

Longitudinal online survey in well-being research: first experiences from CRO-WELL project

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Abstract

The aim of this report was to analyse positive and negative aspects of online administration of longitudinal well-being survey and to provide suggestions and guidelines for future research. The aim of CRO-WELL (Croatian Longitudinal Well-being Study) research was to follow well-being indicators longitudinally, on a large sample (N>5 000).

For the purpose of the research we developed online platform with integrated questionnaire to assess various variables related to well-being. Participants could assess the application via various browsers, and it was also adjusted for smart phones. "Friendly use" of the online application, understanding of questions and answering method, as well as ethical concerns, was tested using focus groups and individual trials. To enable matching the participants from two waves, every participant had to log in to the web page using his/her e-mail address. While e-mail address was protected by database, special computer-programme created token associated with each participant. A year after completing the initial questionnaire, participants were automatically invited to complete the follow-up. This paper brings review of designing and conducting a longitudinal research having in mind advantages and disadvantages of online survey.

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1. Introduction

With the development of Internet, web-applications and online tools, during the last 30 years, scholars recognized the Internet as useful and easily accessible platform to administrate research questionnaires and collect data in faster and less expensive manner.

There are many advantages of online questionnaires, but there are also some threats that we need to be aware of before choosing online method of administration. In the following section, we shall briefly compare traditional pen and pencil method of administration and new online method, and describe main benefits and shortcomings of both.

1.1. Advantages and threats of online surveys

Traditional surveys were conducted by a face-to-face method (individually or in a group) or by mailing participants questionnaires with the request to fill them in and send back (postal mail surveys). Online administration can target specific participants by e-mailing them a message including invitation and link to the survey web page, or it can be opened to everyone who encounters the survey web page. While in the first case target sample is predefined by certain characteristics, in the second case, the sample is self-selected. The second option enables researchers to advertise their survey via various media in order to attract more potential respondents, while in the first case sample is limited to the initially selected group. In both cases basic Internet literacy is needed, while researchers may pose some other specific restrictions (such as age).

1.1.1. Preparation of the survey

While the development of questionnaires (constructing or selecting instruments) for both traditional and online approach is similar, preparation for administration is usually easier for the traditional ones. Although nowadays there are many online tools that allow easy construction of online questionnaires, these are usually not suitable for more advanced research where various special functions are required. In such cases scholars have to develop unique software to endorse their questionnaire.

For traditional administration we need to print questionnaires, pay interviewers, provide envelopes or pay for the post mailing, and/or pay for the data entry. On the other hand, costs of administration are lower for online administration. Besides reducing the costs, online surveys reduce time and human errors related to manual data entering, as they automatically input data into database readable by data-analysis software, such as SPSS or Excel.

1.1.2. Administration and ethical issues

Online questionnaires are usually assessable by various devices such as computers, tablets or mobile phones. Therefore participant can choose to fill-in the questionnaire whenever it suits him/her best (e.g. while waiting for something, while in a public transport), which is either not possible or not convenient for paper-and-pencil surveys. Furthermore, online surveys may enable participants to pause responding and continue later, while it is usually not possible during face-to-face administration.

Regarding privacy and anonymity issues, online administration is considered less intimidating since there is no face-to-face contact between interviewer and respondent. Salgado and Moscoso (2003), compared online and paper-and-pencil versions of personality tests, and found that participants perceived the internet version as more comfortable, less intimidating and generally preferred it to paper-and-pencil testing.

1.1.3. Additional features of online questionnaires

Computer supported questionnaires allow researchers to apply "obligatory answers", solving problems with missing data which are very frequent in paper-and-pencil approach if administration is not individually guided by an interviewer. In online surveys, if a question is obligatory, participant will be alerted that he/she skipped a question, and not allowed to continue before he/she completes the task. Additionally, in both paper and pencil and online questionnaires researcher may use an option of randomizing order of questions to avoid possible order-related bias. While in paper and pencil form researcher needs to plan carefully and provide several versions of questionnaire, in online questionnaires, software can automatically and fast randomize order of questions among participants.

Computer supported questionnaires enable researchers to adjust further questions on the basis of previous answers. For example, if a person states that he/she doesn't have kids, application automatically skips all children-

related questions. While in traditional questionnaires this issue was solved by special instructions (e.g. if answer is “no” skip questions...), automatic re-directing in online surveys makes procedure easier for a respondent.

Computer supported surveys enable inclusion of various multimedia materials (such as photos, sounds or videos) into the questionnaire, which is either not possible or difficult in paper-and-pencil surveys.

1.1.4. Sampling and response rate

Researchers usually have better control over participants' selection when using traditional method, since they either directly contact selected participants, or apply questionnaires in groups such as work-place or classroom. In online assessment, there are two main approaches: (1) sending invitation by e-mail and (2) publically announcing the survey. Of course, these approaches can be combined, or invitations can be sent to a person who would further distribute them (e.g. among employees).

Singh, Taneja and Mangalaraj (2009) reported that the response rate of online studies that invited respondents using online forums was about 11%, while for e-mail invitation it was 4.2%. Because of such low response rates the authors suggested providing incentives to increase the number of responses.

1.1.5. Data quality and possible biases

There may be certain differences between data obtained using various administration methods. For instance, face-to-face contact may provoke more socially desirable answers (Tourangeau and Smith, 1996; Presser and Stinson 1998). On the other hand, interviewer might contribute to the quality of data by for example clarifying ambiguous items or maintaining motivation with long questionnaires (Bowling, 2005). It is only logical to assume that online administration of questionnaires might be less motivating and/or participant may consider survey as frivolous and respond accordingly. Salgado and Moscoso (2003) explored differences in Internet-based and paper-and-pencil personality testing. They found that there were no differences regarding distributions, reliability and factor structure. In well-being research, many research indicates that face-to-face administration results in higher estimations of well-being (e.g. Breunig and McKibbin, 2011; Conti and Pudney, 2011) suggesting that respondents present themselves in more positive light in direct contact. However, Dolan and Kavetsos (2012) studied well-being in the phone and by face-to-face

interviews and found that although correlation coefficients did not change as a function of survey mode, phone interviews were associated with significantly and substantially higher reports of well-being.

1.2. Longitudinal and Cross-sectional studies

There are two basic types of surveys: cross-sectional and longitudinal. The difference between the two is whether participants are examined only once (cross-sectional) or multiple times (longitudinal). Appropriate method depends directly on the proposed research questions. Cross-sectional studies enable scholars to study a phenomenon in a selected point in time, and to make comparisons between groups, or correlations among assessed variables. For example, cross-sectional study can explore current level of well-being in Croatia and differences between different regions. Cross-sectional study can also provide information about differences between various age groups, but these differences are not necessarily caused by age itself, but could also be affected by the cohort. Moreover, when exploring relationship between well-being and life events, cross-sectional studies can, for example, find positive correlation of occurrence of an event and general happiness, but cannot determine whether an event is a cause or a consequence of greater happiness.

Longitudinal studies follow the same people across time, and measure variables at various time-points. Therefore, longitudinal surveys track timeline of phenomenon. For example, longitudinal studies can reveal that participants who were happier in the first wave were more likely to get married or get a job in subsequent waves. Alternatively, longitudinal research can find that participants' happiness level increased after they got married or employed. Such findings would provide better insight into relationship of studied variables, than cross-sectional study which can only establish a relationship, but not the order of occurrence. Indeed, each wave of longitudinal study is equivalent to a whole cross-sectional research. However, longitudinal studies, compared to cross-sectional studies are much more time and resources consuming.

The biggest problem with longitudinal studies is attrition. While in the first wave longitudinal studies equal cross-sectional studies, in the following waves the number of participants unavoidably drops, due to many circumstances such as unwillingness to complete the survey or failure to locate a participant. This attrition usually ranges from 30% to 70% (Goodman & Blum, 1996; Miller & Wright, 1995). Attrition of the

participants not only reduces the sample, but also can deteriorate generalizability if participants who drop out are different from those who stay. Gustavson et al. (2012) reported that at one year follow-up, 17% of the sample had dropped out, while by the end of 15-year follow-up study 56% of the sample had dropped out.

1.3. Properties of longitudinal online surveys

Since cross-sectional studies are easier and quicker to perform, most of the research on well-being is cross-sectional. Online survey make longitudinal research easier, since it eliminates most of the costs related to administration of the questionnaires. However, when planning longitudinal online research, to ensure adequate number of participants in later waves, researchers should aim to recruit large number of participants because of higher likelihood for attrition in online surveys (Reips, 2013).

Issues of privacy and anonymity are always part of longitudinal research design since researchers need to examine the same person multiple times, and integrate data from different waves. Therefore, researchers have to identify each participants in subsequent waves, without jeopardize his/her anonymity. One way of identifying is by using codes that participants would generate themselves during the first wave. However, there is a risk of participants forgetting such codes. If participants are approached individually, in their home or workplace, their privacy is inevitably impaired. Online assessment provides partial solution to this issue since waves integration is conducted automatically by computer, so human interventions are minimal. Traditional paper-and-pencil longitudinal study with yearly waves on adult participants would require knowing participant physical address, which is considered as more infringing, than online research where participants are usually tracked by e-mail (Singh, Taneja & Mangalaraj, 2009).

Online longitudinal studies seem less obligatory and are less aggressive to the participant (although reminders are sent, no one approaches participants in person), so the drop-out rates are usually higher. For example, in the longitudinal study of online shopping (Limayem, Khalifa & Frini, 2000), only 50% of initial participants responded to second-wave in three months' time.

In summary, most scholars agree that, as long as adequate methodology is used and potentially biasing effects of technology are recognised; the Internet is valuable platform for conducting surveys in social sciences (e.g.

Joinson,?? McKenna, Postmes, & Reips, 2007; Schmidt, 2007). The purpose of this paper is to present development, implementation and first outcomes of an ongoing longitudinal online research designed to explore well-being and life events. In the following chapter we shall describe our experiences with development of online survey, methods of promotion and reinforcement, alarming system, response rate and properties of obtained sample.

2. Method

This online survey was designed for the purpose of Croatian longitudinal study on well-being (CRO-WELL), funded by Croatian Science Foundation. Approaching possible participants online, a four-year-long project aims to accomplish dual goal:

1. to examine the degree to which well-being fluctuates over time and whether patterns of well-being fluctuations are different for different types of people and
2. to examine whether well-being can be considered not only as an indicator of good life, but also as a precondition of positive outcomes and favourable life events.

In order to approach a large number of participants and to apply indefinite number of follow-ups, research team decided to implement a web-based survey, with open invitation to all adult users of internet. After completing the initial questionnaire, each participant receives annual invitation reminder to participate in follow-up by email. Most of the instruments remain the same through-out the waves with some changes. Final version of questionnaire was launched as a result of preparation process that can be divided into three stages: preparation of the questionnaire, testing online application and creating final version of the online application.

2.1. Preparing questionnaire and online application

Preparation of the questionnaire was done in several stages, and scales selected for the research were adjusted for the web application. Special attention was given to anonymity, ethical issues and reminder system.

2.1.1. Selection of questionnaires and adaptation for online application

Instruments and items were selected that needed to be implemented in order to gain even better insight in well-being of different citizens in Croatia. Table 1 lists all instruments that were used either for initial questionnaire or follow up.

Well-being was approached through several indicators:

1. The measure of life satisfaction as a global cognitive judgment of satisfaction with one's life, a single-item measure acquired from the European Social Survey Well-being module (Huppert et al., 2009). Satisfaction was rated using an 11-point scale. Additional question was to estimate how satisfied will they be with their life in a year time also using an 11-point scale.
2. The Happiness Measure Scale was used to examine the affective component of subjective well-being, a single-item measure where overall happiness is rated on 11-point scale (Huppert et al., 2009). Additional question was to estimate how happy will they be in a year time also using an 11-point scale.
3. Personal well-being index (PWI; Cummins, 1996) was used to assess satisfaction with various life domains. It contains seven items rated for satisfaction on 11-point scale. The scale was adapted for the purpose of this research: satisfaction with relationships was divided in two categories (friends and family) and four additional domains were examined (satisfaction with free time, work, physical appearance and love life).
4. Flourishing scale (Diener et al., 2009) was used to assess flourishing; an 8-item summary measure of the respondent's self-perceived success in important areas like self-esteem or purpose. Assessment is made using a 7-point scale.
5. The Scale of Positive and Negative Experiences (SPANE; Diener et al., 2009) is a 12-item questionnaire that was used to assess how frequent six positive and six negative feelings were experienced by the participant in the previous month using a 7-point scale.

Additional scales and instruments were also added:

1. Life events scale was constructed for purposes of the research based on the list of positive and negative events by Leist (?) and associates (2010). List contained 91 life events, divided into five categories: family, love and home (28 items); business and finances (21 items);

health (18 items); free time (13 items); legal system (11 items). Participants were asked to mark every event that happened to them in the previous year. For each event they have to specify how many times it occurred and when. Next, they were asked about positivity/negativity of every event and to rate on an 11-point scale its significance, level of influence a participant had on that event and predictability of the event.

2. Measure of Affect Regulation Strategies Styles (MARS, Larsen & Prizmić, 2004; Prizmić & Larsen, 2012) was used to assess affect regulation strategies. To original 6-item scale, four items describing various maladaptive consumption behaviour were added. Participants reported how frequently they used a specific behaviour to change their negative feelings on a 7-point scale.
3. Short version of IPIP (Goldberg, 1999) was used to assess personality. Instrument was adjusted for purposes of this research and 15 items were selected.
4. The Scale of Marital Satisfaction was developed specifically for this research. It consists of nine items, one general and eight specific, related to various domains of a marriage/relationship. Participants have to indicate their level of satisfaction with each specific domain using an 11-point scale from 0 “completely unsatisfied”, to 10 “completely satisfied”.
5. The Proactive Personality Scale (Bateman, Crant, 1993) was used to measure the inclination to take action and change the setting in order to achieve one’s goals. It is a 6-item scale rated on 7-point range.
6. The Duke-UNC Functional Social Support Questionnaire (DUFSS) was used to measure the level of social support. It is an 8-item scale, on a 5-point range (Broadhead, Gehlbach, de Gruy, Kaplan, 1988)
7. A Brief Version of Levenson’s Locus of Control Scale (Sapp, Harrod, 1993) was used to measure locus of control. It is a 9 item scale that measures Internal Control, Chance and Powerful Others.
8. Different demographic information was collected. Items could be divided into 4 groups: selection questions (age, gender), personal information (education level, work activity, income, monthly income, finance aid, tobacco consumption, alcohol consumption, illegal drugs consumption, nationality, religion, place of living, volunteer work, immigration plans, political views), household and family (income per family member, subjective financial status, marriage, type of

household, members of the household, children, invalidity of family member), health (subjective health, chronic disease, medication usage, personal invalidity).

Table 1: List of scales and instruments used in all three variations of the questionnaire

Scale		Pilot study	Initial questionnaire	Follow up
Well-being indicator	Happiness	+	+/-	+/-
	Life satisfaction	+	+/-	+/-
	PWI	+	+	+
	Flourishing	+	+	+
	SPANES	+	+	+
Life events	Life events	+	+/-	+/-
Additional scales	MARS	+	+	+
	IPIP	+	+	+
	Marital satisfaction	-	-	+
	Proactive personality	-	-	+
	DUFSS	-	-	+
	BriefLevenson's LOC	-	-	+
Demographic variables	selection	+	+	-
	personal	+	+	+/-
	household and family	+	+	+
	health	+	+	+

Source: Authors' own work

2.1.2. Design of the survey and associated web-page

Architecture of the whole system was entirely based on open code software and special attention was given to protecting personal data of participants on all levels. System consists of several interconnected parts: web portal for promotion of the research and attracting new participants, application for registration, questionnaire and alarm and reward system.

Survey was designed in Lime Survey program and it was associated to web page www.sreca.hr. Any participant was able to approach the survey either through the web page or he/she was directly invited via email. Once the email address was entered, system automatically assigned unique token to protect the address which could contain private data (name and/or surname if used in email address). The survey was designed to be friendly user and visual presentation was specially adjusted to suit appliances with different screen sizes.

During the design process, certain rules and survey appearance were taken into account. It was decided not to allow participants to move backwards while completing the survey to avoid changing the initially given answers. Due to the fact that participation takes certain amount of time, participants were allowed to stop and continue at some other points. Since most of the items required an answer, helping system was programmed to highlight skipped items, making participant less likely to drop the survey. In order to fulfil ethical standards, several items did not require an answer (e.g. residence) and some had "I don't want to answer" option (e.g. political and religious orientation). Regarding appearance, different answering modes were assigned to scales and items in order to make it less monotone and fatigue to the participant (e.g. slider, multiple choices, yes/no buttons). The Croatian language makes a distinction between genders, which makes a huge difference in grammar and word formulation. Therefore, the survey consisted of two versions: male and female. After the first question about age, each participant needed to declare him/herself as man or women and consequently one of the versions was applied. Question skip logic was used to navigate the answering process through the survey if certain scales or items were not applicable to the participant (e.g. impaired health) in order to save time for the participant.

Special attention was given to Life event scale. List of 91 life events was divided into five categories: family, love and home; business and finances; health; free time; legal system. Participants were encouraged to mark all events that they experienced in the previous year. After the last category of events, participants were asked if anything else significant happened to them other than what was already listed. If the answer was yes, participants were asked an open-ended question to write down that event. Next, all selected events were listed and the participants were asked to enter how many times each of the event occurred. Since it was not possible

to move backwards in the survey, at this point participants were given an opportunity to correct a wrong entry, by assigning zero to a life event that did not happen to them, but was marked by mistake. Finally, participants were asked to evaluate by choosing if the event was evaluated as positive, negative or both and to evaluate its anticipation and meaning on a scale from 0-10 using a slider. That sequence was repeated for all listed events. In case a participant experienced certain event on more than one occasion, they were given instruction to evaluate the one they consider as the most important one.

2.1.3. Developing system of protecting participant's anonymity

Since longitudinal research by its design invades privacy, additional effort was made to ensure anonymity of participants. Special programme was used to assign unique token to each participant and to remove email when downloading data from Lime Survey. Only two persons have access to information which token is linked to specific email (programmer and one member of research team) and they both signed a confidentiality agreement to keep personal information secret.

2.1.4. Development of reminding alarm and rewarding system

Registration is open for anyone who fulfils and accepts terms of use available on webpage. To be able to participate, one needs to provide a valid email. System then sends an email with thank note and questionnaire access link that is valid for seven days. In case a participant fails to use the link in that period, he/she needs to apply for a new one. System automatically sends a reminder on a third day. In case participant starts a survey but fails to finish, a system automatically sends two reminder emails with two weeks apart. One year after initial questionnaire was completed, system automatically sends an invitation reminder to participate in a follow-up: *"Dear Mr./Mrs., a year ago you participated in our CRO-WELL survey. Please join us again in this continuation. It would mean a lot to us if you decide to participate and all who complete the survey will participate in a prize contest. For access please use this link. Best regards, your CRO-WELL team."* In follow-up phases, system automatically sends reminder emails once a month to participants who failed to finish the survey.

In attempt to reduce the attrition of participants and attract new ones, rewarding system was developed. Every participant could enter recommendation emails at the end of survey and if 30 of their contacts

completed a survey, they would win a gift basket. Additionally, last question of the questionnaire is a kind of reward contest. Participants are encouraged to express what happiness is for them. The most original answer selected by research team members was to win a laptop. Similar approach is used in follow ups. Participants are encouraged to write down the happiest event in their lives. In this way, every year one participant will win a laptop.

2.2. Testing online application: Focus groups and interviews

The initial questionnaire was tested using focus groups and individual interviews with participants. Specific goal was to test understanding, adequacy, accessibility, efficacy and simplicity of on-line implementation of the questionnaire as well as to enquire participant's opinion of appropriate strategies to attract and inform citizens about the research and how to motivate them to participate. Anonymity and ethical issues were also discussed.

Total of 25 individuals participated in focus groups, age 25-71, 60% female (N=15). Prior to discussion, they were instructed to examine the web page of the project and then to complete the survey. They were given a protocol in which they could write down their observations and opinions. After completing the survey they were divided into three groups. Discussion was led by one of the researchers, while the other was taking notes and care of technical aspects. Pre-written protocol was used as guidance in discussion. All discussions were audio-taped as all participants agreed so.

Other part of pilot research was done using a method of individual interviews. Participants had the same task: review a web page, complete a survey and answer the same questions as from focus-group protocol. Interviewer's task was to monitor participant's reactions like how much time did they spent browsing, where in the questionnaire participant started to loose concentration, technical observations, notable remarks (e.g. unclear item). Interviews were performed with 22 individuals, age range 22-69, 36.4% female (N=8).

Participants needed between 16 and 134 minutes to complete the survey, with average of 46 minutes. Comments that were gathered in both pilot testing were very similar to one another, the only difference was that during individual trail, participants spent more time browsing the web page where the survey is situated. Predominant opinion was that the

survey is too long and fatigue, especially the part with life events. Participants had mixed opinions about answering forms, some preferred yes/no scales, some 0-10 scale, while some thought answering scale should be shorter (e.g. 1-5 like school grade). Participants also suggested to change some items and to make instructions for some scales visible at all time. Participants also stated that life events part of the questionnaire is the longest and most likely to become the reason of dropping the survey entirely.

Pilot study was also used to query participants' idea on effective promotion techniques and possible obstacles that might prevent someone from completing the survey. All participants agreed; it is less likely for men to participate, not only because they usually respond to surveys in lower rate but also because of the main subject of research (well-being, affective states). Prize giving contest was recognized as the most effective method in attracting participants, followed by promotion in various media.

Special part of the discussion was related to anonymity and ethical issues. Questionnaires were designed to reflect ethical standards set by Croatian Psychological Chamber (2004). Participants were asked what would they prefer and why: completely anonymous system or highly confidential system. Completely anonymous system would give responsibility to a participant to come up with a code and not to forget it until the next waves. In other case, someone from research team would have access to all data, but would be obliged to keep it a secret. Although participants stated that privacy is important to them, none of them thought that providing email would endanger their privacy. Regarding ethical issues, participants felt that some questions might be sensitive, but giving an option of "I don't want to answer" or skipping a question, is enough to avoid any ethical issues.

2.3. Final version of online application

Based on results of on-line testing and comments of participants, final changes were made. Since the biggest detected downfall was the length of the questionnaire, serious effort was made in making it shorter, having in mind the goal of the research and the need to cover all necessary constructs.

Final version of initial questionnaire contained 142 items and average time of completion was 30 minutes.

3. Results

The questionnaire was successfully launched in September, 2016 as it was planned by the research project. Ever since, acquisition of data was monitored and support was provided for participants in need. No delays were made in launching of the follow-up.

3.1. Responses

To be able to participate in the study, one needed to either self-register using a valid email or to be recommended by another participant. Either way, participant received invitation email containing link to a survey. Visible from Table 2, 82% of participants responded and most of them finished the initial questionnaire (88%). Only 12% of participants, who started the initial questionnaire, did not finish it. Although information on efficiency of reminder system is available only for sample of N=5034 participants, it is visible that majority of participants completed the initial questionnaire at once and no reminders needed to be sent.

Follow up is still active and so far invitations were sent to 81% (N=4208) of all participants that completed the initial questionnaire. Since we are sending invitations, one year after the completion of initial questionnaire, final information on follow up drop-outs will be available in autumn 2018. Based on current data, 36% of participants did not respond at all. Once started, 84% of participants completed the follow up questionnaire, causing drop-out rate to be only 16%. First reminder email was recognized by 21% of recipients, while second attracted only 8.3% of all 2nd reminder email recipients (table 2).

Table 2: Participant's responses to invitation emails and further reminders

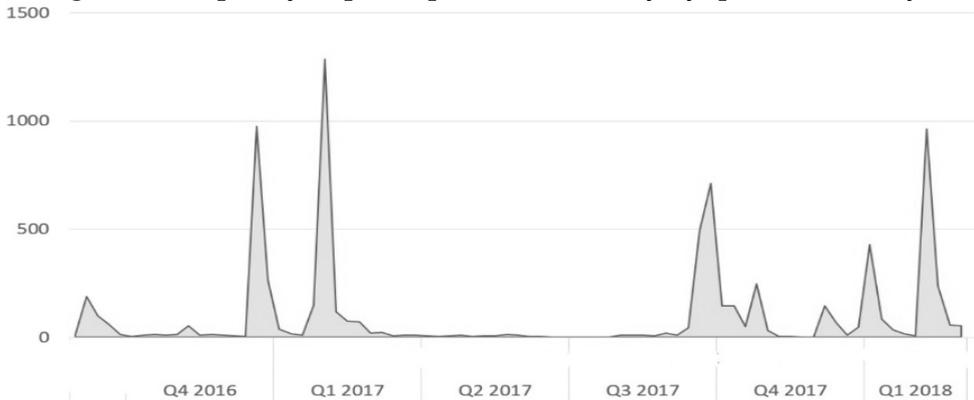
	Initial questionnaire	Follow-up
Invitation emails	7208	4206
Non-response rate	1304	1537
	5904	2669
self-registration	4842	N/A
	1062	N/A
Total N completed	5178	2246
Completed without reminder	5014*	1542
	1*	490
	19*	214
Not completed	726	423

*N=5034

Source: Author's own work

The main goal of the project promotion was to increase the visibility of the project in order to attract new participants. During winter 2016/2017 research team members participated in several television shows and gave interviews for newspapers and online portals. Results were also presented and conferences and several papers were published. Similar activities were made at the beginning of the follow up. Figure 1 shows analysis of number of participants by months since the initial questionnaire was launched. Number of active participants was higher during media exposure and dissemination of the results to scientific community.

Figure 1: Frequency of participation in a survey by quarters of the year



Source: Author’s own work

3.2. Solving participants’ complaints

During the entire time since the survey became active, research team was available for any kind of questions or comments. Most of the complaints were due to technical difficulties (Table 3) and 90% of it was from first month after the launch (N=27). Participant’s complaints were replied and any issue was successfully resolved within one day.

Table 3: Distribution of complaints sent by participants

Complaint	N
Technical issues	30
Automatic reply from office	11
Already participated	5
Request to remove email from mailing list	5
Ask for research results	2
Invitation to a TV/radio show	2
Total N	55

Source: Author’s own work

3.3. Achieved sample

According to Croatian Bureau of Statistics (2017), two thirds of Croatian households are equipped with ICT and broadband internet access and the usage of it is at a high level with the population up to the age of 54. Therefore, we expected participants to be younger and of higher education status than it would be in a nationally representative sample. Additionally, men were expected to be less likely to respond to surveys in general, and, especially to this one because of its main subject, as one of the focus group participant noted.

Table 4 shows basic demographic characteristics of our sample. The sample consists of predominantly women, younger, educated and living in urban areas. Only 2.5% of participants were of age 65+ at the time of completing follow up (N=55) with the oldest participant being 78 years old.

Table 4: Demographic characteristics of participants

		Initial questionnaire	Follow-up
N	Total	5177	2215
Gender	Female	3957 (76.43%)	1747 (78.87%)
	Male	1220 (23.56%)	468 (21.13%)
Age	18-35	2825 (54.57%)	1092 (49.3%)
	36-50	1626 (31.41%)	751 (33.91%)
	51+	726 (14.02%)	372 (16.79%)
Education	≤ high school	1923 (37.15%)	763 (34.45%)
	> high school	3254 (62.85%)	1452 (65.55%)
Area of living	urban area	4266 (82.4%)	1836 (82.89%)
	rural area	911 (17.6%)	379 (17.11%)

Source: Author's own work

4. Conclusion

Online questionnaires were designed and developed as part of the longitudinal research of well-being in Croatia. The research intends to follow-up yearly a sample of about 5000 participants. Based on available literature on online surveys and requirements of research topic, our intention was to design the survey that would reduce the problems and obstacles usually immanent to online research.

Prior to launching the initial questionnaire, pilot study was conducted. On the basis of pilot study results, the questionnaire was shortened and

certain questions were made easier to answer. Since privacy and trust are essential for the data quality in Internet based studies involving self-disclosure (Joinson et al., 2010), ethical and anonymity issues were closely examined. Final version of both initial and follow up questionnaire were approved by Ethical committee of Ivo Pilar Institute. Additionally, there were no complaints by participants during the pilot study or later, confirming that ethical standards were met.

Since research itself was intended to gather responses from adult internet users in Croatia, it was inevitably to obtain restricted (adult, understanding the language, internet users), self-selected (anyone meeting these requirements could join) sample. However, this is not the threat to the main purpose of the survey, since the aim of the research is to analyse relationships among the variables, and not to determine population parameters. Disproportion of participants occurred as expected, favouring young, women, educated, living in urban area. Smith (2008) provides a preview of research that show this is not an unusual outcome: less educated and affluent people are less likely to participate in surveys, as well as men and seniors. Therefore, special effort was made to attract men and seniors by announcing the survey in organisations and offices where predominantly men and/or seniors are (e.g. Military Academy, doctor's offices and senior clubs).

To increase the total number of respondents we also used incentives in a form of a prize giving contest. The prize was given to respondent who provide the most original definition of happiness (initial questionnaire) and the happiest event (first follow-up questionnaire). Special attention was given to promotion of the project, as we advertised the survey via various media (TV, leaflets, posters, social networks), but we also approached some organisations/companies (e.g. INA, Military Academy, universities) that shared invitations via e-mails or intranet to their employees/students. Members of research team were also active in giving interviews and being guests in various shows on national and local TV and radio stations, as well as in newspapers. We contacted various institutions (hospitals, public transport) to obtain the permission to leave promotional materials like posters and flyers. Analysis of frequency of active participants at certain point of time showed that after going public with results and information about project, number of participants raises which proved these actions to be a good tool for attracting participants.

We expected that non-response rate in initial questionnaire will be low, since one needed to invest some effort to register, and 18% of all registrations did not result with at least starting the survey. Possible explanation could be the procedure itself because several steps need to be taken before starting the survey. Attrition of participants that occurred with relatively high rate in the first follow up was expected. Interestingly, most of the participants who decided to complete the initial questionnaire, did it almost immediately and reminder system had little influence over total number of completed surveys in the first wave. On the other hand, reminder system added 31% to total number of completed follow up questionnaires. In order to ensure large and sufficient number of participants in future follow-up, survey stayed always open for new respondents as Rabbit et al (2004) suggested: "A typical practice in longitudinal investigations is not to recruit a single sample of participants who are thereafter followed until the study ends but rather to continue to recruit new waves of participants, at least throughout the early years" (Rabbit et al, 2004, pg. 84).

5. Recommendations

Future research could take these findings as guidelines in developing new online longitudinal research. In attracting more participants, using snow ball technique has proven to be quite successful. Regardless to the fact we did not measure accurately how media exposure contributed to enlarging the pool of participants, impact is visible. Dissemination of results to scientific, as well as general public, proved to be a significant asset to a success of the whole research project. Nevertheless, it should be noted that response rate is the highest at the begging of the survey, so additional promotion is needed to reinforce further responses.

Prize giving contests, are powerful tool not only in increasing the motivation of participants, but also in increasing the visibility of the project, making it more recognizable among possible participants. On the other hand, mass promotion in follow up phases seems to be pointless and difficult as it needs to target specific group which can find these efforts to be intruding. Public prize giving that would contribute to the visibility of project, might lead to a feeling of importance among participants, making them stay loyal to the project and repeatedly come back to fulfil the next wave.

Although some sort of coding system must be applied in longitudinal research, adjustments in registration procedure should be taken into consideration. Possible reason of dropping out is complexity of registration as it might be time consuming for the participant. Improvements in this area would probably lead to lower non-response rate.

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