

INTERVIEWING WITH MOBILE TECHNOLOGY FOR GAINING HIGHER RESPONSE RATE

**Janja Božič Marolt, Damjana Kocjanc Fajfar and Dejan Možic,
Mediana, Market and Media Research Institute**

1. Introduction

Market research is facing decreasing of response rates. Researchers have to be creative and inventive in using alternative methods of data gathering.

Statistical Office of the Republic of Slovenia believes that willingness of respondents to co-operate in surveys is dropping. But this is not easy to prove; the only available data are co-operation rates. It is believed that with great efforts, that cause a lot of extra costs, we can almost stop this. In the following paper we will present a possibility how to influence the response rate among specific target groups.

Our experience shows target groups that are not willing to co-operate in telephone surveys are mainly young and middle-aged business group and sometimes the oldest population. We will focus on the young population. Nowadays we can discover a new culture among the young, urban affluents and professionals who are building their own social networks according to their own perspective and experience. Although getting older they will continue with their lifestyle and their demographics will change. And market researchers could reach them only in the way that fits the target groups, e.g. their perspective. Our opinion is that mobile technology will allow researching those people on the individual basis; when and how they want.

Finnish NRS reported that their survey underestimates reading habits of mobile respondents and out-going people. Out-going people represent mainly men, aged from 30 to 49 years. The share of mobile population is increasing in time, as Finnish NRS reports. In autumn 1996 only 9 % of 15+ population possessed only a mobile phone. In 1998 the share increased to 16 %, in 2001 it was already 31 % and in 2002 34 %. The mobile population is a young population; 15 to 34 years old. Encouraging finding is that media consumption differs very little between »mobile only« youngsters and their fixed-line counterparts. The present weighting factors can solve the »mobile only« problem. But probably not for long.

Swiss NRS reported much the same but mobile phone household presents only 10 % of the total population. In comparison with the whole universe, people living in cell phone households are significantly different: more men, younger (primarily 20 to 39 years old), more medium education levels, more employed persons, live in smaller households (mainly single person household). When testing the hypothesis that media consumption of mobile respondents doesn't significantly differ from fixed line respondents, they have found some interesting things: tendency towards less overall consumption of printed media, tendency towards more over all TV consumption, significantly less usage of internet and a stable situation in radio and cinema.

We believe that the future in survey research is in a mobile technology. Mobile market is developing and spreading. Although some experts believe that we are witnessing stagnation, some statistics show that mobile telephone penetration is increasing. In 2000 almost two thirds of Slovenian population owned a mobile phone; in 2004 the share is 87%.

The decline is observable in telephone penetration. Many households are deciding not to have a telephone connection while they are using a mobile. In Slovenia in 2000 96 % of household had a telephone fixed line connection, in 2004 only 90 %.

Our paper will show advantages and also disadvantages in the case of using a mobile phone for print media research, especially in gaining specific target groups, younger and mobile. These target groups present segments that are very hard to reach through standard surveying methods. Together with Motorola's importer for Slovenia, RAM2 and Adapta, we have developed a user-friendly application for data gathering with mobile phones. The application enables respondents self-interviewing. Currently not every mobile phone supports the application but with progressive development on mobile market in 5, 10 or 20 years, only "smart" mobile phones would be on the market. Then it would not be a problem doing a survey using a mobile phone on a total population.

The paper will start with review of different interviewing methods, from PAPI (Paper and Pencil Interviewing) over usage of computers in face to face and telephone surveys (CAPI and CATI) to self interviewing methods or self completion. Special attention will be dedicated to response rate across various NRS. In continuation we will present results of our study report that show some optimism for future print media research.

2. Development of interviewing methods

In 1996, de Leeuw and Nicholls reported that “computer assisted data collection methods are increasingly replacing paper-and-pen methods of survey data collection” (de Leeuw, Nicholls, 1996). In Europe and North America, most professional research organizations - academic, governmental, and commercial, have employed these new methods for much if not all of their survey data collection already in early 1990’s. Computer assisted telephone interviewing (CATI) is most prevalent and computer assisted personal interviewing (CAPI) has also gained in popularity in those days.

It’s no doubt that development of computer technology has significantly influenced the way of data gathering. The advent of CAI procedures during the early 1990s, particularly audio computer-assisted self-interviewing (ACASI), clearly offered an opportunity for improving the measurement methods. Numerous studies have demonstrated that computer-assisted personal interviewing (CAPI) improves the quality of survey data and that ACASI results in increased reporting of sensitive issues.

Also, new interesting forms of computerized data collection, for instance automatic speech recognition, and surveys through the Internet have emerged.

Table 1: Taxonomy of Computer Assisted Interviewing methods

General name: CADAC (Computer Assisted Data Collection), CASIC (Computer Assisted Survey Information Collection, CAI (Computer Assisted Interviewing)

<i>Specific method</i>	<i>Computer assisted form</i>
Face-to-face interview	CAPI (Computer Assisted Personal Interviewing)
Telephone interview	CATI(Computer Assisted Telephone Interviewing)
Self-administered form	CASI (Computer Assisted Self Interviewing); CSAQ (Computerized Self-Administered Questionnaire)
Interviewer present	CASI of CASIIP (computer assisted self interviewing with interviewer present. CASI-V (question text on screen: visual). CASI-A (text on screen and on audio)
Mail survey	DBM (Disk by Mail) and EMS (Electronic Mail Survey)
Panel research	CAPAR (Computer Assisted Panel Research), Teleinterview, (Electronic diaries)
Various (no interviewer)	TDE (Touchtone Data Entry), VR (Voice Recognition), ASR (Automatic Speech Recognition)

Computer assisted methods for survey research are often summarized under the global terms CADAC (Computer Assisted Data Collection), CASIC (Computer Assisted Survey Information Collection), and CAI (Computer Assisted Interviewing); in this context the traditional paper-and-pen methods are often denoted by PAPI (Paper-and-pen Interviewing).

The early developments in Europe differed from those in North America. In the USA telephone interviewing started earlier and was more prominent than in Europe, and as a consequence Computer Assisted Telephone Interviewing started in American market research as early as the seventies. Also most computer assisted 'mail' surveys, including use of the internet for data collection is more prominent in the USA. However a special form of computer assisted panel research was initiated in Holland as early as the eighties. In Europe, which has more emphasis on face-to-face interviewing, Computer Assisted Personal Interviewing started, using the first truly 'portable' computers. Statistics Sweden and Statistics Netherlands were among the first developers of CAPI.

Characteristic of all forms of computer assisted interviewing is that questions are read from the computer screen, and that responses are entered directly into the computer, either by an interviewer or by a respondent. An interactive program presents the questions in the proper order, which may be different for different (groups of) respondents. There are three main survey modes where CADAC-technology may be employed.

- CATI. Computer Assisted Telephone Interviewing. This is the oldest form of computer assisted interviewing.
- CAPI. Computer Assisted Personal Interviewing. In CAPI interviewers visit respondents with a portable computer (generally a notebook) and conduct a face-to-face interview using the computer. After the interview the data are sent to a central computer, either electronically by modem or by sending a data disk by mail. Similarly, interviewer instruction and new sampled addresses can be sent to the interviewer in this way.
- CASI. Computer Assisted Self Interviewing. Characteristic for CASI is that the respondents themselves read the questions on the screen and enter the answers. There is no interviewer; the interviewing program guides the respondent through the questionnaire. In the US, the term CASI is gaining broad acceptance as the descriptive term for self-interviewing introduced by an interviewer. Self-administered computerized interviewing without an interviewer is therefore often referred to as CSAQ, computerized self-administered questionnaire.

CASI can appear as part of a CAPI session where the interviewer hands over the computer to the respondent for a short period, but remains available for instructions and assistance.

A related form of self-administered interviewing without an interviewer present is the Tele-interview (Saris, 1991). This is a form of computer assisted panel research (CAPAR) where respondents fill in an electronic questionnaire about once a week. For this, a large number of selected households receive a microcomputer and a modem. At regular intervals, the modem

automatically queries a remote computer, and the computer receives new questionnaires for selected members of the household. After the questionnaires have been answered using the interviewing program, the data are sent back to the remote computer. For questions and technical problems a help desk is available through a toll-free number. The tele-interview has the advantage that it is not confined to special populations with access to computers. However, the tele-interview shares all methodological problems of traditional panel research (see Kasprzyk et al., 1989), although experience has shown that the bonus of having a free home computer leads to very low panel loss.

Both Weeks (1992) and Saris (1991) mention two very specific applications of CASI: Touchtone Data Entry (TDE) and Voice Recognition (VR) or Automatic Speech Recognition (ASR). In the first case a respondent is called by a computer, the questions are asked by a computer voice, and the responses are given by punching the appropriate number. In VC the respondent has to answer 'yes' or 'no' verbally. Automatic Speech Recognition has far more potential; in ASR a large vocabulary of meaningful words, such as holiday destinations, can be understood and acted upon by the interview system (Blyth & Piper, 1994; Blyth, in press).

Many practitioners are reporting usage of self interviewing methods but mainly on the web. Internet seems to be nowadays the most appropriate (cost effective) method of surveying. Dutch NRS have started in 2005 implementation of NRS on n=24.000; 4.000 interviews are done by CASI method on the web.

Usage of mobile phones for survey research is not typical yet, but literature shows some attempts in measuring audience measurement. IPSOS/RSL is using the mobile phone for radio audience measurement and recording of respondent's listening habits – but still at the concept stage and no large scale test results yet - . Widman and Vogelius have presented at WAM conference 2002 a technique capable of measuring daily readership using SMS questions sent via mobile phone.

Mobile Assisted Self-Interviewing (MASI) is already possible today on every mobile phone that supports JAVA. Almost 90 % of mobile telephones that are in sales today can be used for MASI. This fact shows a big potentiality of MASI. But at the same time it should be mentioned not everybody has such mobile phone. They are representative mainly for more technically demanding population, younger, business.

We can compare mobile phones and computers or even consider mobile phones as small computers that are more handy and transferable. We can state some advantages:

- The mobile technology is a technology quickly conquered.
- Mobile surveys can occur any time during the day.
- Usually we always carry a mobile phone with us, availability is always, anywhere (of course determined by accessibility); you do not need to plug it in electricity... Usage of mobile phones in surveys is therefore very suitable for those travelling/mobile respondents.
- A phone is a usual mean of communication. The whole population is familiar with this and often, when we have time, we explore possibilities of usage (on airport, at dentists, between meeting etc.)
- Survey applications can be simple to answer as writing the SMS that almost everybody is acquainted with.
- Among other advantages we should stress all advantages that characterize mobile phones vs. fixed line telephone.
- Basic advantages are simplicity, handiness... In a technological era when many electronic devices are already »under our skin«. We do not even notice how much we are using them; just know that we cannot live without them. Just for illustration, cars are full of buttons that the driver does not even know how they are called, just knows he needs them.
- There are advantages of self administration: respondents can answer the survey at their own pace, in privacy, "perhaps with greater thoughtfulness and accuracy; eliminating errors due to variance among interviewers; and perhaps even reducing social desirability biases by removing some respondents' innate inclination to provide answers that would please an interviewer." (Mattlin, 2002).
- It is a new surveying tool that can be used in real time; data are inputted directly to database; are available quickly...
- The growing possibilities of mobile development will made it possible to develop larger, and complex electronic questionnaires.
- Questions on a mobile phone can be answered at a time suitable to the respondent.
- All filters in questionnaires can be prepared / are working as on computers.
- Usage of logotypes is possible and is not as expensive as one might think if compression is used. Usually logotypes of media / brands are using 2 or 3 colours. Although we should point out that with more than 150 logotypes the costs are still quite high for today's usual mobile users. But presumably the prices for GPRS would be relatively lower in time.

MASI enables usage of mobile phone as a »small computer«. And as such device, there are also some limitations:

- small keyboard
- small monitor
- communication costs are (still) high
- survey is limited to technical characteristics of mobile phones
- not long questions
- questions must be very precise
- length of questions/answers is somehow limited to screen size
- closed questions are preferred.

Some other cons:

- Invasion of privacy – privacy concerns when calling or sending the respondent an SMS on a mobile phone.
- Technical limitation of mobile interview: battery, connections quality...
- There is no sample frame to prepare a probability sample of mobile phone users.

Surveying is possible already today on all mobile phones that are Java enabled. Usually these are phones with colour screen and larger memory capacity. But it is not as simple as it looks. As Adapta's experiences show, some mobile phones are more appropriate than other.

- If there are a lot of open ended questions, it is better to use English keyboard, as it is at Siemens SK65 or »smart« mobile phones (some sort of hybrid between phone and Ipack pocket PC) that are big, big screen and optionally separated keyboard.
- In case of longer questions, Adapta would suggest bigger screens that enable better visibility. Recommended resolution is 176*220 or more.
- GPRS or UMTS is welcomed because of lower communication costs.
- Colour screen is necessary when showing logotypes.

Currently, majority (90 %) of mobile phones in sales actions are suitable for implementation of our pilot testing. This means surveys could be done, but it is important to notice regarding to experience of Adapta, application is running better on some mobile phones than others.

Presumably in next 2 or 3 years share of »appropriate« (e.g. that would support print media research on mobile phones in general population) mobile phones in Slovenia would be around 80 %, if we consider that usual time of mobile change is on 2 years and that majority of appropriate mobile phones is already in sale. The main problem is the demographical structure and frequency of mobile phone's change. Therefore this would be valid mainly for »active, young« population. Elderly are defined by usage of mobile phones for calling and we cannot expect them to fill out the questionnaires on the mobile phones. We should also mention that mobile phone batteries usually endure 2 or 3 years and many users simply change their phones and not the battery!

The situation in future would be very simple. It should be like today, when surveying on the computer. The user would download the application on the mobile phone and complete the questionnaire. The way of implementation is the same, only the interface is adjusted to device. We have presumed that we would use RDD for generating of mobile phone numbers. The respondents would be called and asked to participate in National Readership Survey. In case of positive answer they will receive a SMS with instructions on how to download the application (questionnaire). These would be done in such way that nothing would be left on the phone after the respondent completes the questionnaire.

To resolve, a mobile phone is just another surveying tool. Our main problem as researchers is how to gain co-operation from respondents. To resolve this question, we surely have to adapt to them, be flexible and inventive.

In next section we briefly present some information technology indicators for Slovenia just to show the pace of development and to find out if there is a possibility in Slovenia to measure print media reach with mobile technology.

3. Technological development

In 2004, worldwide mobile phone shipments saw their strongest year-on-year increase in history, rising 34% from 2003 to 2004 in a massive expansion driven by the demand for colour displays and camera phones throughout the world. According to a new mobile phone forecast from IDC, worldwide market growth is expected to continue in 2005, but at a slower pace.

Table 2: Some basic indicators of information society (Source: Statistical Office of the Republic of Slovenia)

%	2000	2001	2002	2003	2004
Number of Internet users per 100 inhabitants ¹⁾²⁾	28	33	42	43	43
Number of regular Internet users per 100 inhabitants ¹⁾³⁾	19	23	29	33	37
Use of Internet at home (share of Internet users, %) ¹⁾³⁾	...	67	64	78	70
Use of e-banking (share of Internet users, %) ¹⁾³⁾	15	...	18	19	23
Use of e-shopping (share of Internet users, %) ¹⁾²⁾	16	12	21	21	22
Total amount spent on purchases via the Internet by private persons (mrd SIT)	140	210	400	600	800
Number of mobile subscriptions ⁴⁾ per 100 inhabitants	57,2	75,8	87,8	94,4	92,6
Number of Internet hosts per 100 000 inhabitants ⁵⁾	108	143	167	198	227
	9	6	9	8	9

1) The data until 2003 include the persons aged 15 and more, for 2004 include the persons aged 16 to 74.

2) The data refer to persons, who already used the Internet.

3) Until 2003 the data refer to the persons who used the Internet at least once a month, for 2004 refer to persons, who used the Internet in the last 3 months.

4) Users of prepaid packages included. Until 2003 the data refers to end of the year, for 2004 refers to midyear.

5) Midyear data. Source: <http://www.ris.org>.

Source: For the data until 2003 the source is Faculty of Social Sciences, RIS, Comparison Slovenia - EU and 2002/3 - Households - Internet usage. For the data 2004 the source is the ICT survey (SORS) and "total amount spent on purchases via the Internet by private persons" the source is Faculty of Social Sciences, RIS.

In 2004 the number per 100 inhabitants was 43% for internet users and 93 % for mobile phone subscribers. 47% of households have access to internet and 87% have a mobile phone. The number of households with fixed-lines has dropped from 95% in 2003 to 90% in 2004.

Table 3: Household equipment with the Information-communication technology (ICT) (Source: Statistical Office of the Republic of Slovenia)

%	2000	2001	2002	2003	2004
Share of households with:					
personal computer	46	47	58	55	58
access to the Internet	21	24	37	40	47
phone lines	96	95	91	95	90
mobile phone	75	79*	82	70	87
television set	97	97	97	...	98
cable TV	...	...	52	...	55
video recorder	57	58	62	62	...
Type of Internet connection in households (share of households with access):					
a modem	...	82	71	55	49
an ISDN	...	15	17	12	19
an ADSL	...	...	2	7	15
other broadband connection (cable)	...	3	7	14	7
wireless connection (mobile phone)	...	...	2	2	38

Sources: Sources for the data until 2002 are Faculty of Social Sciences, RIS, Comparison Slovenia - EU and Information technology in households, telephone survey; for 2003 Faculty of Social Sciences, RIS 2002/3 Households - Internet usage; and source for 2004 is ICT usage survey.

One of indicators of mobile phone usage is the traffic in mobile telephony versus number of minutes in fixed telephony. In 2003 we have talked over the fixed telephone in average 35.850.000 hours in total and 40.250.000 hours over the mobile phone.

Table 4: Traffic in fixed and mobile telephony (Source: Statistical Office of the Republic of Slovenia)

Mio	1990	1995	1999	2000	2001	2002 ²	2003 ²
Number of telephone impulses in fixed telephony ¹⁾							
TOTAL	458	697	997	1031	876	...	2151
National traffic	3	9	3	4	0	...	2044
International, outbound traffic	...	2	...	...	1	...	107
International, inbound traffic	...	358	...	...	135	...	...
International, total	...	7	...	...	9	...	...
Number of minutes in mobile telephony							
TOTAL outbound traffic	-	-	437	1123	154	2169	2415
National outbound traffic	-	-	398	955	147	1932	2331
International outbound traffic	-	-	39	168	7	237	84

1) Since 1995 data collection has changed.

2) The number of minutes in fixed telephony.

4. Response rates

Main issue of our study is how to affect or even decrease the decline in response rates among younger population in print media research with using mobile phones. There are many definitions of response rates. We are using the same definition as used in British NRS. The response rate is calculated from target respondents identified. Number of no reply, away, out, busy, refused and others are deducted.

A high response rate is the key to legitimising a survey's results. When a survey elicits responses from a large percentage of its target population, the findings are seen as more accurate. Low response rates, on the other hand, can damage the credibility of a survey's results, because the sample is less likely to represent the overall target population. Response rate are dropping in USA already from 1950s, some authors report. Why this is a problem? Because those that filled in the survey can be different from the people who didn't.

Each year, non-response and response rates are becoming more and more important issues in survey research. According to Weisberg, Krosnick and Bowen (1989), in the 1950s it was not unusual for survey researchers to obtain response rates of 90 %. Now, however, people are not as trusting of interviewers and response rates are much lower; typically 70 % or less in 1990s.

World trends show lower response rates. Council for Marketing and Opinion Research in USA (2001) reported 45 % refusal rate. In last 10 years response rates decreased for more than 30 %. In the survey of over 3.700 U.S. consumers conducted in May

2001, nearly 45 % said they had refused to participate in a survey over the past year, up from 40 % in 1999 and 37 % in 1995, the two previous years in which the CMOR study was conducted. In 1992, the CMOR refusal rate was 31 %, up from 15 % in 1982.

The growth of online research in the US in last years has been well documented accounting for close to 30 % of all interviews. So has the declining response to phone surveys: estimates vary but between 10 % and 20 % response levels are not atypical. Dutch NRS reported similarly in 2004; response rates are decreasing rapidly (30 %).

There are many reasons why people might choose not to respond to a survey. Sometimes time is a factor. People may feel they can't spare the time to participate in a survey. Others may see a survey as a nuisance, particularly telephone and mail surveys.

Some of the reasons for lower response rates in telephone surveys are:

- public's concern for privacy protection,
- a negative association with telemarketing,
- respondents' aversion to telephone surveys,
- interviewers payment,
- no financial compensation for respondents for participating in surveys,
- the rise of Internet,
- etc.

Some studies (CMOR) indicate that respondents prefer Internet and mail surveys vs. the telephone method. Our pilot study showed similar findings. Respondents do not prefer telephone surveys. Among 359 respondents, 53 % do not usually participate in telephone studies and 83 % of them said they would rather participate in mobile phone survey than in personal interview.

In continuation we will show response rate levels in Slovenia regarding to data of Slovenian Statistical Office and Slovenian NRS. We will also review how British NRS is engaging with lower response rates.

4.1 Non-response rates in Slovenia

Data from Statistical Office of the Republic of Slovenia show the following¹. Non-response rates vary among different types of surveys. For on-going Labour force survey, non-response is 12 to 14 % for combination of CATI and CAPI. For Household Budget Survey 25 to 30 % of non-response is observed. The survey is done by CAPI method.

Table 5: Review of non-response rates for surveys in Statistical Office of the RS (Source: Statistical Office of the RS)

<i>survey</i>	<i>method</i>	<i>year</i>	<i>non-response</i>
Labour force survey	face to face + telephone	2004	14 %
Household Budget Survey	face to face	2004	23 %
Consumer Survey	telephone	2004	36 %
ČAP	telephone	2004	29 %
AŽK	telephone	2001	33 %
Farm structure survey	face to face	2004	4 %

Slovenian NRS currently consists of two surveys. Some changes are announced in 2005 regarding to JIC's definition of the project for next years and probably new market research agency to be elected. Firstly, data are gathered by CATI on a daily sample of n=90 and FRY method is used. Secondly, respondents are asked to participate in CAPI survey; daily sample n=22, RR is used. In 2002 the response rate for the telephone part of NRS was 53,6 %. The response rate for CAPI survey was 41,3 %. In 2004 NRS reports 46 % of completed interviews in the telephone part. Among those 50 % of respondents agreed to CAPI part of the survey and among those 17 % of them subsequently refused co-operation. In first half of 2005 the response rate for CATI was 42 % among corresponding respondents and 43 % in CAPI survey.

It is also observable in Slovenian NRS that willingness of respondents to co-operate in telephone survey is decreasing.

4.2 British NRS

Response rates of NRS in UK were 61,6 % in 1995, 58,8 % in 1999, 53,5 % in 2002. Overall response rate in British NRS was 51,8 % in 2003, in London only 31,3 % and outside London 54,9 %. The difference is mainly the consequence of higher proportion of »no reply« in London. They have attempted to reduce refusal levels with incentives, but this can not be the case with "no reply". A pilot was done and a shopping voucher (7,5 EUR) was given to all respondents in London + one other area. How to decrease "no reply" level? British JIC has tried 6 face to face contacts, a telephone call to identify a respondent and afterwards a self-completion questionnaire by post. This option is being tested only in London. The development is going in direction of DS-CAPI and giving a respondent an option to choose between different modes of surveying: face to face interview, self completion paper questionnaire or self completion electronic questionnaire (re-writable CD/DVD, website or giveaway hardware?).

¹ Source: Statistical Office of the Republic of Slovenia, 2005.

The key long term proposal in British NRS is development of flexible interview structure. This means not to ask every respondent every question and not asking all of the questions in a single interview (readership data from shortened face to face interview, and other data via self completion).

We totally agree with British JIC: future is in flexibility! To decrease non-response rate and get respondents, market researchers should be as flexible as possible; “we must adapt to our respondents, rather than expect our respondents to conform to our requirements”.

5. The study – pilot testing

5.1 Determination of the project

To decrease non-response, to get to the respondents that are hard to reach through traditional survey methods, to be flexible, to adapt to our respondents... those thoughts lead us to use mobile technology in our pilot study.

As we have already pointed out, some attempts of mobile technology usage in surveying are already reported. Still at the concept stage Ipsos UK is testing using the mobile phone for radio audience measurement and recording of respondent’s listening habits. It is the passive measurement system that uses a software program that runs on Smart phones with the Symbian operating system. It works on an encoded signal basis and uses mobile phone technology to capture and transmit the encoded signal for analysis and reporting. The system was developed and tested in UK. One of the main advantages is a positive impact on the costs due to using of mobile phones. There are some disadvantages, for example measurement is interrupted if respondents use the device for phone calls.

Widman and Vogelius have presented at WAM conference 2002 a technique capable of measuring daily readership using SMS questions sent via mobile phone. The Swedish Newspaper Publishers’ Association together with Wireless Opinion conducted two pilot studies in which newspaper reading questions were brought to a panel of mobile phone users via the SMS system. The purpose of the studies was to learn if a panel of mobile phone users could represent the whole population; if a panel was willing and capable of responding to one question a day for two weeks; the reach levels of newspapers and compared with other studies; and how much reach fluctuated from day to day.

5.2 Survey design

The study aimed:

1. to learn how mobile technology works in print media research;
2. to learn if respondents were capable of responding to questions about newspaper reading on a mobile phone;
3. to learn if the willingness to co-operate in surveys with mobile phones is more appreciated than in telephone survey (response rate);
4. to estimate the number of exclusive mobile phone owners.

Our main hypothesis was that because of using a mobile phone, mainly younger population will be willing to participate in the survey. To test our hypothesis, we have conducted an initial pilot study in August 2005 on a sample of 359 respondents.

We have decided to conduct a central location test. We have chosen locations in capital city of Ljubljana with high pedestrian frequency: Prešernov trg, Maximarket, Bavarski dvor.

For the study we used 3 recruiters/interviewers. Written and personal instructions were given to them to interview every 6th individual that passed by on a certain location. The time limitations were also set. The study excluded tourists.

Our aim was to conduct a seven-day survey, but because of technological difficulties we were able to provide accurate data only for 4 days on a sample of 359 respondents. The interviewing took place from 18th to 19th August and from 23rd to 24th August 2005.

Table 6: Daily sample

day	no. of interviews (completed interviews and refusals)
one	163
two	93
three	57
four	98

Our initial wish was to have the characteristics of the sample frame approach those of a general public but this was not possible. The sample is not representative for Slovenian population nor population in Ljubljana. We can assume it’s representative for population on the streets in Ljubljana but of course, this is only our assumption. There is no data to confirm our sample.

Also it should be taken into account that the study took time in the middle of summer when usually a lot of people are out of home, some interesting sport events were happening at that time and we have concentrated only in strict centre of Ljubljana. The younger population was more willing to participate in the survey; among older some scepticism was present.

The test was implemented in limited extent while mobile phones with application suitable for interviewing are not common. We have done our study on specific mobile phones (Motorola V600) that are supporting the application we have prepared in co-operation with Adapta. The specific of Motorola and other similar mobile phones (we could say these are “advanced” mobile phones) is, that they are not widely spread among general population. Therefore it was not yet suitable to do a study on mobile phones owned by general population, but we have to use specific ones. We believe that in 2 or 3 years interviewing on “common” mobile phones would also be possible.

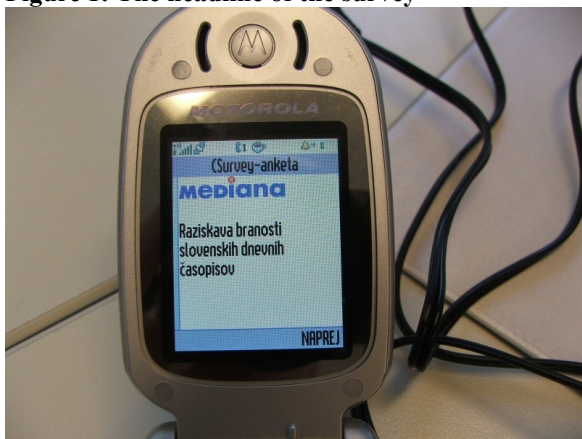
Another limitation that we have also accepted is that our sample could not be random.

5.3 Method and questionnaire

We decided to measure reach for all Slovenian daily newspapers with the same questions as used in Slovenian NRS. Recency method was used. The questionnaire used on mobile phones consisted of 30 short questions. 21 of them were about dailies media exposure and reading habits. The sequence of the questions was random; each media question was introduced by the name and graphical logotype of specific newspaper. The questionnaire also asked about mobile and stationary telephone usage, average duration was under 3 minutes.

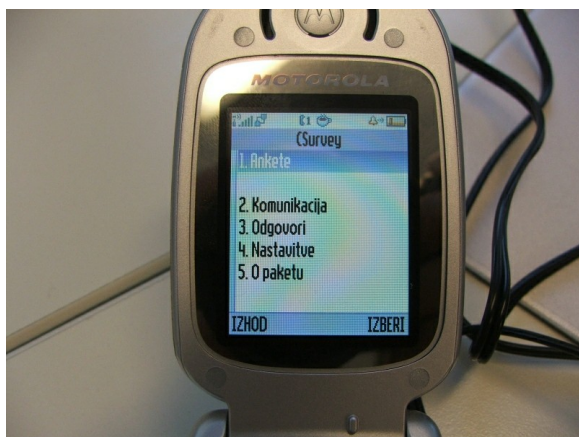
The interviewers choose the respondent by step-by-step and ask whether if he/she is willing to participate. In case of positive answer, the interviewer gave the respondent basic instructions how to use the mobile phone and gave over the phone to respondent. The respondent answered the questions solely; he or she was guided through the questionnaire by instructions on the mobile phone and if need with assistance of interviewer.

Figure 1: The headline of the survey



An application for mobile platform was developed by the company ADAPTA, an organization specializing in mobile and commerce informatics. The application was downloaded on each mobile phone through the Internet. This lasted approximately 10 seconds, together with installation of the application of approximately 1 minute. The responses were collected each day of the pilot and transmitted to Mediana’s server daily.

Figure 2: The initial window – how to download application and sent collected answers to the server



5.4 Results

Sample characteristics are as follows. The sample included 51 % of males and 49 % of females.

Table 7: Education level

	<i>Frequenc y</i>	<i>Percen t</i>	<i>Population Ljubljana*</i>	<i>in</i>
less than primary school	13	3,6		3,3
primary school	55	15,3		18,4
vocational school	38	10,6		21,1
secondary school	157	43,7		33,2
high school, faculty	96	26,7		24,0
Total	359	100,0		100,0

* Source: Statistical Office of the Republic of Slovenia.

Table 8: Age groups

	<i>Frequenc y</i>	<i>Percen t</i>	<i>Population in Ljubljana*</i>
10 to 29 years	207	57,7	30,2
30 to 50 years	103	28,7	36,4
50 to 75 years	49	13,6	33,3
Total	359	100,0	100,0

* Source: Statistical Office of the Republic of Slovenia.

Based on the data we have decided not to use weighting procedures. Sex and education level are in intervals of population parameters. Values of age variable were expected; more younger population.

In respect to our goals, the results are following:

- To learn how mobile technology works in print media research.

Mobile technology did an excellent job in our case. The time for download an application, although logotypes were used, was not taking a lot of time; just a minute to download and install the application. This was done by us. Already, a very user friendly application was prepared, but in future research we should give more attention to this issue. Data were transmitted to our server with no greater difficulties. Again this was done by our interviewers. And in future we believe that neither respondents would experience difficulties.

Our study concentrated only on 6 Slovenian daily newspapers. NRS in Slovenia includes 150 titles/logotypes! Currently this would represent a problem in mobile technology.

- To learn if respondents were capable of responding to questions about newspaper’s reading on a mobile phone.

To find out about the respondents’ reactions to use a mobile phone for interviewing we have gathered observation of our interviewers. Our interviewers reported that interviewees did not experience any concrete difficulties. Almost all knew how to handle the mobile phone; the way of interviewing seem very interesting to them. Some 10 % of respondents behaved differently. They were mainly having problems with small letters and desired interviewers assistance. Older respondents found it difficult to handle the mobile phone. The younger population seemed very enthusiastic about questionnaires on the mobile phone. Among reasons for refusals, time constraint was the most frequent.

- To learn if the willingness to co-operate in surveys with mobile phones is more appreciated than in telephone survey (response rate).

Our respondents do not prefer to co-operate in telephone surveys. Among 359 respondents, 53 % do not usually participate in telephone studies and 83 % of them said they would rather participate in mobile phone survey than in personal interview.

Results show that mainly younger population is not willing to participate in telephone surveys and majority (86 %) would prefer to be interviewed by mobile phone.

Table 9: Do you usually participate in telephone surveys?

	10 - 29 y	30 - 50 y	51 - 75 y
yes	45,9	48,5	49,0
no	54,1	51,5	51,0

Table 10: Do you prefer personal or mobile phone interviewing?

	10 - 29 y	30 - 50 y	51 - 75 y
mobile phone	86,0	81,6	75,5
personal	14,0	18,4	24,5

- To estimate the number of exclusive mobile phone owners.

Table 11: Mobile phone usage x fixed telephone usage

		mobile phone			
		less than 3-times a week	more than 3-times a week	total	
fixed telephone	less than 3-times a week	Count	13	120	133
		% horizontal	9,8	90,2	100,0
		% vertical	61,9	35,5	37,0
	more than 3-times a week	Count	8	218	226
		% horizontal	3,5	96,5	100,0
		% vertical	38,1	64,5	63,0
	total	Count	21	338	359
		% horizontal	5,8	94,2	100,0
		% vertical	100,0	100,0	100,0

90 % of respondents that use fixed telephone rarely are using mobile phone more than 3-times a week.

Younger group is using fixed telephone line less than older (51 to 75 years old). But they are using mobile phone more (96 %) than older ones (78 %).

Table 12: Frequency of fixed telephone usage

	10 - 29 y	30 - 50 y	51 - 75 y
less than 3-times a week	44,0	22,3	38,8
more than 3-times a week	56,0	77,7	61,2

Table 13: Frequency of mobile phone usage

	10 - 29 y	30 - 50 y	51 - 75 y
less than 3-times a week	4,3	1,0	22,4
more than 3-times a week	95,7	99,0	77,6

6. Conclusion

One of major issues in current print media research is the decline of response rates in traditional surveys (personal interviews, mail and telephone). Many print media researchers are taking into consideration online research methodology. The benefit is mainly in lower costs and time. But still there are some open questions left. Internet penetration is not yet universal – what is the coverage bias? In case of using panels – what is the response rate for a recruited online panel. In usage of mobile technology there are also limitations. The penetration is almost universal, but a problem exists mainly in non listed numbers. There is no way to obtain a random sample of mobile phone users, because there is no sampling frame for them.

Our pilot study demonstrated that the technology worked with some limitations. Further steps should be to expand the survey to a random sample by utilizing the facilities of mobile phones. Our suggestion is not to replace traditional print media research studies at the moment, maybe in 5, 10 or 20 years? But already it could be soon used to survey difficult to reach population segments. As Dillman, Phelps, Tortora, Swift, Kohrell and Berck reported in their findings, switching to a second mode of interviewing is an effective means of improving response. Therefore, why should not we use MASI for younger, mobile, or outgoing population in combination with traditional methods, already today? Similarly British NRS reported testing a self-completion questionnaire where it would prove difficult to obtain response by the standard face-to-face (CATI) method in London.

Crucial stages in development of interviewing methods are of course, PAPI – Paper and Pencil Interviewing, followed by CATI – Computer Assisted Telephone Interviewing and CAPI – Computer Assisted Personal Interviewing. Our experience shows, that CASI – Computer Assisted Self Interviewing is being used more and more. And the progress should be in MASI – Mobile Assisted Self Interviewing.

Innovation is also a subject in market research. In 2005 there are four big themes in Innovation in Market Research: looking, listening, touching and doing less research. Especially interesting is listening. Mobile phone research listens to the clients need to catch people we usually miss – people on the move!

We have to be flexible and adapt to respondents. Most of us do not want to be disturbed and interrupted by market researcher, but are prepared and willing to co-operate on our terms, when it is appropriate for us. As Finnish NRS proved, media consumption of mobile population differs very little from “fixed-line” population. We can still solve the problem of mobile population with weighting.

As Mattlin said (Mattlin, 2002) “it is not surprising that readership research would begin to turn to the Web as an interview mode”, it will also not be surprising to turn to the mobile phones. British NRS has been testing electronic self-completion questionnaire in London to reduce refusal levels. The Dutch NRS already uses CASI in print media research. The sample consists of 24.000 interviews per year, 20.000 is done on web and 4.000 face-to-face.

We would like to conclude with following thought: scientists at Boston Institute of Technology are testing mobile phones in research of individual’s social behaviour. Mobile phones are used as a tool to monitor behaviour of each individual 24 hours a day!

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