

THE INTERNET AND TIME DISPLACEMENT: A CANADIAN PERSPECTIVE

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ABSTRACT

Internet use data were collected in the 1998 time-use survey of Statistics Canada, done as part of their General Social Survey. That survey collected single day diary data from 10,749 persons aged 15 and older by telephone, spread across the entire calendar year with a response rate of 78 percent. Previous Canadian diary results matched U.S. figures rather closely.

Analyzing only the sample aged 18–64, it was found that respondents who reported IT use in their diary also reported about a third less time on all social activities in those diaries, a significant difference that largely held up after adjustment for several demographic predictors. However, when the analysis focused on longer-term users, the difference was less than an hour a week and was not significant. Parallel results were found for time alone and time with friends. It was concluded that the single-day declines in social life are reduced to insignificance when a longer analytic time frame is employed.

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Detailed information on the Canadian time-use surveys can be found on the Statistics Canada web site, <http://www.statcan.ca/>.

The Internet can be seen as one of many factors inducing social change in the daily activity patterns of North Americans. Sometimes it accompanies some deeper trends; sometimes it accelerates the overall changes. Both work time and leisure time are at stake, with different end results. In the case of working time, the spatial dislocation of work activities, the multiple settings of the workplace and the multiple temporality of work are particularly facilitated by new information technologies. The measurement of when work begins and when it ends is no longer as clear.

For leisure time, up to now the working population has managed to keep it at the level of the past decades, at the price of cutting down in some other social time. The use of Internet competes with some traditional social and cultural activities. One of the most important consequences is the breakdown of traditional frontiers between work, leisure, education, information and play. Instead of time displacement, should one speak of time blending?

Coming to understand and explain the current meaning of time use is not easy in relation to the "Internet factor." Trying to explain social change by purely technological factors is a usual and simple approach that has been rendered obsolete by sensitive communication studies. Technological determinism can be seen as a theoretical temptation constantly criticized by historians and sociologists. What one sees instead are deeper changes in the nature and the contents of work and the workplace, out of which the Internet is just a part.

Diary studies done in Canada have shown behavior patterns that generally mirror those in the U.S.; perhaps this is not surprising given the lengthy border they share as well as their common history, technological advances and close cultural connections. In comparing diary studies done in the 1980s, Robinson and Godbey (1999) conclude:

Comparison with the U.S. national results shows how similar time is spent in these two neighboring countries. . . . Minutes per day on the most time-consuming of activities are remarkably close. Work hours are within about an hour a week; television numbers are exactly the same. Sleep time is 25 minutes higher in Canada, but Americans make up 7 of those minutes by taking more naps. (p. 281)

Certain differences with Canada were found, however, even if they were not particularly pronounced. For example, there was more restaurant meal time in the United States, offset by more home meal time in Canada; more adult educational activity in Canada, but more religious activities in the United States; and more visiting in Canada, but more conversation in the U.S. (possibly due to a simple cultural/language distinction in the ways respondents described their activities). Thus Canadian time-diary data can be expected to show a strong similarity with those in the United States.

SURVEY METHODOLOGY

Statistics Canada completed its third time-budget study in 1999 with 10,749 persons aged 15 years and over. Data were collected evenly across all months from February 1998 to January 1999. The agency conducted two previous surveys in 1986 and 1992, using similar but not identical methodologies across the three surveys.

The two primary objectives of the 1998 Canadian General Social Survey (GSS) study of time diaries were: (1) to gather data on social trends in order to monitor temporal changes in the living conditions and well-being of Canadians; and (2) to provide immediate information on specific social policy issues of current or emerging interest. The GSS is a continuing program with a single survey cycle each year. The target population for the GSS was all persons 15 years of age and over residing in Canada, excluding residents of remote territories and institutions.

Sampling: In the survey, all respondents were contacted by telephone. Households without telephones were therefore excluded; however, persons living in such households represent less than 2 percent of the target population. Survey estimates were weighted to account for persons without telephones. Telephone ownership was high among virtually all socio-economic groups, but was lowest among the 3 percent of the population with the lowest household income (less than \$10,000); even here, however, the telephone ownership rate was still 93 percent.

The sample was evenly distributed over the 12 months to control for seasonal variation in daily activities. Since people's activities also differ by the day of the week, a sample that was representative of each day of the week was required. Each telephone number was therefore assigned a "designated day." Cases were eligible for collection for 2 days following the designated day—with priority given to collecting diary information on the day following the designated day.

The response rate was 77.6 percent, yielding the 10,749 respondents from whom usable diary information was obtained. Stratification was used in the survey design, with each of the ten provinces of Canada divided into strata or geographic areas, with one stratum representing the Census Metropolitan Areas (CMAs) of the province and another representing the non-CMA areas. In each stratum, a simple random sample using Random Digit Dial (RDD), without replacement, of telephone numbers was selected by choosing a simple random sample with replacement of banks from the frame, and then randomly generating the last two digits for each bank to obtain the telephone number. The entire monthly sample of telephone numbers was produced before the first day of interviewing for each month.

A selection control questionnaire was completed for each telephone number generated in the sample. When a private household was contacted, all

household members were enumerated and basic demographic information (age, sex, marital status) was collected for each of them. A computer algorithm randomly selected an eligible household member age 15 or over to answer the time-use questionnaire. This form was also used to determine the eligible collection days for the purpose of scheduling appointments to complete the questionnaire.

Interviewing: Data were collected using Computer-Assisted Survey Execution System software (CASES), in which the survey questions appeared on a computer monitor. The interviewer asked the respondent the questions and entered the responses into the computer as the interview progressed. CASES methodology thus eliminated the need for paper and pencil questionnaires. All interviewing took place using centralized telephone facilities in four of Statistics Canada's regional offices, with calls being made from 9:00 AM until 9:00 PM, Monday to Friday inclusive, and from noon until 4:00 PM on Saturday and Sunday. Interviewers were trained by Statistics Canada staff in telephone interviewing techniques using CASES, survey concepts and procedures in a two-day classroom training session. The majority of interviewers had computer and telephone interviewing experience.

Using CASES, responses to survey questions were entered directly into computers as the interview progressed. The CASES data program allowed a valid range of codes for each question and automatically followed the flow of the questionnaire. Certain edits were also executed by the CASES system. The data were then transmitted to Ottawa electronically.

Coding: The coding of the daily activities was done by the interviewer during the interview with the aid of CATI screens. These formed a decision tree leading to a narrow selection of possible codes. Diary activities that the interviewer could not code were coded manually later at the head office using write-in information. In addition, write-in information from residual activities was provided on the diary to describe selected types of activities. In order to standardize comparisons with U.S. data, and to focus on the more homogeneous population of the working-age population, only those aged 18–64 are included in the analyses that follow.

RESULTS

As shown at the top of Table 1, in the 1998 Canadian survey, almost a third of those aged 18-64 reported using the Internet in the past year for other purposes than work. As in earlier surveys, these Internet users were more educated, had better jobs, were mostly professionals, lived in more affluent areas, etc. This has major consequences for the general results described below. The uses of the Internet were quite similar to current uses: to communicate, do online newspaper reading, download music, etc. In other words, Table 1 gives a

TABLE 1: SOME USES OF THE INTERNET: POPULATION AGED 18–64, CANADA, 1998

	%
Proportion who said they had used the Internet over the last 12 months for other purposes than work or study	32.1
Uses of the Internet (among users only)	
to communicate	76
to do research	76
to read newspaper, etc.	33
to view a film, etc.	15
to view works of art	14
for electronic banking, etc.	22
to create artistic composition, etc.	13
to download software, etc.	38

Source: Statistics Canada, General Social Survey, 1998

picture of the very first intensive uses of the Internet among the upper strata of the active Canadian population. Any subsequent change could be related either to a shift in those first uses, but more probably to a change in the composition of the Internet users due to extension of the categories of population accessing the Internet—or to a diversification of content available on the Net.

Usage Yesterday: The comparisons of Internet users and nonusers in terms of usage reported in the diary are shown in Table 2. It can first be seen that the 261 "yesterday" Internet users first report the equivalent of 12 weekly hours (about 2 hours per day) of IT usage, which means they had more free time than the more than 5000 nonusers (45 hours vs. 39 hours). During that free time, they used the mass media significantly more (not less) than nonusers, but spent an hour less on fitness, hobby and other free time. In non-free time, they spent less time at work (presumably on a day off), and did somewhat less housework and spent also less time on personal care. They also travel an hour and a half less.

In terms of their social activity, they were significantly less active in four of the seven social categories, namely organizational activity, "other"/specialized social activity, attending social events and particularly on visits; here they spend a third less time on such visits than nonusers. After MCA adjustment for sex, age, children, education and day of the week, these differences are only significant for visiting and "other" social activity.

These findings are reflected most clearly in the "total social" category in Table 2, where the seven components of social life are summed. Again there is about a third less socializing of all types, working out to 4–5 hours less social life per week by those who are Internet users. That is in marked contrast to their

**TABLE 2: DIFFERENCES BETWEEN IT USERS
AND NONUSERS ON A "YESTERDAY" BASIS
(YEAR 1998 CANADIAN TIME-DIARY DATA: IN EXTRAPOLATED HOURS PER WEEK)**

	IT Users (n=261)	Non IT (n=5462)	IT Difference	After MCA
Non-Free Time Activities				
Work/Education	28.9	32.7	-3.8	-8.6*
* Housework	15.2	16.4	-1.2	+1.1 NS
* Child care	4.5	5.3	-.8	-.1 NS
* Shopping	6.5	5.4	+1.1	+1.1 NS
Total Family Care	26.2	27.1	-.9 NS	0
Personal Care	67.5	69.5	-2.0	-1.7*
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Total Non-Free Time	122.6	129.3	-6.7	-6.6*
Travel (incl. above)	7.5	8.4	-.9	-1.6*
Free Time Activities				
Social: Religion	0.3	0.6	-.3 NS	0
Organizations	1.3	2.6	-1.3	-.7 NS
Social Events	0.6	1.2	-.6	-.5 NS
Social/Visit	4.1	6.7	-2.6	-1.8**
Conversation	1.9	1.8	+.1 NS	0
Other social	0.4	1.7	-1.3	-1.2*
Eat out	1.7	1.7	0 NS	0
	-----	-----	-----	-----
Total Social	10.4	16.2	-5.8	-5.2*
Mass Media	17.4	15.7	+1.7	+1.3 NS
Other (fitness/hobby)	5.7	6.8	-1.1 NS	0
IT	11.9	0	+11.9*	+11.9*
Total Free Time	45.4	38.7	+6.7*	+6.6*
	-----	-----	-----	-----
TOTAL TIME (hrs)	168.0	168.0	0	0

* Difference significant at <.05 level after MCA adjustment for sex, age, education, children and day of the week

NS Not significant

Source: Statistics Canada, General Social Survey, 1998

higher time with the mass media, which might be thought to be an area of free time that could be given up to accommodate their usage of the Internet.

Table 2 then provides rather strong evidence to support the idea that the Internet seriously cuts into social life of various types—although not in the social behaviors of conversation, dining out or religion.

Usage Generally: A drastically different picture emerges, however, when the user group is increased (almost five fold) to include those who answered "yes" to the long-term usage question in Table 1. This third of the sample in Table 3 now show diary figures more in line with the two-thirds who are not users. They reported significantly more time using IT, about 1.5 hours a week versus .2 hours for those who answered "no" to the Table 1 question.

In contrast to Table 2, however, users reported 3.5 hours less free time than nonusers. A main reason for that is they reported far more hours at work, doing housework and in personal care—patterns that are largely different from those in Table 2. After MCA adjustments, however, these differences and the lower free time of Internet users are reduced to insignificance. Also different are the expected lower figures for usage of the mass media by Internet users, which are notably reduced after MCA adjustment.

The most noteworthy figures, however, are those for social life. After MCA adjustment the only significantly lower figure is for visiting, and this is only about an hour a week. The overall figure for social life is less than an hour a week and is not statistically significant after MCA adjustment. Here, then, there is scant evidence in support for the idea of constricted social life in the long term.

With Whom: Another way to approach the sociability issue is in terms of the "with whom" entries in the diary. The Canadian data do not contain as rich data here as in U.S. surveys, but the most crucial categories of time alone, with spouses, with children and with friends are clearly demarcated and are shown in Table 4.

The results again are clearly different for the yesterday versus general Internet usage comparisons. On the left side, the yesterday users report more than the equivalent of 10 hours more time alone and 3.6 hours less time with friends. Time with one's spouse, children or other family members are either small or non-significant.

In contrast, the figures on the right for longer term usage show virtually no difference in either time alone or time with friends—along with non-significant differences for children and other family members.

The two-hour lower figure for time with spouses is offset by the two-hour greater figure for time with others. Consistent with the Table 3 findings, then, these data provide scant support for the hypothesis of reduced social life. It appears that, while on the days they use the Internet their social life is clearly impaired, that social life recovers on days when the Internet is not being used.

TABLE 3: ACTIVITY DIFFERENCES BETWEEN INTERNET USERS AND NONUSERS: GENERAL BASIS (YEAR 1998 CANADIAN TIME-DIARY DATA: IN EXTRAPOLATED HOURS PER WEEK)

	Internet Users (n=1712)	Non Internet (n=3666)	Internet Difference	After MCA
Non-Free Time Activities				
Work/Education	37.2	30.2	+7.0	+1.6*
* Housework	14.1	17.6	-3.5	-.7 NS
* Child care	5.8	5.0	+.8	-.2 NS
* Shopping	5.6	5.4	+.2	0
Total Family Care	25.5	28.0	-2.5	-.5 NS
Personal Care	68.5	69.5	-1.0	-.5 NS
	-----	-----	-----	
Total Non-Free Time	131.2	127.7	+3.5	+1.0 NS
Travel	9.2	8.0	+1.2	+.5 NS
Free Time Activities				
Social: Religion	0.5	0.6	-.1 NS	0
Organizations	2.3	2.8	-.5	-.2 NS
Social Events	1.2	1.1	+.1 NS	0
Social/Visit	5.5	7.1	-1.6	-1.0*
Conversation	1.8	1.7	-.1 NS	0
Other social	1.6	1.7	-.1 NS	0
Eat out	2.0	1.6	-.4 NS	0
	-----	-----	-----	-----
Total Social	14.9	16.7	-1.8	-.8 NS
Mass Media	14.1	16.5	-2.4	-1.0*
Other (fitness/hobby)	6.3	7.1	-.8	-.1 NS
IT	1.5	0	+1.5	+1.5*
	-----	-----	-----	-----
Total Free Time	36.8	40.3	-3.5	-1.0 NS
	-----	-----	-----	-----
Total Time (Hrs/wk)	168.0	168.0	0	0

* Difference significant at <.05 level after MCA adjustment for sex, age, education, children and day of the week
 NS Not significant

Source: Statistics Canada, General Social Survey, 1998

**TABLE 4: IT USER VS. NONUSER DIFFERENCES IN SOCIAL COMPANY
(YEAR 1998-2001 CANADIAN TIME-DIARY DATA: IN EXTRAPOLATED HOURS PER WEEK)**

	Yesterday Use			MCA Adjusted
	IT Users (n=261)	Non IT (n=5,462)	IT Difference	
Social Company:				
Time alone (awake)	45.8	35.2	+10.6*	+9.4*
Spouse	32.9	33.5	-.6 NS	0
Children	14.4	17.7	-3.3*	+.8 NS
Friends	3.8	7.4	-3.9*	-3.8*
Other People	21.0	23.9	-2.9*	-5.0*
Other Family	1.7	2.9	-1.2*	-.6 NS
General Internet Use				
Social Company:				
Time alone (awake)	36.5	35.3	+1.2 NS	0
Spouse	31.2	34.1	-2.9*	-2.0*
Children	18.4	17.2	+1.2*	-.1 NS
Friends	7.2	7.5	-.3 NS	0
Other People	26.3	22.5	+3.8*	+2.3*
Other Family	2.7	2.8	-.1 NS	0

* Significant at the $< .05$ level after MCA adjustment for age, sex, education, children and day of the week

NS Not significant

Source: Statistics Canada, General Social Survey, 1998

CONCLUSION

Can one conclude that there is some kind of 'isolation trend' among the Internet users, according to some conventional wisdom? Or are IT users less "sociable," with a decline in their social life? More than an Internet user pattern, one may be describing a social class time-use pattern, and maybe a more general trend. For instance, when comparing the daily time structure in Canada among the active population from 1992 to 1998, one sees a clear increase in time spent at work, which did not lead to a significant decrease in overall free time.

Workers adapted to the situation by sleeping less, spending less time for personal care and watching television, and perceiving more time pressure. The decrease in family time still continues, but one can clearly show an upward turn in time spent with friends and "significant others". Did the Internet add to this pattern? One cannot say for sure, since it is difficult to isolate the movements in time use from the historical and economic factors that produce them.

So, the current time displacement refers, more generally, to a significant shift in the overall structure of social time: the active population works more but finds ways to keep free time at about the same average level. Some key changes

can be found in the uses of free time, mainly in the diversification of the access to play, culture and information, and in the uses of the media, of which the Internet is just a part.

On the side of social relations, are people living more and more isolated? Are people becoming increasingly a-social? Will people stop to communicate face to face? The key factor surely is not the Internet but rather the extent of the social relations of each person, which show different patterns along the line of social stratification, gender issues and intergenerational relationships. Here, Canadian time budget studies probably document a significant shift which may have very little to do with IT: while the overall daily time spent alone tended to increase from 1986 to 1992, by about an hour a day (or seven hours a week), the 1998 survey showed a reverse of the trend. That is a decline of half an hour a day in being alone and an increase of about 20 minutes a day being with other than family members. In other words, loneliness is decreasing, while time with others is increasing. There is little support for any isolation theory. Instead, the advent of the Internet is concomitant with an increase of social relations outside the family!

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