Narrative Urban Mapping

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1 ABSTRACT

UrbaneGeschichten[1] is a project and mobile web platform for a bottom-up citizens' chronicle. It aims at collecting and mapping everyday life stories directly from citizens. Thus, it taps information from hitherto inaccessible sources with potential value within urban planning processes. The project draws from four theories: 1) Digital Natives by Prensky (Prensky 2001), characterizes prospective participants with a strong affinity for as well as a high intensity of use of technology. 2) Cognitive Surplus by Shirky (Shirky 2010), states that means, motive and opportunity are crucial for participation. 3) The Wisdom of Crowds by Surowiecki (Surowiecki 2005), argues that large groups can – under the right circumstances – achieve better solutions or answers than the most skilled individuals. 4) Crowdsourcing by Howe (Howe 2008), defines a new form of operating process relying on the skills and knowledge of a large group of unknown individuals.

As one way to combine these opportunities, we analyze if the web service Crowdmap Classic,[2] provided by the non-profit tech company Ushahidi,[3] is suitable for the purpose of collaborative narrative urban mapping. Therefore, the Crowdmap deployment UrbaneGeschichten has been set up and input from within the city of Kaiserslautern (Germany) was solicited. The project received significant input from citizens, thus documenting everyday life in Kaiserslautern from May to December 2013, and remains open. Submissions tended to focus on private aspects of life. From the findings it is concluded that Crowdmap Classic is a suitable tool to access information about locations and everyday life stories.

Similar technologies have also been used by other projects from urban planning contexts. One example is EmoMap (Klettner et al. 2013), which solicits geo-referenced data in order to map citizens' subjective perception regarding affective qualities of environments. Another, somewhat similar approach was taken by the project mappines.[4] Such examples and the present project show that valuable information can be crowdsourced and displayed on maps, while furthermore supporting Brabham's argument that Crowdsourcing can be useful in participation processes in spatial planning (Brabham 2009).

2 INTRODUCTION

The attempt to record history and historical changes of a city – in written or visual form – has already been adopted. Implementations such as Google Goggles[5] or the Talking Places (Hensch 2012) project based on RADAR (Memmel 2012) technology have been set up. Projects as these are usually designed for mobile devices and present background information and pointers to further reading, but they focus mainly on presenting history in a visual way through pictures and 3D-renderings. The information attached or linked to the objects is often official. Thus, they provide access to information in an easily comprehensible way. Also, they invite people to take part in the projects by contributing their own pictures or texts. An extension to the information presented in form of text or pictures was recently presented with the prototype Urban Storytelling (Dörrzapf 2013). It proposes information in audio format which can be retrieved e.g. by downloading or streaming, while strolling about the city.

In the field of urban planning, the value of these projects lies in their potential to retrieve information about a city and its inhabitants. To retrieve information requires people to contribute to such a project. The motivation for participation follows from theories such as Cognitive Surplus, Wisdom of the Crowd and Crowdsourcing, which will be presented in Section 3. Citizens who contribute to such projects face questions as these: Which picture to choose? Which story to tell? Should I participate at all? In other words, the

[1] UrbaneGeschichten.de, Dec 20,2013.
[2] https://crowdmap.com/, Dec 20, 2013.
[3] http://www.ushahidi.com/, Dec 20, 2013.
[4] http://www.mappiness.org.uk/, Feb 27, 2014.
[5] http://www.google.de/mobile/goggles/#text, Sep 14, 2013.

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precondition "to find something special to publish" represents a barrier which limits the scope of such a collection. If these entry barriers could be lowered, previously inaccessible knowledge would become available. Thus, a platform is needed that invites citizens to contribute their experiences and memories - independent of historical value. Brabham has argued that internet-based, public participation – especially non-expert knowledge – can give valuable input to urban planning processes. (Brabham 2009)

3 PARTICIPANTS AND PARTICIPATION

3.1 Participation

New generations grow up surrounded by technology. As a consequence, certain theories exist which aim at explaining how these generations distinguish themselves from previous ones. Prensky names parallel processing, multi-tasking and networking as some of the core characteristics of his concept of the Digital Natives. (Prensky 2001) Tapscott and Williams' concept of the Net Generation also identifies networking as crucial, calling it the new generation's modus operandi. (Tapscott and Williams 2009: 48) Furthermore, they state that individuals make use of it not only to consume passively, but to collaborate permanently. (ibid.: 47) There are also studies which concentrate on active smartphone users, e.g. Go Smart 2012. (Google Inc. et al. 2010) It defines Smart Natives based on their affinity for technology and the web as well as a high intensity of use of mobile internet devices. Thus, the technology and the opportunities it offers are embedded in their everyday life while at home or on the way. All three concepts assume a certain natural expertise in the use of technology in every aspect of everyday life. This is a feature of increasing importance in the context of the development of future planning processes. According to Höffken and Streich, the role of the Smart Native as a citizen is relevant, as the Mobile Citizen (Höffken and Streich 2011) takes an interest in his environment and is willing to engage – opening new forms of mobile participation (Höffken 2014). His engagement will offer opportunities for urban planners to tap the knowledge of local experts as a source of information. (Höffken and Streich 2011) Especially in the context of urban planning, Streich introduces the term of the homo ludens, who – due to his playful nature – approaches technology experimentally and becomes a competent media actor. (Streich 2011: 217, 663)

3.2 Participation theories

In order to tap the potential of these smart natives, the question why anybody should invest his time and skill in any project arises. Shirky answers this question with the so-called Cognitive Surplus (Shirky 2010). He observed that there exist huge amounts of spare time among the "world's educated population" (ibid.: 27), accompanied by an increasing accessibility of media, which enables people to engage in projects they are interested in. For most citizens, it has become normal to be "part of a globally interconnected group" (ibid.: 24). And by becoming a part of life, social media is "not only something we consume, it's something we use" (ibid.: 52) to gather or share information or to coordinate our joint actions. For Shirky, it is clear that although "media is the connective tissue of society" (ibid.: 54), it only enables a change of behavior from consumption towards participation – it does not cause it. Shirky states that "the fusing of means, motive, and opportunity creates [...] cognitive surplus out of raw material of accumulated free time" (ibid.: 184). This cognitive surplus can be used to create large, communal projects as small bits of contributions together can create something of lasting value. But as contributions have to be joined in order to be transformative, the people behind the project need to develop a culture of communicating, sharing and collaboration.

The value of information from these contributions has been examined by Surowiecki. He claims in his book "The Wisdom of Crowds" (Surowiecki 2005) that most people mistakenly assume that valuable knowledge is in the hands of a few. He explains why large groups can – under the right circumstances – achieve better solutions or answers than the most skilled individuals. The members of the group do not need to be exceptionally intelligent. They just need some information, such that the errors will average out when all answers are aggregated. Therefore, the larger the group is, the better the solutions will be. To work as a wise crowd, a group has to fulfill four conditions: diversity of opinion, independence, decentralization and aggregation.

Crowdsourcing is a concept which relies on the participation of crowds – ideally of large crowds. It can enable Wisdom of the Crowds, but it also focuses on the dynamics of people working together via the web. The neologism Crowdsourcing consists of two words, "crowd" and "outsourcing". (Wenzlaff 2012: 13) It defines a form of operating process, where a task is presented to a large group of unknown individuals to

contribute to a project, each using their individual skills. Howe himself defines Crowdsourcing as: "[...] the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. [...]" (Howe 2006) This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers. Howe concludes from this process which "had its genesis in the open source movement" (Howe 2008: 8) that "a large and diverse labor pool will consistently come up with better solutions than the most talented, specialized workforce" (ibid.: 54).

3.3 Crowdsourcing in the Urban Planning Context

Public participation during the planning process can be either enforced by law or done voluntarily. Streich argues that the traditional methods of public participation will be extended by employing technology and especially the internet. According to him, the arguments against computer-aided public participation are no longer valid, as many people now have access to the internet and possess the means to use it. Furthermore, such computer-based participation systems now provide low entry barriers. Streich suggests that a new form of monitoring results from this combination which he calls inductive monitoring – individuals do not only submit data but they also provide impulses for new topics. (Streich 2011)

Brabham (Brabham 2009) argues that even "deeper levels of engagement" (ibid.: 257) in this context can be reached. Using the internet as a platform provides opportunities which are beyond the ones offered by traditional participation methods. The latter ones are limited because citizens are heard but rarely empowered to contribute. Therefore, Brabham proposes the introduction of the Crowdsourcing model in planning processes to enable public participation. The benefits of crowdsourced public participation lay in:

- collecting more ideas by opening the creative process to participation,
- empowering the participants, especially those who are usually excluded,
- the range of involvement can be chosen by the participant according to his interest,
- the discovering and access of non-expert knowledge as well as
- the access to creative solutions, which could have been overseen by experts.

4 EVERYDAY LIFE, MEMORY AND ARCHIVES

The project aims at collecting everyday life stories. Bausinger gives one definition of everyday life. (Bausinger 1996) He states: "Everyday life is the space in which we move, without reflection, whose paths we walk in sleep, without effort, whose meanings and constellations are immediately accessible, wherever we do, whatever we do, where acting has a natural character, where we share a perception of the meaning of our actions with each other." (ibid.: 33) Bausinger points out that this understanding of everyday life has nothing sophisticated about it. It is rather about routine, about the space where we feel automatically confident, without the need to reflect on each move we make.

Halbwachs argued that no memory exists outside of a spatial frame. The environment is reality which endures. Thus, memory is always connected to substantial spatial conditions – such as buildings, monuments and landscapes. Furthermore he suggested that memories are constructed within social structures and institutions. (Halbwachs 1991) Halbwachs as well as Assmann and Assmann draw a picture of individuals and groups which obtain memories through own experiences, experiences of others and those passed on by institutions in form of rites, feasts etc. The latter defined two subgroups of collective memory: communicative memory, which they also call everyday memory, and cultural memory (Assmann and Czaplicka 1995). The communicative memory includes the varieties of the collective memory which are based on everyday communication and interaction. It represents the "still living past" (Dornik 2004: 21), experienced by the contemporary generations and has a limited temporal horizon, as it is bound to the living holder of the experience. (Assmann and Czaplicka 1995: 127; Erll 2011: 127; Zierold 2006: 71) In contrast, the cultural memory has a fixed temporal horizon, which "does not change with the passing of time" (Assmann and Czaplicka 1995: 129). The memory is stored through texts and traditions and relies on institutional communication – e.g. practice of rites, but is not factual history. Communicative memory can become part of the cultural memory when it is considered important enough and can be "transferred" via

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media. (Erll 2011: 5) Assmann states that the "cultural memory extends or complements everyday life" (Assmann 1999: 57).

Another way to preserve memories are archives, which are “the places of the cultural memory”. (Erll 2011: 127) The function of an archive originates in the task to administer official records and documents. Even though city archives assemble wholesome documentations, there is a gap, as many everyday life stories will never enter those official records. In Germany, for instance, it is dictated by law which documents must and which may be archived. (Deutscher Bundestag 1988) Dornik (Dornik 2004) sees the internet as a representation of the communicative and cultural memory. The first can be transferred (communicated) and stored on the internet, while the second finds entrance into the net through institutional communication of traditions and events for example. Although the internet raises reachability and extends the original lifetime of memories, its durability is still a matter of discussion. (ibid.: 21)

5 NARRATIVE URBAN MAPPING - USE-CASE: URBANEGESCHICHTEN

5.1 Technological Basis – Ushahidi

The software used to implement the project that will be described in this section, is called Ushahidi. The word Ushahidi is Swahili and means "testimony" or "witness" (Shirky 2010: 15). This free and open source software works by generating online visualizations of collected geo-referenced data. Information can be submitted via a form on the webpage, email or Twitter as well as text messages. (Ushahidi 2012) Further, the Ushahidi mobile app - which is available for different mobile operating systems, like iOS and Android – allows to submitt reports and to receive updates, and it contains most of the features also available in the web frontend. (Ushahidi Website - Downloads 2012)

Reports can be submitted via:

- the mobile apps for iPhone and Android,
- an e-mail using the UrbaneGeschichten address,
- by sending a tweet with the hashtag #UrbaneGeschichten and
- by filling out a form on the website, linked to through the box or the button in top of the website.

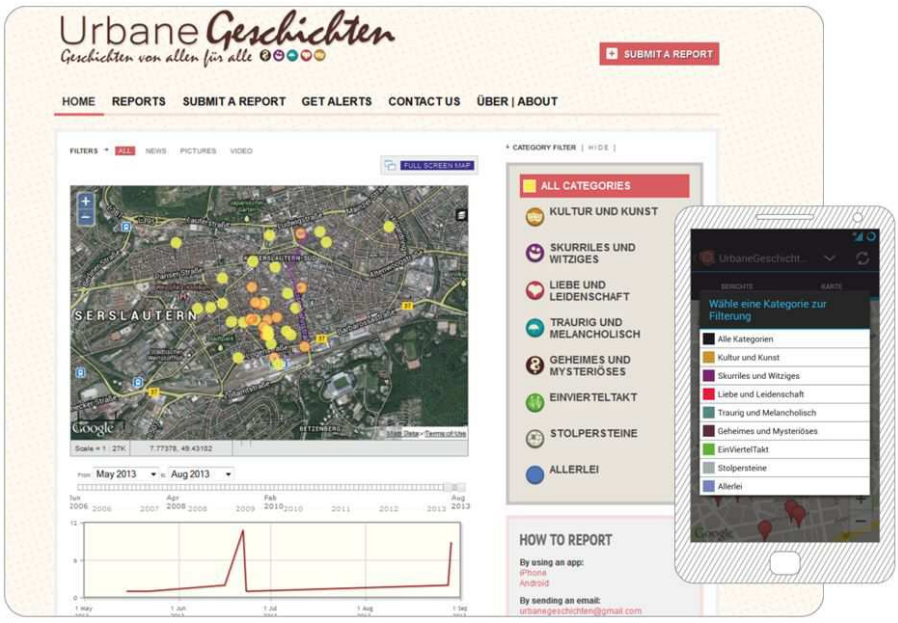

Figure 1 Frontend of UrbaneGeschichten – Mobile Version of UrbaneGeschichten (sources: https://urbanegeschichten.crowdmap.com, Ushahidi app, own source).

5.2 Presentation of Concept of UrbaneGeschichten

UrbaneGeschichten is a project that aims at collecting geo-referenced data in form of stories, reports and narrations on a public internet platform. The project is rooted in the city of Kaiserslautern, but it is not limited to this region. Given significant data in form of a large number of stories, the platform could give an

insight into experiences and opinions regarding certain locations. This would enable the emergence of an alternative, digital city chronicle. Technically, the project is based on Crowdmap Classic and the Ushahidi app provided by Ushahidi. As a working principle, Ushahidi employs Crowdsourcing and – in line with Surowiecki's Wisdom of the Crowds – any of its deployments will therefore require a large group of active participants. If the Crowd got interested, such a collection of stories from the crowds would have the potential to summon much knowledge in one place. Of course, it is not sufficient simply to get people's interest. They must also participate. Therefore, to open the project to the public, it was advertised through flyers and posters at public places especially in the beginning. The poster contained the web address of UrbaneGeschichten in normal text-mode, as well as in form of a QR Code and additionally as an abbreviated web address. Also QR-Codes representing links to the Ushahidi app on Apple Store and Google Play were integrated to facilitate the access.

5.3 Use Cases and Requirements

As already mentioned, a collaborative city chronicle depends on the participation of many. Therefore potential users and their individual needs have to be identified. The crowd that was identified as potential participants can be divided into three main groups: the contributors, the communicators and the evaluators. The first group comprises the ones who have a main interest to participate by sharing their experiences in and around the city. The second, the communicators, are people who will use the platform as a place to advertise and file their projects, while at the same time sharing coming events with their friends and followers. The last group, which mainly has a professional background, will probably have an interest in the evaluation of the published experiences and opinions.

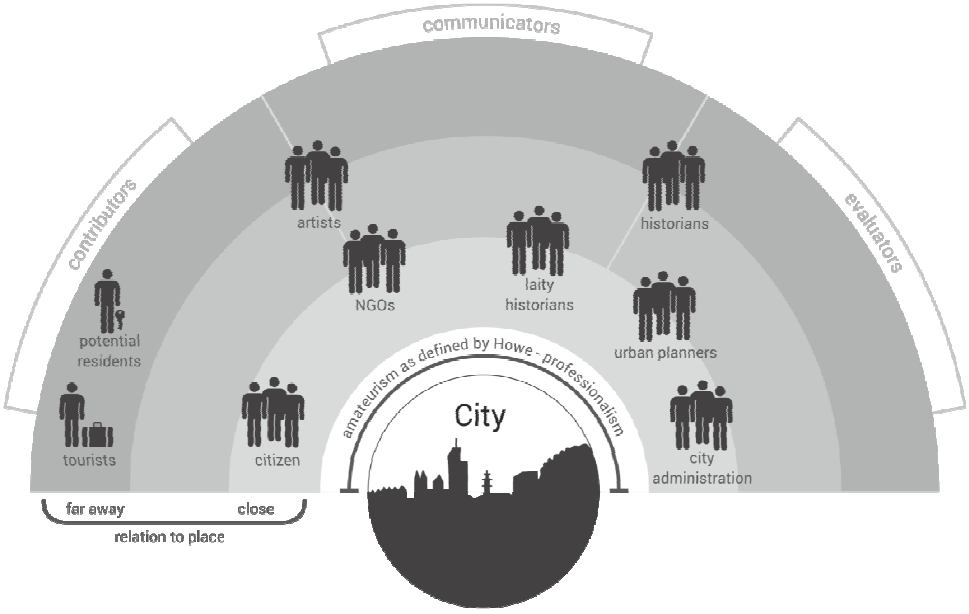

Figure 2 Main potential user groups – Characterization in terms of the two most important identified features (own source).

Additionally, two characteristics were found to be of some importance to the project. One is the relation towards the place or city people may want to read or write about, the other is their level of professionalism. The first characteristic indicates from which point of view potential users will approach the opportunities available through the web frontend, while the latter implies a methodological approach in using it. The user groups are heterogeneous, i.e., they vary internally in their characteristics, and users cannot uniquely be assigned to one of the groups described in the following. Nevertheless, stereotypical user groups support us in defining expected use cases for an actual implementation of such a platform. They are summarized in Figure 2. However, note that, the enumeration of user groups given there is not exhaustive, as it represents assumptions about prospective users. Due to the difficulties associated with analyzing user behavior, and due to the fact that user groups will overlap, see above, these hypothetical groups cannot be verified.

Prior to creating the website UrbaneGeschichten, it was necessary to conceive possible categories to organize the incoming stories and to make them searchable and easily accessible. By the time UrbaneGeschichten was set up, six categories were defined to provide a basic structure for stories: Kultur und Kunst (culture and arts), Skurriles und Witziges (bizarre and witty), Liebe und Leidenschaft (love and passion), Traurig und

Melancholisch (sad and gloomy), Geheimes und Mysteriöses (secretly and mysterious) and Allerlei (Various). Those categories were chosen to organize the stories according to their content. The list was extended in light of certain events that took place while working on this project, cf. Figure 1.

5.4 "Analog" Presentations

To raise the awareness for UrbaneGeschichten and to collect further contributions, four analog presentations were conducted in Kaiserslautern during the time period covered in this conbtribution. Theses presentations consisted of a printed map showing the venue of the respective event and the area around it. Furthermore, a poster informed the participants about what UrbaneGeschichten is and how to proceed to contribute to the project. Cards were supplied on which visitors could write down their stories, opinions or feedback, with an option to refuse to publish the stories online. The cards could be placed on the map through a twine and a pin, and were later entered into the online platform by the authors of this paper. The four occasions and locations at which these analog presentations were held was the block party EinViertelTakt in June 2013, at the urban planning discussion forum Stadt.Umbau.Salon in October 2013, and in two local cafés during November and Decemer 2013. This way, a total of 42 contributions had been collected in written form and transferred into the online collection by the end of 2013.

5.5 Evaluation

The purpose of this section is to evaluate the gathered data. The source of that data is Crowdmap, which automatically accumulates certain statistics, and complementary data that has been recorded while working on this project.

Categories	Amount
Kultur und Kunst | culture and arts	11
Skurriles und Witziges | bizarre and witty	12
Liebe und Leidenschaft | love and passion	8
Traurig und Melancholisch | sad and gloomy	0
Geheimes und Mysteriöses | secretly and mysterious	3
EinViertelTakt | block party	24
Stolpersteine | stumbling blocks	12
Allerlei | various	19
Categories assignments of all stories (68)	89

Figure 3 Numerical distribution across categories - The number of times each category has been assigned to any story on UrbaneGeschichten (own source).

5.6 Reports

In total, 68 reports were submitted until December 31, 2013. To avoid overly emphasizing one event in the statistic, eight reports are counted as a single report, since they contain identical information, but at different locations. The distribution of the stories across the categories is not uniform. Note that the number of assigned categories exceeds the number of entries because multiple categories can be assigned to a report. To see the distribution in numbers, see Figure 3.

The fraction of each category among all submitted stories can be seen in Figure 4. The largest share is taken by the category EinViertelTakt with 29%, followed by Allerlei (various) with 23%. The smallest share of submissions was received in the category Geheimes und Mysteriöses (secretly & mysterious) with 4%, while the eighth category (sad & gloomy) does not appear in the statistics as there were no entries.

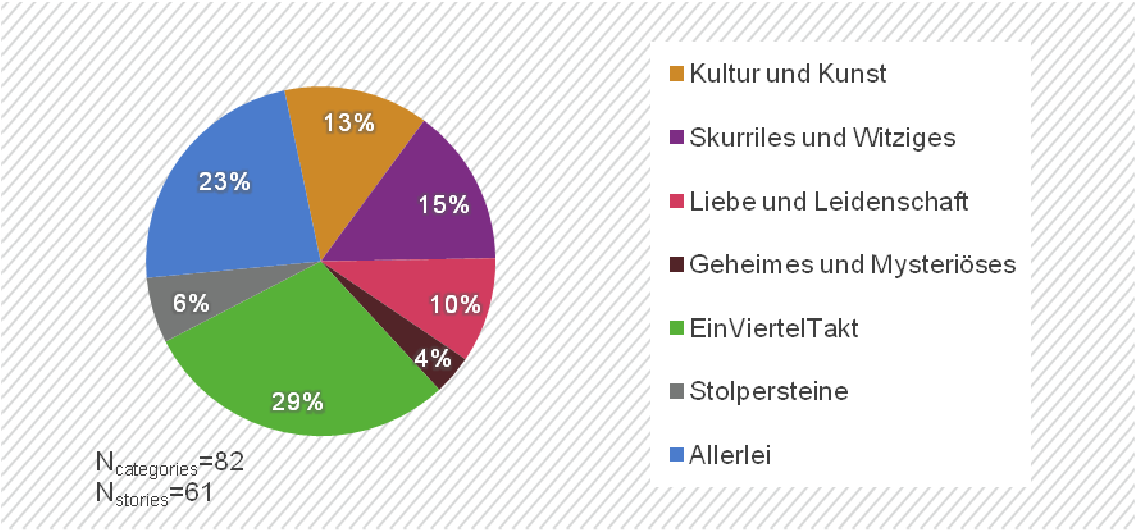

Figure 4 Pie chart of the distribution of reports – Reports can be assigned to multiple categories. Thus, N can exceed the number of reports, in this case (own source).

To reveal whether users tend to submit recent events, or whether they prefer to tell the world stories from the more distant past, the gap between assigned date and the actual submission date was measured. For some, no date was assigned, and it could not be determined from the context of the stories. Those ones will be referred to as "unknown", in what follows. Figure 5 shows the distribution of the resulting time gaps grouped into coarse time intervals from stories older than one year to stories submitted on their day of occurrence. Next to the extra group of the unknown, there is also the group of events that lay in the future when they were entered.

One can see that the bars of reports with stories reported less than one month and over a year after they took place are the highest. Most unknown dates derive from the offline presentation at the block party, when the form was not always filled out completely. The smallest bars correspond to reports dated in the future and to stories for which between one month and one year passed until submission.

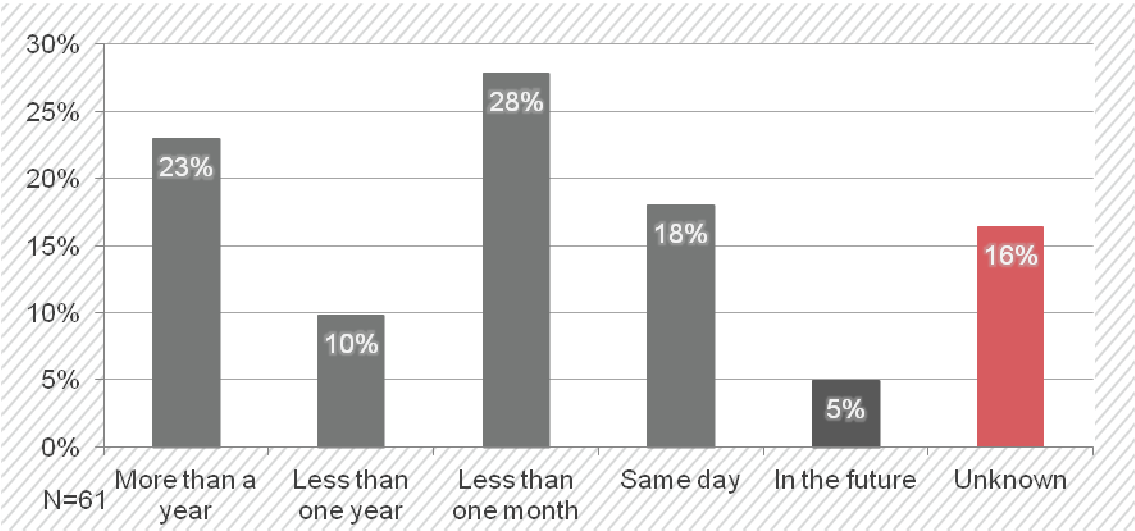

Figure 5 Time between assigned report date and submission date – This chart shows the distribution of submissions across various time gap intervals. Note that even though Ushahidi records the submission dates, uncertainties are to be expected, because some cards from the presentation at the block party did not contain an assigned date (own source).

5.7 Content

Besides the rather quantitative analysis above, it was also of interest whether the topics covered in the submitted stories could be analyzed. To this end, attributes were selected to reveal whether the submitted reports focused rather on private or public topics. The six content attributes and the questions behind them are:

- personal (Does the story have a private character?),

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- places (Does the story refer to specific locations?),
- inhabitants (Does the story refer to locals in the reported area?),
- city (Is the story about the city itself?),
- events (Is the story about some event?) and
- informative (Does the story have an informative character?).

Each question was answered for every story (N = 61) by either yes or no. Figure 6 shows the percentage of yes and no answers for every attribute. The attributes were divided into two groups. Group one comprises stories which are of private character (personal, places and inhabitants), while the second group of stories covers public topics (city, events and informative). The attributes from the private and public groups appear to be anti-correlated, which can be seen especially well from the trend lines in Figure 6. This means that it is more likely to find two attributes from the same group than to find one public and one private attribute in the same story. That allows for the conclusion that in most cases a story comprised attributes either from the first group or from the second. Note however that there are some reports which contain characteristics of both groups. One fourth of the reports refer to the city in which the story took place (16 stories) and 75% mention some specific place (46 stories).

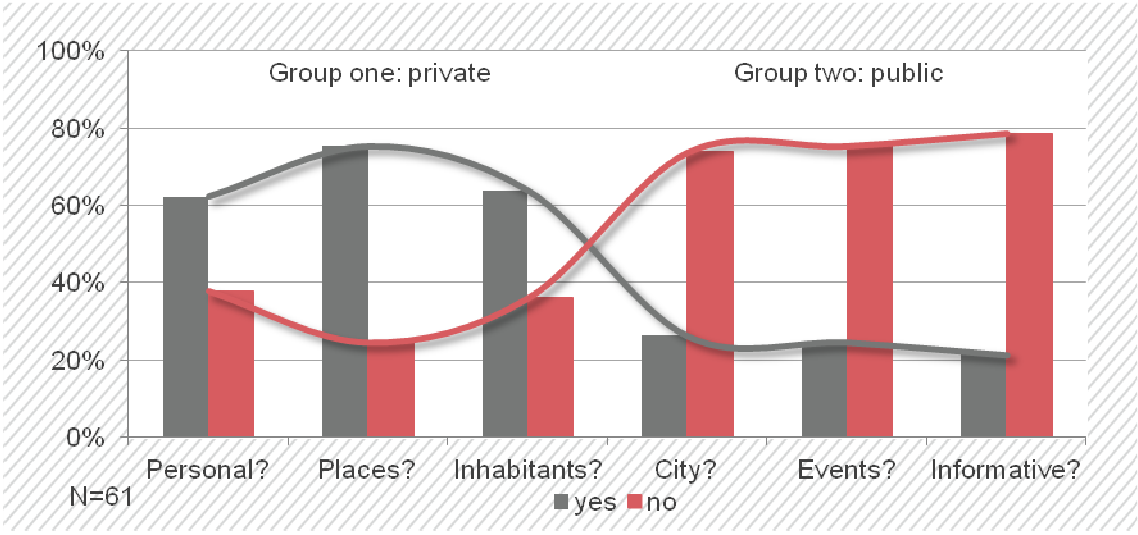

Figure 6 Distribution of reports across selected content types – The percentage of yes and no answers to each of the questions specified in the text. The trend lines connect yes and no answers, and suggest that most stories belong either to the left group (private) or the right group (public) rather than uniting characteristics from both groups (own source).

Furthermore, one may be led to the false conclusion that reports are balanced between the public and private groups. But, there are in fact more reports in the private group (44) than in the public group (13). Together with the neutral reports, which could not be assigned to any one group because they possessed an equal count of attributes in either group (4), the total of N=61 evaluated reports is reached. Note that since reports of the same content at multiple locations have been removed from this statistic, here N is smaller than the total number of collected reports (68).

Figure 7 Tag cloud of the most frequently mentioned words – These give an idea and brief overview of the topics covered in the 68 reports (source: http://www.wordle.net).

After evaluating the reports according to their attributes of content, the texts were also evaluated visually using a cloudtag, cf. Figure 7 below. Among the most frequently occuring words, the terms ich (I), wir (we), KL, Rad (cycle), Abend (evening), Kaiserslautern, Stadt (city), Jahren (years) and Freund (friend) stand out.

6 DISCUSSION

Statistical data collected over a time span of only 8 months was analyzed for this contribution, which allows only for a limited amount of deductions. Yet, the data did indeed reveal some remarkable findings. From the data obtained from the Crowdmap servers, it is known that 254 individuals visited the site during this period, during which 68 stories were collected in total. When comparing these two figures, one has to consider that many reports have not been submitted online, but rather in written form at EinViertelTakt and during three exhibitions of analog versions of UrbaneGeschichten. A further result of the statistical analysis was that stories with both public and private character were reported. Surprisingly, the number of private stories in the evaluated collection exceeded the number of public or neutral stories by a factor if 2.5. Having the opportunity to express opinions about the city, there were only very few stories with negative connotation. Also, many stories referred to specific places, and still a significant amount related directly to the city. Thus, it is concluded that Ushahidi is a highly suitable tool for narrative urban mapping.

Using these results, there are potential applications for such a narrative database in the context of urban planning. Firstly, for the field of urban studies, UrbaneGeschichten could prove to be useful as it offers monitoring and real-time acquisition of information. This information is collected in form of narrations, opinions and material, e.g. in form of pictures, and is usually not accessible to this extend via traditional sources or participation processes. Further, as the platform possesses social media functionalities, it could become a meeting point of people interested in planning issues, thus becoming integrable in the participation process. Secondly, UrbaneGeschichten offers a platform for the urban planner to tap local knowledge as well as to get in contact with people interested in urban planning issues. Yet, there are remaining barriers as not everyone has the required means to access the internet. Nevertheless, the platform has the potential to become a meeting point where people can share and discuss information and opinions.

Overall, UrbaneGeschichte has shown to be a suitable tool and to hold the potential to collect, archive and allow access to narrations of all kinds.

An additional aim of the project was to find out if it has the potential to become a complementary – but incomplete – city chronicle of snaps from biographies, anecdotes or opinions and experiences within the spatial environment of a city. This question was answered by outlining theories related to memory and their preservation in relation to the internet. The finding was that the internet as a medium to publish everyday life stories does work with regard to its ability to lower the barriers of the selection process. But, it also works with regard to archiving and making stories retrievable. Since more private than public matters have been collected in UrbaneGeschichten, it seems that it could become an alternative archive of urban narratives that complements official archives – which focus on published media and historical facts. Thus, the project enables a bottom-up process to information gathering and collaborative urban mapping of narrations.

Furthermore, this process of sharing memories publicly enables - additionally - that places can become "imprinted" with multiple different experiences and therefore multiple memories. The potential of these is to become part of a cultural memory and therefore part of the prevailing identity or group identity, unfolding through contemplation of these memories.

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