Taking Hold of TV: Learning From the Literature

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ABSTRACT
In this paper, we report the findings of a literature review into the experience of and the prospects for mobile TV, in particular multimedia experiences enabled over mobile phone-type devices and networks. The review shows that there will be a niche market for broadcast 'TV content' but that, more interestingly, 'mobile TV' might consist of a new content genre, affording new forms of shared, co-proximate experiences.

Author Keywords
Mobile TV, social experiences, sociology, ethnography

ACM Classification Keywords
D.3.3 Information interfaces and presentation (HCI), User interfaces, Mobile devices, Broadcast content, Sociology

INTRODUCTION
In their seminal ‘Moving Out From the Control Room’ study, Hughes et al (1994) outline four uses of ethnography in researching technology use and design in organizational settings. Whilst ethnography has clearly gained general acceptance and developed as a technique, one of their identified uses, ‘re-examination of previous studies’ has, we believe, been unjustly neglected by subsequent researchers both in terms of its importance for research and design and its difficulty. Undoubtedly literature reviews can be dispiriting to undertake. There are a number of reasons for this, some having to do with factors common to all disciplines, and some related to the specifics of domains of inquiry.

One reason concerns how little literature reviewing others have done. All too often papers appear to have been written without regard to other work. There may be many reasons for this, but perhaps Sorokin (1976) was right when he complained of selective amnesia in academics. A second cause of dismay relates to the failed hopes of disciplines: in mainstream human factors and HCI, for example, the hope that a model of cognition could be produced and which would act as the basis of design has been a holy grail since at least Card et al’s (1983), ‘A Psychology of HCI’. Yet today, one still reads papers holding out the promise that such a model will be completed, with ‘just a little bit more research’. A third reason has to do with failure to take the goals of the discipline seriously. Design is the goal of the CHI community, but there is often a tendency to undertake ‘ethnographies’ that do not give serious attention to this goal. Design tends to be treated as an afterthought, tacked on at the end of the research (Dourish: 2006).

A further reason is that sometimes it is difficult to see what lessons come from literature reviews. In too many cases one finds the obvious and predictable disguised in over-burdensome methods and obscure language; too often one finds research that seems to have little direction or cohesion. One final problem is that frequently discipline specific reviews are sometimes not sufficient to lead to new directions. Sometimes disciplines need to make bridges to other disciplines. This can be difficult to do, and often only serendipity can enable it.

For all these reasons it is no wonder that literature reviews are rarely encouraging and frequently depressing. CHI is no exception to these concerns. Here one finds papers that seem to have been written without any prior reading; here one finds papers that seek the optimum model of human conduct but to no avail; here one finds papers that present what is obvious as if it were interesting; and here too one vaguely imagines that findings from other disciplines might tip the balance away from the dull and the repetitive towards new exciting topics and concerns that simply cannot be seen from within the discipline. This is not to say that CHI is not also a discipline that can - and sometimes does - demonstrably build on prior research in scholarly ways, or that does not sometimes spark with insight. The point is that CHI is like all disciplines: a mixture of good and bad, thorough and superficial, comprehensive and yet sometimes parochial.

We mention all this now since we present, in this paper, a review of the literature on mobile TV. This review led us to encounter all these problems. We do not want to disguise some of our disappointments nor yet do we wish to diminish the excitement we felt at the end of our endeavours. More specifically, we undertook the review as part of a larger study encompassing hardware and network infrastructure design as well as prototype testing and user evaluation. We confine ourselves here to the literature review though since we found it enormously valuable, although as we say at times during the process, rather frustrating.

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In particular we found that, by judiciously avoiding certain cul-de-sacs of investigation, by tracing links in some of the studies of social behaviours with mobiles in the literature, and by making a link between HCI and studies of TV watching in other disciplines (primarily sociology), we were able to discern that mobile TV could provide a new set of experiences for mobile users, experiences related to new genres of content and the ways those content support and foster particular social behaviours. We want to claim, in this paper, that the literature indicates the rather prosaic possibility that there will be a role for the use of what one might call ‘standard broadcast TV content’ on mobile phones and that therefore such phones and the networks they run on ought to be optimised for that need. But it also shows, and this we think is much more interesting, that there is a need to let users deploy mobile phones to collect, share and display new forms of multimedia content in novel and socially cohesive ways. Our purpose in this paper is to present our route through the literature to these findings, to point towards the research agendas that result, and to indicate something of our own intentions as regards this agenda in the future.

**FINDINGS**

We commenced our research with on-line inquiries seeking papers on mobile TV, mobile phone multimedia and related search terms on the ACM index, on J-STOR and other on-line archives. Of course, we cannot cite all the literature we reviewed, what we offer instead is a thoughtful summary of some of the representative literature. In general, the findings that this broad sweep of the literature produced relate, somewhat unsurprisingly, to a broad range of topics. This included research on particular technical configurations and how these impact on the users experiences, lightweight studies of the circumstances of use, and weightier studies of the parallels between mobile messaging, mobile TV and other forms of TV consumption. We focus here on the following categories: TV and mobiles, video phones and multimedia, technical papers about mobile multimedia, and then studies of TV watching.

**Mobile TV and video**

Articles specifically on TV and-or video and mobile phones are mainly newspaper ‘think pieces’. These tend to focus on particular technical and commercial aspects (such as network coverage, platform variability and so on) and are all concerned with identifying the next ‘killer app’. In this process the social aspects of use tend to be either neglected or trivialised. Viewing TV on the mobile phone is viewed as simply of small-scale version of watching TV at home on a ‘normal’ screen. The problem for these papers and articles is how to deliver that, technically. Nevertheless, our reading of these papers suggests that what is being intimated at, perhaps unwittingly, is that mobile TV might not simply be about shrinking content to screens.

A case in point is Caj Sodergard’s (2003) report on a Mobile TV project where, although the device used was not a mobile phone but a PDA and a tablet PC, the findings seem relevant to mobile phone enabled TV and thus mobile TV. The motivation behind the project was a general interest in the opportunities and possibilities presented by mobile TV. Sodergard et al’s own expression of it can stand as representative of most of the research one finds in the literature. As he put it: "Public and private transportation vehicles and public places are potential environments for mobile television services. Even in homes, mobile television handsets are interesting, both as a personal television set and as a tool for establishing a closer interaction with television programmes. In addition to these possibilities for enriching viewer experience, mobile television offers the broadcaster new audiences, the teleoperators a new distribution channel and the equipment manufacturer new receiver product possibilities.”

The project investigated interest in mobile TV by interviewing a number of people – public and ‘experts’ - and building and trialling a prototype system. In terms of content, users could watch almost the complete program content of the three leading Finnish TV channels and access all programs transmitted the previous week. Each user was asked to try the service at WLAN hot spots. In terms of user experiences and reactions – the users clearly considered the service to be “television”, not ‘wireless multimedia’ and the most liked feature was the ability to watch programs from the archive whenever the individual wanted. In terms of general use, typically users surfed through to check the programme lists and normally watched short programmes or pieces from longer programmes. They commented that: “Children in particular - even preschoolers - liked the service; in some cases so much that it replaced the ordinary television” News programs were most popular amongst the adults in the sample and typically the devices would be used when waiting for something - such as a train or bus; or when killing time in various ways, “where one would normally read an evening newspaper”.

Such research offers no surprises. If you ask people to watch TV on mobile devices they will do so, if only out of being gracious to the researchers. But these findings also tease us with scenarios that beg questions. Certainly, one should expect kids to find fun in the use of new devices. But one would also expect them to discover something about the new technology that was different. Why would anyone displace traditional TV technologies ‘in the living room’ for ones ‘in the hand’? It takes no imagination to know that they will be different: the question is, how?

Other studies that seemed relevant and yet equally teasing concerned the delivery of videos to mobile phones, where a number of reports explicitly focused on the user experience: some of these appear to point toward what appeared to be the special or unique or distinct social features or experiences that likely to be salient in understanding and driving the use and take up of mobile TV. Repo et al (2004) for example, reports a small ‘field’ study of 13 users, and looked at situations where watching a video or moving image (including clips from TV shows) on a mobile phone was ‘meaningful’. The
situations they were interested in referred to a setting’s physical and social contexts – what Harrison and Dourish (1996) call ‘space’ and ‘place’ i.e. – the concern was not merely with the physical layout or characteristics of the setting but with the kind of ‘meaning’ attached to it that effectively turned it from a ‘space’ in to a ‘place’.

Repo’s research question was “in what kinds of situations is it meaningful to watch mobile videos”. Their interest was in what they term ‘mundane’ aspects of this - how consumer choices and actions are routinised habits, practices and usage situations. As part of the research, they gave mobile phones with video capacity to users who watched videos in different situations which they then evaluated for ‘meaningfulness’. Users were ‘asked to give genuine user experiences and critical feedback concerning the device and its services’ and to add comments from family members and others. Participants were also asked to watch video in specific pre-given situations – at the coffee table; on public transport; while teaching the use of the videophone; in connection with their hobbies and kept diaries of their, and others’ responses.

Although based on a very limited sample over a very short time-frame, a number of themes can be identified.

First of all, the study notes an initial enthusiasm followed by an eventual (and quite rapid) tiring, noting the contrast between user expectations of the device and the application and their subsequent disappointment - associated with the small screen size and the boring content of the videos on offer. Technical issues often hindered use – especially inferior quality of sound and image and long downloading time for videos. On a social level, there were also negative experiences on public transport – some felt that sound had disturbed other passengers. As one subject put it – “I wouldn’t watch videos on a bus. What if the person sitting next to you is somebody who’s totally exhausted after a day at work, has perhaps been harassed by his boss, and will only be irritated by the crackling noise? No thanks.” These particular findings are, needless to say, hardly surprising. Beyond this, though, the study found that there are variations in use – the mobiles were used for both private and collective viewing - surprisingly perhaps most of the users favourable responses were to the use of the application for karaoke (!?) It also found that it offered a positive experience watching at home with children.

In sum, and leaving aside technical issues, the emergence of a typical Gartner curve (i.e. early delight followed by indifference) Repo’s study identified two different kinds of situations in which use of videos on mobiles seems ‘natural’. The first would appear obvious: for users to entertain themselves in boring situations such as a bus trip, or in queues. The second, however, seems more interesting and pregnant with possibilities: Repo reports that mobile video was very popular when users wanted to have fun and in particular when they wanted to share an experience (such as singing in a karaoke or watching a cartoon with the kids at home). In other words, the study identifies different kinds of sharing – sharing an activity or sharing an experience - and suggests that this is different to the avoidance of boredom in that it is ‘social’ since it is being enacted in front of the phone rather than through the phone. Repo and his colleagues argue that this is an aspect that merits further attention, given that sharing media is ‘one of the true user innovations for 3G mobile telephony’. In short, the Repo study claims that there might be something unique and special about mobile phone TV.

Meanwhile, other studies inquire in more detail on what might be preferred content, though not always with results that surprise. Sports, for example, are often regarded as an activity that might furnish suitable (and commercially attractive) multimedia content. In Ojala et al’s study (2004) for example, they examine some of the issues involved in providing rich multimedia content to mobile phone users before and during an ice hockey game. While their sample size was small, as is usual with user studies of this kind, and they admit that some of the sample needed to be made aware of the technical capabilities of the mobile phone (i.e. that they could be used to view video clips) – the responses obtained were nevertheless interesting. An online survey at the hockey club’s website obtained a number of ideas concerning how a multimedia service might be used (and seem relevant to the provision of TV on mobile phones):

Question 1: What would you like to do with the device during the match – “Look at the goals again of course. During the intermissions I could check the statistics.”

Question 2: What would you like to save from the match to the device and take with you when you leave the arena? – “Goals, screw ups and fights. The smell and taste of hot sausages...”

Question 3: What would you like to send to your friend’s device? – “1. Comments from the match. 2. Meeting place at the next intermission. Fans of a competing team would get a summary of the goals of our team and the screw-ups of their team.”

These examples would seem to attest to a theme that emerges in the literature: a theme to do with how mobile TV watching might offer opportunities not so much to merely watch, but to watch something that causes others, nearby, to react. Watching mobile TV would appear to be a social activity then, though quite what is this activity might mean is not thought through by these or related papers.

**Multi-media messaging and mobiles**

A number of related lessons on the social aspects of use of mobile phones come from other studies, particularly on the use of camera phones. Most employ similar experimental and self-report methods for investigating and evaluating applications and devices. Of particular interest is the work of Ito & Okabe (2006) on what is termed the ‘technosocial situations’ of use – how these devices are used – that Okabe’s research divides into personal archiving, intimate sharing, peer-to-peer news and sharing. Importantly for any understanding of use of TV and video on mobiles, Okabe argues that the social function of the camera phone differs from the social function of the camera and the phone in some important ways, in particular drawing attention to the way in which images are short-lived and ephemeral, constituting ‘a more ubiquitous and light-weight presence’ that is used
for, or represents, a more personal, less objectified viewpoint. In her view, mobile picture phones enable the capturing and sharing of “the more fleeting and unexpected moments of surprise, beauty and adoration in the everyday.” According to her, just as a room traditionally is held to ‘display’ something of the owner’s personality and character (the record collection, the books, the pictures on the wall etc) so too does the mobile phone, not merely through the device itself but through the images that are captured on it.

Of course the current, highly profitable, interest in mobile ringtones and screensavers so obviously attests to this in a fairly gross fashion but Okabe seems to be pointing to something more subtle that is beyond immediate or surface impressions but which is woven into the everyday - “camera phones enable an expanded field for chronicling and displaying self and viewpoints to others in a new kind of everyday visual storytelling.” In the same fashion we might anticipate that the use of TV and video on mobiles differs in important from the social function of TV and the mobile phone: i.e., is this not simply watching TV on a small screen but a different, if related, activity. In Okabe’s study, the photos taken by the camera phone were not always sent to others but sometimes kept as a personal visual archive, as personal reminders (effectively supplementing the picture in the wallet and the personal diary), for example. Okabe also notes the different ways in which photos are shared - sharing photos both by actually showing the handset screen when together and, as alternative, when remote from one another, by emailing and thereby in this fashion using pictures as a way of sharing an ‘ambient awareness’ – part of the construction of ‘full-time intimate communities’. ‘Peer-to-peer news’ involved the sharing of personal ‘everyday’ noteworthy events as a way of making such events visually shareable. Such pictures are mostly trafficked among peers and are often ‘newsworthy’ only among friends and family.

A further interesting claim in Okabe’s work is the argument about the interrelationship between new social trends and new devices. Okabe holds that although social identity and practice are embedded in and contingent on social situations, electronic media cross boundaries between situations previously held to be distinct. These are what Okabe means by ‘tecnosocial situations’, pointing to how mobile phones ‘create new kinds of bounded places that merge the infrastructures of geography and technology, as well as technosocial practices that merge technical standards and social norms’. This is a rather long way of saying that users shape technology in new ways, ways that suit their particular circumstances and changing habits, and that in the process of doing so, are likely to make new technologies do new things rather than simply replace or substitute old practices. Thus, one would expect, if this view holds true, that mobile phone TV would be made in to something different by users, something different from traditional TV. Thus mobile phone TV would not be TV shrunk down. But at the same one would not expect mobile phone TV to be entirely new- it needs to evolve from and in a sense in response to something similar to how mobile phones are currently being adopted and shaped.

Thus studies of multi-media messaging might lend some insight to what mobile phone TV might afford. Kindberg, et al (2005) provides a taxonomy of reasons for captured images along two dimensions – affective v functional and social v individual. Affective reasons are about mutual experience – to enrich a shared experience either immediately or later. In this view, taking photos with the camera phone is about the taking of photos as part of the social experience. Images taken were shared on the phone itself and were used to share aspects of experience or everyday life with absent friends or family – as a form of ‘telepresence’. Like Okabe, Kindberg et al note how the collection and review of images also formed part of a process of personal reflection and reminiscing – “carried to keep some treasured person or object close”. Functional reasons are where images are used to support a task – either a mutual task, a remote task or a personal task – often as forms of reminders or recoding information for later use or reference.

As another example: Kurvinen’s work (2003) examines one particular aspect and circumstance of the taking and sharing of images that may be more widely relevant. This concerns its use in ‘teasing’ or in joking relationships. The taking and sharing of images in this instance is not about maintaining any particular functional relationship or activity but is heavily implicated in everyday social relationships. Kurvinen’s study is of the MMS messaging of some 25 users over 27-37 days – constituting some 4159 messages. Of particular interest is the emphasis on teasing or general banter and the role of images in this process. In Kurvinen’s view, the images used are essentially interactive – part of building an interaction, an argument, an exchange, and a tease. The images are also important for effectively saying things that are beyond the text – things, ideas etc left implicit for further elaboration by participants. In this way the images, as co-present objects alongside the text, help maintain a conversation. The study suggests that images are a natural interface – to convey emotions, most obviously, for example smiles, etc, and as such the images support a range of mundane interpersonal activities. Mobile messaging is, in this respect, about new ways of being together, not about ways of replicating co-presence. It is no surprise therefore that Kurvinen likens his study and his argument to Taylor & Harper’s work [13] on SMS and ‘gift-giving’ where messages were used to express affection and increase or maintain group cohesion. Other studies of SMS messaging also highlight such social aspects as maintaining group awareness and cohesion through joking relationships e.g. Graham et al (2005).

Technical papers
If there would appear to be some unified arguments coming out of the newspaper think pieces and then some of the broad and all-encompassing trial type studies, there are also numerous technical papers, or papers that focus solely on the technical issues of mobile TV. These offer a somewhat more confused view, often the insights are no more valuable than the platitudes offered in the weaker
user studies research. There are a large number of articles covering particular technical aspects of the delivery of mobile video and TV, but, not surprisingly, few properly attend to the user experiences implied by different technologies. Most of the technical papers do however make some guesses as to how, for example, different delivery mechanisms might impact on user experience.

Meanwhile, many of the technical challenges of providing multimedia content to mobile phones are outlined in Ojala et al (2004). Here they suggest that downloading rich multimedia content imposes high data rate requirements that cannot necessarily be satisfied by the mobile phone networks (the year of their writing might be worth bearing in mind). In their particular case the challenge was to provide multimedia content of an ice hockey game: “static content is made available with a commercial Bluetooth based WPAN service called iJack. The static content contains hyperlinks to dynamic content produced in real-time during the use of the service, which is downloaded over a commercial mobile phone network”. The main service was provided as a set of XHTML pages through which an online match report was available containing a hyperlink to a web page with dynamic content created during the match. For mobile phone users the service – the XHTML pages, the video files - was provided through five iJack points situated around the hockey arena and they accessed the online component of the service using GPRS connection. Video clips of the match were produced with an in-house video capture server which buffered the incoming video feed and produced two versions of each clip – for mobile phones and PDAs. For mobile phones the data rate of 20 kbps was employed so that the resulting chip would fit into two GPRS time slots when streamed into the phone. The video files (50-70 kB) were automatically uploaded to a streaming server, where they were manually inserted into the online match report with a text description.

During the field trial technical problems were noticeable – examination of the server logs revealed a surprisingly small amount of data downloaded (and most of that was in the 30 minutes preceding the game) but, as they point out: “...we have to keep in mind that in the matches 6000-7000 spectators were packed on a very small area covered by a single cell, many of them using their mobile phones, especially during the intermissions... during the intermissions the GPRS data connection was practically non-functional due to the heavy network load.”

While many clearly enjoyed using the devices, in terms of the users’ negative experiences, technical issues seem to predominate: “GPRS connection was slow or did not work at all during the intermissions” and “I can’t distinguish the colour of the shirts of the players and can only guess where the puck is in the video” (though we might add that one wonders how serious this is - given that this is a frequent experience of almost anyone watching ice hockey – is debatable).

Gerstel, (2005) meanwhile argues that an understanding of the technical issues surrounding live video streaming to phones provides a bridge between traditional television and the mobile market. The delivery parameters for live video require that a connection with a streaming server must exist during the entire session. But the average session time is generally longer for live content, increasing the risk of a “dropped stream” as the user enters an area of less coverage - although in many of the situations and 'non-places' envisaged for use of TV on mobiles - the pub, waiting room etc - this limitation clearly does not apply. Furthermore to provide a satisfactory user experience, consistent bandwidth must be available since other users' consumption of bandwidth can have a direct and adverse impact on user experience. Gerstel goes on to claim that content providers need guidance from mobile operators on the real-world bandwidth conditions in the operator’s network. Gerstel also suggests that update frequency may also become a problem especially for TV news content - one likely use of mobile phones - since users have come to expect that whatever they are receiving is the latest and best information available to them. Other imagined scenarios for the provision of TV to mobile phones require presumptive downloading of content to phones. This may ensure a higher quality of service for the end user since playback is instant and not subject to current network conditions. From the content provider’s standpoint, it also allows for higher-quality video and a more compelling user experience.

Herrero and Vuorimaa (nd) compare two different wireless technologies, DVB-H and MBMS, that can be used to receive Digital Television in handheld devices. They outline some restrictions to the use of handheld mobile devices, in particular difficulties of navigation and poor resolution.

Finally, bandwidth is an expensive resource in wireless connections. User experiences did form part of the Sodergard (2003) field trial where they went for 'mid-quality' video clips - about 200Kbs was generated, and the effective bit rate was 29Kbs. User experience of the quality of digital TV and video delivered via small devices - like PDAs - incorporated a number of opinions on picture quality. This was especially the case when a comparison was made with existing television sets - for example comments about jamming, the complexities involved in changing channels and adjusting sound and colour when using a mobile device. However, those who were familiar with mobile devices and the quality of mobile video - i.e., were not comparing it with their home 28 inch TV - were impressed with the quality. Interestingly, and contrary to those who argue that different content should be made available to mobile TV, these users expected and hoped that the same content would be available on mobile television as on regular television - even users who accepted that the content might be different had expectations that such different content should effectively be summaries of existing TV programmes.

The small screen also impacted in other ways. The Sodergard study argued that: "Because of the small screen size, the smaller device is mainly for personal use. If viewers wanted to see the programs properly, they needed to place the screen right in front of them. This meant they
had to be very close together if they were watching it together" - and that it was younger users who were more likely to watch programs on the PDA as a group, or special occasions such as when travelling. A number of participants in the Sodergard study mentioned that a 'better quality and sound' as desirable for the devices - though interestingly they also mentioned how easily people on trains and in stations became immersed in watching - to the extent that they would fail to hear the person next to them or even miss their stop. Picture quality may also have played some part in the 'experts' comments about the need for a change in the format of TV for mobile use - since programs need to be shorter - reflecting, perhaps on the study's finding that users rarely watched anything for more than about 10 minutes (though this may also be related to the circumstances in which programmes were watched e.g. waiting for a bus). They noted how many users would watch only a part of a programme before channel hopping and relate this to the technical issues such as slow programme loading. Others mentioned the difficulties of getting access to the programme "It took too long to see the news during the coffee break, the coffee was already cold before you managed to get the program on." One final point worth mentioning is connected with how mobile TV gets used - in that the Sodergard study suggests occasions when often mobile TV use would be more akin to listening to the radio than watching television. In some instances users did not concentrate on the picture but listened to the sound and only focused on the picture when something they heard interested them.

What's missing in these studies?
The technical research tends then to describe limits and possibilities for mobile TV that have more to do with assumptions about the technological prerequisites of broadcast TV and rather less to do with anything in particular that mobile phone use might imply about mobile phone TV. Though there are studies that explore the limits and practical (technical) realities of mobile TV, that focus on TV 'on the move' if you like or for special occasions where handhelds and the mobile networks will provide the only real network, the research does not really tell us a great deal beyond the obvious.

Moreover, there is a sense in which many of the trials reported in the technical literature don’t really address what TV watching might entail, in terms of content and behaviour anyway. Of course it would be unfair to critically assess the technical literature on these grounds - there are a number of limitations to any academic literature since it is inevitably the case that some aspects of what ordinary people do are beyond acceptable scope, even though these activities are everyday experiences. Nevertheless, and this last limitation notwithstanding, there are a number of other points that need to be stated as regards the limits of the studies included in this review. Firstly, and without obsessing over issues of sample size and generalisation, it has to be acknowledged that most of the studies perhaps inevitably involved very small and very limited sample sizes. This means that the results may be easily distorted by specific individual or cultural factors – for example it may be that Finns have an especial affinity to karaoke not replicated everywhere or an especial sensitivity towards disturbing other travellers that is not necessarily found in other countries.

Second, there is also an issue connected to the small sample and time-frame used in these studies creating problems in the commonly deployed notion of ‘meaningful’ activities since experience points to ways in which new devices help create essentially new situations and consequently new definitions of ‘meaningful’ – through processes of ‘domestication’ of you like. In other words, mobile TV, whatever it might become, will become something special through the way it is adopted and made ordinary ( and thus domesticated); it is not necessarily already ‘what it is’. The lesson from the history of the mobile phone is that what mobile phones have become, what they support, what they enable, how they get suffused in to everyday practices, is not what they were expected to do nor what they did when they first emerged. It took time.

This points to another issue, the wider problem in these studies – the need to think more widely and thus not just about TV use itself. There is a need to think seriously about how the content, the application, the device, the user, all fit together into a ‘social circumstances of use’, into an ‘everyday practice’. Thinking seriously about users and the ‘spaces’ and ‘places’ mobiles get used, for instance, requires paying attention to a range of social interactions and their interaction with issues of space and place – and even ‘non-places’ (i.e. sites in-between more formally defined places, such as airports, train stations, cars and shopping malls).

Social shaping of technologies
Mobile TV, in this view, is not a technology that simple allows users to view broadcast content any where any time, it is a technology that allows users to ‘view’ particular content in particular places for particular reasons in particular ways. Our reading of the literature suggests that it is these particularities that need mapping, even though it might be difficult to do.

It seems to us that these difficulties can be allayed, to some extent. One can investigate and learn from the social shaping of mobile phone use. This, in turn, requires thinking seriously about ‘social shaping’. To understand what a mobile phone ‘is’ entails recognition that it is not just a phone, not just a remote communicating device but, as the studies we reported above show, it is also a display device, a device for self-representation and presentation as well as a device for ‘local communicating’ (through Bluetooth connectivity, for instance). Beyond all this it is also a computing device – incorporating scheduling, diary, lists of interests etc.

This is illustrated in a small way in Beale’s (2005) recent study. Beale examines what seems an important idea of the ways in which a smart phone might be linked to various aspects of social interaction – i.e. a phone that has lists of user interests etc and can alert user when aspects of those interests become available in various way. This theme is explored various ways: through the idea of a
localized dating service; through its role in community building – e.g. a joke sharing application linked to owners profiles – sharing jokes as an aspect of informal information exchange as an aspect of community building; and through various forms of file sharing. Beale might be wrong in various ways but his thesis – that one ought to explore the social patterns of use - illustrates what we might learn from the literature - a way to understand the future of mobile phone TV. This leads us back to Okabe’s and Repo et al’s work, confirming, though with a slightly different emphasis, that mobile phone TV watching is particular and peculiar, social in a special way that makes it unlike other forms of TV watching.

At the same time as we make such assertions on the basis of studies of mobile phone use, one can also bear in mind studies of the social shaping of TV, studies which attempt to take seriously the problem of understanding what TV watching might be. These studies have a different problem, nevertheless, they may well indicate some further properties of mobile phone TV, even if only through contrast. As with explorations of the nature of texting and mobile phones, we are fortunate to be able to turn to some of our own research activities to discover what these might be. In particular Taylor & Harper (2002) undertook an investigation into the ‘natural rhythms of TV viewing in the home’, building on a range of prior studies. Their inquiry was oriented towards understanding how these practices might inform design and specifically systems for programme selection and storage. The research revealed that the rhythm of TV viewing is made up of pieces, or periods - viewers tend to establish regular patterns of viewing. This was especially the case on weekdays, during the late afternoon and evening. Concentrating on this patterned weekday viewing, Taylor & Harper found that most households had three distinct periods of television viewing: the ‘coming home’ period; mid-evening viewing; and later-evening viewing. Coming home viewing normally began after work or school in the afternoon or early evening. The TV was turned on to unwind, to start the process of relaxing or as a form of distraction, undertaken alongside other activities. For want of a maxim, this behaviour could be described as ‘switching-on-to-switch-off’. Generally it can be characterised as highly disengaged viewing. People were also very tolerant of what they watched during this period. For the most part, programmes were chosen in a highly unplanned fashion by ‘surfing’ through the channels until something appealing was found.

The next period, the mid-evening viewing, would often run through dinner, and would last until about 8.30 to 9pm. In contrast to coming home viewing, this period had an order, with the planned viewing of certain programmes and with higher levels of engagement. During this period, household members chose programmes that they regularly watched, like soaps, sports, game shows or the news. Content providers call this ‘viewing by appointment’. These programmes would often be viewed communally and would also dictate when and where other household activities, such as dinner and homework, took place.

The third period, later-evening viewing, would often take place once the day today chores in the house were completed and last until 11.00 or 11.30pm. For example, several parents who participated in the research project said they would only sit down in front of the television and think about what they wanted to watch after they had finished dinner and put the children to bed. This viewing tended to involve a relatively high degree of engagement in most households. People seemed to have specific types of programmes they wanted to watch after this later-evening ‘watershed’. To define this in terms of a maxim, this could be called ‘watching to avoid boredom’.

Now clearly, the implications of this particular research were most relevant to the design of Electronic Programme Guides (EPGs) and, given the time since the study, those implications are probably no longer entirely valid. Nevertheless, they indicate for us some important lessons. They confirm that TV watching is not homogenous and that even within the living room and the family home more generally there are distinct forms of watching. These forms are, to some degree, identifiable. They can be traced by links between the type of content and the wider social practices in which that content gets viewed. Thus switching on to switch off is to be understood as a practice related to the rituals of coming home, when one is tired and distracted; viewing by appointment about what sociologists call rituals of togetherness social solidarity, about ideas of what members of a family ought to do together to be a family. These ideas are of course also are bound to ideas about a common culture, about what ‘normal’ people watch. It seems to us that when one looks at the literature on mobile TV, the lesson one should take is that the same approach needs to be applied. In this case it would entail recognising that mobile TV consumption is likely to be different from other forms of consumption, and that the particular characteristics of it will be bound up with the who, the when and the why of that consumption.

The answers to these questions have been identified, in part, in research in to the social practice of mobile telephony: some of which we have cited above. If we bring all these insights together, those on mobile telephony, those on traditional TV viewing, and those that help understand the possible traces and links to other aspects of behaviour, then we can draw a conclusion.

CONCLUSION

Necessarily, the research literature we have reviewed does not provide simple answers. Much was merely intended to test the proposition ‘can you watch TV on a mobile device?’ It was not an attempt to fit particular contents in to the ‘matrix’ of mobile phone practices. Some studies did begin to uncover some usage drivers. Repo et al’s pointed out that the use of mobile phone TV supported social behaviours, various kinds of watching, creating and sharing together. Ojala’s study indicated that creating a deeper vein of recorded and re-showable traces of shared experiences such as of watching an ice hockey
game appeals to users and was distinct from TV watching at home. One of the drivers of mobile TV is that the content can be used to enhance the watching of the events even as those events are watched for real. In this way, mobile phone TV does not offer ‘snacking’, to coin a phrase, it involves making ‘sauce’ for an experience already engaged in. This aligns with ideas about new kinds of spaces that are neither the home nor work nor necessarily public but somehow spaces that have been created in-between, what Auge[1995] calls ‘non-place’, places that have an ‘absence’ about them that encourages people to create content that ‘fills those places up’.

Our view is that the literature indicates that watching TV on the mobile phone is a distinct social practice. It differs from watching TV on small screens and from watching TV in home settings. The unique feature is that watching mobile phone TV is that it is essentially social: it’s about creating shared experiences with other nearby users. Thus, giving and sharing clips, watching over each other’s shoulders particular short sequences, settling down, as a group, to informally ‘watch’ a longer sequence, buying download-able content so as to swap or ‘traffic’ this content for other’s downloaded content, are all ways of being social. In these ways, mobile phone ‘TV practice’ is allied with other mobile phone practices, which also emphasise the social.

One can perhaps deepen this characterisation through offering maxims that capture the essence of this watching practice as against other forms of TV consumption. In being maxims they are not, of course, labels that render the entirely of TV watching but are meant to be ways of distilling down salient properties that can thereby be made clearer to comprehend.

That accepted, one could conjecture, then, that the maxims for mobile phone and other forms of TV watching are as follows:

- If ‘coming home TV’ is about ‘switching on to switch off’
- And if ‘mid-evening watching’ in the living room is about ‘watching by appointment’
- And if post-watershed TV watching is about ‘watching to avoid boredom’
- Then ‘mobile phone TV watching is about ‘watching to show’.

Whether broadcast TV content is ever produced with these particular maxims in mind is moot; but they might help us define what might be the sought for content and the associated practices for mobile phone TV.

REFERENCES


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