EXECUTIVE SUMMARY

Use and Impact of New Home Microcomputer Technologies in the Vancouver Area

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(This research was financially sponsored by the Department of Communications)

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The publication of the report has been made possible through financial assistance from Communications Canada, under the French Language Centres of Excellence Development and Promotion Program.

We would like to thank Barbara Helm, Social Policy Directorate, Department of Communications of Canada; the Department of Communication, Simon Fraser University; and especially Ron Trépanier, as well as all those who agreed to take part in our study.

FOREWORD

The study outlined here is the third in a series that we have conducted since 1983 on the spread, use and impact of home microcomputers as an innovation. Like the previous studies, it was carried out for the Department of Communications of Canada.

In the first study in 1983, with 2,000 respondents, we analyzed the spread of microcomputers in Quebec homes. We were especially interested in the use of microcomputers by buyers and their families, as well as their impact on their users' lifestyles (Caron, Giroux and Douzou, 1985).

The second study was done in 1985 with some 400 families who owned a home microcomputer and had taken part in the initial phase of the study (Caron, Giroux and Douzou, 1986). This longitudinal study using quantitative and qualitative measurements allowed us to better define the social dimension of home microcomputers as a technological phenomenon. The study also provided us with original data concerning the development of the adoption process over time, thus allowing us to monitor changes in the attitudes and behaviour of microcomputer users in the family environment.

We also had CROP conduct a Canada-wide survey to determine the rate of penetration of this technology in the various regions of Canada. Based on the results of this survey, we identified a sample that could shed new light on the phenomenon of adopting home microcomputers in another region of Canada.

The study described in this Executive Summary was conducted during the winter of 1987. Our main objective was to identify the use and impact of home microcomputers among users in an area of western Canada where home microcomputers had one of the highest rates of penetration in Canada in 1985. This research involved 120 families with a microcomputer in the Vancouver area; it included a quantitative aspect with a written questionnaire and a qualitative aspect resulting from interviews with each member (n=28) of eight families from our sample.

OBJECTIVES OF STUDY

The integration of an innovation into society is a complex phenomenon. The dynamics of its adoption may stem from numerous economic, political, cultural or social factors. In our initial studies, we often wondered how culture and language might affect our findings. That is why we decided to conduct the next phase of our analysis in a province of western Canada where we knew that microcomputers had a higher rate of penetration than in the other provinces.

The third phase of our study was thus conducted in British Columbia and aimed to identify how this technology was being adopted, integrated and reappropriated by English-Canadian families in Vancouver in 1986, five years after home microcomputers enjoyed their first wave of popularity.

The methodology used borrow from both quantitative and qualitative techniques.

Quantitative Aspect

The data were basically gathered the same way as in the preceding phases, that is, by using a written questionnaire. Contrary to the previous studies, where a non-random sample was used (at that time, it consisted of persons enrolled in the television series "Octopuces"), this time we turned to probability sampling.

Qualitative Aspect

Realizing the limitations of a written questionnaire and encouraged by the quality of the data obtained in our interviews in the second phase (Caron, Giroux, Douzou, 1986), this time we used more in-depth interviews of each member of eight families from our sample (a total of 28 persons). This sampling aimed to identify more clearly the respective roles and perceptions of the various family members with regard to the microcomputer.

For the purposes of this report, we will first present an update of our theoretical corpus by reporting some recent studies on the impact of home microcomputers. This is not an exhaustive review of the literature but a survey to complement the one in our previous studies. This first chapter will be followed by a presentation of the quantitative results and an analysis of the interviews. We will conclude with a general discussion of our findings.

EXECUTIVE SUMMARY

INTRODUCTION

The spread of an innovation through society is a complex process. The dynamics of its adoption may stem from numerous economic, political, cultural or social factors. In our initial studies of the spread of home microcomputers (Caron, Giroux and Douzou, 1985; Caron, Giroux and Douzou, 1986), we often wondered how culture and language might affect our findings. With this in mind, we decided to undertake a study of the integration of home microcomputers in one of Canada's western provinces where a rate of penetration above the national average was reported.

RESEARCH OBJECTIVES

The study described in this report was conducted during the winter of 1986-87. Our main objective was to see how home microcomputers are being adopted, integrated and reappropriated five years after they first became popular. The research involved 120 families with a microcomputer in the Vancouver area; it included a quantitative aspect with a written questionnaire and a qualitative aspect resulting from interviews with each member (n=28) of eight families from our sample.

The sampling area covered all or part of four middle- or high-income residential neighbourhoods in Vancouver. This includes all of Dunbar-Southlands, almost all of Arbutus Ridge, and part of Kitsilano and West Point Grey. These neighbourhoods are generally quiet, upper-middle-class residential suburbs.

The quantitative data was basically gathered the same way as in the preceding phases, that is, by using a written questionnaire.

Contrary to the previous studies, where a non-random sample was used, this time we turned to probability sampling. The main variables studied were:

1) the conditions under which the microcomputer was bought;
2) the conditions under which the microcomputer was used;
3) appreciation of the microcomputer;
4) the impact of the microcomputer;
5) the respondents' socio-demographic characteristics and general attitudes toward microcomputers.

For the qualitative aspect, we used face-to-face interviews with each member of eight English-speaking households in the Vancouver area. The main variables studied were:

1) socio-demographic characteristics
2) the conditions under which the microcomputer was bought

3) a chronological retrospective of the years of experience with home microcomputers by the various members of the household
4) an assessment of the experience
5) the respondents' perceptions and attitudes toward computers in society

FINDINGS

The respondents whose data are analyzed here were divided into three groups based on their answer to an initial filter question:

a) those with a microcomputer that is no longer used by any member of the household ("discontinued" group)
b) those with a microcomputer used by at least one member of the household ("continued" group)
c) those with more than one microcomputer, with at least one still being used ("second microcomputer" group).

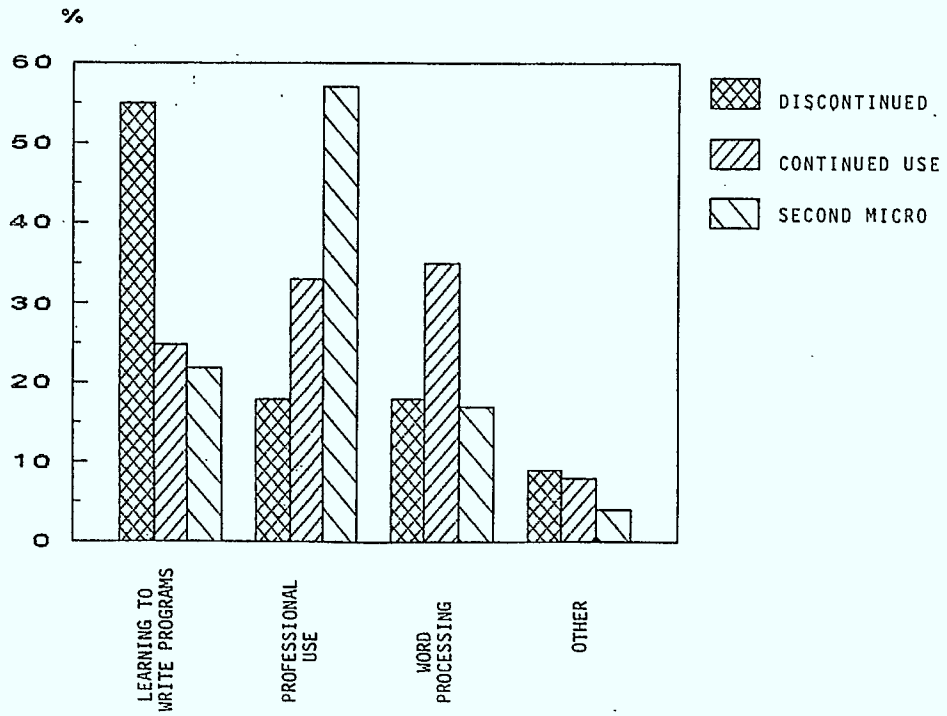
In terms of socio-demographic variables, few differences are found between the "discontinued", "continued" and "second microcomputer" groups. However, we see a larger proportion of white-collar workers in the "discontinued" group and teachers in the "second microcomputer" group. Moreover, a larger number of respondents with a high level of education (master's degree or doctorate) seem to own a second microcomputer.

The "discontinued" group differs from the other two by buying a smaller microcomputer with fewer peripherals. A general trend in the size of microcomputers must be noted, however. Today's smallest systems were considered medium systems two years ago. Printers have become very widespread in the groups still using their microcomputer, and the second system bought is often connected to a modem for communication purposes.

In the "discontinued" group, the system was generally bought for the whole family to be used for games, domestic applications and educational purposes. In the other two groups, however, the system was intended for more personal use by the buyer and seemed destined from the start for professional application, especially in the "second microcomputer" group.

Bar Chart A

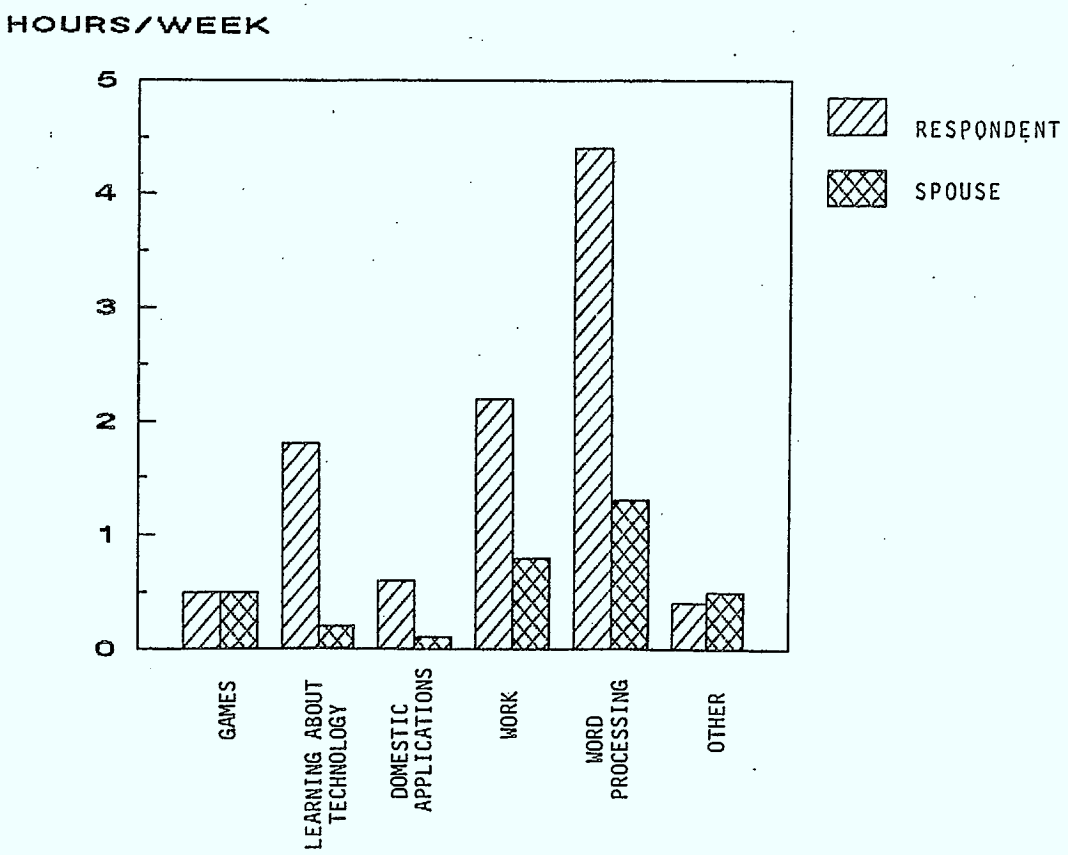
Main Reasons for Buying a Microcomputer



How much time do those still using their microcomputer spend on it? Our data show that it is far from negligible. The buyer spends an average of 9.8 hours a week; two-thirds of this time is devoted to work or word processing. The spouse uses the microcomputer 3.1 hours a week for similar purposes. In both cases, games have become a minor activity.

Bar Chart B

Time Spent on Microcomputer by
Respondent and Spouse by Type of Application



Younger children (under 12) and teenagers are equally active; in both cases, they use the microcomputer for an average of 5.2 hours a week,

spending more than half of this time on games. We find, however, that word processing accounts for one-fourth of the time spent by teenagers, which is not the case among younger children. The microcomputer thus occupies a fairly important position in the time budgets of the families surveyed. Even if we consider collective use, which is minor in any case, we may say that the microcomputer is used for more than 15 hours a week.

Respondents generally say that they are fairly satisfied with their system. When asked about the impact of microcomputers on their other activities, more than half say that they watch less television, while one-third say that they also spend more time working or studying. Finally, the microcomputer seems to be an isolating factor for some, since one-third of the respondents admit that they spend less time with other family members. Nearly half of the respondents say that the microcomputer has modified their children's behaviour, although these changes are usually minor. Note, however, that nearly half of respondents with children have had to impose rules for using the microcomputer.

An examination and comparison of the "continued" and "second microcomputer" groups shows that the latter generally bought a second system to make up for the first system's inadequacies, and that three-fourths planned to make it a personal work tool. This appropriation of the second microcomputer for professional purposes is quite clear, moreover. Although the total time spent does not vary significantly between the two groups, respondents in the "second microcomputer" group spent more of their time on functions directly related to their work,

while the "continued" group use the system more for word processing. (Nevertheless, the categories "work" and "word processing" are not mutually exclusive and must be interpreted with caution.) In nearly three-fourths of all cases, respondents in the group that bought a second system say that they use a microcomputer regularly at work, which is true for only less than half of respondents in the "continued" group. They are also asked for advice about microcomputers more often, and say that they have more often seen a major change in their life-style, which almost always involves their autonomy at work. Thus, it is fairly clear that buying a second system is closely related to its appropriation for professional purposes.

How do these results compare to those obtained two years earlier? Our respondents in Vancouver include a larger proportion of teachers and are better educated. A lot more of them also use computers at work. In terms of equipment, printers have made great inroads, and almost all respondents now have them. Their systems are now more powerful, which mainly testifies to the development of the market. Professional use of the microcomputer is more significant than in 1985, and the functions of playing games and learning how to write programs have lost much of their importance. Nevertheless, games remain the preferred function for children.

The impact on mass media activities perceived by respondents in 1985 seems to have persisted, and television is still the activity most affected. We note, moreover, that the 1987 respondents perceive the micro-

computer more often as a source of isolation from family contact, which should not be surprising since the system is now used for professional purposes.

All of these quantitative data must be interpreted with some qualifications, however. They are averages and proportions that often mask great differences between individual cases. Our few interviews show quite clearly how much the integration of microcomputers depends on the family and professional situation of buyers and their spouses and children, as well as the family relationships established between them. As we suspected at the outset, the appropriation of technology depends as much on those adopting it as on the innovation itself.

An analysis of family relationships indicates that introducing home microcomputers seems to cause little change in existing sex roles and behaviour; rather, it tends to reinforce them.

On the whole, the findings lead us to reject the mechanistic vision of the effects of technology, according to which we should infer a causal relationship between technological progress and social change. Our data clearly show that the lasting appropriation of a technological innovation also depends on the motivations and needs of those who adopt it. For an innovation introduced in the home, this reappropriation will also vary based on the relationships within the family and the needs of each of its members.