TOOLS FOR ONLINE DATA COLLECTION

Rémi de Fleurian - r.defleurian@qmul.ac.uk

Queen Mary
University of London

REFERENCE

- Woods et al. (2015), Conducting perception research over the internet: a tutorial review. PeerJ 3:e1058.

ONLINE RESEARCH

Pros:

- Wider and more representative sample
- Less bias from researcher-participant interactions
- Ecologically valid
- Time-efficient
- Cheap
- Possibilities for cross-cultural research

Cons:

- Control over experimental conditions (hardware, calibration, setting)
- Researcher supervision and data quality
- Computer-literate, better educated participants
- Limited to delivery of visual and auditory stimuli
- Limitations in precise stimulus timing and reaction times
- Limited options when deploying tests online
- Ensuring unique participants

TOOLS

Table 3 Popular online research platforms, their main features, strengths and weaknesses, as reported by their developers. Survey conducted through Google Forms, on 13-3-2015, which is not listed in the below table on account of being mostly questionnaire-focused and thus 'neutral territory' for responders.

		JsPsych	Inquisit	LimeSurvey	~~ScriptingRT~~	Qualtrics	SoPHIE	Tatool	Unipark	~~WebDMDX~~	~~Xperiment~~
Open-source		yes	no	yes	yes	no	citeware[a]	yes	no	no	yes (in beta)
Yearly Fee for one researcher (USD)			1495			?[a]	?[b]		138.12		
Publish directly to crowd sourcing sites[c]		no[d]	with addons[e]	no	no	MTurk	yes	yes[f]	no	no[g]	MTurk, ProlificAc
Questionnaire vs Perceptual Research focus (Q vs R)											
Coding required for	Software setup	yes	no	no	yes	no	no	no	no	no	yes
	Creating a study	yes	script based	no	script based	no	no	no	no	script based	script based
Possible trial orderings	Random	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
	Counterbalanced	yes	yes	no	no	yes	yes	yes	yes	yes	yes
	Blocked	yes	yes	yes	no	yes	yes	yes	yes	yes	yes
Reaction times measurable in*		ms	ms[h]	ms[i]	ms	ms	ms	ms	ms	ms[h]	ms
Image, sound & video stimuli*		yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Notes.

* Suffixed rows requested by reviewer/data not provided by developers.

[a] Many academic institutions have licenses with Qualtrics already. Individual academic pricing was not disclosed to us and could not be found via search engines. Note also that some features (e.g., *De Leeuw (2014)* more advanced randomization) may require a more expensive package.

[b] "Free as CiteWare, Commercial Hosting Service from SoPHIE Labs (950 USD/year)".

[c] Although all platforms let the researcher provide a URL where the participant can undertake a study, some crowd-sourcing sites need to communicate directly with the testing software in order to know, for example, whether the participant should be paid.

[d] "None directly; but it can be used to publish on any platform that allows for custom JavaScript and HTML content".

[e] See http://www.millisecond.com/support/docs/v4/html/howto/interopsurveys.htm.

[f] "Any crowd sourcing site that allows an external link to Tatool to run an experiment (no login required)".

[g] "It uses an HTML POST command so pretty much anything, depends how skilled you are. We provide a site running a general purpose script to gather data and email it to experimenters should people not be in a position to setup a site to gather the data".

[h] As discussed in the text, both these packages run outside of the browser and thus likely to more reliably and more accurately measure reaction time.

[i] This was a topic of contention amongst our reviewers. However, as LimeSurvey is extendable with packages such as http://www.w3.org/TR/hr-time/, timing accuracy within this framework is quite on par with other browser based frameworks.

Woods et al. (2015), Conducting perception research over the internet: a tutorial review. PeerJ 3:e1058.

TOOLS

	Qualtrics	Google Forms	SurveyMonkey	PsychoPy	Ibex	Dallinger	~~webDMDX~~	Inquisit Web	LabVanced	jsPsych	psiTurk + jsPsych	~~Pushkin~~
Free	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Open-source/customizable	No	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Graphical User Interface	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes
Scalable	Yes	No	No	No	No	Yes	NA	Yes	Yes	No	No	Yes
Required Platform	Qualtrics	Google	SurveyMonkey	No	No	No	AMT	No	No	No	AMT	No
Social Media	No	No	Yes	No	No	Under development	No	No	No	No	No	Yes
Display Video	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Present Audio	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reaction Times	No	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Eye tracking	No	No	No	No	No	No	No	No	Under development	No	No	Yes
Record Audio	No	No	No	No	No	No	Yes	No	Under development	No	No	Yes
Randomization/Counterbalancing	Limited	No	Limited	Limited	Limited	No	Limited	Limited	Yes	Limited	Yes	Yes
Multi-subject interaction	No	No	No	No	No	Yes	No	No	Under development	No	No	Yes
Contingent Qs	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Under development	Yes	Yes	Yes
OED	No	No	No	No	No	Yes	No	No	No	No	No	Yes
Active Learning	No	No	No	No	No	No	No	No	No	No	No	Yes

http://l3atbc.org/comparisonTable.html

TOOLS

Other options:

- OpenSesame (not available yet for online studies)
- Concerto (some limitations)
- psychTestR (early stage)
- SoSci Survey (better conditional logic than Qualtrics)

Best options:

- Quick and easy: **SoSci Survey**
- Timing-dependent: **jsPsych**
- Computationally complex: **psychTestR**

RECRUITMENT

Mechanical Turk:

- ~ 100k users
- ~ 75% US, ~ 16% India, ~ 1% Canada, ~ 1% UK
- ~ 50:50 female:male
- psiTurk as a wrapper for MTurk?

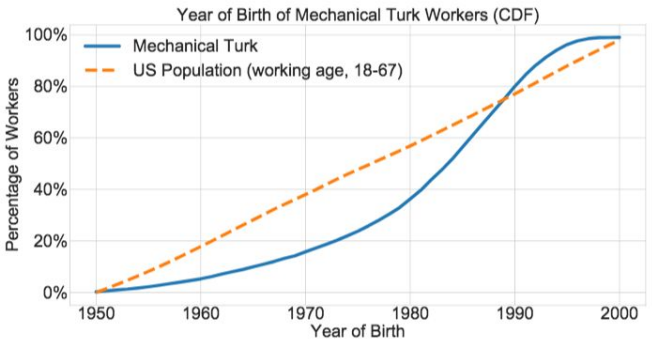
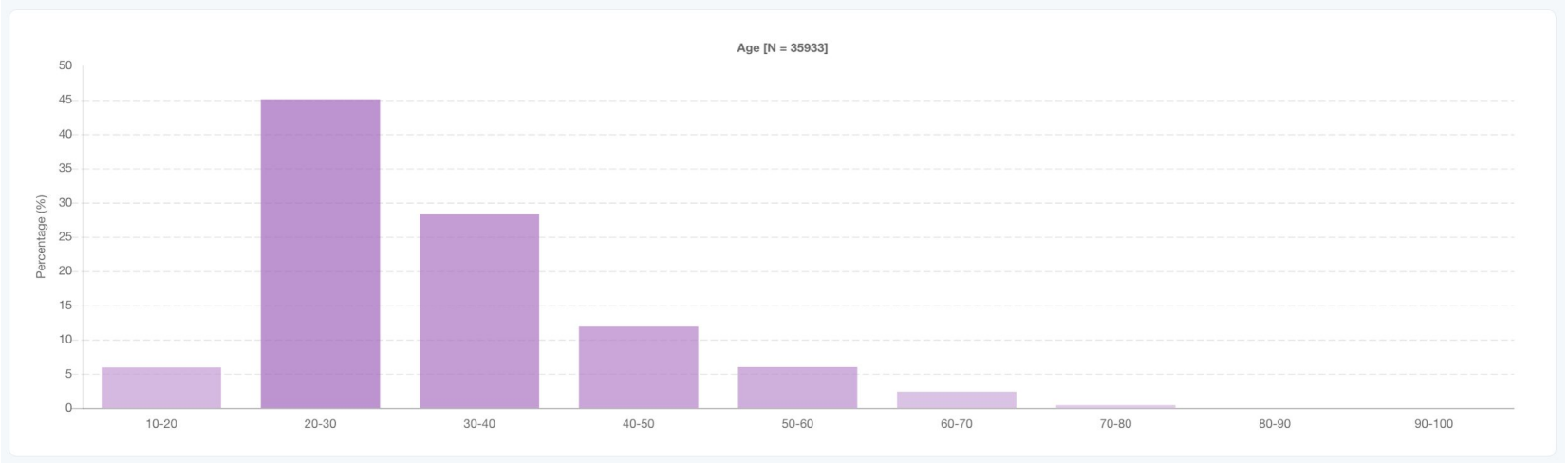


Figure 5: Year of birth.

Prolific:

- ~ 37k users
- ~ 50% US, ~ 30% UK, ~ 3% Canada, ~ 2% Portugal
- ~ 60:40 female:male



CONCLUSION

Larger sample size and broader diversity most likely make up for lack of control, so conducting tests online should be considered when applicable, as a useful tool to complement lab-based research.

Woods et al. (2015), Conducting perception research over the internet: a tutorial review. PeerJ 3:e1058.

Discussion:

- Thoughts on pros and cons of online research?
- Any good tools or recruitment platforms that weren't mentioned?