1987), and behavior (Cooper & Mackie, 1986; Graybill, Kirsch, and Esselman, 1985). Very little is of recent vintage. Thus, this paper draws on related literature from anthropology, psychology, semiotics, and media studies.

Video games have drawn frequent criticism from parents, professionals, and organized groups. Most of this criticism concerns the overwhelming violence in some games and the addictive nature of most games (Provenzo, 1991). Even the former surgeon general of the United States, C. Everett Koop, has expressed his personal opinion that there is

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"nothing constructive about the games ... Everything is eliminate, kill, destroy" (Mayfield, 1982). Ellen Seiter (1987) has argued, from a semiotic viewpoint, that the real reason children are "addicted" to media such as television (and especially, I would add, video games) is that they are fascinated by the "complex blend of aesthetic, narrative, visual, verbal, and ideological codes at work in them" (p. 50). Semiotics, in recognizing the role of this combination of codes in sign production, tends to take a less judgmental view toward media than more traditional approaches which dismiss it with disparaging terms such as "trivial" and "vulgar." A semiotic approach does not focus on counting the number of acts of violence per minute or how many female characters are in the games. It does not focus on content analysis per se, but on the meanings of the signs in relationship to and between the individual and societal interpretants. This is in no way meant to deny the importance of content or to minimize its effects, but to recognize that issues of game biases and violence per se are not within the scope of this paper.

A social semiotic construct is a symbolic system of meaning generated by the society (Hasan, 1973) to transmit, or control the transmission of, the patterns of a culture. Culture, therefore, is not a noun but an "active process of interpretation reciprocally requiring care and inquiry and endowing one in return with the broader perspective of community life" (Rochberg-Halton, 1986, p. 153). Video games comprise one social semiotic system that constitute a culture. As such they actively symbolize the social system and serve as an expression of and a metaphor for society while actively participating in the mediation of societal - and individual - meaning (McLuhan, 1964, in Provenzo, 1991).

From a semiotic perspective, meaning is multilevel and is embodied in a diversity of tangible signs of the self grounded in the social milieu. This view counters the traditional western emphasis on the Cartesian separation of mind and body and the splitting of the self from the environment. The semiotically mediated self becomes both subject and object to oneself (and to others) - the object of one's own interpretation (Rochberg-Halton, 1986). It both shapes and is shaped by experience. Thus, this view of self is inextricably related to social and cultural forces.

This relationship is the cornerstone of Vygotsky's sociocultural theory. Critical to Vygotsky's developmental approach is the dialectic between self and self, self and other, and self and society. According to Vygotsky, development begins with external social activity and ends with internal individual activity (Wertsch, 1985). This basic tenet of Vygotsky's developmental analysis situates human mental processes in their historical context, grounding them in time and place. This emphasis on process and its situatedness in context (Strauss & Quinn, 1994) leads to a dynamic sense of self as "a being who is growing and becoming" (Taylor, 1989, p. 50). Semiotic mediation is central to this process, being the connection between the internal and external and the social and individual. Semiotic

mediation is the means by which we organize the world and make it meaningful.

Signs form the basis of semiotics. Charles Sanders Peirce has defined a sign as "something which stands to someone for something in some respect or capacity" (in Eco, 1979, p. 180). Each sign is a dialogic interpretation because it not only represents something, it mediates that representation and may itself be reinterpreted. By interpretation "we mean the concept ... according to which every interpreting, besides translating the ... content of the sign, also increases our understanding of it" (Eco, 1984, p.43).

According to Vygotsky (1978), the development of concepts, including self-concept or identity formation, is based on semiotic mediation. To Vygotsky, development is ontological. In ontogeny, all processes of development (biological and historical-cultural) are simultaneous and interconnected. This is in contrast to the phylogentic view whereby historical-cultural development displaces the biological (Scribner, 1985). Thus, Vygotsky has refocused our attention from the traditional emphasis on performance and products of development to the underlying processes.

The process of identity development has been considered a critical issue in this country for the last half century (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985). As children reach adolescence, the process of creating an "identity" becomes increasingly important (Erikson, 1968; Snow and Anderson, 1987; Shaw, 1995). "Identity," following Shaw (1994, p. 84), "refers to people's use of a range of sign vehicles in an ongoing process of communication that is both intrapersonal and interpersonal and that simultaneously serves both psychological and social functions." These "sign vehicles" or forms of self-expression serve as Winnicottian (1971) "transitional objects." According to Lightfoot (1997, p. 9), these "talismans" of adolescence "are playful, speculative, and imaginative rapprochements of fact and fantasy." Lightfoot argues, and I would agree, that risk taking plays a significant (pun intended) role in forming a sense of self and social identity. It is a declaration of self, symbolic of one's social identity. The task of constructing a self is thus both personal and social. It is an individual struggle situated in a society of cultural influences.

Individuals use a variety of symbols in constructing a sense of self. These symbols are generally situated in a subculture that supports and sustains one's sense of belonging or identity (Shaw, 1994; Lightfoot, 1997). Since adolescents spend almost half of their time in leisure activities that involve media (Csikszentmihalyi & Larson, 1984), and playing video games is a substantial component of these activities, it seems imperative to explore their role in identity construction. Since puberty cross-culturally represents a passage into adulthood and is considered a social and developmental milestone, these new teenagers seemed a particularly salient group to interview.

Sample and methodology

Twelve thirteen-year-old boys from a multicultural working- to middle-class suburban community took part in this study. All were part of a network of friends (including friends of friends) who knew each other from school or extracurricular activities. Because they were associated by virtue of the sampling method, they were fairly homogenous in some ways, yet very different in others. All were average to above-average eighth-grade public school students. Their ethnic backgrounds included Indian (1), Puerto Rican (3), Chinese (1), Korean (1), Jewish (2), African-American (1), Italian (1), Irish (1), and Russian (1) ancestry. Religions were similarly varied.

Participants in the study were asked several short questions about their typical patterns of video game use. These responses were used as an ingress for an interview of 30 to 60 minutes. (See appendix A.) Audio recorded individual interviews were conducted over a three-week period. They were transcribed within 48 hours. Nine of the twelve participants were also observed while playing their self-identified "favorite" and at least one other type of video game during a thirty-minute session within three days to one week prior to the initial interview. Play sessions consisted of one triad, two dyads, and two individuals. Ethnographic field notes and audio recording of these sessions supplemented interview data. Follow-up questions were asked of participants and their parents to confirm responses and clarify observations and interpretations.

Findings and discussion

The boys in this study each reported playing their first video game at the age of five or six. They all remembered in detail the first time they played. Each introduction was at a social event, occurring during play at a friend's house or at a "video" party for a classmate's birthday. The boys reported that they currently spend an average of 11 1/2 hours a week playing video games. Weekdays averaged 1 hour of play (with a range of 1/2 to 2 hours) daily with Fridays and weekends rising to 2 1/2 hours a day (with a range of 1 1/2 to 4 hours). All boys except one noted playing "much more" during school vacations. The majority of game playing takes place in the home, either in the family (living) room or bedroom of the participant or one of his friends. All participants own video game systems or have a computer in their home to play the games on. All boys own their favorite game.

Three boys named sports games as their favorites, one a car racing game and two hockey. One chose a martial arts game. Another preferred a role-playing game. The remaining seven favored a variety of action/adventure types of games. The games named were considered favorites for from three months to two years, usually replacing older favorites from the same genre because of technological improvements.

While the participants in this study expressed interest in a variety of game genres, their favorite games shared certain characteristics. In their words, their favorite games feature "outstanding graphics," "great sound effects and music," and "awesome technology;" are "fun but a challenge," and "require a lot of thinking." When asked what type of skills were needed to play this game, the replies were also similar: "good powers of observation and memory," "you have to remember a lot of stuff like moves, scenes...," "a good imagination and a lot of brain power," "good eye-hand coordination," "imagination, strategic skills, good problem-solving," "concentration," "a good general grasp of knowledge about the topic of the game and the ability to apply that knowledge."

The fact that each claimed to be good at his favorite game indicates that they consider themselves to be competent at these skills. Competency, according to Holland (1992), is necessary for the individual to see himself as having agency in "a particular game or cultural system" (p. 81). This results in "emotional involvement and identification" (Holland, 1992, p. 82), allowing one to develop a concept of self one wants to either realize or avoid (Dreyfus, in Holland, 1992). (In many video games, one literally has multiple lives and can assume multiple identities.) Similarly, role-playing offers opportunities to experiment and practice a variety of behaviors and relationships (Johnson, Christie, and Yawkey, 1987, in Neuman and Roskos, 1990). As Holland (1992, p.81) explains:

> In play, as described by Vygotsky (1978), the child suspends other possible interpretations of things in the environment and becomes caught up in a pretend world ... The individual gets caught up in a particular game or cultural system and sees himself or herself as an agent in it.

Furthermore, many video games, especially those involving action/adventure themes, use the symbolic characters and language of myths and dreams which have the potential to put us "in touch with deeper regions of the human psyche" (Shore, 1995). Many of these games feature a bestiary of creatures (see Shank, 1987, for a discussion of the semiotics of medieval bestiaries) "belonging to the mythology of everyone, eternally present in the collective unconscious memory and in the dream world where everything is a symbol" (Rowland, 1973, p. xviii, in Shank, 1987). These deeply embedded themes provide dramatic ground for the complex negotiations of identity. Such mythological symbol systems "make visible some conceptions of the invisible forces of life and society. We select and shape them to bend otherwise elusive facts to our (not always conscious) purposes ... " (Gerbner, 1973, p. 474).

Many games, like the myths they subsume, involve stories of good vs. evil or life and death. In either type of scenario, certain accomplishments gain the player's character's extended or multiple lives. The game ends when your character dies. Since death is the "ultimate threat to self"

(Csikszentmihalyi, 1993), it serves as a powerful symbol for mediating concepts of self.

Besides expressing the self in fantasy and play, there are other ways of socially conveying the individual self's predilection for certain roles. Issues of commodification and consumerism aside, possessions and clothing have long been considered important in defining the self (Branstetter, 1975; Csikszentmihalyi & Rochberg-Halton, 1981; Davis, 1992). They "constitute an ecology of signs that reflects as well as shapes the pattern of the owner's self" (Csikszentmihalyi & Rochberg-Halton, 1981, p. 17). Cultural products such as video games take on symbolic value among their users that goes beyond surface significance (Provenzo, 1991). This enables individuals to construct meanings from them that, as Shaw (1994, p. 113) says, "serve to allay fears, enhance self-esteem, and identify objects of their desires." Efforts to substantiate these self-representations fuel the demand for a range of game-related products which contribute to the available means of mediation and expression in the creation of an identity.

If available (as in 83% of the cases), the boys in this study own other game-related merchandise such as figures, comics, clothing, and books. Many of these items are either requested by or purchased by the boys themselves. One boy used his favorite game as the theme for his Bar Mitzvah party, with centerpieces and party favors featuring characters and symbols from the game.

Nine of the boys had dressed as a video game character for Halloween at least twice in the past seven years, with four of those choosing such costumes five of the past seven years. None of the boys said they wore a costume last year and most had not worn one the year before. It seems that the move into Junior High School stigmatized dressing up for Halloween as "babyish." Two boys shyly (and independently) admitted to still dressing up and role-playing when alone just for the fun of it. This revelation was qualified by explaining that they do it less now than when they were younger. The boys seemed embarrassed by this behavior, indicating that it was thought socially inappropriate for someone their age. As one said:

> *Matt: Oops. I can't believe I just told you that [I still dress up and role play]. (Groans) Shit. I'm dead meat. Interviewer: Why? What's the problem?*
>
> *Matt: Um, er, I don't um want um anybody to know I still do that. I mean, like, even my best friend doesn't know. Geez. I'd never hear the end of it if they ever found out ... I mean, um, like, most kids my age ... are er like too old um for um (pause) that kind of stuff*

Interviewer: It's okay. Everything you tell me is completely confidential. No one will know.. Matt: Are you sure? Interviewer: I promise.

Matt: The thing is ... I still like to dress up and play with figures and stuff and I don't um really want to um outgrow it. I like being a kid. Grown-ups don't get to have fun. I don't want to have to be serious all the time like [adults] even though I know I'm not a little kid anymore and should start acting more my age...

The dress-up role playing was obviously important and enjoyable to the two boys who mentioned it, yet they were aware that it varied from the socially accepted behavioral norms of their peer group, and thus represented a conflict between the self and its environment. Their identification with something not (openly, at least) valued by their peers led to an expressed ambivalence about leaving behind the pleasures of childhood or possibly a feeling that something may be inherently wrong with their sense of self. On the other hand, perhaps asserting one's identification with video game characters anyway, even if privately, allows some boys to address a fear of losing their individuality and being engulfed by society, or what they see as the "boring" world of adults. Such self-struggles may reflect a resistance to taking on traditional adult male roles, even while seemingly enacting them in on-screen games of power, knowledge, and control. Paradoxically, while themselves part of the social fabric of our culture, video games also provide a means of escape from the pressures of this culture. When asked why they liked the games so much, eight of the boys mentioned a feeling of total absorption during play. Many remarked that the sound effects and music of the games contributed to this feeling:

Shiv: The music is real important. You turn the sound way up and you really get involved and like nothing else matters.

Jason: ... Shut off the lights and blast the volume up and you can really get into the game.

Nick: And the music is really good. It adds to the suspense and stuff and makes the game feel more like its real.

Dan: The sound effects are super. The beat helps me play the game better [than with the sound turned off) and makes it a lot more fun.

Joe: The music it really sounds like its from another world. Real eerie like, you know. It really adds a lot of atmosphere and realism and helps make it feel like I'm in a time warp or something because I lose all track of time.

While a thorough exploration of the role of music in video games is a topic for another paper, it should be pointed out that the boys' observations are congruent with current research. Shore (1995), for example, has determined that the use of repetition and rhythmic sound can produce a dissociated "trance-like" state which creates a space for mediation to occur.

Conversely, as well as a means of escape, the games simultaneously provide an opportunity for identification with the hegemony patriarchy and its emphasis on power. They also provide a forum for symbolic risk-taking. These three themes (escape, identification, risk taking) are evident in answers to questions about why the boys found the games so compelling and exciting:

Matt: Because it makes me feel strong and powerful. It lets you do things that you couldn't do in real life and I can like get out all my anger from the day or from school and stuff.

Jason: With all of the realism, you feel like you're in the game. You always want to know what's going to happen next so you keep playing. I have to stay very focused when I play or I could miss a key point I need to win the game. That concentration is something I enjoy. It makes all my troubles and bad feelings disappear.

Luis: The game has a first-person perspective so you see it through the eyes of your character. The characters talk so it feels like you're really part of the scene but you don't really kill or get killed. It's almost like sort of a virtual reality. You're in the game, not in your living room. And you get to save the world, too!

Scott: I love the fast pace and the players. I love hockey and when I play this game I feel like I'm out there on the ice and it's like a real game with the pros and I'm one of them! Anything can happen. You never know how it will turn out.

Travis: ...When I play this game I feel like I'm in another world and I'm in charge. I become the character I've chosen.

The "reality" of playing games was mentioned by all participants in this study. Their responses echo Gerbner's (1973, p. 475) claim that "Characters come to life in the symbolic world of mass culture to perform functions of genuine social import." Since the boys experienced such a strong sense of fusion with characters that already existed in the games, it was supposed that asking them to create a new character would provide a greater opportunity for them to semiotically mediate identity and that such a personalized character would provide a better vehicle for projection and self -representation than the commercial version. The reactions of the participants, as well as their responses, confirmed this. Nine of the boys subsequently named this their "favorite" or "the most important question" in the interview. When listening to the tapes, you can hear the enthusiasm in their answers. Unfortunately, the printed word can not convey the sense of excitement as strongly.

Interviewer: Suppose you could be a new character in the game. Who or what would you be? Why?

Responses to this question varied more than almost any other. While there were similarities (eleven boys created a character who was stated to be the "best"), there were also many individual differences. This would be expected in the semiosis of self -representation, since each boy brings different experiences or biography (Noam, 1990) to the formation of meaning, even though the social and cultural milieu is comparable. While space precludes in-depth analysis of each response, some overall themes can be illustrated by the following excerpts. For example, there was a tendency to make the characters more dimensional, "more real," more "human" than they were in the games:

Steve: My character would be a fighter who had super strength and super weapons. He would not have a definite shape but be shaped like a big blob of goo. I'd call him "Super Goo" and he would change colors according to what mood he was in.

Interviewer: Why?

Steve: Because it would be cool and everyone would know how he felt from what shape he was in and from his color so like um if he was in a bad mood they'd know to stay out of his way and if he was purple say they'd know he was sad and needed to be cheered up... He'd be the best guy in the game but he'd like be more real than the other characters.

> *Interviewer: What do you mean by "more real?"*
>
> *Steve: He'd like have more feelings and things. Like not always be the same every time...*
>
> *Evan: I would be a humanoid iguana. Because iguanas are cold-blooded, he would able to absorb the heat energy from projectiles and it would fill up his life force. That way he wouldn't be able to be hurt. His tail would be a powerful weapon and he'd have wings and be able to fly .. and do a lot of other things.*
>
> *Interviewer: Why an iguana, Evan? How is what you described "humanoid?"*
>
> *Evan: I know a lot about iguanas and I have one for a pet. He'd be humanoid because he'd like be able to walk upright like a human and stuff. Even though humans aren't cold-blooded he'd be like more like a combination of human and reptile. He'd have these super powers as a fighter and stuff but he'd be able to think more like a human than a reptile. (pause) Oh, yeah - And he'd wear clothes. (grins) . . .*
>
> *Nick: I would be a Jedi knight who could make himself real and come out of the game into my room and use his powers to make my dad do my chores and get me anything I want. His name would be "Hero" and he would be very smart and strong...*

While all of the responses described characters who were the strongest, bravest, and most powerful, these were not usually the most important attributes:

> *Shiv: My character would look like a gargoyle and have powers like a wizard. He'd have infinite lives and be skilled in weaponry but mostly would use his magic and deductive powers to make his enemies his friends. He would have wings and claws and flippers and be able to fly and dig and swim...*

Even when power was the most important trait of a new character, there was a moral purpose for their use of power:

> *Joe: I'd be a new super hero in a game where the goal would be to save the world.*

> *Interviewer: Tell me more. What would the super hero's name be? What would he save the world from?*
>
> *Joe: I'd call him Ejo. E - J - 0. That's Joe all mixed up. (grins) He'd save the world from everything like um attacks from space and comets and things. (pause)*
>
> *Interviewer: And once the world was saved — then what?*
>
> *Joe: You play the game again. (laughs) No, really, then I guess I er he'd set up a new government and be president of the world so he could keep saving it again and again and there would be no earthquakes or wars or homeless people anymore.*

One boy did not even want to entertain the idea of being a new character in the game. However, one might consider the role he assigned himself to be more real yet carry even more power and control than the most well-imagined hero:

> *Travis: I'd probably be the guy who sets up and designs the situations for the players to solve. He'd watch everyone as they try to figure out the solutions. I like watching people trying to beat this game too. If they do something I didn't try and it works, it gives me fresh ideas to go on and a new strategy to think about. (The interviewer tries to focus Travis on being a character IN the game.) I wouldn't want to be in the game. I want to create the game...*

In constructing these identities, the participants borrowed selectively from a variety of semiotic systems. Most came from video games and some from other forms of popular culture. Others (like Evan's transformed pet iguana) reflected individual life histories. Whatever their source, the self -representations "refer not just to the visible features of the physical body but include psychological qualities, the spiritual essences that people either experience in themselves or wish to attain" (Csikszentmihalyi, 1993). These individual "essences" are, however, still embedded in the social context.

Provenzo (1991) writes about how video games support isolation and argues strongly for the lack of community fostered by video games where the individual is out for himself. This endeavor did not find this to be the case. While the game itself may emphasize the self-as-player as an autonomous being, the culture around game playing involves an intricate social network with skills, "codes," and experience serving as the basis for considerable communication and learning among the group of boys studied.

Much of the knowledge constructed in gaming culture is acquired through participation in an interpretive community. Identity is a social signifying practice. Symbols are used not only to distinguish self from other, but also to identify self with other. Book covers or a prominently carried game magazine serve as an invitation for relationship among those with similar interests. Half of the boys frequently drew characters or scenes from their favorite game. Another quarter sometimes did. These usually adorned school book covers and notebook margins and were intricately detailed (See appendix B). When asked what purpose these drawings served, replies centered on issues of self-representation and social mediation:

> *Jason: It makes it more my book, you know, like I and I can tell all the text books apart easier and find the right book faster. And when I get bored in class I can work on the drawing.*
>
> *Ming: It lets other kids know what I think is cool.*
>
> *Dan: It gives me a way to make friends. Like if another kid recognizes the picture then he knows we like the same games and stuff so maybe we'll talk about it and even hang out together to play games.*

Similarly, discovery of a new code (codes allow one, for example, to take short cuts or gain strategic advantages in a game) provides a reason for a flurry of telephone exchanges among friends. Game strategy is a common topic in school cafeterias and other gathering places. Sharing of information about video systems and games invites and cements relationships. Every boy knew his best friend's favorite game, what level the friend had reached in the game, and why the friend preferred that particular game. Eleven of the twelve boys named as "best friends" were also participants in the study, so it was possible to verify the accuracy of this information.

Even when in pairs or small groups, the boys watching an individual play are engaged in active strategy learning. Players are carefully observed and often asked what and why they are doing certain things. Sometimes players explain their strategy as they go along by using a meta-narrative. For example, while playing with a friend new to a particular game, Luis carried on a monologue for his friend's instruction without pausing for a second in his concentrated play:

> *The first thing you wanna do is to stop all enemies from entering the room because you can't afford to lose hit points by fighting with them ... (He explains as he prevents one character's*

> *entrance with a few rapid moves of his fingers on the control panel) You can defeat them without losing hit points but you want to save them for later in the game because you don't know what to expect later on. (He now positions his character to search a vase) Second, you have to search anywhere and everywhere that might hold an important item and all items are important. (He finds a small mirror in the vase.) In this game, everything you find is important and has a use, even if it doesn't seem like it...(He moves into another room) You repeat this process for each room but as you go on you can't always prevent attacks by the enemies. Like the mirror (He continues to play, searching for items and fending off enemies while he talks) For a long time I couldn't figure it out and then I found a book about the Golden Fleece and it said to polish your shield so it shines like mirrors, and I remembered the story of Medusa from school, so I positioned the mirror to reflect the monster's image back at it and it worked so now I know how to use the mirrors and I don't have to look for the clue in the book anymore. (pause) Some items I still haven't found clues for and some I figured out on my own ...*

While this speech serves an apparently instructional purpose (i.e., by making explicit the hidden rules of the game, the more experienced player is teaching his novice friend how to negotiate them), it also reveals some other less obvious levels of meaning. During subsequent questioning, Luis said it felt good to be able to teach the game to his friend; it felt good to be better at it and "to be able to figure out how to beat the system without being told ... " He felt "important," or what one might call empowered. Gerbner (1973 p. 476), in fact, defines cultural power as "the ability to define the rules of the *game* (italics added) of life that most members of a society will take for granted."

Video games provide access to a world where it is possible to practice negotiating unknown rules (or taking risks) without fear of consequences that taking similar risks in the real world might engender. They often feature adversarial relationships which need to be shifted for growth to occur. Echoing what Luis said in the previous excerpt about not fighting enemies in the beginning because you might lose points you'll need later, Jason explained:

> *Sometimes, instead of struggling to beat the guy, you have to let him win so you can get to the next stage. You have to maybe sacrifice some ground now to beat the game later.*

While Luis and Jason have learned a lesson appreciated by chess players and other strategists such as military generals and business executives,

chances are that these people and most other adults would not appreciate the boys' intense involvement in video games. The adults (and girls) in these boys' lives overwhelmingly did not relate to video game culture. While some parents were indifferent, most parents and teachers were critical of the games and the boys' involvement with them. Only Scott said a parent expressed any interest in a game (his father, a hockey fan, played the video version sometimes). Although three boys said they were sure some girls played video games and maybe even liked the same ones they did, none of the boys personally knew any girls who did so.

Perhaps this makes the games more attractive to the boys by differentiating them from the older generation and opposite sex and aligning them with peers at a time when such identification is critical to cultivating significant social distinctions as well as loyalties (Erikson, 1968). As Shaw points out, people, and especially youth, favor symbolic markers they feel "belong" to the subculture that supports and sustains their identity permitting "individuals to distinguish the evaluative standards of their group from those of other status groups and simultaneously, to express and reinforce solidarity and loyalty with local moral communities" (Shaw, 1994, p. 91). The findings of this study certainly support this claim.

Directions for future research

Our understanding of the relationship between technology and psychology is just beginning. There are a vast array of problems and possibilities to be explored and the research described here is clearly only a small part of such study. For example, a wider variety of demographic variables should be considered. The fact that all participants were boys and that the boys were academically successful friends from a similar economic background may have biased the results. They were also, perhaps, more articulate than most boys their age. Although the participants were all thirteen years old, they were not necessarily at the same point in other ways such as developmental, cognitive, or maturational level. Possible differences in these levels may have affected some of the study's findings.

As a rule, the games the boys played were, by their choice or under parental influence, not among the most violent or virulent. While researchers to date have not found a significant relationship between violent video games and aggressive or violent behavior, the potential of frequent playing of violent games to encourage the expression of aggressive behavior should be further investigated. However, it would be important to consider the violent content of video games in the context of the players' cumulative daily exposure to violence in natural settings including the home, school, and community.

More specific to this study, since the cultural construction of self is an ongoing dialectical and developmental process, it would be important to not only consider these processes in greater depth, but to examine differences in

the semiotic mediation of identity across genres and over time. Since semiotic studies are inherently interdisciplinary, this requires continued attention to research across disciplines. Given that adolescence is a period of great change and transition, longitudinal studies would be appropriate and necessary to help illuminate key issues and long-term impact.

Implications for child and youth care workers

Youth culture is generally and generationally viewed with disdain by adults. It is often seen as offensive or deviant. John Dewey has said that we measure the "goodness" of children by "the amount of trouble they make for grownups, which means of course the amount they deviate from adult habits and expectations" (1922, p. 99). Youth have been demonized, romanticized, and criticized without representation; without voice. When youth are seen as "at-risk" or "other" they become subjects of blame and pathology. By extension, so do the elements of their culture: their clothes, their hairstyles, their music, their video games. It is a vicious cycle. While wearing baggy pants, listening to hip-hop, and playing video games may be seen as a struggle with authoritative discourse, it is also a way of creating a discourse. We have much to learn from opening the door and inviting the conversation.

We need to learn to listen to what youth are telling us– to their real messages; to the complex semiotic meanings of their forms of discourse. Children and adolescents are the subject of many cultural and educational debates. Yet their voices are often absent or ignored. They are sometimes invited to observe or even participate, and sometimes their voices are heard, but they are seldom taken seriously. This is most unfortunate, since we have much to learn from them, as this study demonstrates.

We know that economically advantaged youth have access to a rich variety of resources, especially where technology is concerned. The working class and poor have fewer (and different) options. They often do not have the opportunities, for example, to try on new roles without long-term risk, to practice cognitive strategies, to relieve internalized pressures safely. Making technology available to those who would not have access to it otherwise may even the playing field in multiple ways. Although further study is needed, access to some of the more thought-provoking, challenging, less violent, nonsexist games may provide a viable vehicle for doing this.

In video games, as in many areas of life, no one tells you the rules in advance. Players must figure out what the characters and objects mean and how they act and interact. While this study focused on a variety of games, most of them called for decisions to be made and not just for the perceptual and physical coordination to push the right buttons with the right speed at the right time. Observation, trial and error, and hypothesis

testing are essential for mastering these games. Parallel processing and spatial reasoning, or attending to and making meaning of multiple forms of information simultaneously and from multiple perspectives, are critical skills. Evaluation of one's situation and reassessing and planning a course of action in response to events encountered in the game is a continual process. In many of the games favored by the boys in this study, for example, one must keep track of and maximize resources (e.g., food, time, health, weapons), plan for several possible future scenarios, and continue carrying out maneuvers in response to what is happening on the screen. Thus, some games may provide informal experience in cognitive processes including scientific and creative thinking. Others have also shown that video games involve complex cognitive skills. Some (e.g., Loftus and Loftus, 1983) have suggested that video games might even be used as training aids for cognitive and perceptual disorders.

Creating opportunities for symbolic risk taking, whether in video games, drama, or similar activities also appears to have considerable value. While symbolic risk taking lessens any actual risk, perhaps the perception of risk is as salient as actual risk. While this also requires further study, perception has been found to be as important or more important than more objective measures in other psychological processes such as the emotional and physical benefits of social support (Minkler, 1990). According to Bandura and his colleagues, persistence in activities that are subjectively threatening but relatively safe enhance self-efficacy through experiences of mastery, which leads to higher self-esteem. They found no difference between performance that originated in active mastery or vicarious experience alone (Bandura, 1990; Bandura & Cervone, 1986; Bandura & Schunk, 1981; Bandura,1977). Lightfoot's (1997) work with adolescents indicates that fantasizing risk may contribute to identity development just as experiencing risk does. If this is the case, participation in symbolic risk may reduce actual risk-taking behaviors.

Conclusion

Media and other cultural forces and institutions exert a great influence on how adolescents think about themselves and their world. Contrary to popular opinion, video games are not simply a waste of time. This endeavor has found that video games even serve as more than entertainment to the boys in this study. They serve as social, cognitive, and psychological tools, as signs of individual and social identity. They do, indeed, comprise a culture: a culture of constraints and transformative possibilities whose impact may be more far-reaching and unexpected than we anticipate.

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Appendix A

Outline for interview about video games. Questions should be considered guidelines only.

Name ______________________________

Age ______________________________

Phone number ______________________________

Ethnic background (optional) ______________________________

1. How old were you when you played your first video game?

2. Where was that?

3. In an average week, about how much time each day do you play video games?

Mon	Tues	Wed	Thurs
Fri	Sat	Sun	

4. Has this changed over the last few months/years? If yes, How? Did you always play about the same amount of time? Less? More? Why?

5. Where do you usually play?

6. What is your favorite game? (If you have more than one you like equally well, list them all, but choose one to answer the rest of the questions about.)

7. How long has that been your favorite game?

8. Have you had other favorite games before this one? Which ones?

9. What are some similarities/differences between your current and former favorite games?

10. Why do you like the current favorite better?

11. Do you own your current favorite game?

12. What type of game is it? (action/adventure, racing, martial arts, sports, game show, etc.)

13. What do you like best and least about your favorite game?

14. What type of skills do you need to play this game?

15. Who/What is your favorite character/part in the game? Why?

16. Tell me about the game. Why is it so exciting for you. Why do you like it so much? How do you feel when you play that game? What do you think about when you are playing?

17. If you could be a new character in the game, who/what would you be and why? (name, attributes, role, etc.)

18. What do your friends think about the game?

19. What do you think the adults you know think about the game? (Parents, Teachers, Other relatives, Friends' parents, Others (who?)

20. How do you get codes for the game? (read magazines, friends who play, hotlines, internet)

21. Do you ever draw pictures or write about the game or its characters? If yes, could you describe them? (Or, if you prefer, draw a picture now or after the interview or provide a copy of a picture or story you already have.)

22. Have you ever dressed as a video game character for Halloween?
    If yes, which one(s)?
    From what game(s)?
    How old were you? (If more than once, list character, game, and age for each year)

23. Are any of the other things you do related to this game in any way?

24. Do you use any aspect of this game in school? If yes, What? How?

25. Is any merchandise related to this game available? If yes, answer next question; if no, skip to 27.

26. Do you own other things related to the game? (books, cards, figures, posters, comics, clothing, video magazines, etc.) What? Did you select/ask for/purchase the items yourself?

27. Who is your best friend? What is your best friend's favorite game? Why do you think that's your best friend's favorite one?

28. Do you know any girls who like to play video games? If yes, Which games? Why do/don't you think they like those? Why do/don't you think they like to play your favorite game(s)?

29. Is there anything I haven't asked about video games that you think I should have?

30. What do you think is the most important question on this survey? Why?

31. Did this survey make you think differently about video games? If yes — How?

32. How do you feel about participating in this survey?

33. Is there anything else you would like to say before we end this interview?

Appendix B