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Artists playful interactions with technology: play as socialization, skill,  
competition, or something else?

(DRAFT)

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*Abstract*

Play and computer games are generally viewed as key points of entry for gaining skills and motivating interest in computers and technology. This view is re-examined by considering how artists understand and interpret their interactions with technology and setting these perspectives in relation to the traditions and views about gender, games, play, and technology that are embedded in the literature and research. Through these artists' self-interpretations we can understand this interaction between artist and machine as a dialogic process of learning through communication and interpretation. Play in this context is about engagement and challenge rather than passion and competition. These ideas are explored in order to consider possibilities for a more expansive and engaging understanding of the process of knowing and learning with or through technology.

*Play, epistemology and essentializing players*

A conception that runs through the two dominant threads of discourse on gender and technology (the leaky pipeline<sup>1</sup> and the deficit model<sup>2</sup>) is that play has a formative and epistemological function in building technological competency and interest. (de Castell & Bryson, 1998; Jenkins, 1998; Klawe, 1999) This concept of play is grounded in Huizinga's (1950, 1955) agonistic picture of play and culture. This paper will explore two key ideas of essentialized gender and play – and suggest that play is central to the project of learning technology, but that this play is – at least in some cases – a different kind of play that has nothing to do with competitions or computer and video games.

Women and girls are much more likely to be concerned with how new technologies can fit into the social and environmental surroundings, whereas men are much more likely to be preoccupied with doing things faster ... regardless of social and environmental consequences. Women are also far less likely to push the technological envelope and tend to be willing to make do with available tools. Men, in contrast, tend to draw upon their technological imaginations to extend the capabilities and to attempt to 'go where no man has gone before.' What are the implications of these differences for girl-friendly games?

(Brunner, Bennett, & Honey, 1999, p. 77)

Embedded in the above quote are two assumptions. One is a broadly essentializing view of both women and men. Second is a broad inference about the

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<sup>1</sup> The leaky pipeline refers to the fact that women generally leave science & technology fields and that this happens in progressively increasing numbers in advanced degree programs.

<sup>2</sup> The deficit model constructs girls and women as flawed or ill-prepared players in the technology-math-science playing arena.

relationship between gender and perceptions regarding technology, imagination, concern for consequences, exploration, and the relevance of games. A supposition is made that games (specifically video or computer games) have some great provenance in mediating access, interest, and proficiency in this technological world and that gendered differences in access to and interest in games is a limiting factor. Driving these ideas are prevailing perceptions that the worlds (and high tech products) of technology are masculine (Cockburn & Ormrod, 1993; Haddon, 1990) and also that particular kinds of computer games facilitate engaging with technology. These notions are embedded in both popular and scholarly renderings of computer science and technology. (Adelson, 2000; Bryce & Rutter, 2003; Morahan-Martin, 1998) Implicated too, are several formative notions about girls and women and their attitudes and aptitudes towards computer games, play, competition, challenge, and relationship. The above quote from Brunner et al. is a fairly representative example of the prevailing judgment that girls and women engage with technology far differently, and from vastly different orientations, than do boys and men, because of their different attitudes towards play, relationship, and working with computers. Generally unquestioned across literatures is the concept and use of play presumed and the universal picture of men that situates this thinking. Central to this construct is a very particular view of play as a goal and skills driven agonistic activity, one that is most clearly understood through Huizinga (1950, 1955). A central aim of this paper is to counter this perspective by looking at the ways in which artists view and understand their interactions with technology and to bring another theoretical view of play – from Gadamer (1975, 2003) – to the table.

*Conceptualizing play*

In formulating my view of the relationship between play, technology, and engagement, I draw on two theoretical positions on play which I will now attempt to explicate, briefly. The literature on play and computer games most often references the work of Huizinga (1950, 1955) and a notion of play as competitive contests of skill. It is illuminating, in looking more broadly at play, to understand Huizinga in the context of other possible framings of play. Both Huizinga and Callois (1958, 2001) provide compelling narratives of play and its ontological influence on culture. Through Huizinga, we come to understand the formative role of play on the foundations of human civilization – in ritual, systems of jurisprudence, sport, music, riddles, and philosophy. Play itself is conceptualized as an activity one enters freely yet that is bounded in time and space; it requires absolute adherence to its rules. For Huizinga, the primary spirit expressed in play is agonistic – competitive – as players strive to excel, to be the best and once achieving such a position, to let that status be known far and wide.

Callois (1958, 2001) specifically expands on Huizinga's theory to formulate play into categories. Defining four types of games – *agôn* (the contest), *alea* (games of chance), *mimicry* (role-playing and imitation), and *ilinx* (games of vertigo) – he elucidates what these types of games engage in the player and their impact on the development of society and culture. Games of *agôn*, and to a lesser degree, *mimicry*, exert the greatest creative influence and games of chance the least.

Taking up play from a different perspective, Gadamer (1975, 2003) elaborates a view of play far less focused on solving a task; instead he suggests an ontological understanding of play as a way of being and thinking while in play. Play is

transformative and something new, of true and lasting value is created through play. The pleasure and meaning in the unfolding of play is the “joy of knowledge.” (p. 112)

*Rethinking traditions and assumptions*

Questioning normative assumptions is a key aspect of this inquiry. Hence, it was important to select participants and a methodology that would facilitate this aspect of my investigation. I chose to look at artists – graphic designers and electronic music composers because they tend to be highly invested and highly reflective about their work and development and because women artists who use technology are both highly skilled and passionately engaged in their work – a picture of women that is rarely found in the literature on gender and technology. (Sofia, 2002)

... That boys tend to have an advantage with computers because they achieve a certain comfort level with the technology by virtue of being motivated by video games to put their hands on it. This is not even about content now; we’re just talking about being comfortable with it, and maybe even thinking of it as a medium you might want to author in. Girls weren’t getting that chance to the same degree because they didn’t have things that motivated them in the way that video games motivated boys. (Cassell & Jenkins, 1998, p. 120)

Notions such as this ask us to believe that computer games provide the motivation to not only learn technology, but to open up the possibility of seeing technology as a creative partner. One problem with this view is that it makes an assumption that boys in general are motivated by computer games and that all boys and all girls need to play

video games in order to even consider technology as a medium. Ellen<sup>3</sup> (one of the participating artists) had always been interested in learning about computers but her barrier was finding a way of learning that was appropriate for her. Though she talks about herself as a non-techie, her understanding of computers evolved through her personal revelation about programming and is how she found her own way of playing with technology. Language, not games, became the entry point for her:

When it comes to computer language, the last time I worked with that was probably junior year, maybe a little bit senior year. But um, I really took to it – that’s the first time I started to make a connection between computer languages and real languages ... I’m very familiar with that language learning process and then learning that the computer is just like another person, but like another really dumb person that, I mean this sounds mean, but like it’s a really dumb object to communicate with, and you have to – if it doesn’t understand something one way, then you have to think of a way to rephrase it and simplify it until it does understand.

Once she located her relationship to the computer through language she moved from describing the intimidating authority of the manuals to thinking of herself as not only communicating with the computer, but she became the intelligent one in the conversation.

### ***Perspectives and Methodology***

At the center of this research project is an empirical study of ten artists (seven women and three men) all heavily invested in computer technologies in their creative

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<sup>3</sup> All artists names are pseudonyms

work. I interviewed seven advanced MFA students of narrative media/graphic design, one middle school art teacher/PhD student, and two PhD students in music composition. These students volunteered in response to an email solicitation to a list of students provided by two professors. Each student was interviewed and videotaped for approximately one hour. The interviews were semi-structured (Berg, 2004), in that I had a list of prepared questions but was more than happy to encourage or follow participants down interesting paths specific to their particular story. My intention was to make the interviews as much of a conversation as possible.

There is no presumption of objective neutrality in my methodology. My intention in talking with these artists was to get their individual reflections of their particular understandings of their practice and interaction with technology, situated within the contexts of their field and with their peers. My position was as an interested, and interpreting, participant in the conversation – both in conducting the interviews and in the subsequent analysis. My approach is grounded in Gadamer's hermeneutics (1975, 2003), wherein understanding is built through conversations engaged across traditions. This position presupposes an acceptance that we are inherently, and ontologically, self-interpreting beings – that a notion that we can make un-interpreted or unbiased observations about our experience is ultimately a suspect notion. Put another way, our interpretations are of value because it is through our interpreting that we make sense of our world.

My analysis of the interviews is built through my questioning the texts (the interview transcripts or videotapes) and engaging in a dialogue with them to come to some understanding of meaning. Just as the artists were active participants in the



interview (Holstein & Gubrium, 2002), their words remained active in my interpretation. My intention was not to impose unwavering questions – seeking clear or objective answers – but rather, to pose evolving questions that would help me to gain an understanding of what was going on. Alvesson & Sköldbberg describe this as:

... Undertaking a *dialogue* with the text, which we approach neither as its master, nor by passively surrendering ourselves to it, but on an equal footing. First, what matters is to learn to *listen* to the text ... Second, it is important to learn to ask questions ... we cannot just sit passively and wait for the material to pose questions, but must actively take the initiative, go out and pose the questions ourselves. (Alvesson & Sköldbberg, 2000, p. 86)

In putting these interviews – and my interpretations of them – into a conversation with the literature on gender, play, and technology I am, in a sense, seeking a fusion of horizons. (Gadamer, 1976; Taylor, 2002) This comes out of Gadamer's understanding of the process wherein we are able to come to an understanding between, or across, traditions. Traditions – as historically and temporally grounded - are as well how we are able to situate our interpretations as grounded in a real, observable world – and not fall into a relativistic and infinitely malleable postmodernist stew of unbounded possibilities. (Bernstein, 1983) In concert with this view of tradition, my use of theory is as a set of traditions that engage in a dialogue with both the artists' reflections and my own interpretations of their words. Through this interpretive dialogue I hope to articulate a problematic picture of the existing literature and to open a view towards a different way

of looking at how both men and women situate themselves into, or with, technology, through play.

### *Conversations in play*

All of the artists consider themselves users of technology. A slight difference emerges between them as some describe the computer as a tool – something that they master and manipulate and that others talk about it – and themselves – as engaged in a conversation. Through this conversational process they learn how to talk to, or interpret, the computer’s language and capacities.

It is possible to interpret this conversational interaction with technology by looking at Gadamer’s (1975, 2003) explication of play. In his view, knowing is subjectively centered and requires an invested interpreter. This knowing – or understanding – evolves through a back and forth movement between the player and the object. While the subject of play is play, the player is integral to building this dialogic understanding. It is just this sort of engaged interaction that many of these artists seem to be describing.

Gadamer (1975, 2003) stresses the importance of language in coming to this ‘agreement’ through play. Language is the medium of understanding. Play then, is a way of being and thinking; it is transformative and something new, of true and lasting value is created through play. The pleasure and meaning in the unfolding of play, in language, is the “joy of knowledge” (p. 112).

Language seems to be how Sue understands technology:

I think, as an artist, you have to understand language. So technology I think has its own language – it’s sort of an interactive thing. Yeah, so we have to – I think the computer has to also – I mean we have to speak with it. I don’t see it as hierarchical. (MU-011-F)

Ted too describes a conversational relationship:

Like telling – giving a computer a set of instructions and seeing what it will do.

Um, seeing if it will come up with, you know, come up with what you want. I definitely think there’s a sense of play ... I think it’s different. I don’t know, it’s a different kind of play or something.” (MU-009-M)

Setting this conception of play alongside the notion of play that has been taken up in most of the technology literature is a way to begin a critique of that literature. For example Sherry Turkle, quoted in Margolis & Fisher (2002, p. 42), describes computer games as governed by “rule systems, not physical realities or moral considerations”. What is ultimately important about these games in her view, is the skills that they help build. A strong connection is made between boys’ immersion in these games and their acquisition of impressive skills, to the detriment of girls and women who find themselves out of this loop. Boys use the rule based systems of games as a way to build mastery in a world of things, avoiding the problems of social relationships. Recalling Huizinga, (1950, 1955) we have one view of play as foundational in constructing some central facets of human civilization (ritual, systems of jurisprudence, sports, music, riddles, and philosophy). Play is entered freely but is as well, fully constrained by the rules inherent in the game. This play is best characterized as agonistic and is personified in the competitive spirit of

excellence driven by a desire to be the best, to win, and to display one's high status as the winner. Curiously, these artists do not talk about play or their artistic practices in this way.

It is at an intersection between Huizinga's rules and Gadamer's dialogic process of understanding that we might get clues about what the artists might be construing as they interpret what it is they are doing with technology. Certainly skills are important, but they are not the goal. The focus instead seems to be on ideas and understanding; in a sense, mastery allows understanding rather than dominance. It is this understanding – built between the artist and the machine – that allows a creative work to emerge. What this might mean is that if we take play – manifested as the 'deification' of computer games as a site of mastery; the underlying epistemology suggests a foundationalist disposition to knowledge. If, on the other hand, we view play through a Gadamerian lens, wherein truth is "something to be made – we enable a different relationship to knowing, one that is significantly different, that accepts the premise that all knowledge is fallible and that the process of coming to knowledge is central." (Schwandt, 2001) Opening our thinking about play and technology is relevant to how we understand the knowledge at stake in learning the language of technology.

***What if games do not constitute all play?***

We know that co-operation, rather than competition interests girls. And that is why we find more boys than girls patronizing these games. Girls tend to say it's stupid to spend so much time before the computer playing these games...  
(fuchs-eckermann, Hanappi-Egger, Hanappi, & Beckford, 2003)

Clearly, I am formulating an argument that computer games are not the only way to look at and understand play (or technology). In some sense it might be construed that this agonistic conception of play has gained cultural import because it mirrors our constructions of technology as masculine rather than because it illuminates what is going on under the surface. This general understanding of computer games perhaps is largely showing us back what we project onto them. I am not intending to shatter this image but I will suggest that we might understand the artists as revealing a perspective onto technology, and ways of knowing with technology, that is built independent of any vested interests in computer games. Of these ten artists only two play (or played) computer games. Both are women and both, though they like (or used to like) the games, did not speak positively of them. For one artist they filled some sort of atavistic need: “It must fulfill some psychological need to forage and hunt ... It’s some atavism.”(Ann) and for the other, she would be addicted to them for awhile, but then get bored and grow out of them. Neither spoke of games as anything other than a fun diversion; skills, expertise, and an interest in technology arising through these games was never mentioned.

***Self-interpretations through technology – engagement vs. passion***

It bears repeating – as it is repeated endlessly in the literature – that girls and women are portrayed as viewing computers as a tool for doing tasks, whereas boys and men see computers as a toy (Culp & Honey, 2002; Frenkel, 1990; Kleif & Faulkner, n/d; Margolis & Fisher, 2002; Pereira, 1994). These threads of research often focus on the differences between men’s and women’s use of computers – on women’s skills and task-

based use of computers – and on men’s passion for them.<sup>4</sup> In talking with these artists however, an understanding of the toy / task divide emerges quite differently. While there is a general consensus that the technology is a tool and is used to facilitate making art; this is a view that is embedded in the practice of all the artists, both men and women. What is more variable is their level of passion. I suggest this because I also find that it is passion about technology, specifically, that is negotiable, though not particularly determined by gender. What is apparently non-negotiable is a stance of engagement that is not necessarily mediated by an all-encompassing love of technology. All of the artists are driven by their engagement in their practice and this is what motivates much of their willingness to overcome the hurdles of a very large learning curve. This engaged learning process is what they call play.

Play here is an exploration partly grounded in communication. Through a playful engagement the artists learn how to communicate with and understand the machine. This play is both fun and immensely challenging. Barbara displays a willingness to immerse herself in the significant challenges that she playfully engages in order to learn advanced skills. In this, she draws on her self-understanding that she will be able to move beyond a basic proficiency – that she “could do something great with the technology”. As she says: “It was quite challenging – I spent so much time to learn the program. It was very enjoyable... my final work was so great so, I was very satisfied to do that.”

Denise expresses both her frustrations with the technology and challenges the notion that you have to really love working with technology in order to find it compelling

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<sup>4</sup> This is not to imply that all men are passionate about technology, or that all are highly skilled “nerds.” Rather, we might understand gender as a more fluid concept than clearly bounded as male or female.

and useful. While she finds making art a form of play – specifically as ‘serious play’ – she only grudgingly finds her interactions with technology playful.

I mean, is like technology - is that play too? Sometimes it is, sometimes it isn't. If it gets frustrating and doesn't do what I need it to do within like four tries, then it's not play - anymore. I mean, it's just work and I have to get it done. Like I don't - there are some people that really like enjoy, you know - taking apart the computer, like you know ... they have souped up computer cases. Like there's people - the clears, and the blue lights that flash on/off and that's sort of thing. That's a really cosmetic thing. Or, um getting the preferences *totally* set just right in a software program. That's work for me. That's not play. But like learning something, making something in Photoshop, that can be play. (A&D-006-F)

Here she echoes Gadamer (1975, 2003) when he states: “Seriousness in play is not intentional, but "seriousness in playing is necessary to make the play wholly play" (p. 102).

It is easy to view Denise as one of those women who just don't get into technology. Normally this is manifested in not really using technology, or using it as little as possible. However, she teaches web design, at a previous institution she wrangled a technology based assistantship even though she was a novice, and she is seriously driven to learn technology, including 3D animation. Despite her frustrations, she largely learns on her own. “I don't know if I've taken any classes ... I mean, I just go home and figure it out ... Usually I go find a book and do it. ... I figured out that you could sit, like if I just sat by myself ... eventually it just sort of clicked and other things

got easier.” It is a little hard to tell just how Denise engages with the computer and how she views this interaction. What is clear is that she is intent on – if asked to consider herself as engaged in play – on making clear that it is “serious play”. A big concern for her is refuting the notion that art is *simply* play – that it is just fun and without much intellectual or cultural value. She is careful to note that other fields that are given greater import, such as programming and conducting biology experiments, are also a kind of play.

What is intriguing to think about here is how we might think about men’s passion for technology and women’s more distanced connection. In his *Metaphysics of Virtual Reality* (1993), Michael Heim tells us:

The computer’s allure is more than utilitarian or aesthetic; it is erotic. Instead of a refreshing play with surfaces, as with toys or amusements, our affair with information machines announces a symbiotic relationship and ultimately a mental marriage to technology. Rightly perceived, the atmosphere of cyberspace carries the scent that once surrounded Wisdom. ... Our hearts beat in the machines. This is Eros. (p. 84)

Sherry Turkle’s work investigates notions of the self and identity in computer culture (1995). One of her themes has been the dichotomy between men’s passionate embrace of technology and women’s fear of “the intimate machine” (1988). In the following passage we see her psychology driven explanation:

Simulated thinking may be thinking, but simulated love is never love. Women express this sentiment with particular urgency. We believe this is because a



conflict fuels their conviction. A comfortable style of thinking would have them get close to the objects of thought. The computer offers them objects of thought. But the closer they get to this machine, the more anxious they feel. The more they become involved with the computer, the more they insist that it is only a neutral tool. (Turkle & Papert, 1992)

While I cannot speak to the psychology at work here, I am curious as to what this insight might ultimately mean. Is it really necessary to be on fearlessly intimate terms with a machine in order to think with one? When I talked with Sue about her interaction with the computer I did not get the kind of response that Turkle suggests as a norm. In my view Sue has a different connection (or at least a different expression) than does Heim with his machine, but she may indeed be engaged in the same kind of activities:

I think, as artists, you have to sort of understand language. So technology I think has its own language. So it either, they're controlling us, or we're controlling over - it's sort of like interactive thing. Yeah, so we have to - think computer has to also, I mean we have to speak with it. And nobody, no one, I mean which one - neither I think. I don't see it as hierarchical. (MU-011-F)

Games clearly are not instrumental in either motivating these artists or in helping them gain technical expertise. They all view the computer as a tool of some sort, but that does not lead directly into a task-driven mode of understanding and using technology. As one artist put it “the work doesn’t become task-like until you reach the stage of having to repeat yourself – to do repetitive tasks.” An activity becomes a task once you know how

to do it. The fun – and play – is in figuring out not only how to do something but also perhaps – just what it might be that you want to do.

### ***Rules as engagement***

Having laid out a picture of play as engaged and open exploration I will now propose that this play is also bounded by rules, but through a different relationship than we find in agonistic games. In this ‘aesthetic’ play, rules are important but they are often self-imposed; they become a way to set up the challenge to be met and are independent of the external world. Rules are also evident as the language of the technology – the language that needs to be understood so that one can tell the computer what to do. In a large sense, the rules define and pose challenges rather than simply set up non-negotiable conditions.

Denise, in reflecting on the tension between her antipathy to technology and her engagement with it, talks about challenge:

Well I would say definitely [referring to meeting the challenges in learning and using technology]. And it probably - and maybe that's - maybe that could clarify some of my earlier things. I mean, that technology is a really big challenge for me. And so that's interesting to me. Um, to use it in my work. Yeah. And, but, but I guess paint could be challenge to, just not a challenge I'm interested in at the moment.

The challenge arises out of needing to learn the rules or in needing to understand how the language of technology structures the 'conversation' and frames the possible ways of thinking and knowing. Ted has a clear notion that he is setting up his own rules:

Yeah, the practice of composition is definitely a - yeah, there's an element of play in that - you set up your own problems and then try to solve them. ... if you bend the rules - so you have to decide which rules to bend. Like which, and sometimes the piece will tell you. You just sort of have to evaluate and decide for yourself.

(MU-009-M)

Gadamer explains this as: the "most characteristic of the phenomenon of playing is that the individual player is absorbed into the back and forth movement of the game, that is, into the definable procedure and rules of the game, and does not hold back in self-awareness as one who is "merely playing." (Gadamer, 1976, p. xxiii)

In some sense Ted's description is of an ongoing dialogue between the artist, the work, and the technology – each situated in a different tradition. Again we can find a connection with Gadamer's thinking about play and its meaning: "Such horizons constitute the interpreter's own immediate participation in traditions that are not themselves the object of understanding but the conditions of its occurrence." (Gadamer, 1976, p. xii) The essential element of play here is the back and forth movement that captivates the player and provides the framework in which the goal or understanding will be sought.

*Summary and implications*

There is an increasing affinity between their rules and the common characteristics and deficiencies of the members of the groups. These preferred and widely diffused games reflect, on the one hand, the tendencies, tastes, and ways of thought that are prevalent, while, at the same time, in educating and training the players in those very virtues or eccentricities, they subtly confirm them in their habits and preferences. Thus, a game that is estimated by a people may at the same time be utilized to define the society's moral or intellectual character, provide proof of its precise meaning, and contribute to its popular acceptance by accentuating the relevant qualities. (Caillois, 1958, 2001, p. 83)

If Caillois is correct in his analysis, there is a moral and social authority embedded in the kinds of games a group takes up to represent its approved ways of being and knowing. My intention in this paper has been to explore the ways that artists situate their ways of knowing and comprehending in and through technology, independently of any involvement with computer games or agonistic play. My purpose is to create a space within which to rethink the ways in which we constitute both gender and technology through particular understandings of play.

While none of the artists I interviewed consider themselves gamers, programmers, or advanced technologists, most of them have a high degree of technological proficiency that they have acquired by taking on the large learning curves that creative software packages require. All of these artists believe themselves fully capable of figuring out how to communicate and interact with technology and understand that the product of their interaction will emerge through a playful engagement with the technology. In this

process there are varying perceptions about control, but generally it seems that there is a negotiation going on rather than a will to dominance. Mastery is what allows the artist to communicate her or his ideas to the machine; this communication must happen in the language of the technology itself.

While learning this language is central, there is also a requirement that the epistemologic problem of learning particular skills and procedures be part of this learning curve, but it is secondary to the play at hand – the dialogic process of making a piece of art.

Passion – about technology or about computer games – has often been viewed as the locus of entry into the world of technology. While these artists are all passionate about their arts practices, there is little full blown passion expressed about technology. Engagement with a purpose seems to be what gives them their energy and will. Even the artists who professed not to like technology were fully engaged in the challenges it presents. In some sense it appears that this engagement is linked with a fascination with the challenge of learning itself. For these artists the technology is not an end in itself.

As to why all of this might matter: Posted on the Anita Borg Organization website ([www.anitaborg.org/newsletter/archive\\_articles/nlarticles/issueeight](http://www.anitaborg.org/newsletter/archive_articles/nlarticles/issueeight), 2004) is an article by Justine Cassell, a professor in the Media Lab at MIT and author of 'From Barbie to Mortal Kombat', an oft cited book about gender, technology, and games (Cassell & Jenkins, 1998). In making her case as to why it is important that girls and women start to take an interest in computers (for high paying careers) she states:

“Computer games constitute the most frequent use of computers for children aged 2 – 18 years, and these games bootstrap computer literacy. So if girls were

playing fewer computer games, they might also be getting less technical fluency than boys.”

One response to this problem was to attempt to create girl-centered games, a project that was riddled with different problems as girls resisted the one-dimensionality and insultingly simplistic philosophy (de Castell & Bryson, 1998). Cassell is now working with a new framework of ‘undetermined design’ which allows “users to create or perform themselves through using technology.” The user becomes part of the design team and participates in the design and creation of technologies relevant to their lives.

While this concept seemingly has the potential to make technology more meaningful and accessible to women, I think there is something beyond design, constructing selves and diversity at stake here. As I don’t quite have my finger on it, I will broadly characterize this as a notion that much of our thinking about technology is through an epistemological model of knowledge. Somehow in this model play becomes synonymous with instrumental knowing, but I suggest it is more intriguing to think about the possibilities of an engaged and playful interaction with technology and learning that precedes this procedural bent. Somehow there seems to be something of merit in these artists’ self-initiated and playful studies of advanced technologies.

I wish to make a space in this discourse for women who deviate from the deficit norm constructed in the gender and technology literature – for the women who relate: “But in narrative media ... there are as many females with expertise in computer programming as males.” Perhaps the most that I can claim here is drawn from Gadamer’s picture of understanding as limited by our pre-understandings but that these

are revisable as new interpretations or evidence comes to our attention. It just this point that I wish to suggest – that a new interpretation of play – independent of our ‘fascination’ with video games – might lead the way to a more inclusive and engaging understanding of the process of knowing and learning with or through technology.

#### Sources

- Adelson, A. (2000). Is anybody not out for e-billions? Josie True, for one. *New York Times*.
- Alvesson, M., & Skoldberg, K. (2000). *Reflexive methodology: New visions for qualitative research*. Thousand Oaks, CA: Sage.
- Berg, B. L. (2004). *Qualitative research methods for the social sciences*. Boston: Pearson Education.
- Bernstein, R. (1983). *Beyond objectivism and relativism: science, hermeneutics, and praxis*. Philadelphia: University of Pennsylvania Press.
- Brunner, C., Bennett, D., & Honey, M. (1999). Girl games and technological desire. In J. Cassell & H. Jenkins (Eds.), *From Barbie to Mortal Kombat: Gender and computer games*. Cambridge, MA: MIT Press.
- Bryce, J., & Rutter, J. (2003). Gender dynamics and the social and spatial organization of computer gaming. *Leisure Studies*, 22, 1-15.

- Callois, R. (1958, 2001). *Man, play and games* (M. Barash, Trans.). Urbana: University of Illinois Press.
- Cassell, J., & Jenkins, H. e. (1998). *From Barbie to Mortal Kombat: Gender and computer games*. Cambridge, MA: MIT Press.
- Cockburn, C., & Ormrod, S. (1993). *Gender & technology in the making*. London: Sage Publications.
- Culp, K. M., & Honey, M. (2002). Imagining less-gendered game worlds. In N. Yelland & A. Rubin (Eds.), *Ghosts in the machine: Women's voices in research with technology*. New York: Peter Lang.
- de Castell, S., & Bryson, M. (1998). Retooling Play: Dystopia, dysphoria, and difference. In J. Cassell & H. Jenkins (Eds.), *From Barbie to Mortal Kombat: Gender and Computer Games*. Cambridge, MA: MIT Press.
- Frenkel, K. A. (1990). Women and computing. *Communications of the ACM*, 33(11), 34.
- fuchs-eckermann, Hanappi-Egger, E., Hanappi, H., & Beckford, C. (2003). *FemCity: A multiuser computer game about careers, lifestyle, dreams, and realities of young women*. Retrieved June 24, 2004, 2004
- Gadamer, H. G. (1975, 2003). *Truth and method* (J. Weinsheimer & D. G. Marshall, Trans. Second, revised ed.). New York: Continuum.
- Gadamer, H. G. (1976). *Philosophical hermeneutics* (D. E. Linge, Trans.). Berkeley: University of California Press.
- Haddon, L. (1990). Researching gender and home computers. In K. Sorensen & A. Berg (Eds.), *Technology and Everyday Life: Trajectories and Transformations*. Trondheim: University of Trondheim.



- Heim, M. (1993). *The metaphysics of virtual reality*. New York: Oxford University Press.
- Holstein, J. A., & Gubrium, J. F. (2002). Active Interviewing. In D. Weinberg (Ed.), *Qualitative Research Methods: An Overview*. Malden, MA: Blackwell.
- Huizinga, J. (1950, 1955). *Homo Ludens: A study of the play element in culture*. Boston: Beacon Press.
- Jenkins, H. (1998). Complete freedom of movement: video games as gendered play spaces. In J. Cassell & H. Jenkins (Eds.), *From Barbie to Mortal Combat*. Cambridge, MA: MIT Press.
- Klawe, M. M. (1999). *Computer games, education and interfaces: The E-GEMS project*. Retrieved May 2, 2003
- Kleif, T., & Faulkner, W. (n/d). *Boys and their toys: Men's pleasures in technology*. Retrieved August 10, 2004, 2004, from <http://www.rcss.ed.ac.uk/sigis/public/backgrounddocs/backgroundsigis.php>
- Margolis, J., & Fisher, A. (2002). *Unlocking the clubhouse: Women in computing*. Cambridge, MA: The MIT Press.
- Morahan-Martin, J. (1998, 25-27 March 1998). *Women and girls last: Females and the Internet*. Paper presented at the IRISS (Internet Research and Information for Social Scientists), Bristol, UK.
- Pereira, J. (1994, March 16, 1994). Computers: The gender divide: A tool for women, a toy for men: Video games help boys get a head start. *Wall Street Journal*, p. 1.
- Schwandt, T. A. (2001). *The dictionary of qualitative inquiry* (second ed.). Thousand Oaks, CA: Sage Publications.

- Sofia, Z. (2002). Women artists and their relations to technologies. In N. Yelland & A. Rubin (Eds.), *Ghosts in the machine: Women's voices in research with technology* (pp. 97-116). New York: Peter Lang.
- Taylor, C. (2002). Gadamer on the human sciences. In R. J. Dostal (Ed.), *The Cambridge Companion to Gadamer*.
- Turkle, S. (1988). Computational reticence: Why women fear the intimate machine. In C. Kramarae (Ed.), *Technology and women's voices: Keeping in touch* (pp. 41-61). New York: Routledge and Kegan Paul.
- Turkle, S. (1995). *Life on the Screen: Identity in the Age of the Internet*. New York: Simon and Schuster.
- Turkle, S., & Papert, S. (1992). Epistemological pluralism and the revaluation of the concrete. *Journal of Mathematical Behavior*, 11(1), 3-33.
- [www.anitaborg.org/newsletter/archive\\_articles/nlarticles/issueeight](http://www.anitaborg.org/newsletter/archive_articles/nlarticles/issueeight). (2004). *gender and technology*. Retrieved 3/23/2005, 2005