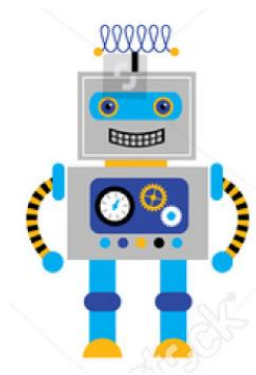


Tips en tricks for online studies

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1. Introduction

FPN makes extensive use of online studies and this has great advantages, but there are also risks involved. This document provides tips and tricks that researchers and students can use and possibly help to carry out online studies in the safest possible way and to detect contaminated data. This document provides tools to make the right choices since the phenomenon of BOTS has emerged. BOTS are computer programmes to fill in questionnaires on a large scale in online studies with the aim of collecting as many rewards as possible. However, BOTS also occurs in online studies where there is no reward for participation. It costs the researcher a lot of money if BOTS is not detected and worse, it contaminates the research data with serious consequences.

It is important that both researchers and students are aware that BOTS can occur within online studies, especially when recruiting via Social Media. Online recruitment is still possible, and when specific conditions are met, data contamination can be avoided as much as possible. If you want optimal certainty about the reliability of your data, direct contact with your participants is the only route, but is costly in time and effort. On the other hand, detecting research data for potential BOTS is also time-consuming and provides in the end less reliable data.

There will always be new developments around BOTS, so the document will need to be updated with new tips and tricks. Therefore, please inform us whenever new tips and tricks are discovered, so we can add them to this document. In this way, we can help each other to prevent as much BOTS as possible or detect potential BOTS in the data.

Send an email (also for questions) to: fjn-onlineresearch@maastrichtuniversity.nl

2. Tips and Tricks

2.1 Procedures online recruitment

Below are several procedures of online recruitment where the chances of BOTS are very minimal. The advantages and disadvantages have also been carefully considered. In general, it can be said that it will cost more time and effort for both the researcher and the participant. For the participant it is true that "just joining a study" has become less easy due to the extra rules: longer participation process and giving away personal information. This may discourage people from participating in research and cause the researchers to miss out on potential participants. On the other hand, before consenting to participate in research, people are extensively informed about the research including the burden of participation. If people then choose to participate in the study, the chance of commitment from participants is larger.

Hybrid online recruitment:

Interested participants will contact the researcher via e.g. an email message. Before the online questionnaire is completed, there is personal contact with the participant via Zoom, Teams, etc. A predetermined question in the online questionnaire is asked/passed to the participant. The participant fills in the answer that is verbally determined/passed on. For example, a unique subject number. In addition, a unique link for the questionnaire completion can be sent via email.

Advantage:

- Three control moments: the participant's email address, the correctly given answer in the questionnaires and the unique link sent.
- More chance of commitment.

Disadvantage:

- Costs more time and money.

Online recruitment where inclusion and exclusion criteria are important:

Have the participant fill in a screening questionnaire online, including asking for contact details (email address/phone number) so that the participant can be contacted by telephone to go through the screening list. Making/confirming the telephone appointment via email.

Advantage:

- Three verification moments: the participant's email address and phone number. Verification by telephone of the answers given in the screening questionnaire.
- More chance of commitment.

Disadvantage:

- Costs more time and money.

Online recruitment where only the phone number is asked for:

A unique code is sent to the participant via an SMS message including a text message. This code is needed to log into the questionnaire.

Disadvantage:

- If no telephone contact is made with the participant, BOTS can still take place despite the unique code and the link sent via the text message.
- The text message can be seen as fishing by participants and they will not respond to it.

- Sending text messages costs time and money

Conclusion:

This option is possible, but the participant will still have to be contacted by telephone first.

Requesting address data:

A letter containing a login code with a corresponding link is sent to the participant.

Advantage:

- The log-in code and link will arrive at the participant's home in person.
- In case of doubt, address details can be verified (also ask for the postcode if the country of origin uses postcodes).

Disadvantage:

- Costs time and money

2.2 Tools for filtering data/checking for BOTS

When a participant has fallen into (several of) the 'pitfalls' below, conclusions can be drawn from this. If the design of the study takes this into account, filtering for suspicious subjects can be done more efficiently if it is based on the 'pitfalls'.

- **Build in control questions:** Researchers/students could build in control questions when designing their online study so that filtering is simplified afterwards. This measure does not stop BOTS, but it does make it easier to extract BOTS from the data set in retrospect.
- **Ask the same control question twice at different times.**
- **Honeypot questions:** a question that is invisible to the participant. The participant does not see it in the browser and will leave it open. Some BOTS, who only look at the source code of the page, will answer this question.
- **Add simple check questions** to check whether the participant has actually read/watched the instruction, case study, video etc. so that it can be assessed whether the participant has paid attention.
- **Timestamps:** By recording times, such as the start of the questionnaire, the end of the questionnaire, etc., patterns can be recognised. Is the questionnaire filled in unrealistically fast/slow? Are the start times of many participants exactly the same? Etc...

- **Open questions with attention and/or logic checks:** Give specific instructions in the question. A BOTS will not understand these instructions, an answer that they must fill in literally for example: *How many pieces and what kind of fruit is in this fruit bowl?*



- **Indicate forced responses** in Qualtrics. This seems logical but is not always done in practice.
- **Using time delays;** making the 'next' button appear only after a minimum amount of time. Especially when reading instructions, watching videos or listening to fragments. It is probably also possible to have Qualtrics continue only when a video has ended.
- **Prevent attention diminishment when participants have to watch a movie for a long time.** To prevent people from doing something else in the meantime, they have to press a button within 5 seconds as soon as a symbol appears on the screen. In this way, the researcher can also check whether people are still paying attention.
- **Have questionnaires tested in advance by independent persons.** The purpose of this is to look for weak points and where participants could "cut corners". Preferably not only have friends or family test the questionnaire, as there is a good chance that people are testing with good intentions. Critical evaluation is important in this phase.
- **Consult:**
<https://www.psychstudio.com/articles/BOTSs-randoms-satisficing/>

2.3 Assessing research data for BOTS

When research data is checked for BOTS, it is advisable to categorize the data in:

- **Green**= Data is clearly not contaminated and therefore a real participant.
Action: data is usable.
- **Orange**= there is doubt about infected data so doubt about the authenticity of the participant.
Action: try to contact participant by phone. If no contact is made: data is not usable.
- **Red**= data is infected so no real participant.
Action: data is not usable.

Tips and tricks on checking data:

- If the design is adjusted as described in 2.2, assessment of contaminated data can be done in a more efficient and reliable way.
- Frequent and consecutive completion of questionnaires at odd hours.

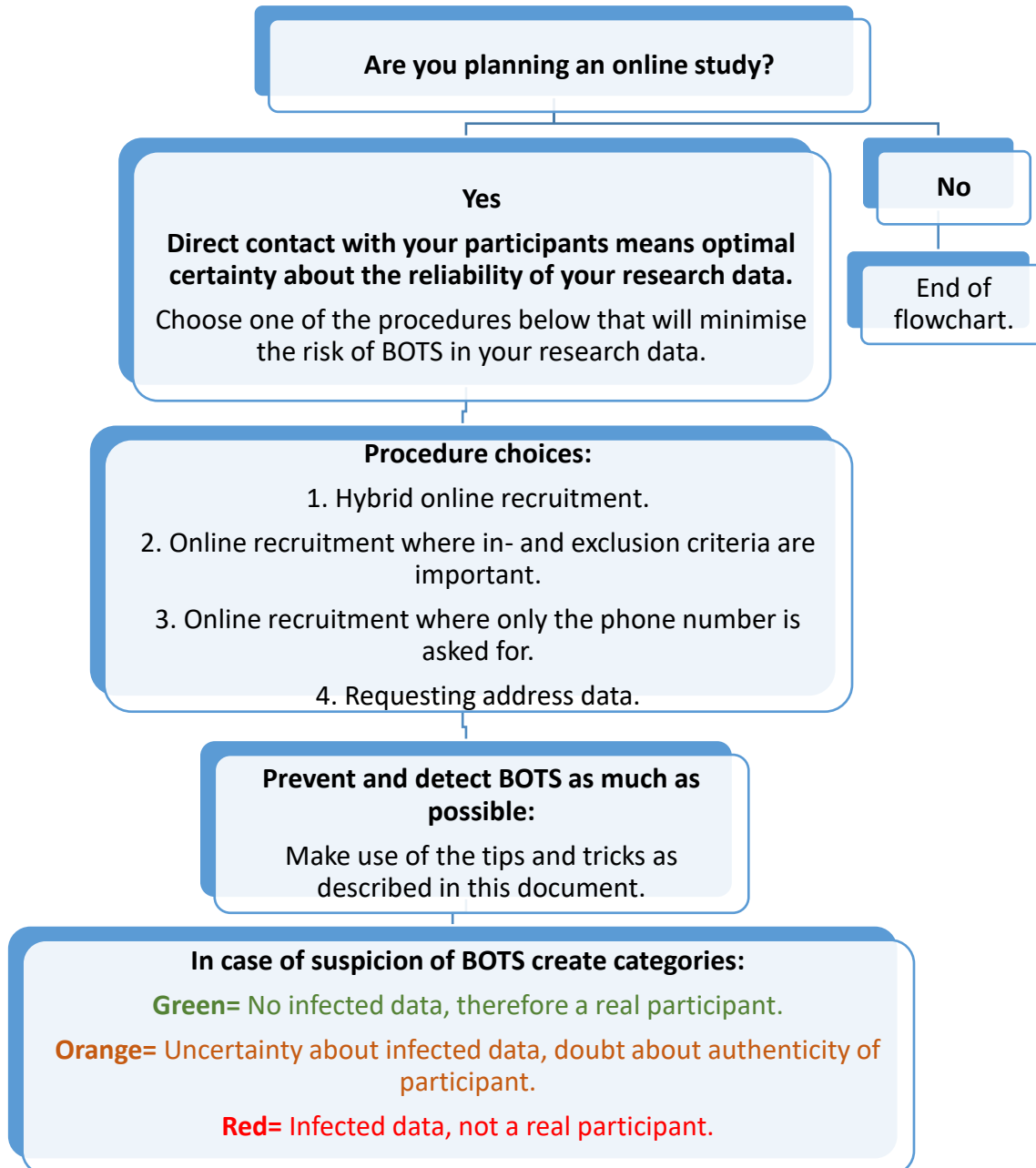
- Strange email addresses, which does not necessarily mean a BOTS, but might be worth checking.
- Check the authenticity of the address details provided. Always ask for the postcode if there is one. The purpose of this is to check the authenticity of the address details.
- If in doubt, try to contact the participant by telephone.
- Check for irregularities, e.g., always the same answers, too quick responses, etc.
- In general, when possible, using a captcha can reduce the chance of BOTS.

3. Recommendations

1. If BOTS has struck, an independent party should detect the data on possible BOTS participants. The contaminated data should be saved so that there is no misunderstanding afterwards about the choices made. Subsequently, the researcher should describe why and which choices were made to mark data as contaminated.
2. If students make use of online recruitment as described in 2.1, it could be an option to deploy a pool of students for one study. The tasks can then be divided among them, which also means it takes less time for them. In addition, it also has an educational function: doing solid research that starts with the reliable recruitment of participants.
3. It is recommended to distribute the experiments via SONA. The test subjects have a SONA account in order to participate.

4. Appendix

4.1 Flowchart



4.2 Useful sources

- **BOTs & online studies in general:**

<https://behavioralscientist.org/how-to-battle-the-BOTs-wrecking-your-online-study/>

<https://www.psychstudio.com/articles/BOTs-randoms-satisficing/>

- **Captcha: Hard for Humans, Easy for BOTs**

<https://www.perimeterx.com/resources/blog/2020/captchas-hard-for-humans-easy-for-BOTs/>

<https://datadome.co/BOTs-detection/recaptchav2-recaptchav3-efficient-BOTs-protection/>

- **Qualtrics Fraud detection**

<https://www.qualtrics.com/support/survey-platform/survey-module/survey-checker/fraud-detection/>

- **Google captcha**

<https://developers.google.com/recaptcha/docs/v3>

- **How to bypass reCaptcha**

<https://www.anura.io/blog/captcha-and-recaptcha-how-can-you-bypass-it>

<https://www.youtube.com/watch?v=wsDRkAD6IPs>

4.3 Guidelines for rewarding participants in online studies

Participants, who take part in FPN on line studies, are typically rewarded with online vouchers. Please take notice of the following guidelines for using vouchers as participant's fees. These guidelines are relevant for (1) ordering vouchers and (2) ensuring the privacy of participants.

Dutch vouchers

You can order the vouchers listed below via the secretary of your department at the central UM-purchasing department (afdeling Inkoop).

- Online VVV-vouchers (valid in Dutch stores only). **Minimum order value 500 euro.**
- All other vouchers listed at www.cadeaubonnen.nl/cadeaukaarten (valid in Dutch stores only). **No minimum order value, minimum voucher value 10 euro.**

Vouchers for other countries

For participants who reside outside The Netherlands, VVV or Bol.com vouchers have no value. In this case, you may order Amazon vouchers from the relevant country store of your participants (e.g., amazon.it, amazon.de). You can order and pre-finance these vouchers yourself and have the costs reimbursed. Important: make sure that you keep the digital proof of payment- the invoice.

Obtaining participants' details and privacy regulation

When you provide your participants with vouchers, Dutch tax regulations and accountant rules prescribe that you gather the following information: name, address (and e-mail address if you want to send a digital voucher), date of birth. The UM accountant actively controls whether these details are gathered. Therefore, please make sure that each participant provides you with his/her details. Important:

- Store this personal information in the P-folder of the relevant research project at the RDM folder
- Send the details (name, address) to Finance (um-crediteuren@maastrichtuniversity.nl), when your data collection is complete and you have reimbursed your participants. Delete the list with participants' name and address details a month after sending the list to Finance (it is wise to keep it for a few weeks because sometimes, something goes wrong).