POOL HALLS, CHIPS, AND WAR GAMES:WOMEN IN THE CULTURE OF COMPUTING[1]

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Computers are becoming ubiquitous in our society and they offer superb opportunities for people in jobs and everyday life. But there is a noticeable sex difference in use of computers among children. This article asks why computers are more attractive to boys than to girls and offers a cultural framework for explaining the apparent sex differences. Although the data are fragmentary, the world of computing seems to be more consistent with male adolescent culture than with feminine values and goals. Furthermore, both arcade and educational software is designed with boys in mind. These observations lead us to speculate that computing is neither inherently difficult nor uninteresting to girls, but rather that computer games and other software might have to be designed differently for girls. Programs to help teachers instill computer efficacy in all children also need to be developed.

Although radical change in society makes people uneasy, change sometimes offers superb opportunities for self-advancement and organizational success. Computers are said to be bringing about such a transformation. By 1990, microcomputers will be a primary work tool in 25% of all jobs, and over 10% of all U.S. households will own them (Cronin, 1982). In universities computers are used in writing, mathematics, logic and model building, art, and architecture, as well as engineering and science. Both primary and secondary schools are buying computers at an ever increasing pace — a 300% increase in the last three years. Parents of middle-class children are paying high fees to send their children to computer camps. Research data support the idea that computing can enhance other academic and intellectual skills, and can be a superb motivating force in education (Lepper, 1982; Lin, 1982; Malone, 1981). The ability to compute is perceived as a marketable skill, as the employment opportunities section of

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every newspaper demonstrates. One computer manufacturer capitalizes on this perception in a television ad by showing a young job applicant sinking lower and lower in his chair as he is forced to admit that he does not know how to program.

Of course, the fact that computers are becoming increasingly available does not ensure that everyone will participate equally in the benefits of computer technology. For example, some groups of children may be more likely to interact with the computer than others. If so, then the children with the most exposure will reap the most benefit; they will sharpen their procedural thinking and programming skills, gain confidence with electronic devices, and have the opportunity to explore the many ways computers can be used. These advantages, in turn, will increase the likelihood of these children developing an interest in and succeeding in fields that involve computers. One current bias apparent in exposure to computers is based on sex. Encounters with computing in programming courses and at summer camps are much more common for boys than they are for girls. The magnitude of the discrepancy has been reported to be as high as 7 or 8 to 1, boys to girls (Lepper, 1982). The average ratio at computer camps in 1982 was 3 to 1 (Hess & Miura, 1983). In our own study of camps in 1983, the ratio was 5 to 1 (Kirby, 1983). If this bias in exposure produces an equivalent bias in competence and confidence, the girls of today will have no choice but to be second-class citizens in the computer-intensive world of to morrow.

Why are computers more attractive to boys? What can be done to increase their appeal to girls? Below, we suggest one framework for explaining and reducing the sex difference, based on a cultural analysis of computing. We claim that insofar as computing is an alien culture for girls, they are less likely to get involved in this new technology. Our initial research supports this claim. We therefore urge that computer education include some training in surviving in the computing culture as well as teaching children computing skills and knowledge. True computer efficacy requires both the social knowledge of the computer culture and the technical knowledge of computers as machines. We urge researchers to study how that efficacy can be gained. If computing is inescapable in our future, the opportunities for all children are inextricably tied to their socialization to the whole world of computing. Understanding how that socialization comes about and what makes it successful will help us improve the technology and the ways children are introduced to it.

Very little is known about the cultural aspects of computing. Investigations of computer education generally focus on instruction or on the user interface. In research on instructional variables, as in Malone's (1980, 1981) work on dart-tossing fantasies in learning fractions (note: boys liked throwing darts; girls liked another game without darts), the emphasis is on features of the software that enhance skill learning and promote positive attitudes about mathematics. The research on human factors in computing focuses on making computer systems "friendly," that is, comprehensible and easy to use (Schneider, 1982). These lines of research have contributed to computer literacy both in the specific sense of teaching programming and in the broader sense of stimulating self-directed learning of other cognitive skills. This research, however, does not address the context in which computing occurs, the reasons people value it, the kinds of people who like it, or the role of organizations in computing. These questions cannot be answered by studying particular features of computer hardware or software or programming; they require attention to social and organizational characteristics and to people's reactions to those characteristics. Systematic research has not been carried out on the social aspects of computing; hence, the observations we present below are based upon our general knowledge of cultural processes, upon fragmentary evidence about children's introductions to computing, and upon some of our own research and experiences in children's schools, in college classes, in electronic arcades, in computer stores, and in other places where people encounter computers.

Based on the information we have, we believe that computing is more than a set of skills. It is embedded in a social system consisting of shared values and norms, a special vocabulary and humor, status and prestige ordering, and differentiation of members from nonmembers. In short, it is a culture. In research at Carnegie-Mellon University, we found that people's initial encounter with the culture can be truly dismaying (Sproull, Kiesler, & Zubrow, 1984). The stylized nature of computing and its arbitrary conventions can make people feel out of control, and experts may be alienating. This first-year student illustrates the kind of experience a novice may have:

> "I was on the computer and something happened. I didn't know what was going on. I saw a guy sitting over there who looked like a real hacker. So I asked him, and he got up, and he started doing all of this stuff with my account without telling me what he was doing. He started messing around, "You need this. Let's see, I'll give you this file.' It's like, what are you doing? He wouldn't tell me."

The initial socialization to computing is important. As a result of it, some students learn the skills and acquire the eagerness they need to delve further into computing. For example, "I was glad that we were going to use [the computer in the following semester]. I don't know why. I just thought 'Oh neat, we get to use the computer again.'" Others get angry and withdraw, as one woman expresses here:

> "Looking back, I'm really not afraid of computers, but I'm going to try to stay away from computers. I know I shouldn't because it's probably the thing of the Future. But I'm really kind of leery to get into any type of computing again."

Our data show that women students are significantly more likely than men to have this negative reaction. Why?

At the moment the adult world of computing is heavily dominated by males and transmitted to children by males. Primarily, it is men who design the video games, write the software, sell the machines, and teach the courses. For children, the male-oriented cultural characteristics of computing can be seen in three domains: (1) the social settings in which children encounter computers, (2) the language and stories of insiders, and (3) the behavioral norms. Currently, most young people are introduced to computing through video games in video arcades, schools, computer camps, and their own homes. Both electronic games and home computers are primarily vehicles of entertainment for children. For example, one study of home computers found that 67% of children over 12 and 88% of children under 12 use the computer for entertainment (Rogers, Daley, & Wu, 1982). Even when computers are not being used as video games, the computers are still often part of a larger social game. They afford children and adolescents an excellent opportunity to socialize with their friends. The social nature of computing is apparent even in schools, where the programs are educational "games." Students all over the country are forming clubs and computer networks for playing together, sharing software, and advancing their proficiency. Since children and adolescents tend to form same-sex peer groups, these social games are also typically male. Even in preschool, males dominate the school computers. In one preschool, the boys literally took over the computer, creating a computer club and refusing to let the girls either join the computer club or have access to the computer. As a result, the girls spent very little time on the computer. When the teachers intervened and set up a time schedule for sharing computer access, the girls spent as much time on the computer as the boys (V. Blankenship, personal communication, December 16, 1982). Apparently, girls can enjoy the computer and do like to use it, but not if they have to fight with boys in order to get a turn. A similar process emerged in one elementary school we observed. Prior to the institution of time-sharing rules, the boys monopolized the computers and actively prevented the girls' access to the machines. Once the girls were given "permission" by their teachers to use the computers, they demonstrated enthusiasm for the computers.

Although at first computing is a strange and possibly humiliating activity, those children who acquire some proficiency can both advance rapidly in their computing skills and become more at home in the computing community. They acquire discriminating attitudes toward games, machines, software, and programming styles. They learn to use "hacker" language (see, e.g., Levy, 1982) and to work their way through the complexities of computing syntax, devices, and programs. But many girls must be actively encouraged to take the plunge.

Where do most children take this initial plunge? Children and adolescents can be found at all hours (even school hours) at the arcade or computer center or home micro. The video arcade culture shares many characteristics of a larger culture — the culture of young, male adolescents. At the outset, anyone can peer into a video arcade and, except for electronic bells and whistles, see the pool hall of yesterday. Video arcades are places where young males hang out with their buddies. Occasionally they bring their girlfriends, but the girlfriend's role is to admire the performance of her boyfriend, not to perform in her own right. Table 1 reports data from surveys we made of attendance at video arcades and illustrates the overwhelming preponderance of boys playing electronic games. It also indicates that (in the U.S. at any rate) girls are present in the surrounding environment, just not in the arcades themselves.

We have even found that some young children believe computer games and computers are for boys. In one nursery school, Pratto (1982) asked girls and boys aged 3 to 5 to name the toys they played with. Both girls and boys reported that boys played with Atari; it was never mentioned as a game for girls. We returned to that school and asked 42 children whether they thought computers were for girls, and then we asked whether computers were for boys. Most children answered this question. Although the majority thought computers were for both genders, the boys were not as sure of this as were the girls (71% of the girls and 57% of the boys). Of the minority, more children thought computers were for boys only (14% of the boys and 11% of the girls) than thought computers were for girls only (7% of the boys and 4% of the girls).

Computer stores we visited abound with software for home computers on tape and disks. A page from a typical software order form shows a preponderance of games oriented around wars, battles, crimes, and destruction, as well as traditionally male-oriented sports and hobbies (see Table 3). We also looked at the colorful covers of software for sale. On one rack, covers in comic-book style depicted such games as Olympic decathlon (4 male athletes on cover), Cannonball Blitz (3 men in battle), Swashbuckler (9 male pirates), Thief (1 male detective), Alien Typhoon (1 male space explorer) and Money Munchers (1 man in a suit). In all, 28 men and 4 women were illustrated in the covers. The women were on the covers of Monopoly (2 men and 2 women playing the game), Palace in Thunderland (1 very fat queen), and Wizard and the Princess (1 wizard standing, 1 princess in supplicating position on floor).

One might argue that playing computer games has no relationship to serious computing. This is not true. Playfulness, foolishness, coping with challenge, and exploration are all part of learning to compute, of studying computers, and of working with them. This is the case not just in colleges, but also in the high-technology firms populated by computer scientists (Kidder, 1981). In our most recent study of first-year students (Dubrovsky, Kiesler, Sproull, & Zubrow, in press), we found that students who play computer games are more likely to have had high school courses in computing. Further, playing games and having prior computing experience are negatively correlated with poor outcomes in the freshman computing course. And, as is shown in Table 4, young women are not only less likely to play computer games and to have had prior computing experience, but are also more likely to experience negative outcomes in their first college computing course. We cannot infer causality in these data, but we think they do counteract the claim that computer games have no relation to success in computing.

Of course the terminal rooms of high schools, computer camps, and colleges are somewhat up the status ladder from the video arcade. Rather than entertainment halls, these settings often remind one of the engineering laboratory with nothing on the walls but schematics or instructions for using the machines. The terminals stand in neat rows. The feeling of these places is reflected in the comments of a college student in one of our studies who was talking about the terminal room:

> I feel like I'm in 1984, cells right next to each other. It's like Russia. . . . They're all white. And all they have is computer information on them. Maybe they could have a picture of a Picasso.... All you see are computer geeks and computers and the Xerox machine and white on the walls. (Sproull, Kiesler, & Zubrow, 1984)

Computer stores, of course, are not as awesome, but they seem to be designed for consumers comfortable with electronics, and currently those consumers are more likely to be male. They are, in fact, electronics stores, with circuits in boxes on the shelves and cables snaking across the floor. The operators and technicians (and sales people) in these places are predominantly male, usually young, and often fervent adherents to computing as a way of life.

Another aspect of computing which bespeaks young male culture is found in the themes of educational software designed for children. Mark Lepper (1982) has pointed out, for example:

> One sees. . . a variety of presumably educational games that involve the same themes of war and violence that are so prevalent in video arcade games and another large class of programs that involve largely male sex-type sports (e.g., baseball, basketball, and football). In the game of "Spelling Baseball," for instance, the child's reward for superior performance is the opportunity to see one s own baseball team outscore the computer's team. When one watches children exposed to these games, it is hard to avoid the conclusion that these choices are not optimal for interesting girls in the world of computers. (p. 28)

All of the preceding observations suggest that the culture of computing may be a reasonable explanation for the apparent difference in girls' and boys' attraction to computing. It is a world of electronic pool halls and sports fields, of circuits and machines, of street-corner society transmuted to a terminal room. This is hardly the kind of world girls find enticing. It is a world that many girls will not enter or, if they do, it is a world in which many girls will get "turned off." The proportion of girls in computer classes goes down drastically with age and with the difficulty of computer courses (Hess & Miura, 1983). The culture of computing must contribute to this diminution.

What can be done to increase the interest and efficacy of girls in the computing culture? Some people may claim that little can be done; perhaps the cultural pressures are an outcome of sex differences in aptitude or in early socialization. Studies have shown large differences between boys and girls in the acquisition of sex-linked skills (Wesley & Wesley, 1977). Young boys, for example, are more likely than are girls to be able to repair a radio or bicycle; girls are more likely to be able to cook a meal or repair a piece of clothing. It has also been shown that girls have poorer spatial skills than boys (e.g., Hyde, 1981; Sauls & Larson, 1975), and many computer games rely heavily on spatial skills.

We have reason to believe, however, that there is nothing intrinsic to computing that would discourage girls. The social implications in using a computer appear to be the main stumbling block. In fact, the very first computer programmers were women who had been hired by the Navy during World War II to calculate shell trajectories on mechanical calculators. When ENIAC, the first operational computer was built, these women were assigned to program it and became known as the "ENIAC girls," (Kraft, 1979, p. 141). Ironically, as Kraft notes, it was because programming was initially viewed as of "low importance" that it was assigned to women. Carl Berger (cited in Lin, 1982) has demonstrated that, while girls typically perform more poorly than boys on arcade games when they are first learning the games, girls do just as well as boys after only a very short practice period.

Despite the widespread idea that computers are machines (and hence that girls would not be good at operating them), computers are not machines in the traditional sense. The essence of computer literacy is really procedural thinking (Papert, 1980; Sheil, 1981). There is no evidence that girls are deficient in this respect or that their early training and interests are inconsistent with it. Therefore, if some of the initial alienating cultural pressures can be overcome, girls might be as likely as boys to take the behavioral and cognitive steps necessary to gain control and confidence in computing.

Much has been learned about sex differences in achievement generally, including the social expectations that maintain them. But the observations discussed above in relation to sex differences in the computer domain have been based on rather fragmentary data. More carefully designed studies specifically about computing are indicated. Studies have shown that females seek out achievement activities that are consistent with feminine values and goals (Meece, Eccles [Parsons], Kaczala, Goff, & Futterman, 1982; Stein & Bailey, 1973; Tittle, 1981). Females are prone to be intimidated by a male-dominated achievement activity in a highly competitive and aggressive context. Since these studies did not relate directly to computing, however, these results provide only general guidance for discovering the particular cultural pressures and characteristics of computing.

In Table 5, we illustrate what culture can mean to behavior. The table presents data from observations of men and women at gambling establishments in Reno, Nevada. Anyone who goes to Reno (or Las Vegas, Atlantic City, Nassau, or Monte Carlo!) will notice strong sex differences in the choice of games. Men are much more likely to gravitate to craps and poker, the confrontational, aggressive, "put-yourself-on-the-line" games. Women prefer less competitive games which leave more to chance and, unfortunately, result in poorer long-term payoffs. To what degree are the differences in motivation cultural? A clue may be found in the high frequencies of women playing video poker, a new feature of these establishments (and still relatively rare). The appeal of this game for women suggests that poker is not inherently distasteful to women, but rather that ordinary poker, as played face to face, is somehow unattractive. We guess that poker and craps are both discouraged and discouraging for most women. They are masculine activities, and playing them would almost always entail playing against a majority of men, most of whom are far more experienced. In addition, playing these games requires taking the psychological risks (apart from the monetary risks) of "conning" others and being assertive. In its electronic versions, poker may be intellectually challenging (in terms of remembering probabilities and preferable strategies), but the aforementioned "social" aspects are removed. These observations lead one to speculate whether computer games for girls need to be designed differently.

Programs for teachers to instill computer efficacy in all children also need to be developed. An important element of such programs is the ability to instill competence and confidence. We suggest two areas for exploration:

The first is experimenting with computer languages that utilize children s own fields of interest rather than using preprogrammed games or activities. This is the philosophy behind LOGO, a powerful language that can be used by children as young as 4 (Papert, 1980). Papert does not report whether or not children's interest in LOGO is sex-linked, but it is reasonable to assume that if each child can use a computer to play or draw or write or make music in ways that she or he finds most interesting, then sex differences in computer efficacy should not appear. The second area is using the computer's potential for communication (in contrast with computation) to encourage children to establish and join computer networks. The content of network messages need have nothing to do with computers. The messages may focus on pets, recipes, rock and roll stars, paleontology — whatever kids want to talk about. Exploration of these areas could promote computer efficacy by helping children understand that they can use the computer in ways that are meaningful to them. This should be an important goal for all children.

We have suggested that computing, an innovation with profound social implications for all people, should be viewed from a cultural rather than a narrowly technical perspective, and we have suggested that girls may find their encounters with this culture to be particularly alien and unpleasant. If this is the case, then they will be relegated to the status of second-class citizen in the world of computing. We must begin today to ensure that girls can successfully negotiate the culture of computing.

REFERENCES

Cronin, J. M. (1982). Literacy education: 1980—2000. (Research Report). Chicago, IL: MacArthur Foundation.

Dubrovsky, V., Kiesler, S., Sproull, L. S., & Zubrow, D. (in press). Socialization to computing in college: A look beyond the classroom. In R. S. Feldman (Ed.), *Social psychology applied to education.* New York: Cambridge University Press.

Hess, R. D., & Miura, I. (1983). Sex and class affect summer-camp enrollment. *Info World,* 5, 52—54.

Hyde, **J.** (1981). How large are cognitive gender differences? *American Psychologist,* 36, 892—901.

Kidder, **T.** (1981). *The soul of a new machine.* New York: Avon Books.

Kiesler, S., & Schlisserman, N. (1983). A study of social behavior in video arcades. Unpublished manuscript, Department of Social Sciences, Carnegie-Mellon University, Pittsburgh, PA.

Kirby, C. (1983). A study of computer camps. Unpublished manuscript, Department of Social Sciences, Carnegie-Mellon University, Pittsburgh, PA.

Kraft, P. (1979). The routinization of computer programming. *Sociology of Work and Occupations,* 6, 139—155.

Lepper, M. R. (1982, August). *Microcomputers in education: Motivational and social issues.* Paper presented at the annual meetings of the American Psychological Association, Washington, D.C.

Levy, S. (1982, April 15). A beautiful obsession with the binary world. *Rolling Stone,* pp. 42—51.

Lin, L. Y. (1982). Bringing women to science. *The Research* News, 33, Vol. 9—10.

Malone, T. W. (1980). *What makes things fun to learn? A study of intrinsically motivating computer games.* Unpublished doctoral dissertation, Stanford University.

Malone, T. W. (1981). Toward a theory of intrinsically motivating instruction. *Cognitive Science,* 4, 333—369.

Meece, J. L., Eccles (Parsons), J., Kaczala, C. M., CoW S. B., & Futterman, R. (1982). Sex differences in math achievement: Toward a model of academic choice. *Psychological Bulletin, 91,* 324—348.

Papert, 5. (1980). *Mindstorms: Children, computers, and powerful ideas.* New York: Basic Books.

Pratto, F. (1982). A study of sex differences in children's play. Unpublished manuscript, Department of Psychology, Carnegie Mellon University, Pittsburgh, PA.

Rogers, E., Daley, H., & Wu, T. (1982). The diffusion of home computers. Unpublished manuscript, Stanford University, Institute for Communication Research, Stanford, CA.

Sauls, J. M., & Larson, R. C. (1975, April). *Exploring national assessment data using singular value decomposition* (Tech. Rep.). Denver, GO: Education Commission of the States.

Schneider, M. L. (1982, May). Ergonomic considerations in the design of command languages. Paper presented at the NYU Symposium on User Interfaces. New York University Graduate School of Business Administration.

Sheil, B. (1981). *Coping with complexity.* Palo Alto, CA: Xerox PARC.

Sproull, L. S., Kiesler, S., & Zubrow, D. (1984). Encountering an alien culture. *Journal of Social Issues,* 40 (3), 31—48.

Stein, A. H., & Bailey, M. M. (1973). The socialization of achievement orientation in females. *Psychological Bulletin, 80,* 347—366.

Tittle, C. K. (1981). *Careers and family: Sex roles and adolescent life plans.* Beverly Hills, CA: Sage.

Wesley, F., & Wesley, C. (1977). *Sex-role psychology.* New York: Human Sciences Press.

TABLE 1
Boys and girls
in video arcades and adjacent restaurants

Gender	*Players*	*Arcade* *Watchers*	*Adjacent Restaurant or Snack Bar*
Male		Study 1[a]	
Female	11	1	4.3
	5.7	1.7	10.7
Male		Study 2[b]	
Female	3	5.9	6.8
	3.5	3.1	2.7
Male Female		Study 3[c]	
	8.8	2.8	4.6
	1	1.1	1.5

Note: When the establishments observed were divided into sections for arcade games and for eating, we observed both areas. Otherwise, we visited the nearest snack bar or restaurant.

[a]Average number of people observed in Pittsburgh, San Diego, and Atlanta; Winter, 1982—3; six observations taken in each city at 4 **P.M.** and hourly from 7 **P.M.** to 11 **P.M.**

[b]Average number of people observed in Pittsburgh, May 1983; 24 observations made in the evening, average
time at 7 **P.M.**

[c]Average number of people observed in Tel Aviv, Israel, May 1983; 24 observations made in the evening, average time at 7 **P.M.**

TABLE 2
Cultural indicators

Type of Behavior	*Behavior of Groups*[a] *Frequency in the Arcade*	*Frequency in the Restaurant*
Laughing	**34**	**31**
Littering	**7**	**8**
Shouting	**22**	**9**
Swearing	**21**	**4**

	Dexterity	*Favorite Games* *War*	*Of Patrons*[b] *Sports*	*Other*
Female	7	2	0	*4*
Male	13	11	2	*1*

‘Forty-three observations in Pittsburgh, PA and Tel Aviv, Israel.
[b]Forty interviews in Pittsburgh, PA and Tel Aviv, Israel

TABLE 3 Titles randomly selected from a microcomputer software order form

Snack Attack	Thief
M icropainter	Stone of Sisyphus
Empire of the Overmind	Pirates Adventure
Major League Baseball	Voodoo Castle
Galactic Trader	Cosmo-Mission-"Super-Invaders"
Alien Rain	Magic Spell
Tank Command	Starfleet Orson
Space Quarks	Hellfire Warrior
Bill Budge's 3D Graphics	Crush, Crumble & Chomp
Star Thief	Invasion Orion
Hyperspace Wars	Tuesday Morning Quarterback
	Torpedo Terror

TABLE 4

Playing computer games, prior computer experience, and gender

	Games and Experience	*Games Only*	*Experience Only*	*None*
First-year Women	*16.5%*	*15%*	*21.3%*	*47.2%*
First-year Men	*35.6%*	*21.3%*	*16.9%*	*26.3%*

Female gender is correlated with:	*r*
Grade Point Average	*+0.22*
Playing computer games	*-0.25*
Prior computing experience	*-0.14*
College nontechnical field	*+0.16*
Difficult initiation to computing (Factor 1)	*+0.28*

Note: Data above were taken from a survey of 160 male and 127 female college students at Carnegie-Mellon University, who were asked about their experiences in their courses, including computer science. Factor 1, above, reflects a pattern of surprise, confusion, attempts at control, anger, and withdrawal in reaction to the computing course. This pattern was more frequent in computer science than in other courses (Sproull, Kiesler, & Zubrow, 1984).

TABLE 5
Gambling games played by men and women

Games and Other Activities										
	Craps	Poker	Sports Bar	Black jack	Keno	Slots	Video Poker	Vidio Black jack	Theatre	Bar/Restuarant
Convention Hotel/Casino										
Male	14	85	50	219	41	35	14	8	30	13
Female	1	10	8	45	18	31	8	5	40	19
Downtown Casinos										
Male	7	40		47	16	55	28	0		29
Female	0	5		26	14	117	31	4		13
Totals (in percentages)										
Male	95	89	86	79	64	38	52	47	43	56
Female	5	11	14	21	36	62	48	53	57	43

Note: Data were collected from approximately 25% of the games played in one convention hotel and three downtown casinos in Reno, Nevada during two days, two times each day (12 a.m. and 12 p.m.).