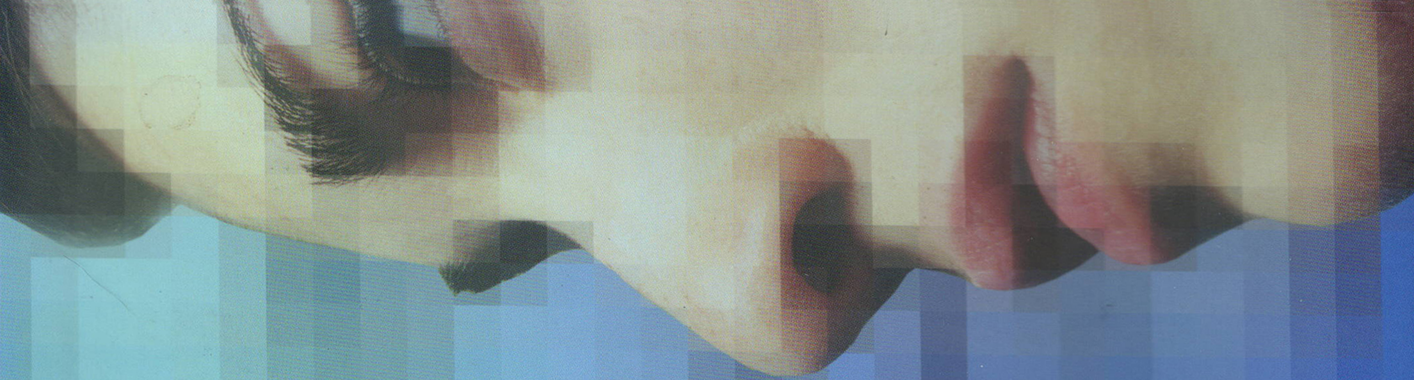

WOMEN ART & TECHNOLOGY

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Technological Humanism and Values-Driven Design

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In the spirit of *Making the Impossible Possible,* perhaps the hardest thing to imagine ourselves doing is making the world a better place.

This talk is going to be about doing humanistic work in the context of computers and HCI. I'm hoping to cover some of the questions and answers that have come up for me in that quest over the last twenty one years in the interactive entertainment business. I hope you will forgive me for the personal stories in this talk - they are not necessarily the best the examples, but they are the examples I know best. I also hope you will enjoy some of the more recent tales from Purple Moon and our adventures with girls' software in the United States.

At Atari in 1980, I was managing the software planning and marketing group for the new Home Computer Division. Atari had become enormously successful with arcade games - from Pong to Asteroids - and they had also established a very lucrative business with a little game console called the Atari VCS which could play versions of these games at home. The home computer - the Atari 400 series - was a brand new product and the company needed to position it in the minds of the public.

It's interesting to note that no one had yet succeeded in creating a coherent idea of what a personal computer was in terms of popular culture. Apple, Commodore, and before them Intellivision and Cybervision and other obscure little systems had dabbled with allowing people to write BASIC programs or play Hangman, but there was not yet a suite of applications or capabilities that really defined a home or personal computer and differentiated it from a video game console. My group was experimenting with everything from staples like Visicalc and word processing (40 columns, all caps) to concepts in self-improvement and learning. My imagination had been infected by Alan Kay, who had just joined Atari as Chief Scientist. I learned about his work with Smalltalk and his profound commitment to and respect for children. I became enamored of the idea of computer literacy - and the belief that empowering children to use computers would vastly increase the evolutionary potential of humanity.

Armed with this bright optimism, I wanted to see what was really going on with kids - Atari's audience - and what they were thinking about computers. I was fond of visiting arcade parlors - places where boys and young men were playing arcade games - Atari and others - to watch them and strike up conversations if I was lucky. Arcade parlors in those days were pretty much the same as they are today - dark, stuffy and appallingly smelly, with the constant deafening din of simulated aircraft, shuttlecraft, submarines, weapons fire, explosions, and screaming - the noise testosterone makes. I got used to it, and the boys got used to me. I'm sure they thought I was sort of strange - I never played, only watched and tried to get them to talk to me (even at a self-confident twenty-nine, I did NOT want to make a fool of myself in front of all those young men).

One day I was hanging around the arcade watching a little guy about 10 play one of the newer games. Like all the boys, his whole body was involved in the action and his concentration was razor-sharp. When a game ended I strolled over to him and introduced myself, and then I asked him if he liked the game. "Oh, YES" - an enthusiastic response. "Do you think you'll play it some more?" "Yes," again. "So tell me," I said, "Does it make you want to learn how to program computers someday?" He looked at me blankly. "What do you mean?" "Well, it's a computer. Somebody programmed it. Would't you like to know how to do that, to make some games of your own?" He looked at me, then laid his little hand on the machine. "Lady, this is NOT a computer," he explained, as if to someone mentally impaired. "Computers are SMART. This is just a stupid video game."

Well, it was indeed a stupid video game, and even though Atari was trying to differentiate their home computer from their VHS unit, it seemed that upper management wanted us to do a whole lot of stupid video games instead of most of the cool empowering things we were working on, which of course in my humanistic fervor I resisted. Now don't get me wrong. I enjoyed stupid video games as much as the next girl, but computers meant something different to me. "Don't you see the possibilities?" I wanted to shout to the folks at Atari. "Kids could learn things! Everyone could communicate much better! People could balance their checkbooks and organize their recipes! Artists could make great new works! Personal computers could change the world!"

"Yes, yes, dear."

When I finally found myself fired from the Atari Home Computer Division, I called my by-then friend Alan Kay and asked him for a job at Atari Research. He and Bob Stein hauled me into the lifeboat. It was nearly two years until the corporate types figured out that I was still working at Atari, and boy were they mad. But by that time I was ready to embark on a new humanistic quest, thanks to Alan.

I've used the term "humanistic" a couple of times now and I guess it's time I define what I mean by it. The most satisfying expression of humanism I know is d'Alembert's

Preliminary Discourse to the Encyclopedia of Diderot. D'Alembert's translator, Richard Schwab, said that the Discourse "breathed a confidence that man, through his own intelligent efforts, could transform the conditions of human life. . . ." D'Alembert succeeded in defining a philosophical space between the rationalism of Descartes and the empiricism of Locke and Newton. This is a tough line to walk - while believing in the primacy of sensation and observation as how we know the world, to employ a methodology that submits these observations to reason, and, sometimes not so obviously, to ethical consideration.

The truth is that humanistic work is values-driven work. It is work that you are doing because you think it's a good thing to do. The Enlightenment humanists fell at different points on the continuum between universal truths - including ethical values - and empirical investigation. So do humanists today. Many will deny that they have values and claim that their work is entirely objective. But this is to ignore the glaring single value that is the very heart of humanism: the belief that humanity's power to shape its own destiny through the application of knowledge and reason is a good thing. In other words, whether we admit it or not, we humanists make the implicit assumption that we can do good, and therefore that we can know what is good to do.

I want to describe some of the work that we are doing at Purple Moon to illustrate some of the points I'm trying to make. But before I skip entirely over the intervening decade of personal history, I want to observe that doing what I consider to be humanistic work is something I think I had to work up to, first through rhetoric then through research and then through a really arduous education in business.

By 1986 I had become totally frustrated by my inability to produce any products I could consider humanistic in the world of computer games. I had finished a Ph.D. in interactive fantasy and had created a lot of product designs that publishers generally couldn't see a market for. I turned my attention to writing critical theory, making rousing speeches, and creating virtual-reality art that would only be seen by a few hundred people. I think of those times as a period of closet humanism. I felt that, if I couldn't make something that could touch a lot of people, I might be able to make things that would influence other makers who could step up and change the world. To a certain extent I think I succeeded. But it is really easy to hide from the challenge of doing real products when you define yourself as marginal - a theoretician, a side-liner, a commentator. I was sending the post cards but I wasn't taking the trip. At the same time, my enduring love affair with popular culture increasingly alienated me from the artistic elite. I felt more and more like a homeless intellectual.

In 1992 I met David Liddle, who was just forming Interval Research Corporation with his partner, Paul Allen. David had read my books and I had heard about David's seminal work at Xerox PARC. In the process of exploring whether there might be a fit for me at

Interval, we discovered that we had a strong common interest. Both of us were extremely curious as to why there didn't seem to be any computer games for little girls. We both knew that exposure to computer games gave boys a level of comfort and familiarity with the machine that girls generally did not share. Neither of us knew of any reason why girls would be intrinsically less interested than boys in computers or computer games, and both of us were deeply puzzled why no one had been able to make something that worked for them. David's summary of the missed business opportunity was, "there's a six billion dollar business with an empty lot next door." Most important, we agreed that if this were an easy problem, someone would have already solved it. In sum, the problem had all the characteristics of a good research problem - puzzling, consequential, and complex. So I signed on at Interval and began a 4- year research project that led to the formation of Purple Moon.

Our first goal was to define the question we were trying to answer. It seemed too narrow and trivial to ask simply, "why hasn't anyone made successful computer games for little girls?" This question has some ready-made answers. Computer games as we know them were invented by young men around the time of the invention of graphical displays. They were enjoyed by young men, and young men soon made a very profitable business of them, dovetailing to a certain extent with the existing pinball business. Arcade computer games were sold into male- gendered spaces, and when home computer game consoles were invented, they were sold through male- oriented consumer electronics channels to more young men. The whole industry consolidated very quickly around a young male demographic - all the way from the gameplay design to the arcade environment to the retail world - and it made no sense for a company to swim against the tide in all three of these areas at once. Even though the occasional computer game like Pac Man was a "hit" with girls and women, scoring sometimes as many as 25% female players, conventional wisdom was set and remained fundamentally unchallenged. Whenever a "girl" title was attempted, it was launched all alone onto the shelf without adequate marketing or retail support, and the inevitable failure easily became a proof that girls would not play computer games. Even as late as 1994, major game companies steered clear of the potential girls' market because they feared that being seen as doing things for girls would alienate their male audiences. By the way, our research showed that - initially at least - their fears were indeed well-founded.

When we began our research at Interval, we simply wanted to find out what it would take to motivate a little girl to put her hands on the computer and become comfortable with it. That was our core value, because we knew that comfort with technology would eventually tend to broaden a girl's range of choices in both education and work. We finally agreed on the question, for children ages 7 to 12, how is play influenced by both age and gender? This question enabled us to investigate differences and similarities, culture and biology, skills and preferences, framed in the context of children's pleasure and enjoyment.

This was a truly humanistic approach. Once we identified the foundational values and questions, we employed a methodology based on empirical observation and a dialogue with nature - in this case, the nature of boys and girls in the United States (a limitation dictated by our resources). As a research corporation, Interval did not have existing products or services that it was trying to bolster or justify, which freed us to look fully and clearly at our subject. As a private enterprise, Interval was largely immune to the political risk that inquiries into gender difference entailed in academic and other institutions (especially in the 1970s and 80s). To the end of doing good research, David and I and the rest of the team solemnly agreed to check our preconceptions and political agendas at the door. Some people found this really irritating.

Now, we could have approached our work at Interval and later at Purple Moon in ways that would have satisfied some of those folks. Some feminists would have been satisfied if we had avoided the crassness of market research and proceeded aggressively on an agenda to educate and transform girls according to their particular values. Hard-nosed business realists would have been satisfied if we licensed a strong branded character or fiction property that had already proven itself to be powerful with our "target" audience. Indeed, when we started our work in 1992 the business realists through they "knew" that girls would not play computer games, so there was nothing we could do to make them happy except to continue to refrain from trying to spend their money on a product that was bound to fail.

The truth is that people do a lot of talking about girls and not enough listening. No one is neutral about the roles of women and girls in American society, or probably in any other. People have very strong ideas of what girls are like, what they need, and who they should be. These voices drown out the voices of the girls themselves.

Being a preteen girl is rather like being in that corridor of radio silence that a spacecraft passes through when it reenters the earth's atmosphere. American culture nourishes girls very poorly during this time. An executive of one of the world's leading toy companies told me that there are approximately ten times as many toys marketed to boys as to girls in the age range. Girls are generally too old for dolls and too young for serious fashion and cosmetics. Television and film do not *target* them because the studios **know** that girls will watch material designed for boys, but the converse is not true. The primary cultural artifacts girls engage with in this period of life are books and, to a lesser degree, music.

Between the ages of 8 and 12, girls are absorbed in the process of self-construction - both external, social identity and deeper, internal self-awareness. The materials with which they construct themselves are the materials at hand - primarily provided by popular culture. Yet it seems to me that the few materials we do provide them are only superficially related to the actualities of their lives.

A single, shining exception is American girls' participation in sports, up 800% over the last 25 years since the U. S. Congress mandated equal funding for boys' and girls' athletic programs in schools. For the first time, girls have a way to experience and value their bodies that is different from the idea of attractiveness.

How girls fare at the task of self-construction predicts to a large extent how well they will brave the storm of adolscence - the time when their self-esteem is at greatest risk. Girls who have trouble at this passage may experience depression and setback well into their adult lives. Yet it seems that at the very moment we should be listening to them and seeing them and offering them back an affirmation of who and where they are in life, instead we tend to place them in a hyphenated life-stage - *pre-teen-hood* - that is no place to be at all.

During the course of our research at Interval, and now at Purple Moon, we have been graced with the partnership of Cheskin Research in our goal to hear and see girls. Together, we began with a thorough literature survey of research in areas that we thought might have some light to shed on our question (something that computer game companies have rarely done) - areas like cognitive and developmental psychology, play theory, neurophysiology, gender studies. In our second stage we interviewed a hundred adults on topics that seemed most promising - experts from academia and industry as well as adults whose lives are spent on the ground with children at play. In our third and largest stage of work, we conducted interviews with about 1100 children all over the United States, initially both boys and girls and then focusing exclusively on girls.

In addition to this work, we employed survey data from another 10,000 children and conducted separate interviews with over 500 parents. We had strong quantitative findings - for example, the leading reason girls gave for disliking traditional video games was not that they are violent or competitive, but that they are boring. Girls tend to find the characters entirely unsatisfying - so weak that you can't even make up good stories about them. Girls are typically unmotivated by mastery for its own sake, but demand engaging and relevant experiences from computer games. Both boys and girls see video game machines as for boys and computer as gender-neutral.

But for me, the real understanding came with our qualitative work. We knew that if we were going to create things that were truly relevant to girls, we needed to know every single thing we could find out about them. We asked them to talk to us with their best friends at their sides for at least an hour on topics ranging from play preferences to gender signals sent by toys to technology to the issues in their lives that concerned them most.

I want to share a few pieces of what we saw and heard. These voices were recorded in our interviews with girls, and the images are pictures that they took for us of things that are important in their lives.

[videotape: pictures and words]

We spent several months consolidating our findings and then transforming them into design principles to use in developing products for 8 to 12 year old girls. After a stage of advance development inside of Interval Research, we formed our company - Purple Moon - and launched three businesses - interactive CD-ROMs, the Purple Moon Website, and an array of Purple Moon merchandise. All of these products are linked by a diverse cast of characters drawn from the lives and experiences of girls and worlds of imaginative play that we explored through our conversations with them.

[demo]

I'm pleased to say that Purple Moon's first two Friendship Adventures, "Rockett's New School" and "Secret Paths in the Forest," were both in PC Data's top 50 entertainment titles during the holiday season (right up there with "John Madden Football"!) with sales at approximately 10 times our original forecast. Since our web launch in early September, we have served over 40 million pages on our website, with about 75 thousand registered users who visit us approximately 1.5 times a day and view an average of 35 pages per visit. These girls have collected about a million and a half virtual treasures and have sent each other nearly three million postcards. This year we have launched the second in the Rockett series, *Rockett's Tricky Deicision,* and we will launch four other new CD-ROM titles including two new series, our site and merchandise lines will be expanded, and we will announce entries into new business categories. Purple Moon is not a CD-ROM company or a web company or even a product company. Because of how we came to be and our ongoing commitment to research, Purple Moon is a girls' company.

Purple Moon is also a startup, and our success is far from certain. But win, lose, or draw, I have a new kind of satisfaction in my life - one that comes from having tried to make an intervention at the level of popular culture. Probably one humanist in thousands actually succeeds in doing this, but there are some excellent role models. I think of Gene Roddenberry, whose "Star Trek" series continues to appall the artistic and cultural elite, but who made strongly progressive depictions of literally every significant social issue in the United States since 1967 embrace-able by popular culture. I wonder how much genius Stephen Speilberg has wasted trying to convince his critics that he can do "serious" work, where that is somehow defined as "not for mass consumption." Because his films appeal to millions, his values are somehow invisible. When he finally emits a film like "Schindler's List" that appeases his critics, obscure academics step in to grab their fifteen minutes of fame by questioning his politics and historical accuracy.

And so it goes. A humanist who attempts to do popular work will always be attacked by the elite who claim his political turf and who insist that people who do values-driven work must by definition be marginalized. These folks believe that popular culture is intrinsically poisonous. If it is popular, it is bad for you; if it is bad for you, it is probably

popular. There is a great deal of inevitability about it. If you do market research, you are probably fundamentally crass and exploitive. This position is possible because the values at the heart of humanism have still not been understood.

The advice that has guided me best is simple. Know who you are working for - be clear about who you wish to please. *The goal is to introduce new genetic material into the culture without activating its immune system*. Good research and strong values go hand in hand.

Today, humanistic work in our field is possible and it is necessary.

The Enlightenment humanists' core values and methods were at odds with both the institutions of power and the "popular culture" or street wisdom of the time. By bravely deploying their contemporary mass media, the Encyclopaedists brought about profound changes in institutions, cultural practices, arts, sciences, and philosophy that continue to frame our lives today. Every one of us has the opportunity to employ similar methods and to express similar values. I wish us all a great deal of courage, self-discipline, and clear-eyed hope.