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ABSTRACT

In 2000, a government-supported foundation called Careers the Next Generation (CNG) in Alberta, Canada, began coordinating summer internships for high school students in information and computer technology (ICT). The participating firms represented a mix of large and small private and public organizations in high-tech and other industries in the private and public sectors. A survey was administered to 57 ICT students who were ICT interns in 2001 or 2002. Responses were obtained from 33 interns. Six interns (three males and three females) and five employers, two work experience coordinators, and a representative of CNG were also interviewed. The relationship between the educators and business employers was one of negotiation that included struggles between discourses emphasizing the primacy of learners' needs versus the primacy of employers' needs. Competition for the internship positions was intense, with an average of five students interviewing for each position. Females accounted for only 20% of the interns in 2001 and 17% in 2002. The three male interns interviewed had decided to pursue careers in ICT, whereas the three female interns interviewed had decided to pursue careers outside ICT. The interviews established that the internship program had helped the three male interviewees learn the rules of the game in the workplace. (Contains 9 endnotes and 33 references.) (MN)

"Finding the Future that Fits"

by

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"Finding the Future that Fits"

Introduction

Policy-makers' interest in clarifying possible student pathways from initial education to further education and work has grown in recent years (OECD, 2000; Flude and Sieminski, 1999). While there is growing interest in career pathways for students described as the "neglected majority" or the "forgotten half" (Parnell, 1985; Rosenbaum, 2001), there is also continuing interest on the part of parents, employers, and educators in the career plans of high achieving students. In the province of Alberta, Canada, apprenticeship training beginning in high school has been joined by provincially-coordinated "tech prep" and summer internship programs directed toward college and university bound students (Taylor and Lehmann, 2002).

A government-supported foundation in Alberta called Careers the Next Generation (CNG) began to coordinate summer internships for high school students in information and communications technology (ICT) and healthcare areas in 2000 and 2001 respectively because of employer concerns about future labour shortages. The ICT internship was intended to attract students to ICT occupations and to better prepare them by providing work experience opportunities in different occupational clusters. Employers in the ICT industry or those with an ICT department were therefore approached to provide placements for students in grades 11 and 12.

This paper examines how this internship worked and its effects on particular students. Although I did not initially approach the study with a "gender" lens, my interviews with some of the students involved in the internship revealed gender as a key factor in students' experiences and outcomes. Consistent with work of other writers (Clegg, 2001; Cockburn, 1987; Cole and Conlon, 1994) it became clear that girls' relationship to technology at school and in the workplace differed in significant ways from the boys'. Furthermore, the outcomes of the internship for girls in terms of future career plans were quite different. Acknowledging structure/agency debates in previous work related to women and technology (cf. Henwood, 1998), this paper draws on Bourdieu's concepts of *habitus, field*, and different forms of *capital* in an attempt to understand how one's environment structures one's experiences and vice versa. Such concepts

highlight how young women attempt to make their worlds but in conditions not of their choosing. I agree with previous writers that gender is a social relation that is actively produced in the workplace and in other spheres (Cockburn, 1987) and that it is also negotiated within these sites (Henwood, 1998). Notions of individual "choice" therefore need to be examined more carefully.

Key concepts

Several writers, including feminists, have found the ideas of Pierre Bourdieu to be helpful for understanding the role of education in social reproduction (Grenfell and James, 1998; Reay, 1998). Bourdieu describes the *field* as "a set of objective, historical relations between positions anchored in certain forms of power (or capital)" (Bourdieu and Wacquant, 1992, p. 16). Examples of fields might include schools and universities, economic and financial institutions, government, and the media. Webb, Schirato, and Danaher (2002, p. 13) add that each field has its own set of discourses and styles of language that determine what is valued, what questions can be asked, and what ideas can be thought. Each field therefore prescribes particular values and has it own regulative principles. Analysis of a field involves examining the position of the field vis-à-vis the field of power, mapping out the objective structure of relations between positions in the field, and analyzing the habitus of agents (Bourdieu and Wacquant, 1992, p. 104). However, it should also be noted that fields are not fixed but rather provide a structured space in which agents struggle to change or preserve the form and values of the field, depending on their position within it (p. 17).

Positions within the field are related to the amount and types of *capitals* possessed by participants. For example, *cultural capital* may involve knowledge, skills, taste, lifestyle and qualifications. Within this category, embodied cultural capital includes dispositions of the mind and body such as appearance, or bodily comportment, while institutionalized capital inheres in certificates and diplomas, as signs of officially recognized and guaranteed competence (Everett, 2002). Another form of capital relevant to our discussion is *social capital*, or resources linked to the "possession of a durable network of relationships of

mutual acquaintance and recognition" (Bellamy, 1994, p. 123). These forms of capital are translated into *symbolic capital* to the extent that they become seen as legitimate within a particular field.

If the field structures the rules of the game for participants, *habitus* can be understood in terms of participants' "feel for this game." Habitus is made up of ways of operating, inclinations, values and rationales acquired by individuals from various "formative contexts," such as the family and education system (Webb et al., 2002, p. 58). It is also inculcated through experience within the field in which one is operating as one acquires an awareness of the stakes and prevailing power relations (Cronin, 1996, p. 68). Nash (1999) suggests that the habitus can be thought of as an embodiment of structure that provides the possibility for agency within a limited arena of choice (p. 176). However, like fields, it is also subject to transformation. It therefore incorporates a tension between possibility and constraint (Reay, 1998).

The relationship between the field, habitus, and skill in the game are summarized by Johnson (1990, cited in Bellamy 1994, p. 132) as follows:

> [T]o enter a field, ... to play the game, one must possess the habitus which predisposes one to enter that field, that game, and not another. One must also possess at least a minimum amount of knowledge, or skill, or "talent" to be accepted as a legitimate player. Entering the game, furthermore, means attempting to use that knowledge, or skill, or "talent" in the most advantageous way possible. It means, in short, "investing" one's (academic, cultural, symbolic) capital in such a way as to derive maximum benefit or "profit" from participation.

Different writers have drawn on the ideas of Bourdieu to explicate social relations within the field of education. For example, Bellamy (1994) suggests that three forms of exclusion tend to operate within education. First, students with less valued capital are subjected to the same selection processes as those who are more privileged; second, students with less valued capital are relegated to less desirable positions; and third, a vision of the social world is legitimated that encourages certain groups to eliminate themselves from "the game" (p. 129). Therefore, mechanisms of reproduction are often indirect. Hodkinson (1998) draws on Bourdieu's concepts of habitus, capital, and field to make sense of career decisions made by young people. These concepts were useful for understanding the ways in which youths' decisions were related to their perceptions of possible "horizons of action," influenced by their habitus and position in the labour market.

Finally, Brown (1995) uses ideas from Bourdieu and social closure theory (e.g., Murphy, 1988) to argue that educational and occupational stratification can be understood in terms of the interests of the middle classes in reproducing social status and privileged lifestyles through access to professional occupations (p. 31). Brown (1995) also draws attention to changes that make the outcomes of these struggles less certain. For example, he argues that the move toward mass systems of higher education, generally higher educational attainment of women, an oversupply of graduate labour, and credential inflation have increased competition for credentials within the education field. At the same time, employers' adoption of what he calls the *discourse of the flexible paradigm* adds to the uncertainty associated with middle-class career patterns (p. 39). The flexible paradigm values determinism, drive and strength over conformity, and distributes rewards, authority and legitimacy based on one's contribution rather than one's position. Therefore, while credentials continue to be important, Brown suggests that positions in these organizations demand a "personality package" based on charismatic qualities as well as credentials and technical skills. In addition, the capitals valued in flexible work organizations may be different from those valued in bureaucratic schools.

The preceding discussion informs this study. In particular, thinking about the internalized structures of the habitus (Nash, 1999) and the social relations that structure positions within a field encourages an interweaving of structuralist and constructivist approaches that is relevant for the analysis of students' internship experiences that follows. An examination of the ways in which habitus and field are gendered is also critical.

Method

Data in this study included surveys administered to all ICT interns and interviews with six of these students in 2001. Interviews were also conducted with five employers of the students interviewed, work experience coordinators from the public and Catholic school districts in the city of Calgary, and a representative from CNG. The selection of students was based primarily on attempts to include different types of workplaces (private/public sector, large/small, high tech/other) and equal numbers of males and

females. I spoke to three young women and three young men. One of the young women and all three of the young men were from Asian or South Asian families (Chinese, Vietnamese, and East Indian).[1] Of these six students, four had male supervisors. The other two students worked together in data entry positions for a company in the oil and gas sector. The two work experience coordinators who monitored student placements for the public school district were both male while the coordinator in the Catholic district was female. Interviews with students and school coordinators were conducted in the last week of the internships in August 2001, while interviews with available employers were conducted by telephone in August and September of that year. Pseudonyms are used for all participants.

Student survey data in 2001 included responses from 21 of 38 ICT interns, and in 2002 included 12 of 19 interns. These data provide useful contextual information about the larger group. Over 80 percent of interns were located in Calgary in both years. They were above average academically[2] and their parents' education levels were higher than the average in Alberta (Statistics Canada, 2001). Information about parents' education levels and occupations suggest that students can be described as middle class. Because the population of female interns was quite small, the interview sample is also limited. However, findings from survey data supplement and confirm interview findings.

The ICT internship

In 2000, Careers, the Next Generation (CNG) began to coordinate summer internships for high school students in the ICT industry. CNG is a semi-autonomous provincial foundation mandated by the government in1997 to promote school-business partnerships that focus on youth transitions from school to work. It has historically received funding from the provincial government and the private sector. The ICT internship was initiated when industry executives approached CNG to develop the pathway, partly in response to a report which suggested that in order to increase its share of the world ICT market, Alberta required more qualified workers (Alberta Science and Research Authority, 1998). The internship therefore developed in response to employer needs. The plan for the internship was to not only provide ICT-related placements for students but also to develop skill profiles related to ICT occupations based on input from

employers (although by 2002 this had not yet occurred). CNG would then work with educators to develop ICT-related curriculum, as well as offering summer career internships to students and teachers.

In the first year of the internship program in 2000, 45 students and 17 employers participated and the vast majority of these were located in the city of Calgary. Despite CNG's interest in expanding the program, a downturn in the ICT industry resulted in only 38 students being placed in 2001 and 19 in 2002 (Personal communication, CNG representative, November 2002).[3] By 2002, key employers had not yet made a commitment to the development of skills profiles. After the first year, the type of placements also changed to include more public sector organizations and/or companies whose primary business was not ICT. In all years, the supply of interested students exceeded the number of placements.

In the second year of the internship, one ICT employer commented that it was an "unstable" business environment with anticipated slow growth over the next few years (Interview, September 2001). Comments about the instability of the ICT industry in North America were expressed even more strongly in an article in *The Economist* ("Telecoms," 2002, p. 9), which argued that the telecoms industry "faces years of painful reorganization as the oversupply of capacity built during the boom years is brought into line with demand, and the mountain of debt is restructured." Writers added that telecom operators and equipment vendors in the United States had laid off nearly 500,000 employees since the beginning of 2001 (p. 59).

The relationship between educators and business employers was one of negotiation. Struggles between discourses emphasizing the primacy of the needs of learners versus the primacy of the needs of employers were evident. For example, an employer suggested that the responsibility of educators in the internship program was to understand the needs of business and to provide the kind of student that employers were looking for (Interview, August 2001). On the other hand, a work experience coordinator from the Catholic school district expressed ambivalence about a shift in education during her career from teaching so that students appreciate knowledge for its own sake to teaching so that students are prepared for paid work (Interview August 2001). Although the public school district coordinator was convinced that partnerships with employers in the area of school-work transition were beneficial for students, she added

that she and her male colleague wanted to be in the "driver's seat" in their work with industry to protect students and ensure equal access to work experience opportunities.

However, in reality, the ICT internship was geared toward a select group of students. As the public school district coordinator said:

> [The tendency is to] line up who's the best and brightest because it's your school you're representing and you don't want them to embarrass you. ... And so as far as I'm concerned the ICT model is that vehicle to help us get into the businesses because people are going to see what these kids will do and can do and open doors for the other kids.

The ICT interns were also a select group in terms of gender. Young women represented 20 percent of interns in 2001 and only 2 of 12 (17 percent) of survey respondents in 2002.

Perhaps reflecting an employer's comment that there was a "fine selection" of available workers in the ICT industry, the competition for internship positions in 2001 was intense. Interviews with employers suggest that, on average, five students were interviewed for each position. The coordinator of the Catholic school district comments on this process as follows:

> I actually drove one boy to the interview because he couldn't get there for the interview time. And we were sitting in the foyer waiting for [the two boys'] interviews and at least four or five other students came in. And it was an interesting process because my boys were sitting there all dressed in their shirts and ties looking very smart. And then in came these other young people [for interviews] and they all just looked at each other. ...So the students all got that feeling of competition. (Interview, August 2001)

Local public school districts cooperated with CNG in advertising internships, pre-screening candidates, coordinating interviews, working with employers to develop learning plans for students, and monitoring placements. The Catholic school district coordinator suggested that she pre-screened students by verifying their marks and attendance, and spoke to several of their teachers for references concerning their attitude, initiative, ability, and so on. The result of the competition was that nine students from her district (including only two young women) were hired as ICT interns. Although the coordinator from the public district suggested that school representatives try to encourage more young women and that the "doors are wide open" for them in the ICT internship, this district only four of the 22 interns placed were young women. The employers that were interviewed also noticed the absence of young women; only one employer had interviewed any young women for internship positions. However, neither school coordinators

or employers discussed the need for positive action for young women beyond providing equal access. Coordinators tended to view gender inequities as related to individual student choices, for example, the fact that computer science classes in high school are also majority male. Gender differences were thus naturalized (Cockburn, 1987).

Interns were employed for the summer but since high school credits were awarded, internship coordinators (teachers) were hired to monitor the placements and to develop an evaluation procedure for each student intern with input from employers. Information about the internship from CNG suggested that students were required to complete a learning project that included a portfolio, field journal, or work-related project/presentation, although none of the students interviewed referred to this requirement in practice. Students were paid by employers and pay rates in 2002 varied significantly from $7 to just over $12 an hour. All pay rates were above the minimum wage of $5.90 per hour in Alberta.

Negotiating the field

The previous section suggests that there is pressure on teachers and coordinators in the areas of school-to-work transition to learn the "rules of the game" in the workplace. Students' positioning within this field reflects their subordinate position within the wider labour market. As Cockburn (1987) and others suggest, students can be located in the secondary labour market because employers expect that their productivity will be low and that they will require training. Given this positioning, it is important to examine how interns make sense of their experience within the field. As Bourdieu and Wacquant (1992) suggest, the "field structures the habitus" and the "habitus contributes to constituting the field as a meaningful world...in which it is worth investing one's energy" (p. 127). Interestingly, the three young men that we interviewed had decided at the end of their placement that "the game" was worth playing and were planning to pursue further education that would make them more marketable within the ICT sector. The three young women, on the other hand, had decided that they would prefer to pursue a career outside of the ICT industry. The subsections that follow focus on the development of practical sense--the socially constituted sense of the game--that led students to either embrace or reject the ICT field.

Developing a feel for the game

> [T]he strategies of a "player" and everything that defines his "game" are a function not only of the volume and structure of his capital *at the moment under consideration* and of the game chances...they guarantee him, but also of the *evolution over time* of the volume and structure of his capital, that is, of his social trajectory and of the dispositions (habitus) constituted in the prolonged relation to a definite distribution of objective chances (Bourdieu and Wacquant, 1992, p. 99) (emphasis in original)

The three male students interviewed had all completed ICT internships in both 2000 and 2001 and were learning the rules of the game in the workplace. In fact, two of these students seemed to have begun learning this game long before the internship began. For example, when asked what young people can do to improve their prospects, 17 year-old Michael replied:

> [I]f you do well with the proper skill, proper education, you know, good communication skills and learning ability and stuff like that, the employer would want to keep you and not want to let you go. Because you're very valuable to them. (Interview, August 2001)

Michael's family background and activities through school have provided opportunities to develop these "proper" forms of capital. For example, in elementary school he joined a "computer programming class" and began "doing some programming there and some basic troubleshooting at the school." In junior high, he joined a computer club that maintained the school's technology infrastructure and became the lead technician: "So I was responsible for the network and the actual computers in the school and that was all volunteer stuff." His family also provided opportunities as follows:

> I've always been working with my dad at his [accounting firm]. He's always working with computers so I get to go there, and since it's his own company, I go and fix his computers and any problems he has. ... and maybe helping friends or some of my dad's clients or coworkers fix their computers on the side...

Therefore, although Michael admits that the internship in grade ten was his "first formal job," he had already accumulated significant cultural capital through family and school. School coordinator Donna observes more generally that the type of student who becomes an ICT intern "makes sure they're involved in activities that are going to help" their resume (Interview, August 2001).

Michael's informal work experience facilitated his smooth transition to the workplace. As he says:

> [S]ince [my parents] work on their own[4] and I often spend a lot of time in the office, I could see a lot what the work experience, work life is like early on in life, so it's not a big surprise to me. Let's say I came here exposed to my own work and sort of knew what the idea was. Knew what to expect. So that was good for me, I guess.

Michael's opportunities through school and family allowed him to acquire the skills recognized by the employer who hired him for the internship. This employer talked about his surprise at how "smart" the (all male) applicants were generally and how well those who were hired were "able to integrate themselves into our workforce" (Interview, September 2001). In his view, the interns were "very professional" young kids. However, while interns' professionalism may be attributed to their intelligence and natural ability, it is more likely that they were developed through previous experience in comparable sites (cf. Webb et al. 1992, p. 142). Attributing it to natural ability therefore *misrecognizes* that competencies are developed within a context and that young people have different opportunities to develop these abilities.

When questioned about where young people learn employability skills, employers referred to the importance of family and schools as "habitus generating institutions" (cf., Reay, 1998, p. 56). For example, although a second employer begins by saying that "kids are gifted with a good attitude," he goes on to say:

> I think that they may get it, depending on their background, I mean this is a complicated issue obviously. They get it from their home life, they'll get it if they're part of a sports team, they'll get it sometimes if they're part of a different kind of club, whatever. ... Part of it comes from the home and part of it comes from the people that you hang out with. (Interview, August 2001)

Another high tech sector employer agreed that student "attitudes" comes from parents and to some extent from schools (Interview September 2001). The focus of employers on students' attitude, drive, personality, and presentability in the ICT internship process supports Brown's (1995) suggestion that employers are demanding a "personality package" associated with the flexible paradigm.

In addition to personal skills, Michael knew that a university degree would also increase his institutional capital in the ICT field. In his internship, he had worked as a technician in a hospital for the summer of 2000 and was rehired in 2001. This experience convinced him that while he wanted to work with computers, he wanted to do more than "fix the stuff that breaks." Michael's aspirations were linked to his expressed belief that more skill increases one's job security and to his ability to "read the future" that fit him (Bourdieu and Wacquant, 1992, p. 130). His supervisor (who began but did not complete a university

degree) also felt that Michael was capable of more, commenting, "his skills compared to a lot of ours would be even better or more advanced" (Interview, September 2001).

Michael planned to go to university to become an electrical engineer with support from scholarships, family, and if necessary, student loans. And again, his parents' experiences were influential:

> Well, my parents have always stressed that education is very important and you know my parents have both gone to university and stuff like that, so I guess it rubs off that education is extremely important. So I sort of put my heart into it to make sure I do well.

When we contacted Michael a year later, he had completed high school and was on his way to a university in another province for engineering. He planned to apply for cooperative work experience as part of his program and hoped this might lead to permanent employment in a computer hardware company. In the summer of 2001, he was also thinking already of the possibility of starting his own business down the road. As he said, "watching my parents do it, it's kind of natural. I guess I want to do something similar to try and emulate what they do."

Another student who had a well-developed feel for "the game" at the time of our interview was 18 year-old Sunil. His first internship employer acknowledged that "he already has his life planned," adding that he was "very focussed, just terrifically impressive" (Interview, September 2001). Like Michael, this was Sunil's second year as an ICT intern but his experience with ICT began earlier. For example, when asked about his previous work experience, he replied:

> I would say that probably my first real work experience thing I did was in the summer of grade ten. There was a [public sector employer's] web design project so they sort of recruited people to do that [through the school] ... So I ran that for that summer. ... And for Networking 30 [a high school course], there were only two of us and we were actually going a lot faster than they had set us to go. And there was another [elementary] school that approached us... So they called [my school and asked for help]. ... So we went there three days a week for three hours in the morning, sometimes for more. And I'd usually get there at 7 and leave at 10:45 or so. ...That stuff was volunteer work. Credit though. ... So this school is like 100 plus node network, which is pretty good. ... Normally I would only be able to say that I administered a 20 or 25 node network. Now I can say I administered a 100 node network and for a longer period of time, for like six months. (Interview July 2001)

Sunil's acquisition of cultural capital relevant to the ICT field came also through his school's involvement with different business partnerships. This suggests that school linkages can provide a good channel of access for some students, although the numbers of students and schools involved are quite

limited (Rosenbaum, 2001). For example, his school's partnership with a construction company provided students with the opportunity to design and build a house. Sunil designed the networking and telephone cabling for this project and represented his school at a district partnership conference. While Sunil did not mention work opportunities through family connections, he noted that his parents supported his interest in computers by buying equipment and encouraged him to take opportunities like the internship. His mother had a university degree and worked as a manager in a company while his father, who had a college diploma, was retired. In addition to the construction company partnership, Sunil gained opportunities through his enrolment in ICT industry certificate courses offered at his school.

School district coordinator Donna said that industry certificates (e.g., sponsored by high tech companies like Cisco, Nortel, IBM, and 3Com) are offered in only a couple of high schools in the district. She acknowledged that courses are for "the very high end...for selective students." This example suggests the extent to which schools, as a result of closer ties with business, are able to confer forms of cultural capital that have currency in the business field on particular students. Sunil also notes that there is a high demand for certification courses (i.e., students must apply) but the success rate was low:

> [W]e started out with I think it was something like 18 or 20 people. By the end of the course, we had twelve people still left in the room and I was the only person that actually really passed. You needed 80 percent in everything to pass.

But although the company set the pass rate at 80 percent, the school gave credits to students who achieved 50 percent or better. Sunil also noted that all of the students who began the course in grade 11 were male. Although a representative from one of the companies providing ICT certification programs in high schools acknowledged the gender imbalance in enrolments across the province, neither the company nor the schools were addressing it through any kind of positive action.

Probably because of his previous experience, when Sunil applied for the internship, he had four interviews and four job offers. He ended up working for the company that sponsored the industry certificate courses at his school. However, this company did not offer internships in 2001 and Sunil was placed in a larger company in the oil and gas sector. Sunil expressed a preference for his first placement because of the

challenge, status, and style of the company. Of all of the interns, Sunil probably had the most sophisticated organizational sense, as is evident from this exchange where he compares his two internship placements:

S: Definitely a lot more structure here. And I don't want to say more fun there but it was more fun there [in the high tech firm]! I mean, everyone was really slack and we used to just sit around and talk for a couple of hours sometimes… I mean, I sort of learned a lot just spending time with those people rather than, probably even more than I learned working on what I was working on.
A: About the work world you mean?
S: Right. I learned just talking to them and asking questions and stuff like that.
A: And what kind of things were you talking about?
S: Like career stuff and networking stuff, like technical things.
A: Would you say then that the approach is different here than there?
S: Oh definitely. I would say this is sort of like a 50s style of managed company. I've heard a few other people say that here as well--sort of energy sector versus technology sector. There's a big difference, right? I guess you could say the Alberta mentality here is kind of conservative, kind of cowboy kind of mentality and that was sort of more modern at [the high tech company], I think.

Sunil therefore contrasts a flexible versus bureaucratic organizational paradigm (cf. Brown, 1995).

Probably because of his first internship experience, Sunil knew what he wanted in work when he applied to an internship for the second time. For example, when he learned about the job requirements, he suggested expanding the project to make it more interesting. He continues:

> Maybe out of the six or seven weeks I spent here, I only spent maybe like two weeks cumulatively doing the stuff that was in my job description. I realized really fast when I came to the interview--and that's at the point where I was still thinking: "Well I'm not going to do anything this summer. Like I can't get a job like the one I had before so I might as well stay home." And when I sort of looked at the job description, I'm like "yeah, I think I'm going to stay home. It doesn't seem like much fun." But then I actually came here for my interview and they said "Just show us what you can do and maybe you'll be able to do more." So I thought that was kind of neat…

Sunil was attracted by the high tech company[5] where he completed his first internship—an innovative company where workers were perceived to have more freedom. He was also aware of what is required to work in the ICT industry. He planned to go to university for computer engineering and expected to be working "almost all the time" for the first five years in a job to establish his career. In keeping with the instability in the industry, Sunil also accepted that he would probably "end up spending, like two years here, one year at another company." When we spoke to Sunil a year later, he had successfully completed his first year of general engineering, enrolled in computer engineering with a minor in enterprise and entrepreneurship for his second year, and had worked part-time during the school year and was working

full time in the summer in a government ICT job. His experiences in the public sector reaffirmed his interest in private sector opportunities.

Paul was the third ICT intern who appeared to have a strong sense of what was required to succeed in the ICT field. Although he comments that his "resume was a blank sheet of paper" when he was hired, his employer states that he "stood above the rest [of the interview candidates] significantly" (Interview, August 2001). Paul started as an intern with this small software company in 2000 and was rehired in summer 2001. Interestingly, it was his lack of ego or "temperament" that initially appealed to his employer, who spoke about what differentiated internship applicants (all male) as follows:

> I think there were six or seven at the interview. Two or three came in and had the goods. They had the energy, answered questions, they weren't too quiet, they looked you in the eye, they had, you know, a good smile on their face. Like they had a good personality with them. Then there were three or four that came in that just had... that typical teenager attitude. ... I mean, they're slouching right down...you know, the answers are yes and no. ... They just didn't look like they cared.

This employer was interested in the extent to which students were willing to be "sponges" and soak up knowledge.

Paul agrees that he was hired because he had an open mind and was willing to try new things. He also felt that although he was "only an average student"[6] he had the drive to "go get that job." He acknowledges that part of this drive came from his parents who "always pushed me to go farther and do better." They came to Canada from Vietnam as refugees and his mother took "a lot of courses" when he was in junior high to qualify as an accountant. Although they did not push him toward the ICT industry, his mother bought him a computer when he was ten and later hired a tutor when he was having trouble in math. This tutoring reportedly helped him "turn around" in school. Paul's positive attitude and loyalty to the company are evident as he reflects on his internship experience:

> Every day had something new, something challenging, something interesting. ... All I can say is it was a great experience. That's why I'm here again this year honestly... The people, the environment, the atmosphere, it's a really good place to be.

At the same time, Paul was aware that to fulfill his goal of working for this company in the future, he would need a university degree. He says, "I'm only a student now but they understand that; we have an understanding that basically *I have to be as good as them* to continue" (emphasis added).

All three of the male students interviewed seemed to have successfully negotiated their positions in the ICT field and were eager to participate in the game in the future—they had developed a *practical sense*. They also showed signs of becoming more reflexive about their practice within the field. In their discussion of the field of higher education, Webb et al. (2002, p. 142) write:

> While the unreflexive student is simply able to negotiate positions within the field on its terms (and according to its rules and values), the reflexive student is better equipped to move across different positions on terms that are at least partially their own. Thus they have greater ownership of their cultural trajectory—that is, their movement across and between different field positions throughout their lives.

For example, Paul suggested that if, during an interview, "people don't seem so worried about your skills" but actually want to know you, it is likely to be a good place to work. Paul enjoyed the company he worked for because he did not perceive competition among employees—it seemed "kind of like a big family." Based on these comments, it appears that Paul is developing a sense of the terms on which he is willing to participate in the game. Similarly, Sunil's confidence and efforts to ensure that he could use his skills during his second internship indicates his ability to play the game on his terms. Finally, Michael's interest in making himself valuable to employers, while envisioning the alternative of owning his own business suggest an interest in controlling his own trajectory.

Rejecting the game

The three women interviewed differed in a number of ways from the young male ICT interns. First, two of the young women were involved in web design, as opposed to software development or technical support work. In the occupational hierarchy within ICT, these positions are perceived to involve less expertise and therefore have less status. Second, a year after our interviews all three of the young women planned to pursue work in areas other than ICT. Although all three were honours students, at the time of our interviews two planned to enroll college and one in university.

Veronica worked with Sunil in database design and entry at the oil and gas sector company. Sunil appeared to take the lead in their working relationship, consistent with previous research which suggests that young women tend to adopt more passive roles when working with technology alongside young men

(Stepulevage, 2001). Veronica had just completed grade 12, was working at the same company for her second internship, and planned to enter a science program at university and then pursue a medical career. Like the other young women interviewed, she had taken the basic computer course (called Information Processing), which teaches students word-processing, powerpoint, and database skills. However, her main focus was on core academic subjects and her interests were diverse. For example, she had participated in a volunteer achievement program, offered by the YMCA and her school that provided students with volunteer and leadership development opportunities. Veronica also volunteered at her violin class and planned to teach music in the future. In addition to this volunteer work, she had worked on a casual basis at the company where her mother was a manager. Therefore, the capitals that she emphasized in the ICT internship were somewhat different from those of the young men. For example, when asked why she thinks she was hired by the company for her first ICT internship, she replied:

> I think it was mostly attitude, because the application, like if you're good on computers you can understand it. But I think attitude is a major component... like having to deal with stressful situations or being flexible and stuff like that. Like some people just don't have that. They're good on computers but when it comes to everything else they really lack.

Veronica therefore acknowledges the importance placed on non-cognitive behaviours or "soft skills" by employers of young people (cf. Rosenbaum, 2001).

In an interesting juxtaposition to Sunil's discussion about his need for challenging and stimulating work, she comments that she returned to the company for a second internship primarily because she knew "how the company works" and "knew the people that worked there," in other words, because it was comfortable. She also noted that her interview at this company was "easier" than one she had had the previous year at a large high tech company. There, the employer had asked "a lot more computer application questions" and she felt less confident. If, as writers suggest, women have less informal experience with technology, tend to be positioned as "guests" in male-dominated computer science classes, and are constructed as semi-skilled "users" of technology rather than "producers" and experts in the workforce, then Veronica's feelings make sense (Clegg, 2001; Cockburn, 1987; Stepulevage, 2001). Surveys of interns in 2002 confirms that while both of the two female respondents listed school as their

number one source for learning about computers, only half of the young men listed school in their top three sources and only two listed it as their number one source. The most common way of learning about computers for half of the young men was "on their own."

Young women entering the field are likely to face the challenge of redefining the skills that are valued within ICT. However, female interview participants did not appear interested in this battle. For example, although she says that she considered taking engineering at university, Veronica reports that she decided to become a doctor instead:

> I have had this decision since grade 7. ... Just because our family, I think there's about eight doctors in the family ...so it's kind of like an influence. (Interview, August 2001)

Veronica's father is a doctor and her older sister was taking a science degree at university. In contrast to her personal knowledge of the health field, she remarks that she "didn't know anything about engineering." Therefore her habitus appears to have strongly influenced this choice.

The gendered culture of ICT appears to have influenced it also. For example, she notes that of 15 ICT interns from her school in the previous year, she was the only female. In contrast to "the guys," who are more interested in programming and "kind of see that in the future for them," she notes that the young women are "not really interested in that kind of thing." Given that fewer than 20 percent of students enrolling in high school programming or advanced computer science classes in the US were women (Margolis and Fisher, 2002, p. 2), this is not surprising. Margolis and Fisher add that boys are more actively involved in computer games; teachers, parents, and counselors encourage these young men to pursue ICT; computer science curriculum tends to reflect male interests and experience levels; and young men claim school computer labs as their territory (Margolis and Fisher, p. 33).

However, interview comments suggest that while Veronica has limited interest in the ICT field, she is as "professional," in terms of her poise and confidence, as are the young men. She is focused on a career goal, has a strong sense about where she would like to be in five years, and is aware of what is important to her in work. For example, when asked what the ideal employer would look like, she replied: "I was thinking myself, because if you work in a doctor's office, then basically you are" your own employer. At

the same time, Veronica's comments reveal her gendered habitus. She states that she would prefer the autonomy of self-employment as a doctor because she would find it more satisfying and could schedule her own hours: "Because if you have a family, you don't want to be working like seven days a week, crazy hours."

It is noteworthy that two of the young women specifically discussed the possibility of future family responsibilities, unlike any of the young men. This comment is consistent with Cockburn's (1987) argument that young women's visions for future work are influenced by their views about their future role in childcare and domestic labour within the home. Therefore, discussion of career plans for women requires an expansion of the conversation to include how different workplaces address issues of work-family balance. Young women may correctly perceive that the ICT field and university computer science and engineering programs are not generally sympathetic to students who need to consider this balance (Margolis and Fisher, 2002; Symonds, 2000).

Veronica's experience in her ICT internship placement also did little to encourage her to reconsider an ICT career. When asked to rank different elements of the internship on our survey, she disagreed that the internship provided a variety of tasks, the ability to use her skills, or meaningful assignments. Rather, she commented that the work was individualized and monotonous. Her experience is echoed in two of three surveys with other female interns in 2001 and 2002. When asked to agree or disagree (on a five-point scale) with different statements about the internship, one respondent in 2002 was quite negative about her experience. For example, she "strongly disagree" that she "learned new skills," "knew what was expected of me," and "found [her] assignments and tasks meaningful." A respondent to the 2001 survey similarly strongly disagreed with the statement "I found my work tasks meaningful." This respondent later commented that the placement clarified for her that she did not want to work with computers in the future. Nor did she want to return for a second internship since she was "bored all summer." Only one respondent over both years (of six female respondents) planned to pursue a career in the ICT area following the internship. In contrast, 7 of 10 male respondents in 2002 and 14 of 15 male respondents in 2001 planned careers in ICT.[7]

Unlike Sunil, Veronica did not attempt to expand the job or change the terms of her work. She had already decided that she did not want to "sit in front of a computer for eight hours" a day and wanted a job with more social interaction. Therefore, although she recognized that working conditions vary across companies, she did not envision an ICT career in her future. A year later when we contacted Veronica, she had complete the first year of her science degree and still planned to apply to medical school.

Sherry, like Veronica, had also just completed grade 12 with honours at the time of our interview in August 2001. She was working for a public sector employer in its technology services area. Her employer described Sherry as a "multi-media graphics creative thinking type" who was paired with a more technically proficient male intern to develop a website. While such a division of labour appears logical for employers to ensure that work tasks are completed efficiently, it does not encourage the expansion of students' skills. In addition to information processing, Sherry had taken one other computer-related course in multi-media. This course involved working with "photography, design work and websites, [and] 3-D animation." She developed a CD portfolio as part of that course and was therefore hired because of her abilities in the area of art and design.

Since the beginning of high school, Sherry had planned to apply to a degree program in visual communications at a local college. However, unlike the confirmation that the young men received about their career choice through their work experience, Sherry decided that working with computers was not her preferred choice and withdrew her application following the internship. She says:

> I was going into graphic design but now I'm like, "do I want to spend the rest of my life in front of a computer?" So I'm thinking maybe interior design. I know it will be something design because I couldn't handle anything other, like math (laugh).

At the time of our interview, she had been accepted into a one-year program at a religious college and planned to apply the following year to another college for interior design. A year later, I spoke to Sherry's mother and learned that she was working as a lifeguard in another province, had applied to get into interior design at college but had not been accepted, and was planning to pursue a career in hairdressing. Her mother suggested that the internship experience had "soured" Sherry on the prospect of an ICT career.

Without valorizing the ICT industry as the appropriate destination for these young people, we might question what happened to change Sherry's career trajectory? What was it about Sherry's experience in the internship in relation to her habitus that caused this shift in direction? We offer a few speculations. For example, when Sherry was asked if her internship had influenced her career plans, she replied:

> Well, I was never really going into ICT. ... It's so much about, like scripting, which has never interested me at all. So it's as simple as I had to learn a bit of Sequel for this, and my Sequel's awful actually, so...

Sherry did not equate her planned education in graphic design with working in the ICT field, perhaps because of her association of ICT with math skills.

Although ICT occupations do not necessarily require high level math skills, computers have been constructed as part of "the realm of machinery and mathematics," described as a "daunting combination for girls" by Wajcman (1991, p. 152). Sherry's lack of confidence was probably exacerbated by the fact that she was paired with a young man who was a "very resourceful programmer type" (Interview with employer, August 2001). Therefore, although she was reassured to be working with a student who had these skills, it probably limited her own technical learning. Two other ICT interns who had been hired in the same department were also young males working in the "hard technology area." Finally, Sherry did not seek out the internship, but rather the multi-media teacher at her school encouraged her to apply. She hoped to gain experience and saw it as "a good summer job with good hours. This is very different from the young men who viewed it as another step in building their careers. Finally, the work experience coordinator reportedly played little role in encouraging Sherry to critically evaluate her experience in relation to her career goals.

There is a gender subtext in Sherry's lack of confidence about her technical skills. In a study of computer science undergraduates, Margolis and Fisher (2002) found that even young women in computer science programs at university were intimidated by their male peers, who seemed to have a more passionate, single-minded focus on computers and more informal and formal expertise. A study of high school students in Vancouver, Canada, found also that male students ranked their computer skills higher than females in all areas, particularly in programming and systems and hardware (Chan, Stafford, Klawe,

and Chen, 2001, p. 65). Again, one reason for this confidence may be the fact that boys tend to outnumber girls in "discretionary use" of computers--in clubs, summer camps, at home, and in video arcades (Wajcman, 1991, p. 150).

Also, although computer-related work often involves creative skill in terms of language use, visual design, problem definition and organizational skills, the tendency in the industry and in education has been to focus on the "hard" technical and quantitative skills (Margolis and Fisher, 2002). Suriya and Panteli (2000, p. 43) agree that the computer culture has taken on the values and norms of engineering over time, which authors describe as a culture of *calculation* as opposed to the culture of *simulation* preferred by female users. The culture of simulation involves an experimental, non-sequential and non-hierarchical approach. The issue of which skills are valued in ICT occupations and how this valuing is communicated to young workers is therefore important. As Gaskell (1992, p. 113) suggests, skill involves an assessment of value that is rooted in politics, and women have not historically had the power to insist that their skills be recognized and valued in the workplace.

Like Veronica, Sherry's strategy is to seek another field where her skills are more likely to be valued, as opposed to challenging the values associated with ICT occupations. She is very matter of fact about this change in direction, constructing the internship experience as helpful because "if I had gone and spent four years [at college] and then decided I didn't like it, and wasted so much money, that wouldn't be good." Like Veronica, Sherry also envisions herself having a family and working part time at some point and presumably this also enters into her calculations. Therefore, at the time of our interview, she had shifted her aspirations toward a career in interior decorating, commenting that she might start working for a company and then start her own business. Reflecting her habitus, she adds, "my dad owns his own business too so it kind of runs in the family."

Her father was a tradesperson who began a general contracting business and her mother was a secretary/receptionist. Sherry's older brother worked as a retail manager. Sherry had worked for her father doing clerical work on a casual basis during school. When asked whether she had considered a trade, she replied that she had not. As part of a multi-media course, she attended a Skills Canada competition[8] and

reflected: "you'd see the carpenters and there's no girls and there's like one bricklayer that was a girl. And I think it's just a perception that only guys go it. Girls don't." When asked later whether it was more difficult for young women to obtain ICT or trades jobs, she replied: "we're not exposed to those kind of things as much, so we don't really know about them as much, and so we're not interested." These comments parallel those of Veronica and suggest the ways in which young women are likely to develop a collective habitus that works to construct certain occupations as unthinkable.

Seventeen-year old Tanya, the third young woman who was interviewed, also recognized the "dividing line between girl subjects and boy subjects" but added that some students were "venturing in" to non-traditional classes (Interview, August 2001). In addition to information processing, Tanya had taken a computer technology course similar to the multi-media course that Sherry had taken. Although she notes that there were more males in the class, she felt that "the girls took the subject more seriously." Tanya's computer technology teacher suggested that she apply for the ICT internship and she did so in order to gain experience and "see what's out there." Like Veronica, Tanya acknowledges that she was "up against some tough competition in the ICT position" because some of the other students were "phenomenal with computers," but was pleased to secure a position with a small web design company. Like Sherry, she attributes her interview success to her creativity as opposed to her strong technical skills.

Unlike the other students, Tanya had worked at a variety of other paid jobs prior to the internship. She began by working for her father doing casual clerical work related to his job as a drafting engineer and waitressed in a couple of restaurants on weekends and after school. Her strong sense of responsibility and independence were evident in several statements. For example, she mentioned that when she was not in school, she was usually at home taking care of her younger brother and sister since her parents both work full time. Again, it is apparent that young women's position at home influenced their informal skill development and perspectives. Tanya talked about wanting to finance her schooling herself and envisioned having started a career and living on her own in five years. At the time of our interview, she spoke about possibly going to college and taking "computer programming with broadcasting." When we contacted Tanya a year later, she had just completed high school and had been looking for work without success. She

was hoping to get a job in office or retail work for a year and then planned to take a two-year program in medical transcription at a local college.

As with Sherry, the change in plans prompts us to ask what factors led to this switch in direction, and apparent "lowering"[9] of aspirations for this student who reported having an honours average in grade 11. While we have limited information, Tanya's comments contain a number of contradictions or tensions. For example, although she recognized the important of social capital and talked about using her "network of connections" in the future to find work, she did not seek out relationships with co-workers during the internship. She says:

> I'm mostly on my own because I am one of the youngest people there and I may be staying the shortest. So I guess I kind of started out saying there's not really a point to meeting them [co-workers]. ... I do still talk to them but I don't create a relationship with them I guess.

This can be compared to Sunil, who strategically worked at developing social capital by fostering relationships with co-workers and other student interns.

Another tension is that although Tanya was required by her school to develop an employability skills portfolio and had used the resources of the Career Practitioner at her school, she had little sense of her destination. She refers to "extreme" changes in her career plans over time, from doctor to interior decorator. Perhaps as a result, her horizon was limited. For example, when asked what program she planned to take at college she replied:

T: It changes every month, but this past month I looked at their book and I was interested in their computer programming but with broadcasting so you get the media and all that. ... I thought about going to university a lot but [X or Y college] has offered the programs that I can see myself doing.
A: Are they shorter programs?
T: Yeah, one of the main reasons I decided to go to [X or Y college] was because they're shorter programs. And plus, I kind of want to get it done real fast and get out there already, not have to go to school for so long, borrow so much money from the bank that will take forever to pay back.

Although, she acknowledged that her mother and father, who both had post-secondary qualifications, were willing to provide support, she wanted to be independent.

Her later comments add to this sense of tension. She states:

> I come from a family that's very successful, that has strived hard through living in a country that's kind of, it's hard to succeed, to get to the top. And I guess I've learned from them to push myself and to keep—and this is one of the reasons why I want to finish so early and get out there. So that I

can take the chance right away instead of having to wait all those long periods of time before I actually get my chance.

Tanya's comments can be contrasted with the sense of delayed gratification often associated with professional success (cf. Ehrenreich, 1989). The tension between short- and long-term thinking also comes through when we asked how students could improve their job prospects. In her reply she referred to, on the one hand, being "spontaneous" and not having a "set structure early in life" and on the other hand, planning so that one is able to develop and apply one's skills in a job that provides financial security. Again, in contrast to Veronica and the young men who have developed a singular focus in their attempts to fulfill their professional aspirations, Tanya appeared to be trying on different discourses and futures without finding a fit.

She attributed her lack of focus to the fact that she had varied interests and abilities. For example, when asked about influences on career choices, she replied:

T: Basically it's from myself. If I excel at something I keep going at it and seeing what else I could do. And so I learn skills that way. ...
A: And when you're doing something you like to do and do well, are you interested in finding occupations that it could relate to?
T: Yeah, I noticed this when I was in grade 9, how I excelled in ...home ec[onomics]. Or construction and I excelled in it and then I wanted to be a carpenter. And then, I don't know. At this stage right now, I am excelling in my computer skills and I feel as if I'm secure. For once, I actually want to follow through with it. So that's how it works for me, I guess.

Like Sherry, Tanya had changed her career plans more than once and continued to search. Although she enjoyed the ICT internships and admitted that she "learned a lot of things," it was unclear how she might use this experience. The work experience coordinator from her school district appeared to play little role in this area. As she commented near the end of our interview, "I'm still at that stage where I'm trying to find out what it is I'm capable of, and what I can do and where I can go with what I can do." The internship and school that she attended, despite their focus on career exploration, evidently did not help her to answer these questions.

Tanya's comments confirm the observation that experiential learning takes time and involves the development of students' identities as workers (Hodkinson and Hodkinson, 1999). Guile and Griffith (2001) argue that work experience proponents incorrectly assume that students will easily assimilate

relevant workplace knowledge, skills, and attitudes through experiential learning. In contrast, they suggest that students need to learn how to make links between work experience, its underlying knowledge and skill, and its context. From this perspective, work experience programs should encourage learners to develop the capacity to draw on formal learning in order to interrogate workplace practices and vice-versa.

Discussion

The previous discussion focused on understanding where students' words and concepts come from and how the institutions and culture in which they live shape their actions (cf. Gaskell, 1992). Analysis of interview data, complemented by survey data, suggests that young people are able to read the future that fits them (Bourdieu and Wacquant, 1992, p. 130). They are able to assess what opportunities and paths are open. Therefore although behaviours often appear to be individualized and participants emphasize choice and agency, their habitus is socially bounded and structured.

Habitus can be seen as structured by gender relations, as well as by other social divisions such as race/ethnicity and class. In the ICT internship, students appeared to share a similar class background. In addition, perhaps because of this middle-class/professional background, because of the fact that the young people interviewed were born in Canada, and because of stereotypical associations of Asians with strong skills in math and technology, the "race" of interns did not appear to play a large role in student outcomes. However, interviews with interns did highlight gender differences. Young women expressed a different relationship to computer technology and seemed to find it more difficult to feel like a participant in the game. Although a small number successfully obtained ICT internships, they held less desirable positions within the field (Bellamy, 1994). In addition, the habitus of young women—whether in terms of a heightened awareness of potential family responsibilities, more diverse interests, or a valuing of "soft" skills—worked to dispose young women to eliminate themselves from the game.

Interviews with young women and men confirm that their habitus, and more specifically their "feel for the game," had developed through family, school, and work in gendered ways long before they became ICT interns. However, habitus is also influenced by interns' work experiences. The fact that some young

women applied to the internship in the first place suggests some degree of interest in this field. Yet only one female of six survey respondents in 2000 and 2001 "chose" to pursue a career in ICT following the placement. Findings confirm that young women's choices reflect their knowledge of the different kinds of labour process and work relations they will experience in different workplaces. Choice, as Cockburn (1987) suggests, is therefore not genuine, free and unconditional. Furthermore, the choices that students make as they approach the end of secondary school are likely to impact on future opportunities, future work, future wages, and future domestic and labour market relationships. For example, Sherry and Tanya planned to enter traditional female work (medical transcription and hairdressing) a year after the ICT internship. Given the subordinate position of women in the labour market generally, there needs to be more attention to the outcomes of such work experience programs for female students.

Interviews confirm that envisioning a future for young women in ICT is likely to occur only when they can see that conditions within these occupations can be altered (cf. Gaskell, 1992). For example, "skills" are usually tied to particular capitals associated with particular groups. In addition to technical skills, a young person's attitude, familiarity with "the game," and confidence in participating is developed over time through school, home, and part-time and volunteer work. In our interviews, valued capitals were associated more with male interns and did not appear to be challenged by employers or school coordinators. In two of the cases, young women were paired with young men in ways that reinforced occupational divisions based on gender. Supervisors were generally male. Further, the monitoring done by work experience coordinators appeared to emphasize technocratic assessment over critically exploring students' learning through work experience and its implications for future choices. As a result, there were barriers to the possibility of young women developing a reflexive relation to the field and attaining a greater sense of possible movement across different positions and ownership of their trajectories (Webb et al., 2002, p. 142).

Given that students' sense of themselves in relation to different fields develops over time and in different locations, policy-relevant recommendations must recognize this complexity. In particular, the assumption that closer employer-school linkages will produce meritocratic outcomes without explicit

attention to forms of exclusion or social closure is problematic (Murphy, 1988). In the absence of a conscious attempt in school-work transition initiatives to address inequitable social relations in the workplace, there are pressures toward social reproduction. To counter this tendency, there needs to be much greater attention to the occupational fields in which students are expected to operate (and differences therein), to the position of students within this field, to their ability to negotiate it based on their habitus, and to addressing forms of exclusion. Information about which groups of students are included and excluded from participation in particular school-to-work transition programs provides a starting point. For example, there appeared to be a lack of students from working class backgrounds, students with disabilities, Aboriginal youth, or Black youth among interns.

Discussion about the responsibilities of educators and employers in addressing exclusion, including the possibility of positive action is therefore necessary. While the preceding analysis has suggested the ways in which gender structures habitus, students' experiences in the field can confirm or challenge existing ways of thinking. Therefore, school coordinators and employers need to take some responsibility for outcomes for students beyond the achievement of credits. As Cockburn (1987) argues, in relation to her research into a youth training scheme in Britain, outcomes should include similar achievement for different groups of students in terms of qualifications, competencies, work, and career paths. However a focus on outcomes may require positive action to challenge the "naturalness" of gendered student choices by acknowledging how sexual relations impact on occupational choice and behaviour, recognizing the interdependence of the sexual division of labour at work and in the home and linking actions in these spheres, and accepting that it is not only women that need to adapt (Cockburn, 1987). Such positive action may encourage young people to expand their vision of a future that fits.

Endnotes

[1] The reason for the high proportion of students from "minority groups" in my sample warrants further consideration. For example, does it reflect the population of interns? Does it reflect the proportion of students of colour enrolled in high school computer science classes? Does it reflect the fact that students of colour are more likely to have to rely on such sources of work experience because they lack social

capital—an informal network of contacts in key positions—compared to white youth? These questions require further investigation.

[2] Fifty-seven percent of the 21 ICT interns surveyed and all of the students interviewed had an average grade of 80 percent or better in the year just completed, and all interns had average grades above 65 percent. This compares to the overall high school population where only 18 percent of grade 11 students have grades of 80 percent or better and 29 percent had grades below 65 (Personal communication, Alberta Learning, July 2002).

[3] According to a news report, one of the largest Canadian ICT companies, Nortel, cut half its workforce worldwide in 2001 after a drop in sales of 50 percent. It employed 45,000 people at the end of the year. This report was online at:
http://cbc.ca/news/indepth/nortel/nindex.html.

[4] Although his mother had studied medicine in China, Michael commented that she is now "working with my dad helping him" in the business.

[5] The technology company was more appealing to Sunil partly because of the demographics—most employees were under 40 years old and only one person had children. He also notes that there were only a couple of female employees.

[6] In fact, Paul reported that his average grade in the school year just completed was 80 or above, so he is above average in this area.

[7] In 2001, one male respondent answered that he was unsure of his desired occupation and in 2002, one male respondent did not answer this question and another said his occupation was "indirectly" related to ICT.

[8] Skills Canada is a "national, not-for-profit organization, which works with employers, educators, labour groups and the government to reposition trade and technical careers as a first choice career option for Canadian youth" (website: http://www.skillscanada.com/new/index-e.html). The Canadian Skills Competition allows young people from across Canada to compete in over thirty different trades and technology fields.

[9] I use the term "lowering" of aspirations, acknowledging that it reinforces existing values of different kinds of work. However, given the current hierarchy of occupations in terms of working conditions, salary, and benefits, this term is warranted.

References

ALBERTA SCIENCE AND RESEARCH AUTHORITY (1998) A strategy for information and communications technology in Alberta. (Edmonton).
BELLAMY, L. A. (1994) Capital, habitus, field, and practice: An introduction to the work of Pierre Bourdieu, in: L. ERWIN & D. MACLENNAN (Eds) **Sociology of education in Canada** (Toronto: Copp Clark Longman).
BOURDIEU, P. & WACQUANT, L. (1992) **An invitation to reflexive sociology** (Chicago: University of Chicago Press).
BROWN, P. (1995) Cultural capital and social exclusion, **Work, Employment, and Society,** 9, 1, pp. 29-51.

CHAN, V., STAFFORD, K., KLAWE, M. & CHEN, G. (2000). Gender differences in Vancouver secondary students, in: E. BALKA & R. SMITH (Eds) **Women, work and computerization** (Boston: Kluwer).
CLEGG, S. (2001). Theorising the machine: Gender, education and computing. **Gender and Education**, 13, 3, pp. 307-324.
COCKBURN, C. (1987). **Two-track training: Sex inequalities and the YTS**. (London: MacMillan Education).
COLE, A. & CONLON, T. (1994). Information technology and gender: Problems and proposals. **Gender and Education**, 6, 1, pp. 77-85.
CRONIN, C. (1996). Bourdieu and Foucault on power and modernity. **Philosophy and Social Criticism** 22, 6, pp. 55-85.
EHRENREICH, B. (1989) **Fear of Falling** (New York: Harper Collins).
EVERETT, J. (2002). Organizational research and the praxeology of Pierre Bourdieu. **Organizational Research Methods**, 5,1, pp. 56-80.
FLUDE, M. & SIEMINSKI, S., (Eds) (1999) **Education, training and the future of work II** (London: Routledge and Open University).
GASKELL, J. (1992) **Gender Matters from School to Work** (Toronto: OISE Press).
GRENFELL, M. & JAMES, D. (Eds)(1998) **Bourdieu and education: Acts of practical theory** (London: Falmer).
GUILE, D. & GRIFFITH, T. (2001). Learning Through Work Experience. **Journal of Education and Work**, 14, 1, pp. 113-131.
HENWOOD, F. (1998). Engineering difference: Discourses on gender, sexuality and work in a college of technology. **Gender and Education**, 10, 1: pp. 35-49.
HODKINSON, P. (1998) Career decision making and the transition from school to work, in: M. GRENFELL & D. JAMES (Eds) **Bourdieu and education** (London: Falmer).
HODKINSON, P. & HODKINSON, H. (1999) Markets, outcomes and the quality of vocational education and training: Some lessons from a Youth Credits pilot scheme, in: M. FLUDE and S. SIEMINSKI (Eds) **Education, training, and the future of work II** (London: Routledge and Open University, 1999).
MARGOLIS, J. & FISHER, A. (2002) **Unlocking the clubhouse: Women in computing** (Cambridge: MIT Press).
MURPHY, R. (1988) **Social closure** (New York: Oxford University Press).
NASH, R. (1999) Bourdieu, 'habitus,' and educational research: Is it all worth the candle?" **British Journal of Sociology of Education**, 20, 2, pp. 175-187.
OECD. (2000) **From initial education to working life: Making transitions work** (Paris: Author).
PARNELL, D. (1985) **The neglected majority** (Washington: Community College Press).
REAY, D. (1998) Cultural reproduction: Mothers' involvement in their children's primary schooling, in: M. GRENFELL and D. JAMES (Eds) **Bourdieu and education** (London: Falmer).
ROSENBAUM, J. (2001) **Beyond college for all** (New York: Russell Sage Foundation).
STATISTICS CANADA (2001). Historical labour force review 2000. (Ottawa: Statistics Canada, Cat No 71F004XCB).
STEPULEVAGE, L. (2001). Gender/technology relations: Complicating the gender binary. **Gender and Education**, 13, 3, pp. 325-338.
SURIYA, M & PANTELI, A. (2000) The globalization of gender in IT, in: E. BALKA & R. SMITH (Eds) **Women, work and computerization** (Boston: Kluwer).
SYMONDS, J. (2000) Why I.T. doesn't appeal to young women, in: E. BALKA & R. SMITH (Eds) **Women, work and computerization** (Boston: Kluwer).
TAYLOR, A. & LEHMANN, W. (2002). 'Reinventing' vocational education: Prospects and possibilities. **Alberta Journal of Educational Research**, 48, 2, pp. 139-161.
TELECOMS. (2002, July 20-26) Telecoms: the great crash. The Economist, 364, 8282, pp. 9, 59-61.
WAJCMAN, J. (1991).**Feminism confronts technology** (University Park: Pennsylvania State University Press).

WEBB, J., SCHIRATO, T. & DANAHER, G. (2002) **Understanding Bourdieu** (Crows Nest: Allen and Unwin).

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