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In Front of and Behind the Second Screen: Viewer and Producer Perspectives on a Companion App

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ABSTRACT
The growing success of tablets and smartphones has shifted the focus of the interactive TV industry to the introduction of second screen applications. One example is second screen companion apps that offer extra information about a television program, often synchronized with what happens on screen. In this paper, we investigate a second screen companion app, from the perspective of the viewers and producers of such apps. Based on observations and interviews with viewers and producers, and actual usage data of a companion app from Google Analytics, we present several insights and recommendations for how to design companion apps related to ease of use, timing, social interaction, attention and added value.

Author Keywords
Interactive TV; Second Screen; User Experience; Producers

ACM Classification Keywords
H5.1 [Information Interfaces and presentation]: Multimedia information systems – audio, video; H5.m [Information Interfaces and presentation (e.g., HCI)]: Miscellaneous

INTRODUCTION
The growing success of tablets and smartphones has dramatically changed the approach to interactive television, in research as well as in practice. Whereas the main focus used to be on how to add interactive features to the main television set [7], this has shifted to interacting with television programs using tablets and smartphones as second screen devices [2]. Accordingly, research topics are changing from how to deal with screen real estate or appropriate input devices to trying out which concepts are most suited for the second screen [1] and how this distracts from the first screen [6]. The television industry has quickly realized the potential of the second screen as well, and many television shows now come with companion apps that offer extra information about a television program, often synchronized with what happens on screen [9]. However, little is known yet about what works and what doesn't work when using and producing second screen companion apps.

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In this paper, we investigate a second screen companion app, from the perspective of the viewers as well as from producers of such apps. We do not only study how viewers experience second screen companion apps, and how they could be improved, but also reflect on the issues that producers face during the development and deployment of these apps. With this, we hope to provide a more complete picture of how to design and implement successful second screen companion applications.

RELATED WORK
Even before the advent of powerful tablet computers and smartphones, the use of a secondary device while watching television has been studied. One of the earliest explorations into the combination of a second device and TV studied the use of a PDA for a real-estate prototype which allowed the user to browse and select information on the PDA, while watching pictures, videos and detailed maps on the TV screen [10]. The study resulted in several design guidelines, some of which are still very relevant today, such as "combine devices so that the ensemble provides more than each independent device". More recently, Cesar et al. [2] discussed four types of activity that could be supported by second screens in conjunction with TV: control, enrich, share and transfer TV content. As they consider control as the ability to select and preview personal content, e.g. for showing enhanced information, this is the model that the companion app in our study fits in.

Since smartphones and tablets have been introduced, second screen applications have been created or studied for different types of activities such as electronic programing guides (EPGs) [4], Social TV [8] or more recently as companion apps for television programs. Murray et al. [9] created Story-Map, a synchronized iPad app for long form TV narratives with multiple characters and story arcs to support orientation in the fictional world, offer reminders of story developments and enable review of key scenes. Many broadcasters have experimented with similar companion apps alongside TV shows. Basapur et al. [1] developed and evaluated a companion app that provides synchronized content updates around TV shows, generated by the viewer's social circle. Their results show that participants felt better connected to the TV show and their social life around TV content was enriched. However, they also felt distracted from the TV show sometimes. One of the main questions when introducing a second screen alongside

television is indeed how much this will distract from the main television screen. Some studies actually try to measure how much viewers are distracted. Holmes et al. [6] found in an eye tracking study with a synchronized tablet app that 63% of gaze time went to TV, 30% to the tablet and 7% off screen. Even when there was no interactive push or ad content on the TV, considerable gaze time went to the tablet screen.

While the user experience of interactive TV in general and second screen applications in specific has already been studied quite often, the view of iTV professionals is less explored. A search for professional perspectives on interactive television reveals several approaches. van Dijk & de Vos [12] did a worldwide survey of 74 corporate ITV experts about interactivity, interactive TV and the future of television, looking for suitable business models. They discovered differences in views from TV producers versus Internet producers, where the former had a more passive view on interactivity than the latter. Cauberghe & De Pelsmacker [3] performed a survey in two waves among Belgian advertising professionals about their knowledge, perceptions and intentions toward iTV as a marketing communication tool, before and after the introduction of iTV. Their results show limited knowledge and low perception of effectiveness of advertising using iTV. Ursu et al. [11] looked at broadcasters' support for interactive narrative development by studying BBC's commissioning documents and experiments from other broadcasters and created an authoring tool for interactive narratives taking producer's considerations into account. In the existing literature however, little could be found on the issues producers face when designing and developing second screen applications. Nevertheless, the complex ecosystem of television broadcasting, both technologically and economically, has consequences for how second screen applications can be designed, and also impacts the user experience. In this paper we therefore not only provide the perspective of who's in front of the second screen, but also the producer's perspective, behind the second screen.

METHODOLOGY

We combine data from three sources in order to get a full picture of how second screen companion apps are being produced and experienced, and to explore the relationship between end-user requirements and the requirements from a producer's perspective. First, we conducted interviews with six second screen producers in Belgium and The Netherlands about their view on creating second screen applications. Second, we video recorded five couples while they were using a second screen app during a television show ("De Ridder"), and interviewed them about their experience afterwards. Finally, we had access to Google Analytics data from the second screen companion app we studied, which allowed us to get the actual usage data before, during and after the show was broadcast.

Producer interviews

For interviewing producers we used semi-structured interviews at their work location. Audio recordings were made of all the interviews, which were fully transcribed for further analysis. The initial, open, questions were aimed at understanding what the users' jobs entailed, which activities they do related to interactive TV (including second screen applications), which tools they use, and what the challenges and opportunities are they face in this context. As the interview progressed, the interviewer would ask clarifying questions on specific projects, unique for each of the interviewees. The interviews lasted about one hour each.

Participants

We interviewed six producers, whom we coded with letters A to E. As one interview was done with two persons at once, we coded them as B1 and B2. Four of the producers work as head of new media at different broadcasters within the Dutch public broadcaster NPO: three from TV (coded as B1, B2 and C) and one from radio (D), which also has an online video stream that is sometimes featured on the main broadcast channels. Two were heads of technology companies that are dedicated to developing second screen applications for broadcasters, one in Belgium (A), who produced the companion app used in this study, and one in The Netherlands (E). The participants had between 2 and 10 years of experience in working with interactive TV.

Viewer observations

To get a detailed picture of how viewers experience second screen companion apps in a social context, we recruited five couples and observed them in their own home environment while they were watching a television show and using a second screen application that was specifically developed for that show. The interviews and observations took place in the second half of the TV series season.

A camera was placed in their home before the day of the show, so no researcher had to be present during the actual broadcast. This was done to minimize the intrusion for the participants and to have them watch as naturally as possible (a similar approach has been used in [5]). For the same reason, the participants were instructed to watch the show and use the second screen application as they would normally do. We placed the camera in an angle that would give the best view of the users, their devices and their immediate surroundings. See **Figure 1** for an impression of the observation setup. One or two days after the show the researcher returned to collect the footage and watch the recording together with the participant(s) using event-triggered retrospective think aloud. This means that when specific events took place in the recording, such as interaction with the second screen device or social interaction between the participants, the researcher asked if the participants could clarify what they were doing and why. This in-depth interview lasted about two hours per couple.

Figure 1: Camera view from one of the observations.

The show that was selected is a drama series about a young prosecutor called "De Ridder", which ran from 13 October 2013 to 5 January 2014. This show was selected because it was a highly anticipated and well-watched show (over 1.2 million viewers) and it prominently featured a newly developed second screen experience. The second screen application is an HTML5 based website which can be accessed on any device with an Internet connection (e.g. laptop, tablet, smartphone), without installing anything or creating an account. It features a timeline that shows content related to the television show as the program progresses, synchronized with the activities on the main television screen. An animated slider on top of the screen visually shows when the next update is scheduled. The content updates could be quotes from the show, polls which users can respond to, information about specific terms used in the show, maps of the location of characters which the users can interact with, etc. All types of content can be 'liked' in the application or shared via Facebook or Twitter. **Figure 2** shows a screenshot of the app.

Figure 2: Screenshot of the "De Ridder" app

Participants

Because the goal was to observe viewers in their natural environment while watching as they always do, participants had to be regular viewers of "De Ridder" and already be users of the second screen application while watching the show. Participants were selected by placing recruitment messages on Twitter, Facebook and the research and innovation page of the website of the broadcaster of the show, Vlaamse Radio- en Televisieomroeporganisatie (VRT).

We selected five households based on availability and household composition. We chose to recruit couples, as part of our focus was on social interaction between couples while watching TV with a second screen, but also to have a more homogenous set of participants. Participants (n=10) were therefore all couples (5 male, 5 female, average age 33.6, sd = 4.98), some of whom with young children who were not old enough to watch the show with their parents. All couples were regular viewers of "De Ridder" and all of them consistently watched the show with a second screen on a laptop or a tablet.

Data analysis

The data gathered from the producer interviews as well as viewer interviews and observations, were processed by the authors in two separate workshops. All data was transcribed and gathered in one document per interview/observation. These documents were used as the basis for the workshop. During the workshop the researchers singled out all relevant quotes and observations from the data and turned them into snippets (individual notes). These snippets were then grouped according to their content. The emerging groups were given a name, which resulted in a number of categories. When all snippets were allotted to a category the categories were reviewed and an appropriate main/sub category structure was created.

RESULTS

The producer interviews, viewer observations and actual usage data revealed interesting insights into how second screen applications are produced and consumed, which we will present in five distinct categories: ease of use, timing, social interaction, attention and added value.

Ease of Use

Not surprisingly, ease of use and usability are an important concern of viewers. As this is a requirement for most apps, we will not go into much detail for this topic. One thing however that was very clear from our interviews and crucial for getting viewers to use second screen companion apps, is a low threshold to start using an application. Accounts for instance are a big inconvenience and enough to scare people away.

"An account would be a threshold. What is keeping me a little from using the app of [a polling show] is that you have to create an account or a profile first" (Couple 3)

The producers we interviewed also emphasized that a second screen companion app should be simple on a discovery and accessibility level so the user does not have to put in an effort to start his interactive TV experience.

"It just shouldn't cost too much effort, if people need to install a different app for each program, that's a hassle.

What users really want is a single app with which you could follow all the second screen shows of a broadcaster." (B2)

Timing

Timing is a crucial issue in the world of television broadcasting. While most programming is scheduled at a specific time, and broadcasters expect viewers to sit in front of their television screens at that time, the advent of digital recorders has made it easier than ever to 'time-shift' and watch a program at another time – sometimes even before it is scheduled. The introduction of second screen companion apps adds another layer of complexity, as many of them require synchronising the content of the app with the content on the TV screen. To further complicate matters, companion apps can also be used without watching the television show, e.g. to revisit content between two shows, although that often diminishes the value of the companion app. In our interviews and observations, we could distinguish three types of timing issues that impact the use of second screen companion apps: synchronisation between the app and the TV show during the broadcast; delayed viewing or time-shifting; and reviewing content.

Live synchronisation

As described earlier, the 'De Ridder' app is being synchronised with the live broadcast of the television program, and updates appear on the second screen at the same time as something relevant happens on the main television screens. Our participants appreciated it a lot when an update was well synchronized with the show:

"If [the main character] receives a text message on the show, you can immediately see its contents on the second screen. That's a well thought out feature." (Couple 4)

In other cases, where content was not well synchronized, viewers are easily annoyed. We observed that when a poll came up too late for Couple 1 and the answer to the question was already given on the show, this reduced the value of participating in the poll for them.

Our interviews with producers show that synchronization is not an easy matter in practice. Even though new technologies are being developed, synchronising first and second screen is still done by hand by some broadcasters. All our producers indicated the need for an easy but accurate way of synchronizing content.

"Better synchronisation would make our life easier. What is available now is insufficient. For instance we believe watermarking is still in its infant stage. Especially considering the UX. If you have to sync for 6-10 seconds that is really too long and it also drops out often, so that technology just isn't good enough yet according to us." (A)

Delayed viewing

Many participants expressed that they watch most programs delayed through digital recordings. For some couples, this meant that they watched the program on a different day. Others watched with a small delay, not to skip advertising (as it is aired by a public broadcaster) but because of personal scheduling issues. The 'De Ridder' app has to be used live for the updates to automatically appear synchronised with the show. Our participants expressed that they would prefer if they could also use the companion app in a synchronized way with delayed viewings.

"A disadvantage is that you only get the 'live experience' when you watch the show live. If you record it you lose the synchronicity." (Couple 1)

On the other hand, they also indicated that they do not consider the synchronized experience important enough to watch it live so they can use the companion app. This means that a good companion app should also have a synchronized experience with delayed viewing.

Our producers are aware of this, and any technical issues with synchronization set aside, realize that a big challenge for them is to offer an on-demand experience that feels no different than a live experience. However, broadcasters are still interested in enticing people to watch live TV (which can be attractive for commercial purposes), and propose to add attractive interactive components to live broadcasts, in order to increase the attractiveness of live viewing.

Interestingly, the data from Google Analytics shows that most viewers use the app during the period of the live broadcast (see **Figure 3**). The rest of the week there is barely any activity in the app, so it is clear that the interest of viewers using the app – whether for delayed viewing while using the app or reviewing the content (see further) – is not sustained over a longer period. After 15th December, this pattern changes, and for three weeks the amount of users on Sunday are significantly less and more people use the app in between two broadcasts. As this period more or less coincides with the Christmas holidays, this could mean people had more free time during the week and thus watched the episodes delayed, or that the content of the app was being reviewed more often in between.

Reviewing second screen content

Another behaviour related to timing is reviewing content of the app, either while the broadcast is still running, where viewers can 'break' the automatically updated timeline temporarily to scroll back to previously pushed content, or in between two broadcasts as the content remains accessible on the timeline and can be reviewed manually at any given time. Our participants liked the fact that the updates are 'permanent' and can be looked up at any time during the show.

"Sometimes I return to the info updates. You can expand them, so sometimes I go back and look at those when it slows down." (Couple 2)

However, they usually do not look at the updates after the show has ended. The updates 'live' for them as long as the show lasts, often just until the credits have run.

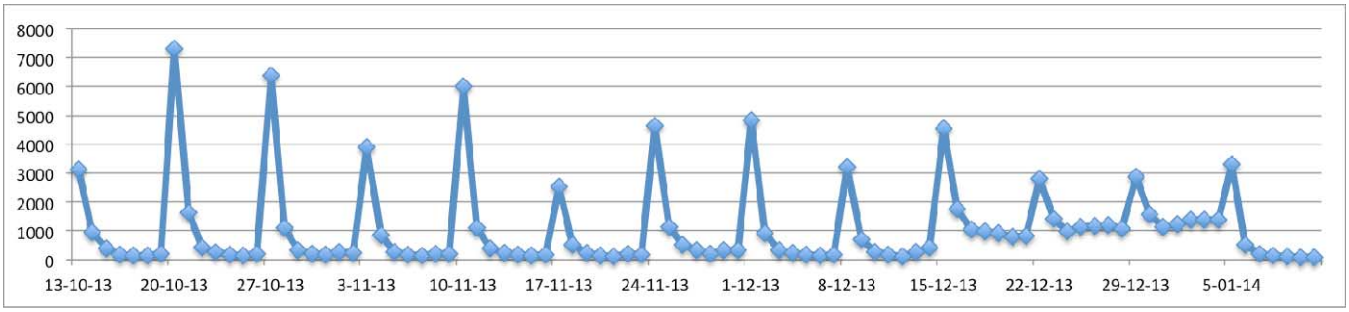

Figure 3: Number of users (y-axis) per day (x-axis) for the "De Ridder" companion app (full season)

"[The video] might be something we'd watch back after the show. But we didn't because you don't think about it anymore. If we would we might have watched it."(Couple 5)

Our producers would like the second screen to become a more permanent experience, with updates that can be revisited between airings of episodes from the show. However, they are aware that now this is rarely the case.

"If you also have a presence before and after the show, you will be more in the picture. If you are only 'there' once a week, it will be more difficult for people to find you again and for you to pull them back in again. But for now people don't 'find' the second screen outside of the show's broadcasts." (B2)

The data from Google Analytics supports the results from our interviews that the content of the second screen companion app is rarely revisited between two episodes. As discussed earlier, the only exception is the Christmas holidays, which shows higher activity between two episodes, but it's unclear if this is because of delayed viewing or because people review the content in the app.

Social interaction

Watching television is often done in a social context, and viewers interact with each other while watching television. Using a second screen companion app could affect the social interaction patterns of users, so we were interested to observe and discuss interaction occurring between the people watching the show in the same room as well as the interaction with remote viewers, be it through the companion app itself or via Facebook or Twitter.

Interaction in the living room

For some couples the updates on the second screen often lead to a comment or discussion. Especially the polls lead to brief conversations.

"It absolutely increases the amount of social interaction. Like with the polls, I always communicate them to [my wife] as well as the percentages after voting. Or like with the information updates or that map which we discussed briefly." (Couple 1)

For many of our participants, the app provided a conversation starter. In the household of Couple 2 for example, an info update on a court term used in the show leads to a discussion, as do most polls and info updates.

Our producers see opportunities in the way the different devices (first and second screen) are used to accommodate this interaction. The first screen could be used as aggregator for e.g. poll or quiz results, showing joint results from either the household or the public as a whole. The second screen could be used for personal interaction with content (e.g. answering polls), and allows individual activity such as voting or social interaction with the outside world.

"What you miss with just a first screen is the interaction together. But you can solve this by using your phone as a sort of interactive remote with four buttons and everybody can join in on the main screen" (B1)

Remote interaction

The app for "De Ridder" has integrated features to share each update through Twitter or Facebook. However, the participants we interviewed didn't find this a very appealing feature, or at least not one they would readily use.

M: "The sharing or like features are not something we would quickly use. For actualities this might be the case or with [a comedy drama] because the updates there are very funny sometimes." (Couple 5)

Our participants mentioned that when Twitter or Facebook are used during TV watching, the conversations usually do not relate to the show. An exception seems to be news and actualities when they sometimes share opinions. The value of share features seems to very much depend on the content of the show and the updates, and the types of updates in the "De Ridder" app were not considered 'shareable'.

Some of the producers mentioned that social media is very important to stay in touch with their viewers and they use it to display viewers' comments on the main screen or in the app. Other apps (like the "De Ridder" app) offer the possibility to share updates through Twitter or Facebook without showing them directly in the app. Although for broadcasters it is a way to keep connected with their viewers, our participants did not see the value for sharing the content in this specific app.

The data from Google Analytics supports our participants' behaviour and shows that on average 188 items per show

were shared (106 via Facebook and 82 via Twitter) on an average of 7529 users per show. So maximum 2,5% of viewers share items, most likely even less assuming that some people share multiple items. It is clear that just introducing a sharing option is not a guarantee for successful social media interaction.

Attention

One of the most discussed aspects of using a second screen application while watching television is how much attention it draws away from the television screen. We observed and talked with our participants about how they experienced the attention they had to pay to the second screen companion app, if they also used other apps on their second screen, and how they managed a good balance between being engaged through or distracted by the second screen companion app.

Attention to second screen companion app

As the second screen companion app presents regular updates, it needs to draw attention to these updates so viewers know when to look at it. Every participant appreciated the timer that indicates when the next update is going to be shown. There is also a sound to call attention to the app if there is an update but most of the participants had the sound of their device switched off. The advantage of the timer is that people know how long it will take before the next update will come and can plan accordingly. One participant even waited before checking on her child that was calling her because an update was very close, and only went there after the update appeared. Most participants glanced regularly at the second screen to check how far the time indicator is to the next update. Another interesting observation was the fact that people were starting to use events on the show as triggers to look for updates on the app. If a character on the show gets a text message or a phone call, the app usually gives an update with the contents of the text message or an indication of who is calling. Some participants started to look immediately at the app when a character received a text message and were even slightly disappointed when there was no accompanying update on the app. In all of those instances, the participants did not use the timer indication for checking if there was a new update.

"You heard the text message on the TV and it showed up on the second screen, it's a reflex. If the cell phone goes off on TV, you can see what the message is." (Couple 4)

Attention to other second screen applications

Our participants used their second screen also for other activities, and not just for consulting the companion app. Usually, one partner of the couple was holding or controlling the second screen device. From the participants that were holding the second screen device, most switched from the "De Ridder" app to a different application (e.g. Facebook or e-mail) on occasion. The reason they gave for this was usually a mutual slowdown in both the show itself and the updates in the app. The following quote shows that this does have some side effects.

"If there's nothing happening for a while I tend to switch to something else. You might miss some updates then, because you don't switch back to the app in time." (Couple 5)

There are also participants that mentioned they are more engaged with the show thanks to the second screen companion app because they would be tempted to use apps like Facebook, Twitter or email otherwise.

Similarly, our producers believe that a good second screen experience can actually increase the attention of viewers for the show on TV, because the second screen is relevant to the content of the show and viewers will be less prone to watch unrelated content on their second screen device.

"If you offer a good second screen app with a TV show and you can engage viewers through this second screen, you will end up with a more attentive TV viewer." (E)

However, not all program makers share this vision, as they are worried that people will focus too much on the second screen and lose focus for the first.

Distraction vs. Engagement

The main focus of all our participants was still on the program itself and they apply a form of self-regulation in order not to get distracted. When they know a certain update has so much content that it would distract them, they tend to skip that update or just glance over it. A special case is that some updates on the second screen were videos, which leads to a conflict in type of content.

"I didn't open the [movie update] because then you would be watching two videos at the same time. If we'd want to watch these videos, you should actually stop the episode. What would be nice, if you click the video on the second screen, the show on TV would be paused." (Couple 5)

What people do not like is being taken out of the app, as it does not just distracts them, but also breaks their experience.

"We once clicked through for the interactive map, but then you break out of the app. That is a pity and then you're messing with the tablet. [...] In the end I think the overview map is sufficient to situate where it is." (Couple 5)

Our producers are very conscious about the delicate balance between the first and the second screen, especially as program makers do not want their audience to get distracted on purpose. Moreover, as not everyone uses the second screen application, the companion app should not be essential to enjoy the TV program. The general consensus was that a good dialogue between program makers and app developers is crucial to maintain this balance.

"The problem is that many program makers say the group of second screen users is only a small percentage of our viewers and won't change their show just for them." (B1)

Added Value

As a last result, we discuss the added value that the second screen companion app brings to the viewing experience. As the app we used for our study presents specific types of content, we discuss for each of the main types how users perceive their added value, and try to draw more general conclusions from this. The types of updates that are provided throughout the app are character quotes, polls, diegetic content and non-diegetic content.

Character quotes

Character quotes are updates that show quotes made by the characters on the program accompanied by a picture of that character. The consensus among all participants is that, although these updates don't bother them, they also bring very little added value. Only very funny quotes are sometimes appreciated.

"Quotes don't have a lot of added value for us. Maybe if they would be really funny." (Couple 5)

Although presenting quotes from the characters is specific to this show, more generally it shows that people expect their content to give something extra and not just repeat something literally from the television show.

Polls

Polls present the viewer with a question directly related to what happens on the program, and ask the viewers to select from two possible answers. The questions can relate to an action that will occur in the program immediately after the poll (e.g. "Will the car start?") or they can be asking for an opinion (e.g. "Is the sentence these characters received fair?"). The polls cause mixed reactions. Some participants thought the questions were mostly uninteresting, while for others they lead to a short debate nearly every time. In some cases, the polls ask questions about the choices characters should make, but which are quite obvious.

"Of course she will continue, that's the whole show. I click yes anyway but I don't really find it interesting" (Couple 3)

Some participants even felt that giving their opinion on the polls doesn't matter, as it does not influence how the program continues.

Diegetic Content

Diegetic content are updates that originate from characters or events in the program, like text messages that you can hear characters receive and respond to, but that don't get their content shown on TV. It also includes pictures from legal files, characters' Facebook status updates or (fake) newspaper articles about the events in the show. This type of updates is in general very much appreciated by the participants.

"What I really enjoyed were the updates with text messages or telephone messages of the characters. Those are interesting because you get to know a bit more than just from the TV." (Couple 5)

What seems to be appreciated most by the participants is the content and information they receive which they would not have had if they only watched the show.

Non-diegetic content

Non-diegetic content refers to updates that provide information that relates to the show but doesn't originate from the characters themselves. In "De Ridder", these are often explanations of legal terms, information on music played, or updates with maps from the locations that are visited in the show. These updates are appreciated a lot by the participants as well, if they are not too long. Information updates for example usually have a short description of a term and a foldout with more elaborate information.

"With information updates it depends on the content. If we don't know the term, it is interesting and we will at least read the 'basic part'. It is a good feature in any case." (M, Couple 5)

Some participants also mentioned that they would not mind even more information that isn't directly story related, like information on actors. A recurring discussion between many of the couples would be about an actors name or where they had seen him/her before.

DISCUSSION AND CONCLUSION

As second screen apps – and companion apps in specific – are becoming mainstream, we can gradually get more insights into what works and what does not work in practice. The results from our study indicate several aspects that need attention when developing such apps, and that can guide their development. We therefore present in this section some lessons learned and implications for design.

Discoverability is an important concern of people creating the second screen applications. If the app is not well announced on screen, people will not know it is there. The next step is providing a very low threshold for accessing the app, without barriers such as downloads, installations or registration, in order to reach a sufficient number of users to make the app deployment financially viable. Moreover, second screen companion apps should also take into account changing habits surrounding television watching, such as delayed viewing, and not only offer synchronized experiences in a live situation but also when watching delayed. This conflicts with the wish from most broadcasters to keep their audience watching live, but it's a reality that cannot be ignored either. A compromise could be to add extra interactivity during a live broadcast, but still offer a (reduced) synchronized experience when watching delayed. Both broadcasters and app developers are interested in keeping the audience engaged with the content spanning multiple episodes or between broadcasts, but our results show that for this the app should offer added value beyond the actual show.

The app used in our study stimulated social interaction in the living room, by offering polls or other types of information

that served as conversation starters. This area of research is still underexplored, although it holds a lot of potential to create social TV applications that do not just focus on interaction with the outside world via social media, but also with the people you are watching TV with. Standards such as HbbTV make it possible to join results from several second screens in one room (or even beyond) and provide them as grouped personalized information on the main screen. This could stimulate social interaction in the living room even further. From our results it is clear however that just introducing social media features is not sufficient to make people share, the content itself has to be shareable as well, i.e. be relevant enough for people that are not watching the show themselves.

The most crucial aspect of developing second screen applications is finding the right balance between engagement and distraction. A companion app, especially in the context of TV fiction, should engage viewers with the show and not distract them so they cannot follow the plot anymore. Content updates should not be too long, videos are not useful as they cannot be watched at the same time and are not revisited, and viewers should not have reason to break out of the app. As the second screen device itself offers other opportunities for distraction as well, the companion app updates should be closely matched with the pacing of the show itself.

Finally, we looked at which types of content viewers find most interesting and adding value to their experience. Updates that literally repeat what happens on-screen are quickly dismissed, while extra information (diegetic and non-diegetic) that offers something extra is much appreciated. Polls that are relevant to the show and are not too obvious are also appreciated, and as an extra benefit stimulate social interaction in the living room (see above).

To conclude, we have offered more insight into how viewers are experiencing second screen companion apps, and contrasted this with the perspective of producers of such applications and actual usage data. Our study shows that second screen companion apps for fiction shows hold promise, but that there are several design choices that can make or break their success. In future work we will design a new second screen companion app based on these recommendations, and validate this in large field trials.

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