

# モバイルリサーチにおける課題

## —世界および日本において、モバイルリサーチが示す試みと機会—

Issues for Mobile Research: The Challenges and Opportunities Presented by Mobile Research, Globally and in Japan

レイ ポインター  
Ray Poynter

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### 〈要旨〉

本稿では、モバイル機器を利用する研究者が直面する6つの重要な課題について検討する。(1) モバイルの定義、(2) モバイルリサーチの必要性の検証、(3) モバイルリサーチの利用によって生じる変化の主要部分、(4) 調査の妥当性の検討、(5) 市場調査および社会調査における倫理的影響の主要部分、(6) モバイルリサーチの次の段階を推測する。さらに本稿では、なぜモバイルリサーチが主にスマートフォンに関係があるのか、またモバイルリサーチが最も頻繁に使用されるのは、調査対象者が自分のモバイル機器でオンライン調査を行うときであることを明らかにする。スマートフォンの主なメリットは、まず、人々が1日24時間、週7日、365日所有していること、画像やビデオに容易に記録できること、位置情報などを受動的に記録できること、また、地理位置情報の利用などリサーチに新しい機能が引き起こされる可能性があることである。本稿では、メッセージングの活用など、モバイルリサーチが近い将来にどのように発展するか、いくつかの予測を提起する。

This paper examines six key issues facing researchers using mobile devices; specifically, it (1) defines mobile research, (2) explores whether mobile research is necessary, (3) highlights the changes resulting from the use of mobile research, (4) discusses the relevance of surveys, (5) highlights the ethical implications of market research and social research, and (6) speculates what is next for mobile research. Furthermore, the paper explains why mobile research is primarily related to smartphones, and that the most frequently used feature of mobile research is participants who choose to take online surveys on their mobile devices. The key benefits of smartphones are as follows: people have them 24-hours a day, 7-days a week, 365-days a year; smartphones facilitate the capture of images and videos; they can capture passive data such as location; and research activities can be triggered in new ways such as geolocation. Finally, the paper presents a number of predictions concerning how mobile research will develop in the near future, for example, using messaging.

## 1. Six key issues for mobile research

This paper looks at the issues facing researchers interested in utilizing mobile research, and identifies six key issues that need addressing.

Before looking at what the six issues are and why they are the key ones, it is important to define what we mean by issues. If we consult the OED (Oxford English Dictionary) we find that it defines 'issue' as "*An important topic for debate or resolution*". An issue is not the same as a problem. However, an issue that remains unresolved can easily become a problem – hence the need for debate and resolution.

Mobile is an important topic, for academic, social, and market and social researchers. For example, a search on Google Scholar, using the Boolean search term 'Mobile AND Survey' for academic papers since the beginning 2017 provides about 128,000 hits. The published papers cover a wide range of topics such as:

- Participation in mobile app studies (Annette, 2017).
- Mixed devices in online studies (Bosnjak, 2018).
- Effects of mobile versus PC web on survey response quality (Antoun, 2017).

This deluge of published papers reflects both the growing importance of mobile devices and the challenges created by the use mobile phones for online surveys, app-based surveys, CATI with mobile, and mobiles used with face-to-face interviewing.

This paper identifies and addresses six key issues.

1. What is mobile?
2. Is mobile necessary?
3. What does mobile add and what does it take away?
4. Are surveys still relevant?
5. What are mobile ethics?
6. Where next for mobile?

This paper will address each of these six issues, and set the stage for an ongoing debate and for the resolution of issues.

## 2. What is mobile?

At the heart of mobile research in 2018 is the smartphone, especially those phones using the Apple or Android operating system.

In the context of market and social research the term mobile sometimes refers to 'feature phones' (phones with fewer features than a smartphone). The term mobile sometimes refers to tablets and occasionally to other devices such as smart watches. However, the central device at the heart of mobile research is the smartphone, and this is likely to remain true for at least the next few years.

At the most general level, mobile can refer to anything that is not fixed, including laptop personal computers. However, when researchers talk about mobile research, they tend to be referring to devices that;

- people have with them all the time,
- can connect to the internet,
- can support surveys, video, photography and apps.

Smartphones are unique in matching all three of these criteria.

One of the best sources of information about the growth of mobile devices internationally is the ITU. The ITU, the International Telecommunication Union, is a specialized agency of the United Nations). The ITU (2017) shows that by 2017 there were almost 4 billion active mobile broadband subscriptions (globally), which suggests that over 50% of the world's population have access to a mobile device connected to the internet – and most of these will be some form of smartphone.

Mobile devices are used in a number of different ways by researchers, including:

1. Online surveys completed by participants using mobile phones.
2. App-based surveys.
3. Non-survey 'active' options, such as collecting images, videos etc.
4. Non-survey 'passive' options, collecting information via the mobile device, for example app usage, location, and movement.

In terms of the market research industry, the largest of these four (at the moment) is the first one, online surveys completed by participants using mobile phones (ESOMAR 2016). Different sources produce different estimates of the proportion of online surveys completed by participants using mobile devices, but the numbers are large. For example, ESOMAR produces two estimates 37% and 30% (ESOMAR 2018a & 2018b).

In terms of surveys completed on smartphones we can think of a continuum that runs from Mobile Incompatible, to Mobile Possible, to Mobile First, to Mobile Only.

Mobile Impossible tends to refer to studies that require large screens, dexterity on a large screen, and/or the use of features hard to support on a mobile, such as Virtual Reality. Unfortunately, Mobile Impossible also refers to surveys where the design and/or scripting means that they are not compatible with smaller devices, i.e. unintentionally -Mobile Impossible.

Mobile Possible refers to studies where a participant using a smartphone might be able to complete the survey, but where the experience is sub-optimal. For example, if the design of the survey means that participants have to scroll left-right and up-down on a smartphone (but not on a computer screen) then the survey experience will be very different across devices – and the survey could be described as Mobile Possible.

Many modern survey platforms have an option to make surveys ‘mobile compatible’. However, unless researchers ensure that the survey is properly designed for mobile the result risks only being ‘Mobile Possible’. Survey platforms cannot, by themselves, create surveys that work well on mobile devices. To create a good mobile survey experience, the researcher needs to ensure that instructions are short and intuitive, that scales are short, that answer lists are short (in terms of number of items and the length of text of the answers), and that options such as rank and drag-and-drop are avoided.

Mobile First is tending to replace the terms like Mobile Friendly and Mobile Agnostic. Mobile

Friendly referred to surveys that worked well on mobile devices, and Mobile Agnostic were surveys that in theory worked equally well on computers and mobile devices. The term Mobile First has risen to prominence because experience has taught the research community that the best way to achieve a survey that works equally well on both mobiles and computers is to start by thinking mobile (York, 2017).

Data from the international online access panel company Research Now (York, 2017), shows that many surveys that are being used commercially are not, in terms of mobile research, fit for purpose. Research Now had a scoring system where they assess the mobile suitability the surveys from their clients. The figures they reported were:

- Mobile Incompatible 29%
- Mobile Possible 23%
- Mobile Friendly 33%
- Mobile Optimized 15%

One of the key concerns from these findings was that the figures for 2014 and 2015 were very similar, i.e. about 50% of commercial market research studies using online surveys were not suitable for mobile devices.

Mobile Only refers to research where one or more features of the mobile are required, for example always being available, or using GPS tracking, or taking video during the working day. Two key areas of growth in Mobile Only research are: video and ‘in the moment’.

There has been an explosion in the number of apps and services allowing brands and researchers to collect video as part of their project (for example Voxpopme and Watch me Think) and services that help curate and process video (such as Living Lens). The initial impact of video was in qualitative research, but the next trend is likely to be the quantitative analysis of ever-larger collections of video. Because smartphones are with people 24/7 and because they are sophisticated multimedia devices they are well placed to facilitate video-based approaches.

In the moment research refers to techniques that seek to avoid the problems created by relying

on participants' memories. For example, in the moment approaches would seek to evaluate journeys at the point of arrival, evaluate shopping immediately after paying, evaluating meals immediately after leaving the restaurant. Because smartphones are with people 24/7, because they are connected to the internet, and because they can be triggered via options such as location, they are the ideal device (indeed the only device) that can support and promote in the moment research.

### 3. Is mobile necessary?

Yes, mobile is necessary, almost everywhere in the world. It is necessary for online surveys, for CATI, for face-to-face surveys, for mobile only surveys, and for a growing range of qualitative projects (for example participatory ethnography).

In terms of online surveys (and in terms of CATI studies) failure to facilitate mobile results in samples that are systematically biased. Studies have shown that even the demographic differences between an online sample and a mobile sample are eradicated (e.g. income, education, age, etc.) there are still differences in attitudes and beliefs. (Poynter et al, 2014).

These points can be highlighted by examples and statistics relating to mobile market research.

In the United States, perhaps the most respected social research organization is the Pew Research Center, by 2015 Pew were targeting 75% of their CATI interviews to be via participants' mobile phones, to ensure they collect representative samples (York & Poynter, 2017).

As long ago as 2014, it was estimated that 20%-30% of all online surveys were completed from a mobile device (Poynter et al 2014). The figures since then have increased, partly because of participant choice, partly because of the growth of mobile-only households.

Research by ESOMAR (2016) indicates that 86% of agencies who conduct face-to-face research use mobile devices (typically smartphones and/or tablets) during data collection.

If researchers wish to contact representative samples, then, for most populations, it will be necessary to include data collection via mobile devices. If research focuses on other devices, such as personal computers, it may be possible to reach the desired totals, but it is probable that the sample will be skewed and biased.

### 4. What does mobile add and what does it take away?

The shift to mobile has added many things to the researchers' toolbox, such as location-based research and increased use of video, but it has also removed some features from researchers' toolbox.

The list of things that mobile has added is lengthy, but it can be focused on four points:

- a) Smartphones are with people 24/7 – this means mobile research can be less dependent on memory, collecting information 'in the moment' or soon after the moment.
- b) Smartphones are advanced media devices, including sound, video, photography, and internet browsing.
- c) Smartphones are equipped with passive data collection capabilities (e.g. location tracking, movement indicating etc.)
- d) Research activities via smartphones are capable of being triggered in new ways, such as geofencing and messaging. This has opened up the possibility of 'push notification' rather than 'pull notification'.

As well as adding new positives to the research options, the arrival of mobile has also negatively impacted some existing research practices/options.

In the early days of online surveys, for about fifteen years from about 2000, the trend was to make online questionnaires more engaging and more visual. However, many of these engaging (and in some cases gamified options) are not suitable for mobile surveys, especially when completed on a smartphone. For example, 'drag and drop' can be too fiddly, brand lists and questions need to be shorter, and the ability to

replicate full size images of products and adverts has been diminished. There is also a widespread belief that the completion time, for mobile surveys, need to be shorter than the maximum for personal computer-based surveys. There is data that the drop out rates for mobile surveys is higher than those associated with surveys completed via personal computers (Poynter et al, 2014). Increased drop out rates increases costs, introduces time lags, reduces future co-operation, and reduces the ability of a sample to be representative of the relevant population.

Examples of the changes that mobile has required include:

- a) Surveys need to be shorter, because drop out rates are usually higher when participants take surveys on their mobile devices. This problem is compounded by the finding that surveys tend to take longer to complete, when compared with taking the survey on a computer.
- b) Surveys need to fit on the mobile phone's screen, which tends to mean shorter question text, shorter answer lists, and fewer scale points.
- c) Surveys can't use some techniques that have been developed for larger screen, for example drag-and-drop ranking exercises and methods of participants clicking on large images to express levels of interest.
- d) Mobile First surveys will tend to be less engaging than the best practices that were developed for computer screens.
- e) Grids have come under specific scrutiny because mobile has exacerbated an existing problem. Grids are liked by researchers, because they provide data in a format very suitable for analysis. However, even on computer screens grids are associated with participant alienation and higher drop-out rates. On mobile devices, grids are even less accepted (despite recent advances in how to administer grids on mobile devices).

The arrival of mobile has raised questions about the sort of changes that researchers need to make in their methods, for example:

- Should we move away from grids – if so, to what?
- Should we move away from 10, 7 and 5-point scales to 2 and 3-point scales?
- Should we move away from scales to other options, such as choices?
- Should we move away from ranking to other options, such as choices?

Many of the methods that researchers use at the moment to ask questions are very suitable for the sort of statistics and models that have been developed over the last 100 years, i.e. metric, linear, and based the normal distribution and on random probability sampling. However, what researchers have discovered is that we are trying to make people fit our statistics, rather than trying to fit statistics to the nature of how people think and behave.

Perhaps the time has come to use models that start with people, that do not require normality, nor metric variables, nor random probability samples? Historically, we saw this change happen in the world of conjoint analysis, where there was a shift from ratings based conjoint and card sorts (i.e. from ratings and rankings) to choice-based conjoint (i.e. to choices). This change entailed moving from continuous variables to dichotomous variables, and from standard regression to logit regression. A number of researchers have shown the benefits of moving to 3-point scales (which fit well on a mobile device) (Barlas et al, 2017).

## 5. Are surveys still relevant?

YES! Most of the visibly-expressed interest (in articles, journals, and on conference platforms) about mobile research covers methods such as video, biometrics, passive data, and apps. However, the main utilization of mobile research is via surveys. In most cases these surveys are taken by people using the browser on their smartphone to take part in conventional email /online surveys.

Surveys are in decline, but they are not about to disappear. From 2010 to 2016 in terms of dollar

spend, surveys declined from 56% of all quantitative research (by value) to 46% (Poynter, 2017). However, surveys are expected to still be a major part of research ten years from now (i.e. over 20% of all quantitative research).

Surveys will change, they will utilize more artificial intelligence, more text recognition, collect more unstructured data, but they remain an important part of the research mix.

Surveys are important to researchers (and beyond them to companies, governments, academics etc.) because they allow research to focus on specific questions. A good example of a question that is difficult to assess without surveys is “What would you do if we changed or removed X?” However, since surveys are so important to research (and to the people who commission research) we need to ensure that we keep co-operation rates as high as possible.

## 6. What are mobile ethics?

As the recent scandals with Facebook and Cambridge Analytica have shown, ethics do not stay the same over time. Ethics evolve and respond to changes in technology and in response to real-world events.

The first point about mobile and research is that it has to conform to all of the established principles that have been developed for other data collection modes. The ICC/ESOMAR International Code on Market, Opinion and Social Research and Data Analytics summarizes the concerns in terms of three fundamental principles:

1. When collecting personal data from data subjects for the purpose of research, researchers must be transparent about the information they plan to collect, the purpose for which it will be collected, with whom it might be shared, and in what form.
2. Researchers must ensure that personal data used in research is thoroughly protected from unauthorized access and

not disclosed without the consent of the data subject.

3. Researchers must always behave ethically and not do anything that might harm a data subject or damage the reputation of market, opinion and social research.

In terms of mobile, the additional implications include:

- a) Making sure participants understand what information you are accessing from their phone, and that consent is sought.
- b) That data remains secure, for example if photos/videos are collected, who will see them, how might they be used, when will they be destroyed.
- c) Harm refers to large and small harm. Ensure that taking part in the research does not put anybody's life in danger (e.g. do not do this mobile survey while driving). But, also deal with issues such as not running the participants' battery down, and not leaving unwanted apps on their device.

## 7. Where next for mobile?

The near future is all about smartphones. Globally, the penetration of smartphones is still on an upward path. Most CATI will be via smartphone, most online surveys will be via smartphone, and there will be a growth in 'mobile only' research.

Other mobile devices will have an ongoing role, for example tablets, smart watches and devices that are part of the Internet of Things, but these are unlikely to represent more than a few percentage points, even in five-to-eight years from now.

Some trends that may impact the way mobile develops are:

- The use of messaging apps for research, e.g. WeChat, Line, WhatsApp etc. Some of these platforms, for example WeChat in China, seem to be major elements of the future digital network.
- Developments in location-based approaches.

The possibility of location-based-research has been around for a while, for example, using GPS or beacons or Wi-Fi routers to track people and initiate location-based research. At some point there will be a rapid growth in the frequency of using these options.

- Growth in video, driven by apps and the growth in automated processing. This is already happening, video is moving from small numbers of qualitative artifacts to large amounts at quantitative levels.
- More expansion of qualitative, from auto-ethnography, to crowdsourcing, to using tools such as Instagram and messaging.

Yes, there will also be developments in biometrics, passive tracking, chatbots, and adaptive questionnaires – but I think they will be marginal to the big picture for the next few years.

Ever since the runaway success of Pokémon Go there have been forecasts that augmented reality will be the next big thing. However, time, money and resource implications mean that augmented reality is likely to be reserved for special problems, where resources and time are not major constraints.

## 8. Challenges to Researchers' Models

Many researchers are clinging to an idealized model of how research is conducted. This idealized model fits with the research tools we have available, but this model does not fit well with the real world. The two key fallacies that too many quantitative researchers subscribe to are:

- a) That data approximates to a random probability sample. Today the vast majority of research is collected from opt-in panels, from low response rates general studies, and from unsophisticated customer lists. This means that models based on random probability are increasingly irrelevant, as we saw with the polling debacle surrounding the election of USA President Trump.
- b) That grids (for example brands by

attributes, using a 5-point or 7-point scale) collect meaningful information. Grids present two distinct problems. 1) Research participants do not like grids and are more likely to abandon surveys when they encounter a grid – which makes the collected data less representative and more expensive. 2) People do not have metric, nicely spaced views about all the brands and on all the scales.

Dealing with these two issues requires different strategies.

If the samples collected do not approximate to random probability samples, there are essentially two options

- i. Make the sample a better approximation to a random probability sample of the population. For example, re-define the population; i.e. create a random probability panel by recruiting from the broader population and by supplying hardware/incentives where needed, or by adopting multi-mode approaches to widen the range of people being contacted.
- ii. Use models and benchmarks to link responses from non-probability samples to the real world. The key challenges to these approaches is that whilst their past performance can be measured, their future performance cannot statistically be known in advance. These models are essentially empirical, rather than being based on established theories.

In terms of dealing with the measurement issues raised by attribute batteries and metric scales in general, and grids in particular, the key need is to move away from pretending that people are metric creatures who can express their views, opinions, and beliefs in terms of scales that be treated as integer scales (or even in some cases treating it as if it were a ratio scale). Researchers have pretended that people can do these tasks because we have a wide arrange of statistical techniques, based on common and well-understood distributions.

The alternative to trying to fit people to statistical models is to choose statistical models that match people. For example, models based on choices appear to match human behavior more closely than scales, as demonstrated by the choice models demonstrated by Nobel Prize winner Daniel McFaddon.

## 9. Final observations

For a long time, people were saying that mobile was going to be ‘the next big thing’. But, mobile became the next big thing without most people noticing it. The reason that the arrival of mobile research was largely unremarked was that the focus of attention was on ‘mobile only’ (e.g. location-based research that would automatically record voice and images) and the big impact was when mobile became the device of choice for conventional research (e.g. online surveys, CATI, and in face—to-face research).

When we look at a developing technology, for example mobile research, we need to look at where it is most widely adopted, not at where it is most exciting. It is also important that we look at the unintended consequences.

For mobile, the biggest area of adoption has been for conventional surveys and the key unintended consequence has been a move to make surveys shorter, simpler, and less engaging – because of the limitations of the screen size, user dexterity, and time expectations.

The final observation is that for the foreseeable future, the story of mobile and market and social research is one of a journey, not a destination. We are not moving towards a defined endpoint, we are evolving and the process favors not the strong, not the fastest, but those who can adapt. As Charles Darwin said “It is not the strongest species that survive, nor the most intelligent, but the ones most responsive to change.”

(The Future Place)

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