Use and non-use of Automatic Teller Machines by older people in Israel

Alexandra Tarakanov-Plax
Technion - Israeli Institute of Technology
Faculty of Architecture and Town planning, Department of Industrial Design, Jerusalem, Israel
e-mail: alex@senior-touch.com

A.Tarakanov-Plax. Use and non-use of automatic teller machines by older people in Israel. Gerontechnology 2004;3(2):107-110. The final goal of the present research is to formulate a design concept for automatic teller machines (ATMs), to render them more accessible to older people. It should take into account all possible disabilities of users (cognitive, sensory, and motor problems), as well as subjective values, accessibility to technological devices, and need of specific services. Based upon a study by Rogers et al, the current study involved collection and analysis of data on usage and non-usage of ATM by elderly people in Israel (aged above 65) and a comparison to corresponding data collected in USA. It is focussed on studying the needs of the elderly users basic for future usability design requirements.

Keywords: automatic teller machines, older users

The flexibility of today's technology provides a vast variety of design possibilities in systems available to older users. Nevertheless, design of these systems demands that the influence of age-related physiological, psychological, and social aspects be taken into consideration[5,6,7]. Many older people are willing to, and capable of, using computerised technologies, but often this is necessarily contingent upon creating appropriate interfaces and training programs that support their use.

ATM machines save resources for the bank and enable customers to perform banking transactions without human services on a 24-hour basis. Most ATMs allow people to perform basic operations such as cash withdrawal deposits and balance checking. There are ATM services providing even more functionality such as: providing updated account information, converting currency, stock market and securities information, opening retirement programs, buying cinema tickets and postage stamps[8]. As a consequence of this increased functionality, wider usage of ATM machines may be expected in the future.

In the current research, based on the study by Rogers et al[4], we have collected data on usage and non-usage of ATM by elderly people in Israel (aged above 65) and compared it to corresponding data on older users of ATMs collected in USA. Our research question here is whether there exists a resemblance between the two samples in the following variables:
(i) percentage of users and non-users of ATMs
(ii) usage patterns of ATMs
(iii) usage problems of ATMs
(iv) reasons for not using ATMs
(v) willingness of learning to use ATMs

The assumed resemblance between two samples (Israel and USA) will enable us to extrapolate the conclusions from the USA data to the Israeli elderly population. Likewise, addressing this resemblance will allow to use an ATM design specification as developed for Israel also for the USA

elderly population, assuming that there are no significant cultural differences between the two samples in the context of ATM usage. If, however, common characteristics between the two samples are not found, making this comparison will not be possible.

The final goal of the present research is to formulate a design concept for automatic teller machines (ATMs), to render them more accessible to older people, taking into account all possible disabilities of users[1,2,3] (cognitive, sensory, and motor problems). The outcomes of this study will constitute the basis for creating future design specifications for ATMs that would be usable for elderly people. We assume that if the design is appropriate, the number of elderly people who use ATMs will rise. Design specifications to be formulated in future research could also be of use for other technological devices for older users.

METHODS
Participants
The present study comprised 270 Israeli subjects, all of them residing in elderly citizens' homes. Twenty-nine subjects were aged from 55 to 64, 115 subjects from 65 to 74, 98 from 75 to 84, 7 subjects from 85 to 100, and 21 subjects did not mention their age and were left out in the age related statistics. Since the group of 85+ was very small, it was combined with the 75-84 group. So, three age groups were used in the analysis. Native language of 48 subjects was Hebrew, of 39 subjects English, of 141 Russian, and 42 subjects spoke other native languages. There were 111 males (41%) and 159 females (59%). 238 (88%) of the subjects were retired.

Procedure
The subjects received a questionnaire developed by Rogers & et al[4], translated to Hebrew and Russian, and adapted to the research sample. A smaller questionnaire

was added to the original text, its purpose being to collect data about knowledge in Hebrew and the number of years spent in Israel. The questionnaire was given to the subjects with explanations of the purpose of the survey. 67 of the subjects participated in a one-hour lecture on appropriate design (after answering the questionnaire) and the others received a modest gift (a set of pens).

RESULTS AND DISCUSSION
Users and non-users of the ATM
The respondents were asked if they had ever owned an ATM card. This data is presented in Table 1 together, for comparison, with the US research data.
In Israel, 14.6% of respondents (aged 65 and older) were found not to perform any banking activity whatsoever – instead, their children or spouse did it for them. No corresponding data from the US study were available. A possible reason for this is decrease of cognitive function with age whereby 'money management' is one of the first capacities to be affected.
In order to arrive at the potential room for

Table 1: ATM card owners and ATM card users by age category in percentages. n.d. = no data available

Statement	Age categories in Years					
	Israel				USA	
	55-64 n=51	65-74 n=129	75-100 n=102	65+ n=211	55-64	65+
I use an ATM card now	80	66	66	65	54	33
I own or have owned an ATM card	91	72	79	74	83	67
I do not do any banking.	2.4	13.3	15.8	14.6	.d.n	.d.n
I use ATM or I do not do any banking	82.4	.d.n	82.8	81.6	.d.n	.d.n

extra ATM users in each age category, we add the percentages of ATM users and the percentages of people who would never use it anyway, perhaps because of decreased cognitive function. This leaves us with about 18% of the aged population who would constitute potential extra

users, irrespective of the age category.

Whereas no significant age differences in ATM usage were found, there were differences in the reasons for not using ATM within each age group. Older non-users (75+) claimed that they did not know how to use the system but were willing to attend a training program. Younger non-users (aged 65-74) were concerned about the cost of using the system. 32.9% of the non-users of ATM in Israel and 16.7 % of the non-users from the US sample were interested in receiving some ATM usage training. In Israel, non-users reported their interest in receiving either guidance or written information regarding the use of ATM and its advantages.

Demographic data and ATM usage
In order to determine if we could predict ATM usage on the basis of demographic variables and technology use, a hierarchical regression analysis was conducted.
In the Rogers et al study[4], 'use of technology' accounted for 20% of the variance, 'age' accounted for an additional 4%, and 'computer use' accounted for an additional 1%. None of the other predictor variables accounted for an additionally significant amount of variance. This means that whether or not an individual takes advantage of technology is clearly related to whether he or she is likely to use ATMs.

In our study, 'use of technology' was also found to be the first predictor variable and accounted for 13.7% of the variance, while 'country of origin' accounted for an additional 10% and 'computer use' accounted for an additional 2%. The regression analysis supported the trend reported earlier, i.e., the age of individual is not related to his or her likeliness to use an ATM.

Usage patterns of ATM
Users of ATMs were asked about their usage patterns and frequency of usage.
In both the US and Israeli studies, younger people used ATM more frequently than older users. The reason for this might lie in the fact that older people report being less active outside their homes and planning their expenditures for longer periods. The most frequent actions in both samples were cash withdrawals and deposits. In both countries respondents reported that they used more frequently those ATMs that were located near banks.

Problems in using ATMs
Respondents were also asked about problems they encountered while using ATMs.
After analysing the data, the following conclusions were reached:
(i) There are some differences between the two samples (USA and Israel) and this result from essential differences in the banking systems of each country, that makes the comparison between the two samples problematic. For instance, in the US study[4], none of the banks charge a fee for making a cash deposit or withdrawal using their ATMs, while Israeli banks do charge their customers for these transactions.
(ii) No correlation was found between age and ATM usage, but there were different reasons for not using ATM in each of the age groups. If banks wish to encourage the older users to use ATM, they should reduce the cost for the younger adults and offer training for the older ones.
(iii) The factor of personal safety was found to be of great importance for the subjects in both studies[9]. Should the problem of personal safety be resolved, greater numbers of older people might use ATMs both in Israel and USA.
(iv) The elderly users, regardless of their country of origin, complained about the complexity of the language of ATMs' interface (professional jargon) and found coping with it quite problematic.
(v) In the Israeli sample, country of origin was found as a factor in predicting ATM-use. Subjects originating from Eastern Europe used ATM less than others. This

finding cannot be explained by not knowing the languages of the ATM user interface (Hebrew and Russian).

On the basis of these conclusions, concrete guidelines will be made concerning the design of an ATM machine that might promote increased use by older people including those with possible cognitive, sensory, and motor problems. Suggestions for the future design of ATM machine will include ways of presenting information and its content, safety, and personalization of ATMs services. Moreover, suggestions for improving the ATM design on various levels of solution will be defined, including changes in the current platform and bank policy that could result in more ATM usage by older people. Suggestions will include improving legibility and readability of the information on ATMs interface, usage of didactic illustrations, simple language, and training facilities.

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