

Increasing survey engagement through gamification and the use of mobile devices

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'Gamification' of surveys is thought to tap into a deeply entrenched human culture involving game playing.

Introduction

The quest to fully engage survey respondents, ensuring higher quality data and increased participation, has become a high priority for survey designers (Bailey, Pritchard and Kernohan 2015). This is especially in light of the reputation that online surveys are 'dull' which can result in 'negative respondent behaviour such as speeding, random responding, premature termination, and lack of attention' (Harms et al. 2014, p.1). The subject of engagement and what lies behind the data retrieved, including elements such as respondent motivation, distraction, loss of interest, and impatience, have all been explored extensively.

An emerging trend from such exploration, mainly in market research, is the 'gamification' of surveys which is thought to tap into a deeply entrenched human culture involving games and game playing (Seaborn and Fels 2015). Through looking at peer-reviewed and published literature this paper discusses elements of this trend in relation to the following: gamification in web surveys; visually appealing web surveys for mobile platforms; and options for designing gamified/visually appealing web surveys.

Gamification in web surveys

Engagement

The main problems facing online research are motivating respondents and retaining their attention through to completion (Puleston 2011). Adding visually appealing or gamified elements to web surveys has been discussed widely as an option to better engage respondents (Downes-Le Guin et al. 2012; Hamari, Koivisto and Sarsa 2014; Harms et al. 2014; Mavletova 2015). Gamified elements include point scoring, rules, leaderboards, barriers, missions, role-playing, progressive indicators, feedback, narration, competition, and goals or rewards. These elements are embedded into an entire survey or portions of it.

The practice of gamification is believed to provide more respondent interaction and in turn provide more data and better quality data (Chinchwadkar 2014). Although there is an emerging collection of multidisciplinary work investigating possible beneficial effects of gamification within defined contexts, findings reviewed here remain largely unsubstantiated due to a lack of empirical studies in this area (Seaborn and Fels 2015). However, as discussed by Puleston (2011) the process of applying elements of fun to tasks in order to increase engagement is ever expanding and yielding encouraging results:

We have discovered that just by telling respondents from the outset of a survey that we would like them to play a survey game — as opposed to doing a survey — that there is a transformation in the respondent's attitude and approach to the survey.

(Puleston 2011, p. 22)

Cechanowicz et al. (2013), through their study of market research surveys, conclude that higher levels of participation and completion can be reached through using gamification

approaches. Their study revealed no inconsistencies in motivation of respondents according to age, gender, tenure on the participant panel, and prior game experience. Data gathered was similar to other versions examined. However, an earlier study by Downes-Le Guin et al. (2012) showed a possible link between survey abandonment and 'the length of time it took the game to load' and 'the need for respondents to read an introductory narrative' (p.16). In relation to their question of whether a bias could occur from self-selection depending on a respondent's attitude toward gaming, they found no such link in their research. However, these authors highlight the need to consider that the diversity of the gaming market means there is also diversity amongst gamers and using the gamified approach may still deter 'non gamers' entirely or bias respondents depending on the game elements chosen. Bailey, Pritchard and Kernohan (2015) echo this and remind us that respondents can be sensitive to changes in survey design. There is some concern that gamification can shift the frame of reference for respondents through changes in the presentation order and context of questions; this in turn alters the validity of results. Nonetheless, they do discuss a possible positive effect from shifting context and mindsets of respondents 'as the gamification may allow participants to better reflect the context in which a decision/choice is made, hence providing more valid data than in a standard survey' (p.19).

Implementation

Aspects of implementation are discussed further in the third part of this paper 'Options for designing gamified/visually appealing web surveys' (p.8) however, a couple of points are worth mentioning here. Harms et al. (2014) find that psychological and behavioural motivators are provided by gamification. These authors also discuss the 'MDA' (mechanics-dynamics-aesthetics) framework of game playing elements which can assist in designing gamified surveys. Mechanics are the basic building blocks, dynamics are the resulting run-time behaviours over time and aesthetics are the respondent's emotional responses and experiences. The MDA framework is further discussed in the section of this paper titled 'Options for designing gamified/visually appealing web surveys' (p.8). Chinchwadkar (2014) reminds us that it is not enough to simply add game playing elements to a survey; the gamification of surveys needs to create a framework that leads to progressive and enjoyable game play and therefore 'use the basic instinct of humans to respond to challenge or respond positively where 'fun' or 'thrill' is guaranteed' (p.9). These points are important as they indicate a consideration for more complete understanding of the interaction between humans and gamified tasks.

Conclusion

The overarching message is that if good practice survey design principles are adhered to as a basis of any online survey, soft gamification techniques 'can potentially provide data that is at least as, if not more, valid than standard surveys' (Bailey, Pritchard and Kernohan 2015, p.27). Harms et al. (2014) confirm that gamification increases enjoyment of online surveys and concurrently increases engagement of respondents. Hamari, Koivisto and Sarsa (2014) echo this, concluding from their literature review that gamification does yield positive results but with two considerations: the role of the context being gamified (social environment, nature of the system, involvement of the user); and qualities of the respondents (player motivation, experience, competition). An

Participants will respond using any device at hand [...] providing a more flexible survey platform is vital.

all-inclusive approach to re-designing surveys, including the use of gamification, is encouraged:

[...] gamification is not just about the games you insert in a survey it is also about the whole tone and language used when communicating to respondents. It is about thinking of a survey as a piece of creative communication.

(Puleston 2011, p.50)

A call for more humanised survey writing (using language that reflects current communication trends and styles) in an article by Pettit (2014) raises the question of whether gamification alone is the answer. Indeed, Downes-Le Guin et al. (2012) concluded from their earlier study that graphical enhancements or greater interactivity are not the keys to better engagement 'but rather in dealing more effectively with the fundamental components of respondent burden' (p.18). These components being a combination of interview length, effort required, emotional stress experienced, and frequency of expected participation. It appears that a beneficial approach by designers would also be to minimise the time a survey takes to load and avoid lengthy instructions.

Using mobile platforms for web surveys

Engagement

The use of mobile devices for research purposes is still relatively new though it is already established that these devices are well placed to provide a widely available and inexpensive means of engagement with respondents, either for web based or mobile surveys (Macer 2011). The importance of incorporating mobile technology into the survey experience is highlighted throughout the literature reviewed for this paper (Callegaro 2013; Link et al. 2014; Sarraf et al. 2015; Van Heerden et al. 2014; Vartazarian 2013; Yazbeck and Scarlet 2013). In fact, Yazbeck and Scarlet (2013) suggest:

Millennials stand to abandon research altogether unless it's mobile-friendly and device-agnostic [...] since this group incorporates mobile into their digital fluency, researchers need to be equally fluent in our survey design.

(Yazbeck and Scarlet 2013, p.52)

It would appear that providing a more flexible survey platform is vital, as emphasised by Callegaro (2013) who points out that respondents will respond using any device at hand and that it is futile to attempt to stop or redirect their use to another device, recommending 'the only viable solution for now is to plan for multi-device web surveys' (p.319). An earlier piece by Macer (2011) also draws attention to the importance of researchers testing mobile survey accessibility 'across all devices likely to be found in the hands of their respondents' (p.278). A respondent's previous computer-based survey experience and preference for computer, tablet or smartphone platforms appears to be a driving force. Unfortunately, this is often overlooked by many companies tending not to modify surveys for multiple devices and remaining unprepared for unexpected mobile respondents (Link et al. 2014). This raises concerns for some as to the effect on data quality that non-optimised designs can have. To resolve this, optimising the

questionnaire for multiple devices, in collaboration with software engineers, early on at the design stage is suggested (Callegaro 2013).

Implementation

Van Heerden et al. (2014) found that using respondent's personal handsets would be a preferable option over managing study-provided handsets which raised challenges associated with tracking SIM cards, theft, loss, and breakages. Software development could also be complicated by this, as individual handsets vary greatly, whilst technical support is potentially quite time consuming either way. Issues with undeliverable text messages and participants responding multiple times are worth considering. Even with a cohort of 'digital natives' the process of locating and downloading software, completing permissions, and successfully completing and uploading the survey again was found to be too complicated for a significant number of respondents.

Some researchers warn that mobile survey designs are not interchangeable with those designed for other platforms (computers, laptops, tablets) (Bailey, Pritchard and Kernohan 2015, Link et al. 2014). Unique challenges face this mode of research: screen size and usability; display and function variables; different operating systems; different navigation tools (e.g. touchscreens/keyboards); data/voice plans and vendors; respondent's physical location and network connectivity; and cognitive processing being effected by situational or locational elements (Link et al. 2014; Peytchev and Hill 2008).

Lugtig and Toepoel (2015) emphasise that the method of data entry could be the most important feature of devices that can affect results. For example, they highlight the possible frustrations felt by respondents using finger navigation and on-screen keyboards rather than the more precise use of mouse movements and character entry through a keyboard. The importance of visual layout is discussed by Stern, Bilgen and Dillman (2014) who focus on previously identified layout elements such as font size, spacing, location of information, arrows, answer boxes, and symbols that affect answers. Furthermore the use of short, focused and interesting question design packaged in streamlined and engaging ways (including gamification approaches) was seen to strengthen mobile phone-based self-interviewing (Van Heerden et al. 2014).

Conclusion

The literature gives an overall impression that optimising for mobile platforms and adding visually appealing elements to web surveys can increase respondent satisfaction thus leading to better quality data. However, Downes-Le Guin et al. (2012) concluded that 'the challenge is in learning to do visual surveys well and in ways that are easily and unambiguously understood by respondents' (p.18). Taking into account the mix of devices that are now utilised by survey respondents such as computers, tablets and smartphones, optimising surveys to allow for this seems vital and worth the effort to increase engagement.

Unique challenges face this mode of research... method of data entry could be the most important feature of devices that can affect results.

Options for designing gamified web surveys

How have others done this?

Harms et al. (2014, pp.3-5) describe a process that integrates and unifies the MDA gamification framework with established concepts for designing web forms. Five stages are recommended using their technique:

- Game elements for inspiration - using various resources including pre-compiled catalogues of game elements for surveys, designers gain inspiration.
- Aesthetics and relationship layer - after analysing the survey's target population, tasks and context the designers set goals regarding intended emotional responses and experiences (for example, challenge, curiosity, fellowship).
- Dynamics and the conversation layer - the flow of interactions that a respondent is going to have with the survey.
- Mechanics and the conversation and appearance layers - detailed design activities that employ game and playful elements but do not bias answers given (for example, visual cues, avatars).
- Prototyping, evaluation, and iteration - intended outcomes for the respondent as well as for those creating the survey are evaluated. Paper prototyping and digital mockups work well initially with later prototypes being digital and interactive; three iterations suffice.

Harms et al. (2014, p.6) also describe the application of this process from an example of a conventionally designed sports survey that was re-designed into a gamified one. The following steps were taken:

- First workshop discussed aesthetics and settled on three suitable goals for the relationship layer of form design: sensation, challenge and exploration. Specifically aimed at eliciting a rich visual sensation, including small challenges in the form of micro-games, and allowing respondents free exploration to discover the various survey areas.
- Second workshop brainstormed possible designs using a catalogue of MDAs for inspiration (the catalogue can be found in Wlaschits 2014). From this the designers implemented feedback systems and time pressure. Sketches of the design using mechanics were drawn up (an avatar was chosen to steer through the survey with progress indicators providing feedback and coins providing rewards).
- Third workshop produced mock-ups that addressed detailed user interface (UI) design and the appearance layer of the form design.
- A paper prototype was employed for early testing and later replaced by a web-based prototype prior to final implementation.

Chinchwadkar (2014, pp.6-7) refers to a similar process that covers the elements of story (providing context), aesthetics (increasing involvement), game mechanics (providing the blueprint), and technology (software and hardware). According to

Chinchwadkar, creative ways to increase engagement through gamification include: a storyline the respondent is part of; a challenging situation to be solved; and creativity and skill of controls (for example, jumping, shooting, strategising). Other researchers have used gamification to incentivise respondents by adding point scoring and leaderboards, some even having bonus mission features to enable extra research activities. Downes-Le Guin et al. (2012) tested different styles of survey presentation that included a gamified version containing an avatar and avatar assets such as rewards. Puleston (2011, pp.24-26) proposes a technique that first begins with questions being reframed through various lenses including:

- Personalisation - the question contains a personalised context to the respondent; considered one of the most powerful reframing techniques.
- Emotionalisation - personalisation that targets emotions and aims to trigger latent feelings, in turn encouraging more considered answers.
- Projection - a common technique used to garner more attention and feedback from respondents by asking them to consider other perspectives.
- Forced imaginary situations - adds an edge to otherwise mundane questions by creatively encouraging deep contemplation about a topic.
- Use of out and out fantasy - an especially powerful technique to enhance the framework of the question to add more fun and therefore more feedback.

Strict, silly, abstract or irrational rules are then applied using the following (pp.27-29):

- Boiling down to specifics - easiest and most versatile technique, this is done by adding specific scenarios to a question.
- Restrictive rules - places a limitation on what respondents can do, for example, using a word count, this often results in more considered and effective feedback.
- Whittling down the rules - forcing respondents to make decisions.

Puleston (2011) also proposes that question design be more game-like by using imagery and creative layouts, adding selection rewards and feedback mechanics, and using playful question formats such as flying through space shooting at the answers. Once question design is finalised game playing elements/applications are added which include:

- sending respondents on quests or missions that induce a hunter gather mindset
- evoking scenario planning processes (for example, 'what if...')
- adding a competitive element
- adding in reward mechanics (considered one of the most powerful applications)
- making tasks more complex which is more fun, enjoyable and rich for respondents
- ensuring it is an accomplishable challenge with the right balance of luck and skill that sits between easy and difficult.

Other literature from the market research perspective, although a different context, also provides clues as to what is on the horizon for mobile surveys. Yazbeck and Scarlet (2013) encourage survey designers to consider keeping surveys to 'snack size' portions that are broken down into 10 minute modules. Vartazarian (2013) discusses the benefits of utilising geofencing which is a technology that places a virtual fence around a location; when respondents enter a fenced area they begin to interact with notifications

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Time and effort predicted for iterative design and implementation was much more than originally planned.

and real-time surveys. Real-time feedback, behaviour monitoring, competitive analysis and field research are a few of the benefits that geofencing could have for researchers.

Lessons learned

According to Harms et al. (2014), designers who used their process for gamification of surveys found and fixed many usability problems through formative evaluations and therefore stressed the importance of this testing. The time and effort predicted for iterative design and implementation was much more than originally planned and more than would be needed for a non-gamified variant (methods that reduce this could include technical guidance and enhanced development tools).

Other issues that arose through the gamification process in this study include: issues with the responsiveness of individual micro-games; an ending that was too abrupt for respondents; and questions over the use of a customisable avatar and other details such as graphics and animation. Puleston (2011) in an earlier study also mentions that fitting real world research problems into the process suggested can be impractical as a considerable amount of piloting and experimentation is needed and some techniques 'can throw up big differences in data for various different reasons' (p.49).

The methods used to apply soft gamification or visual cues to surveys are too comprehensive for in-depth inclusion in this review, however, these are worthy of further investigation by designers.

Final comments

The aim of this paper is to provide an overview of the literature that considers aspects and factors involved with designing web surveys through the lens of visual enhancements, with platforms such as smartphones also discussed. From the literature reviewed there are many considerations if gamification is to be used to attempt to make a web form/survey more appealing to respondents not the least of which is time and resources needed to implement such a design change. However, the literature on the use of gamification and other similar techniques for increasing engagement in web surveys, though not extensive yet, is encouraging.

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