# Restrictions and Constraints in Mobile Narratives for Place-based Community Engagement

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## ABSTRACT
The usage of the mobile Internet increased tremendously within the last couple of years, and thereby the vision of accessing information *anytime, anywhere* became more realistic and a dominant design principle for providing content. However, this paper presents work-in-progress that challenges this paradigm of unlimited and unrestricted access, and explores and tests how constraints and restrictions may positively influence the motivation and enticement of mobile users to engage with location-specific content. Restrictions, such as a particular time or location that enables a user to access content, may be used to foster community participation and engagement, as well as to support locative media production and to enhance the user's experience. In the end, we outline the timeline of our current work and further studies planned in order to verify our hypothesis.

## Categories and Subject Descriptors
H.5.m [**Information Interfaces and Presentation**]: Miscellaneous.

## General Terms
Design, Experimentation, Human Factors, Theory, Verification.

## Keywords
Restrictions, constraints, mobile media, locative media, placed-based community engagement, mobile interaction, urban informatics.

## 1. INTRODUCTION
The emergence of sophisticated multimedia phones, which are nowadays equipped with large displays, intuitive user interfaces, and broadband functionality (such as 3G or Wi-Fi), in combination with the provision of affordable data plans for broadband access by network operators, led to a tremendous increase of mobile Internet usage within the recent years. In Japan, there are already more people accessing the Internet via a mobile phone than via a stationary personal computer [6], and more than 80% of the mobile phone subscribers in France, Germany, and the UK with new devices like the iPhone browse the mobile web regularly [4]. With this development, the vision of accessing anything *anytime, anywhere* became more realistic and evolved into one of the main design paradigms of mobile HCI. A lot of research has been conducted to tackle and overcome the technological challenges for this provision and to gain user acceptance of unlimited information access [3, 8, 9]. The *anytime, anywhere* paradigm is about tearing down barriers and restrictions in order to offer content whenever and wherever the users requests it.


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However, in the current work-in-progress we argue that limitations may not always be objectionable, but might indeed be beneficial for the offered services and the user experience. Information that is only available at a certain time and at a certain place might be more exciting and engaging than static information that could be accessed all the time. Furthermore, putting a limit on content contribution, such as allowing users only to submit their own generated content as long as they are at a certain place or only within a limited time frame, would entice people to participate on the spot rather than to delay their decision to engage. In contrast, following the *anytime, anywhere* paradigm, there would be no urgent need to do this and the submission of user-generated content could be postponed over and over again. Hence, our hypothesis is, that constraints and restrictions can positively influence the motivation and enticement of mobile users, and thereby can be used to foster participation and engagement, as well as to enhance the user experience. The focus of our research lies on information, entertainment and community applications for private use, as we are aware that for applications used in enterprises other requirements and expectations need to be complied with.

From our point of view, researching and exploring this area is significant for the successful deployment, usage and creation of mobile and locative media within a community. Mobile computing still faces several challenges [10], such as unreliable connectivity and a finite energy source, and mobile phones are likely to remain less powerful than their stationary and static counterparts. Moreover, challenging interfaces and limited screen sizes in combination with the fact that users are "on-the-go" leads to a different usage pattern when accessing the Internet via a mobile phone than via a computer or laptop. Mobile phone users are rather "hunting" for information and usually expecting to easily obtain the desired information [13]. All this constrains the participation and engagement. However, especially for mobile Web 2.0 services and applications, a high participation is crucial and thus it is important to find ways for an efficient integration of mobile media and encourage users to contribute and produce such

media as well. Furthermore, effecting a higher and more active engagement with mobile media will also have positive influence on the user's experience.

In section 2 we will first outline the advantages of the *anything, anytime, anywhere* approach, followed by our argumentation for constraints and restrictions in section 3. In the conclusion (section) we sum up our position presented in this paper and point out future work planned to verify our thesis.

## 2. ANYTIME, ANYWHERE

The vision of *anytime, anywhere* simply refers to the concept of being able to access information independently from wherever you are located and from whenever you request the information. Kleinrock [8] describes people nowadays as computing and communication "nomads," since we travel and move a lot during our everyday life. Thus, he argues that accessing information is not only a task done from your local computer at your office or your home, but is also required while you are in transit or when temporarily relocated. A lot of research has been conducted in order to realise this vision. One major part is the adaptation and personalisation of content to increase the usage and acceptance. Billsus et al. [3] claim that information displayed on mobile phones should be suitable for the screen size of the used device, and personalised, so that only content that is relevant for the user is displayed (based on user preferences and/or the user's context). Another main focus is the application of *anytime, anywhere* to the working environment, i.e. to the context of mobile workers. Perry et al. [9] point out four key factors for accessing information in mobile work, such as planning, working in dead time, accessing remote resources, and remotely monitoring mobile workers.

In the following, we have a look at which arguments exists for the realisation of the *anytime, anywhere* paradigm. We have identified three main claims that contradict our thesis of constraints and restrictions as a positive influence on mobile usage: Users want to access information independently from time and their place; users often request information during dead times; and, enabling the possibility to access and contribute content from anywhere at anytime allows more people to contribute. We will shortly explore each claim, and show why we think that these claims do not hold or are not crucial for the area of applications we are looking at.

*Users want to access information independently from time and their place.* – This is the main contradiction to our thesis. Even though we cannot refute this claim in general, we think that this is not *generally* true. We assume, that for interesting and entertaining information, users are willing to accept constraints. The scarcity, immediacy and the active engagement in situ may transform the act of simply receiving content to a memorable experience.

*Users often request information during idle times.* – Since mobile phone users carry around their phone almost all the time, they usually have it with them during idle times (for instance when waiting for a bus). Accessing information via the mobile phone can be used as a time-filler, or as a chance to work [9] . The latter does not influence our thesis, as we focus on non-commercial use only. The former, however, is a valid counterclaim. But since we are striving for applications and media that should be purposefully used or consumed, i.e. using the requested media should be the main focus of attention, and not a time-filling activity to bridge waiting periods, we stick to our thesis.

*Enabling the possibility to access and contribute content from anywhere at anytime allows more people to contribute.* – It is obviously true, that without any restrictions or constraints, more people would be able to access and contribute content. But having the chance to do this all the time does not necessarily trigger spontaneous motivation or an urge to encourage participation right here and now. Since mobile phones still have challenging input methods, users might postpone their submission, as they can still do it later on. Yet, remoteness to the original location can either lead to less detailed descriptions (e.g. when writing recommendation or comments about a restaurant or bar), or the user might even forget about submitting their contribution. Thus, restrictions, such as time or location constraints, might entice users to participate on the spot.

## 3. HERE AND NOW

Limitations are not generally undesirable. We want to explore if restricted access can indeed have positive effects. In previous work, the *anytime, anywhere* paradigm has already been challenged, and new counter movements emerged recently. Spaccapietra, Al-Jadir and Yu [11] formed the notion of *Somebody, Sometime, Somewhere, Something* and presented examples, such as broadcast-based services. Further approaches like location-based services usually help users by only displaying information that matches their position; however, if needed, any information can be retrieved. In this study, we explore the effects and implications of restrictions in general, that is, both location and time constraints. Our focus will be on areas, where users actively access or contribute content, in contrast to broadcast-based services, where users passively receive content pushed to them by the providers.

In this part, we will first outline the research questions we want to address, followed by our explanations and arguments why we think that limiting and restricting information access might be beneficial.

### 3.1 Research questions and objective

The main research questions are directly derived from our thesis, as we want to explore whether and how restrictions influence the motivation and enticement of mobile users. And if so, how should they be designed in order to foster participation and engagement. In order to answer these questions, several subtopics need to be addressed:

Is the *anytime, anywhere* paradigm, which is currently widely followed in the mobile web environment, the only desirable concept for engaging people? Or do areas exist in which restrictions and limitations concerning the access of information intensify the enticement and rather motivate users to engage instead of actually restricting them?

Do restrictions and limitations influence the motivation of users to participate and contribute self-generated content?

In which application areas is an unrestricted and unlimited access more sensible, and in which areas are restrictions useful?

How can restrictions for mobile applications be designed in order to attain an acceptable and engaging experience?

In order to be able to respond to these questions and to verify our thesis, we plan to conduct several empirical studies. The aim of this research project is to develop and formulate a set of design

guidelines concerning restrictions and limitations in the context of mobile applications.

## 3.2 Benefits of restricted information access

We can see several benefits and advantages for designing restricted and constrained systems. In the following we will highlight three main points. We claim that constrains and restrictions influence the motivation and enticement of mobile users, they can foster participation and engagement, and the user experience can be enhanced.

*Constraints and restrictions influence the motivation and enticement of mobile users.* – There are several aspects that support this claim. First, users interacting with constrained systems are aware of the limitations, and thus interactions are usually rather focused and purposeful. That means, that if users can only read certain information when being at a specific place, users have made the effort to go to this place. Due to this commitment, these users will more likely fully concentrate on the content, as soon as they are *in situ*. Furthermore, information becomes a scarce good by limiting it. Looking a people's shopping behaviour shows, that people tend to value scarce and limited products higher [12], and that restrictions can even lead to higher sales [7]. Consequently, we think that limited information could be also valued higher. Moreover, as users cannot immediately consume the desired media, but have to wait until the conditions are met, there is a chance for rising excitement and pleasant anticipation. Thereby, users are already engaging with the content, before they are accessing it, which in the end results in a longer and more intense overall engagement.

*Constraints and restrictions can foster participation and engagement.* – A limited possibility to upload and submit user-generated content can also lead to a higher participation. As users are forced to create their contribution under certain circumstances (e.g. at a certain place or time), they cannot postpone it or procrastinate. The fact that they only have the chance to do it *in situ*, might incentivise them und lead to a higher participation. As pointed out before, the *anytime, anywhere* concept could further lead to less detailed descriptions or even not submitted content, due to the loss of activation.

**Figure 1. Master plan view of Kelvin Grove Urban Village**

*The user experience can be enhanced.* – In addition to the aforementioned advantages, restrictions may also enhance the user experience. Due to actively engaging with the system and adapting to the constraints, people might find the interaction more exciting and enticing. Observing and studying the usage of their urban music-exchange application, Bassoli et al. [1, 2] found that the binding of content to a place led to a deepened relationship of the media and the place it is located, and to an increase of "people's awareness of their surroundings." Moreover, being *in-situ* when interacting with the systems, allows opportunities to explore how users can interact with other users in situ. Thus, it provides a chance to create communicative links, whereby a social interaction and connection is facilitated.

# 4. RESEARCH APPROACH

In order to verify our thesis, we plan to conduct several empirical studies. Within the upcoming four weeks, we will start with a first trial, focusing on the acceptance of time and location constraints. This study will be held at Kelvin Grove Urban Village (KGUV), a master-planned city fringe community in Brisbane, Australia (see Figure 1), that exhibits best practices and focuses on sustainable and innovative community life.

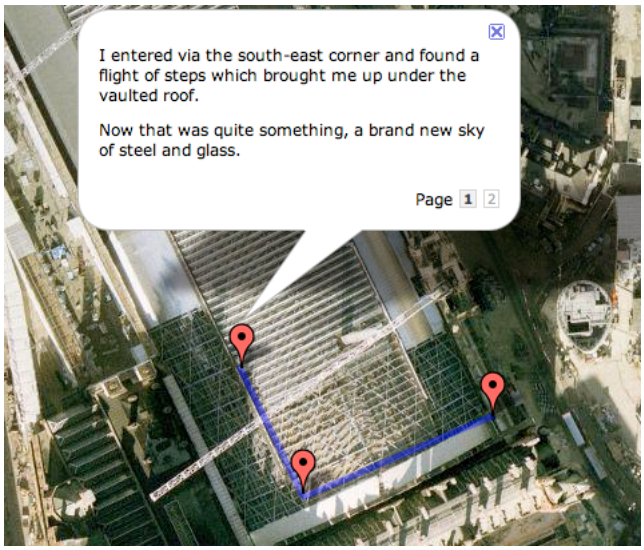


**Figure 2. Screenshot of *The 21 steps [5]***

We are creating a *Mobile Narrative* at KGUV, that is inspired by the concept of *The 21 Steps* by Charles Cumming [5], a story that can be read online. In addition to the normal story, a map is used to interactively visualise the places where the action takes places (see Figure 2). Consequently, the reader is able to follow and understand the local course of the plot from wherever he accesses the webpage. Our *Mobile Narrative*, however, will turn this concept 'upside down.' Instead of displaying the location of a story on a map, the story unfolds its chapter only when the reader is at the location the action takes place at. Therefore, we are developing a mobile application that will be utilised as an electronic book. As soon as the reader approaches the location that is associated with the chapter, this chapter can be read on the mobile phone *in-situ*.

In the first phase, we will focus on restricting the place where a story can be read. We will explore the user acceptance of this kind of restriction, as well as newly gained advantages through this

way of reading. The fact that readers now have to be *in-situ* while reading a chapter can be exploited by the creative writers of the story by intensifying the user experience and integrating the reader's environment and the context into the narrative. Authors might ask readers to take a seat in a certain spot, or look in a specific direction. In the next step, we will additionally explore time constraints. Instead of just framing the location where a chapter has to be read, we will also define time frames for each chapter (such as, it has to be read between 9am and 10am to align with the timeline of the story), and observe the effects and implications as well as the acceptance of such sort of restrictions. In the same way as location constraints, time restrictions might intensify the experience as well. Reading a spooky story might be more exiting when you read it at midnight in a spooky environment. In the last step, we will investigate the combination of place and time constraints. This will empower the author of a story to create an even more specific atmosphere, such as requesting the reader to be in a park at dawn or at sunrise at a lookout.

With the results from this first trial, we will then conduct another trial within the following four weeks. This one will be held at the Cooroy Lower Mill Site, formerly the area of Queensland's largest hardwood mill, which is now redesigned into a landmark civic precinct with historical, cultural, and educational facilities. In this study we will experiment with further ideas for meaningful constraints and restrictions to foster ongoing community engagement with the site. Additionally, we will set a focus on users contributing content and on interaction between users.

## 5. CONCLUSION & OUTLOOK

In this paper, we have outlined our position in regards to unlimited information access, and challenged the *anytime, anywhere* paradigm. Our thesis, that constraints and restrictions can positively influence the user's motivation and enticement, has been stated, and arguments supporting this claim have been presented.

As this is a short-term project, specifically concentrating on this topic, first results will be available by the time the workshop is held.

## 6. MOTIVATION FOR PARTICIPATION

A goal of the workshop is to locate and support mobile media within existing communities and social settings. In order to reach this aim, we think the users' motivation and enticement is a decisive factor. Being able to excitingly engage them, and bring users to contribute their own content, is an essential foundation on the way to fully integrate mobile media in our daily lives. We will explore our claims within both an urban and regional community, and would like to discuss the results with the other workshop participants.

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