Computer Skills Training to (Middle-aged) Adults: Problems and Program*

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Abstract

The knowledge of computer applications such as word processing or Internet-based communication is essential in most jobs. On the other hand, most of professional training programs for unemployed people contain a computer course for those who have never used a computer. Middle-aged adults present several difficulties in order to learn core computer skills, which must be overcome in order for these people to be able to handle basic computer applications successfully.

In this paper, we present a 50 hour program to teach computer skills for middle-aged adults.

Keywords: Computer skills learning, Adult-oriented learning, Learning strategies, Learning tools.

1. Introduction

Proficiency in computer skills is required by an increasing number of jobs. In Catalonia, as in other Spanish countries, the autonomous government invests millions of euros in subsidizing training courses for unemployed people. The Catalan Department of Employment, by means of the European Social Fund, organizes training programs in order to improve the knowledge skills of adults who are looking for a job. Several educational institutions, such as language schools or business schools, are assigned these courses which usually contain a computer training program.

Usually, this program is not standardized, but is independently designed by each educational institution.

Even though these courses are offered to both young and middle-aged adults, the fact is that considerable differences exist between teaching computer skills to the former and the latter: middle-aged adults who have never used a computer will present several difficulties (i.e. how to handle the mouse, a difficulty that is clearly not observed in young adults) which have to be overcome in order for them to satisfactorily learn further but basic and useful skills, such as word processing or Internet [1].

In the last years, we have been developing a program for teaching computer skills to middle-aged unemployed women in quest of a job. Their typical profile is that of a housewife whose children have already grown up and wants to enter the labor market again as a clerk or office worker. Several of these women had already worked with computers, but it was in the 80's when there were no window-based operating systems or mice to use.

1.1. Contribution and plan of this paper

In this paper a 50 hour program for computer skills training to middle-aged adults is presented. The program presented in this paper is the final version of a computer training program whose initial versions were developed five years ago; thus, the program covers recent issues such as CD writing, Internet or multimedia skills. The program has been awarded an ISO 9001 certification, and will be presented as a standard for several schools offering subsidized courses for the unemployed. It is based on Microsoft Windows XP operating system and Microsoft Office applications. The main aims of this program are:

- To provide people who have never used a computer with enough confidence for mastering the amazing new environment that opens to them.
- To provide core skills of: basic computing, Windows-based operating systems, word processing, spreadsheet applications, multimedia and Internet.
- To provide the knowledge that will allow the students to learn further skills by themselves, even after the course is over.
- To assess the basic skills a student has learned when the program ends.

In Section 2, several key issues basically related to middle-aged adults learning of computing are described,

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as well as the tools used in this program to overcome Section 4 shows several results and ends with some conclusions.

2. A new environment to cope with

The first hours of computer use may entail some problems because of the new environment the student has to use and, above all, the devices she is using for the first time. Apart from "mechanical" troubles (*i.e.* when using the mouse), the middle-aged student receives much information which may be difficult to understand[2].

Moreover, the user can interact with these widgets and information, and sometimes the lack of knowledge about how they work leads to bigger problems. Until these are overcome, the student feels unsafe and is not able to learn further skills.

Next, some interface or device-related problems are described.

2.1. The mouse

The following issues can be observed in the first hours of use of the mouse.

- **Position troubles.** To get over a specific pixel of the display is not an easy task for beginners. A student can spend up to 10 seconds for placing the pointer in the precise place to resize a window or to increase a value using a spin button. In order to surmount this inconvenience, the student uses a simple tool which can be used to write some text and practise double-clicking (see Figure 1). After half an hour of use, they have improved their abilities with positioning the mouse.
- **Hold troubles.** To hold firmly the mouse and to press its buttons softly assures the success of a click or double click task. For instance, if a beginner gently holds the mouse, she probably will slightly move the pointer in a double click. On the other hand, when right-clicking the mouse in order to use the contextual menu, if the pointer is slightly moved, the Copy/Move menu will appear and bring confusion to the student. To solve this problem, students practise performing basic operations with folders.

Therefore, mastering the mouse is essential in order to control the new and complex interface of a Windows based system. Another important element to control is the keyboard.

2.2. The keyboard

Mastering the keyboard will allow students to practise with the word processing application. Several students already know basic typing skills: they are able to type fast enough to introduce about ten lines of text in a reasonable time. Students are offered to work in a two hour typing lesson (out of the program time), in order to acquire these skills.

In these two hours, students learn typing simply by repeating the same "complex" text several times, using a notepad-like typing application. After an hour of exercise, every student has learnt these basic typing skills (basically fast location of any key; combination of keys to obtain signs; etc.).

On the other hand, all the students are told to take into account the following issues:

- They must know the difference between 0 and O.
- They must know how to use the Caps Lock key, whose use differs from classic typewriters.
- They must understand the difference between the apostrophe and the accent marks, which are used in many languages.

Other issues to produce good looking texts are: leave a blank only after a mark, only press enter for a full stop, etc.



Figure 1. TryWin is used for practicing with the mouse.

2.3. The interface

Several problems can be observed when neophyte users spend their first hours using the Windows interface. These problems must be well explained in order to succeed in managing Windows.

- The first problem is that there is plenty of widgets they must learn. Every widget must be explained. A good dialog window for practicing with a variety of widgets and buttons is the Time Settings dialog window.
- Some buttons or toolbars can easily disappear or can be unintentionally resized. The student must know how to solve this.

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- Students must make an effort in order to understand the difference between closing a window and minimizing it.

- Another problem is that in the software applications the students learn, there are many ways to perform the same task. For instance, for copying a document one can use:
  - the contextual menu, and use the Copy and Paste options
  - the Copy and Paste keyboard shortcuts
  - the right-button drag and drop feature.
  - the left-button drag and drop feature, while pressing the Control key.
  - the buttons of the explorer window, etc.

Last, but not least, students must learn how to use folders and shortcuts in order to organize their documents. During the course, students use the My Documents folder to save their exercises, but they must learn skills about the usefulness of using folders, subfolders and shortcuts. To learn these concepts, students must create a folder tree that resembles a real concept. For instance, students are told to create a house-like folder structure (see Figure 2).

Besides understanding the folder and shortcut concepts by doing these kinds of exercises, they practice again the mouse skills.

Build a Street

- Create four folders: kitchen, dining-room, bedroom and toilet; and four plaintext documents: fridge, TV, sofa, and bed.
- Place every plaintext in the right place, *i.e.* the bed in the bedroom folder.
- Create a house folder, and put all the rooms in the house.
- Create five copies of the house. Each of them will have to be renamed: house1, house2, house3, house4 and house5.
- Create a shortcut to every house bedroom in order to create a window for the house.

Figure 2. Exercise on building the icons and folders of a street.

3. A 50 hour training program

Our proposed standard for a 50 hour training program is depicted in Table 1. The program is divided into 6 parts: Basic Concepts, the Operating System, Word Processor, Spreadsheets, Multimedia and Internet. After Parts 2 and 4, students work on a self-evaluation exercise.

Once the program is ended, there is a basic skills test covering the full course. Next, several issues about each part of the program are detailed.

Table 1. Proposed program.

Part 1. Basic Concepts		
1.1	The Personal Computer System	1,5 h.
1.2	From bit to Gigabyte	0,5 h.
Part 2. The Operating System		
2.1	Windows, Desktop and Widgets	1 h.
2.2	Files, Folders and Icons	3 h.
2.3	Configuring the Environment	2 h.
2.4	Install and Uninstall Software	1 h.
2.5	Windows Utilities	4 h.
	Self-Evaluation	1 h.
Part 3. The Word Processor		
3.1	A First Walk	2 h.
3.2	Text Editing Basics	2 h.
3.3	Paragraphs and Pages	1,5 h.
3.4	Printing and Faxing	0,5 h.
3.5	Tables	2 h.
3.6	Pictures and Drawings	2 h.
3.7	Spell Checking	1 h.
3.8	Styles and Tables of Content	1 h.
3.9	Mail Merging and Envelopes	1 h.
Part 4. The Spreadsheet		
4.1	Data and Formulae	2 h.
4.2	Excel Functions	2 h.
4.3	Data Charts	2 h.
4.4	Invoices	1 h.
	Self-Evaluation	1 h.
Part 5. Multimedia		
5.1	Media, File Formats and Devices	2 h.
5.2	CD Writing	1 h.
5.3	Image Scanning	1 h.
Part 6. The Internet		
6.1	Internet Basics	1 h.
6.2	Getting Connected	1 h.
6.3	Browsing	4 h.
6.4	E-mail	1 h.
6.5	Messenger and Video Conference	1 h.
6.6	Security	1 h.
	Basic Skills Self-Evaluation	2h.

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3.1. Basic Concepts

In this part, several basic concepts are explained. The main goal is that the student be able to understand the main issues in any computer advertisement. They learn what makes a computer more powerful than another, and learns terms like bit, Megabyte, Kilobit per second, Mega pixel, etc. Moreover, plenty of computer devices are described and shown.
Also in this part the basic kinds of application programs are described.

3.2. The Operating System

This is the most complex part, because at this stage students use their computer for the first time. In this part, the basic skills and problems described in Section 2 are learned or solved. Students also learn how to install and uninstall software applications; uninstalling is important in order to avoid software inconsistencies. After finishing this part, students solve a 20-question test about Parts 1 and 2, and they perform a folder organization exercise.

3.3. The Word Processor

Copying and pasting text is one of the first skills learned. Moving and managing toolbars is also a very important skill to be learned, in order to master the interface. Except for the first 2 hours, the Word Processor Part consists of typing and formatting several example texts. For instance, in Session 3.4, after learning how to draw, fill and modify tables, students are given several examples which must be typed and printed. When Part 3 is over, students have worked on about 15 or 20 different exercises. Configuring and managing the printer is also a key issue.

3.4. The Spreadsheet

It must be taken into account that not all students have the same mathematics skills. Thus, in addition to learning Excel formulae, they study how to solve real life numerical problems (*i.e.* currency conversion, loans and mortgages, etc.). Sessions 4.1 and 4.2 basically consist of several "follow by example" exercises. In Session 4.3, data charts are copied from Excel to Word, in order to learn how to copy information between applications. When this part is ended, students solve a large exercise about spreadsheets, for self-evaluation purposes.

3.5. Multimedia

In this part, students learn how to use the Media Player as well how to install a plug & play device (such as a scanner or a web cam). They learn how to digitize a picture and include it into a document. In Session 5.2, a data CD is created (including the My Documents folder, just where their documents are saved). When using the Media Player, they also learn how to digitally extract tracks from an audio CD. These tracks will be now burned onto an audio CD.

3.6. The Internet

In addition to learning how to get on-line and what is the Interned used for, students learn how to search information on the Internet by using Google or Yahoo. Students visit some useful websites and learn how to use them. They are told how to obtain an e-mail account, in order to practice with an e-mail client, such as Outlook Express. In Session 5.5, web cams and microphones are plugged to the computer in order to set up several videoconferences and chats between the students. The last session of Part 6 is important as well as interesting: given that several students always ask us for information on worms and firewalls, a session about Internet Security has been included in the last version of the program.

3.7. Self-evaluation test

The last two hours of the program are used for self-evaluation of basic skills. This comprehensive exercise consists of:

- A ten-question test. This test is related to conceptual issues, with questions such as "Which is the capacity of your hard disk? a) 40 Megabytes b) 40 Gigabytes c) 40 Megapixels".
- A files and folders exercise evaluating skills such as: folder creation, icon copying, moving, renaming, deletion and restoring.
- A word processor exercise. In this exercise, students must search the Internet for information about a topic. They must copy / paste text and images and give the document a specific look, which includes a table, headers, a footnote, etc. They are told to use different level styles and create a small table of contents.
- A spreadsheet exercise, which consists of applying simple formulae to a few data and obtain a chart.

Most students solve the entire exercise and have no questions to ask while doing it. After this exercise is ended, students are asked to fill a small feedback form. The results are shown in the next section.

4. Results and conclusions

A 50 hour program to learn computer skills has been presented. This program is targeted to middle-aged adults, so several issues, such as those described in Section 2, have been taken into account. The program is based on Windows technology and has been awarded an ISO 9001 certification.

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Figure 3 shows a chart with some results from the final exercise and the feedback form, which show the degree of achievement of the goals of this middle-aged adults training program.

As a result of studying the feedback forms and analyzing the results of the students, the last version of the program is accurate enough to be presented as a standard. Students are given a book with course notes and exercises in order to follow the program. Some book references are also given [3, 4, 5, 6].

Every student uses her own basic equipment in the classroom: a state-of-the-art PC equipped with a CD writer, a scanner and a web cam. A group of students is formed by ten to fifteen people (a standard size for this kind of subsidized course).

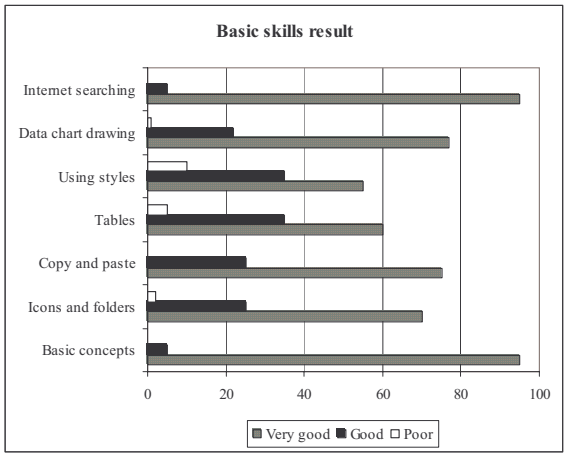


Figure 3. This chart shows the knowledge of basic skills attained at the end of the program.

The main question nowadays is related to the applications learned: even though employers refer to knowledge of Microsoft programs when they require computer skills, we are considering switching to the Open Office suite. However, the use of "non-commercial" software does not allow Microsoft Windows XP to be bypassed in favor of free operating systems such as Linux.

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