
Diary Methods in AAA Games User Research

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Abstract

In this paper we present lessons learned from a diary study completed for Electronic Arts' AAA video game NHL16 in August 2015. Key findings suggest that while there is high risk to use the method, there is also great benefit in terms of impact via actionable data and ability to collect rich artifacts to tell the users' stories. To reduce the risk, this work presents a series of suggested guidelines for conducting a diary study in games user research, which has not been investigated in past work. We lay a foundation for diary methods in GUR and how to further improve the method by providing examples and real results through an AAA game example.

Author Keywords

games user research; diary study; video games; qualitative methods

ACM Classification Keywords

H.5.m. Information interfaces and presentation.

Introduction

Diary studies have increased in popularity within the Human-Computer Interaction (HCI) field during the last decade. Such growth has been largely driven by the availability of always-on-devices (e.g. smartphone), which provides researchers with a means to capture in-situ experiences. Traditional diary studies relied on pen-and-paper, but the approach now includes

electronic diaries and video diaries [e.g. 1,2,5]. However, within the GUR community little work has been done using diary methods [3,7]. Of these, none have provided both a discussion around best practices and a case study example. We fill this gap with our contribution.

A diary study usually involves around 15-30 participants who record their daily activities for a pre-determined time period. During this time, participants are encouraged to record experiences in context and as they occur. In this way, diary studies allow researchers to study users in a natural setting and capture data points over extended time periods. In most cases, because of the exploratory and less-structured nature of the diary forms, this method is often used in combination with other methods of inquiry.

The guidelines presented in this document are derived from a study of the NHL 16 public beta completed at Electronic Arts (EA) in August 2015. A public beta is the last testing phase before a game is released and is available to the public. This study is used as an example throughout the document to provide additional context to each section. Further, the guidelines described are also informed by numerous publications within the broader field of HCI [1,2,5,6,8,10,12].

The primary motivation of this work is to provide a working process for practitioners and academics that can help to minimize the risks of applying diary studies in AAA games. In the video game industry the term AAA is used to classify games with the highest level of development budget and levels of promotion. Time to plan, execute, talk to participants, and analyze data is likely more taxing with diary studies than a typical lab-based study. This large time commitment is a concern

for GURs [7] since games are developed with a unified or agile process involving iterative development cycles [7]. Failing to complete the study within the scheduled time can result in findings that are dated and irrelevant if development has progressed to the next cycle. In order to reduce this risk, we provide guidelines that we found crucial for managing this limitation.

The second motivation of this work is to help develop the method of diary studies within the field of GUR. Because of the lack of recorded experiences with the method, we would like to specifically encourage GURs to test out variations of these guidelines and share their experiences.

Guidelines for Diary Studies in GUR

The guidelines presented in this work are composed of the following: what and when to research, creating a schedule, recruitment, executing the procedure, data analysis/reporting, and privacy.

What and When to Research with Diaries

As diary studies collect data daily, in-situ, and over a set time period, the diary method is best suited to tackle research questions focused on testing extended gameplay (e.g. testing the UX of progression systems), or an authentic game experience (e.g. identification of the user's habits/routines, or how users interact within their social groups) [10,11].

In the NHL16 Beta study, the main objectives were to gain a deeper understanding of users' motivations, their social interactions and the overall UX of a new progression system of an online game mode. Derived from this, the key research questions were:

RQ1: What motivates these users to play?



Figure 1 Participants' Mind Maps

RQ2: How do online NHL users find and organize their clubs?

RQ3: How do online NHL users interact with the new [progression system]?

RQ4: What are social behaviors of NHL users?

Diary studies allow researchers very little control with how the participant interacts with the game. Compared to a lab setting, researchers are limited in how to constrain participants' activities, to explain gaps, or to handle errors. Consequently, it is important for participants to experience the game as near to a finished product as possible. If the game is not complete, there is risk of derailing the study or even collecting misleading data.

With NHL16, we were fortunate to be able to run the diary study during a public beta test. This was an optimal environment because we were able to test a nearly final product and we were also able to avoid any concerns around distributing a confidential product. In the case of commercial products this is a huge issue. This is also one of the main reasons why diary studies are not popular in the games industry, and in particular AAA games. However this is also a key stage of development where developers are able to make impactful game tuning.

We recommend incorporating additional methods to collect data for triangulation. At a minimum, scheduling a debrief session with the participant to review their diary entries should be implemented. Within this paper we discuss this process as a semi-structured interview. This gives the researcher an opportunity to ask questions about: the users' overall experience, reflect on past experiences (e.g. Tell me about the first time

you played NHL?), and provide the participant with an opportunity to give general feedback.

Other methods that can be applied to diary studies include: questionnaires, surveys, telemetry and mind maps (see figure 1). Recording video of the interviews is also recommended so they can be presented later on in the final report.

In the NHL 16 example, the diary study was paired with a final semi-structured interview and mind maps (where users draw out a map depicting their social circle, as per [11]), and the data was further combined with a large scale survey distributed to all users who downloaded the beta (n=3166). Descriptions of how these methods were administered are explained in the *Procedure Section*.

Schedule

Creating a schedule for a diary study helps the researcher allot a sufficient amount of time for each step of the process. When creating the schedule, the development team should be informed of when the findings will be presented, and that the timeline must work with their agile development cycle.

In the NHL16 example, analyzing the data took five work days. On the sixth day, the findings were presented to the client. The team was aware of this turnaround time before the study began, and they had time to use the findings as inputs for design changes in the next design iteration.

Underestimating the time required to execute the method can lead to participant drop-offs. In our experience, participants can get confused or simply lose interest fairly quickly. However, properly selecting, preparing, and following up with participants can help



Figure 2 Reddit post showing a comment from a user who felt reassured by EA's marketing team

to ensure they remain committed to the study. We discuss this more in the next section.

Recruitment

Standard screening procedures can be used to recruit participants: identify the user profile(s), create a screener survey, and distribute it through the appropriate channels. Because the time commitment for participants in a diary study is substantially larger than traditional playtesting, the screener should clearly explain the expected time commitment. Define both the overall period of engagement (e.g. one week, two weeks, etc.) and the particular requirements for each component of the study. For example: a pre-meeting (15 minutes), daily diary (5-10 minutes a day), a final meeting via video conferencing (45-60 minutes).

Diary studies are almost always applied remotely, so there is minimal extra effort or risk required to recruit participants from diverse geographical locations. Participants can easily complete each stage of the process (e.g. recruitment signup, briefing, diary entries) from any location by using video conferencing technology (e.g. Skype) and web/mobile based forms (e.g. Qualtrics).

In the NHL example, having remote participants was extremely valuable. The NHL16 beta was available to Canadians and Americans, so we were able to recruit a sample with appropriately wide geographic representation of the targeted audience. Before the beta, all user research studies for NHL16 had all been conducted in a lab setting at the EA Vancouver Campus (British Columbia, Canada). We were particularly interested in recruiting participants from other regions where hockey is popular (e.g. Eastern Canada, the northeast of the USA and as well as Minnesota). As with

most sports, hockey has a specific culture which can vary extensively by region. Conducting research only within a single location could potentially leave a gap in understanding the game's users.

Collaboration

Collaboration with other internal departments within the company such as Marketing and Analytics can provide opportunities to enhance recruitment and data collection.

In the case of NHL16, the internal Marketing and Consumer Insights teams both helped with the execution of the study. Marketing helped by distributing the screener on Reddit, Facebook, Twitter and the NHL website. This marketing presence also mitigated concern some participants had around the authenticity of the study. For example, Figure 24 shows a Reddit comment from a user who felt reassured by the official source of the recruitment post. These concerns around authenticity may be more urgent when the study is remote because participants do not have any physical contact with the sponsor company or the researcher [9].

Procedure

All studies have unique research questions, so it is recommend that GURs tailor the following procedures to meet their own objectives. In this section, we provide general guidelines for the three main phases of the study: 1) pre-meeting, 2) diary phase, and 3) the semi-structured interview (debrief).

Pre-meeting. Meet with each participant before the study starts. Tell the participants about the components of the study. Be sure to review the expected time commitment and compensation, and give them an opportunity to ask questions. While logistical



Figure 3 Submitted images of players participants created

information can be sent to participants via email, the pre-meeting gives GURs an opportunity to connect with the participants. This helps to build a rapport with the participant which, in turn, can reduce the likelihood of participant drop-off.

Expect questions from the participants on how their feedback will impact the game. In the NHL example, we found this was common because participation effort often does not equal the reciprocation of payment. In this way, some users participate because they care about the game and want to have input into its development.

Diary Phase. Once the diary portion of the study begins, automatic reminders can help keep participants on track. They allow GURs to touch base, form a habit around filling out the diary, and ensure the link to the diary study is always at the top of their inbox. We think it is important that these reminders are automatic because more personalized; irregularly scheduled messages may make participants feel like they are being watched or followed [9].

Diary studies also provide an opportunity to collect interesting artifacts. These artifacts can be collected

with a confirmatory mindset (looking to answer specific research questions) or an exploratory one (simply are investigating the phenomenon). GURs might ask the participants to share their playing environments, share the players they have created, or share videos of interesting gameplay experiences. In the NHL16 example we asked participants to send us a picture of their playing environment on day five, share an image of the

player they created on day seven (see Figure 23), and allowed them to upload any video or images they found interesting on the other days. In all cases the users could upload via a browser file uploader at the bottom of the diary form.

Asking participants to perform tasks also breaks up the monotony of filling out the daily diary form. Participant fatigue is an important element to consider when designing a study. As shown in Figure 35, the participant is complaining about the length of a past NHL diary study that lasted 5-6 weeks.

Semi-structured Interview. Final interviews provide an opportunity to discuss participants' diary entries, to ask questions around their overall game experience, and to ask additional questions around their history of playing the game. The final interview also gives GURs a chance to thank the participant and allow participants to provide open feedback. Similar to the pre-meeting, the final interview also provides additional face-time with the participant. We found this increased process-based trust, and opens the participant to sharing more details around their experience.

[-] TechWookiee 2 points 1 month ago

They did this before NHL 14 came out that I participated in. It was a brief 10-15min phone interview and 5-6 weeks of the journal entries. The journals were basically surveys they gave you links for. Questions like:

- Did you play today? How long?
- What modes did you play?
- What modes do you never play?
- Did you notice any bugs or glitches?
- What would you like to see improved?
- Scale of 1-10 rate this and that

All kind of basic stuff, but the 5-6 weeks were *waaaay* too long, and it was the same exact survey until the 4th week. A week will be much better and hopefully the survey questions are more focused.

[permalink](#)

Figure 4 Reddit post showing past diary participant commenting on the length of a diary study

We also felt that sending the participants' their own diary entries prior to the interview helped jog their memory. Participants may also feel more prepared for the interview if GURs let them know what to expect when confirming the interview appointment.

In the NHL16 case, we had two items we wanted the participants to be prepared to draw a mind map of their social circle (as per [11]), so we instructed them to have pen and paper ready.

Data Analysis and Reporting

When analyzing the NHL data, we looked to identify themes and used the data collected from the multiple methods to triangulate and add depth to our findings. Exploring the overall UX lead us to learn about how NHL users build teams, how they communicate, how they create teams, how their teams end, and how teammates air their grievances with one another. To illustrate these findings we used the mind maps, quotes from the participants, videos of the participants during the interview in addition to graphs and tables.

Privacy

Diary studies can lead to the collection of sensitive or private data. Researchers are invited into participants' homes through web conferencing. They also collect details on participants' social lives and ask them how well they perform in activities. Researchers should

exercise ethical practices by being as transparent as possible about the study design and use of data.

In the NHL16 case, we exercised caution around the privacy of our participants by not live-streaming the final interviews. Usually, during in-lab play testing, there is a live-stream so clients

can observe the user. In these cases, the participant is always notified they are being live-streamed. This technique can be extremely effective, but in the final interviews for our diary study, we decided not to live-stream. We still felt the interview would have been valuable for the development team to see, but we believed that the experience was too intrusive (e.g. the stream could have shown a personal space like a bedroom or picked up personal details such as picture of family).

Conclusion and Further Investigation

In this paper we presented lesson learned from a diary study on an AAA video game. Grounded by this example, we illustrate suggested guidelines around: scheduling, recruitment, procedure, data analysis, reporting and privacy. We believe these guidelines, 1) lay a preliminary foundation for diary methods in GUR, 2) help GURs navigate a successful diary study and 3) created rich artifacts that help tell the user's story. We are currently testing the guidelines with GURs in order to further reflect on the method and expand on potential limitations.

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