

Collaborative Webmapping: Creating Layers of Lesbian Visibility

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Abstract

This paper reports the results of ‘Creating landscapes’, the last phase of the research project “Reconceptualising Public Spaces of (In)Equality: Sensing and Creating Layers of Visibility” which aims to explore the potential of public authoring and collaborative web mapping to promote the agency and empowerment of people who experience discrimination. The methodological approach of ‘Creating landscapes’ is centred on two structured workshops: ‘Collaborative web mapping’ and ‘Layers of Visibility’. On the ‘Collaborative web mapping’ workshop a collaborative web map of Portugal was produced, based on georeferenced data created by lesbian and bisexual women, to explore how the creation and sharing of layers of personal experiences, thoughts and emotions, can empower women who experience discrimination on grounds of sexual orientation. On the ‘Layers of Visibility’ workshop a web map with positive lesbians’ experiences on public spaces was created and made accessible on web browsers and directly on location with mobile devices (tablets, mobile phones), to investigate how creating and sharing digital layers of lesbian visibility can disrupt a hetero pervasive reality and impact social identity and belonging.

1. Introduction

This paper reports the work in progress of the last phase of the research project “Reconceptualising Public Spaces of (In)Equality: Sensing and Creating Layers of Visibility”. The objective of the research project is to explore the potential of public authoring and collaborative web mapping to promote the agency and empowerment of people who experience discrimination and it is organised in three phases: ‘Mapping the landscape’ - to map physical and online spaces of lesbian and gay visibility in Portugal and to explore same-sex displays of affection in public spaces; ‘Sensing the landscape’ - to identify significant dimensions of space and places that relate to lesbian and bisexual women's social identities through collaborative maps based on bio data, on-site

emotions, personal experiences and significances; and ‘Creating landscapes’ - to explore how creating and sharing digital layers of lesbian visibility on collaborative web maps can disrupt a hetero pervasive reality and impact social identity and belonging.

Space and social identities mutual relation of constitution and reproduction, lead us to the understanding that space reflects power relations and hegemonic discourses, and that inequality can perpetuate itself through the ways space is organized, experienced, represented and created (Massey, 2005; Mitchell, 2000; Smith, 1991; Valentine, 2001).

This research addresses sexual identities because spatial visibility is a particularly important aspect of their constitution and reproduction (Mitchell, 2000; Valentine, 2001). Discriminated minority groups, such as lesbians and gays, experience power inequalities in their everyday lives, and their spatial invisibility contributes to their disempowerment (Agency for Fundamental Rights, 2009). The research focuses on lesbian and bisexual women because of the specificities of the interrelation of women and public spaces (Valentine, 1993) and the scarcity of research on lesbian issues when compared to gay issues (Ferreira and Silva, 2011).

The methodological approach of ‘Creating landscapes’ is centred on structured workshops: ‘Collaborative web mapping’ and ‘Layers of Visibility’. On the ‘Collaborative web mapping’ workshop a collaborative web map of Portugal was produced, based on georeferenced data created by lesbian and bisexual women, and on the ‘Layers of Visibility’ workshop a web map with positive lesbians’ experiences on public spaces was created and made accessible on web browsers and directly on location with mobile devices (tablets, mobile phones).

2. Space and sexual identities

Space and social identities are mutually constituted. Space is an essential part of the constitution and reproduction of social identities. Moreover, social identities, meanings and relations produce material and symbolic or metaphorical spaces (Cloke, Philo & Sadler, 1991; Massey, 1999; Smith, 1993).

Geographical space is not an objective structure but a social experience imbued with interwoven layers of social meaning. These meanings shape the way spaces are produced and used, and how spaces can feed back into shaping the way in which people categorize others and identify themselves (Smith, 1991).

As Doreen Massey (2005:107) argues, because space emerges through relations which are active practices, material and embedded, space is made of a dynamic simultaneity, constantly disconnected by new arrivals, constantly waiting to be determined (and therefore always undetermined) by the construction of new relations. Space is always under construction and in a process of becoming.

To theorise space as the product of social relations, leads us to the understanding that public space is not an emptiness which enables free and equal speech. Public space, from the greatest square to the smallest public park, is a product of heterogeneous and sometimes conflicting and unequal social identities/relations. Identities are produced within the complex power-geometry of social/spatial relations, and in turn the way in which individuals experience and imagine spatiality reshapes the power-geometries of social/spatial relations (Massey, 2005).

Social identities (such as class, gender, sexuality and race) are socially constructed, not taken for granted as given or fixed, and therefore they can be contested, resisted and (re)negotiated (Valentine, 2001; West & Fenstermaker, 1995). The power-laden spaces in and through which life is experienced are highly contingent on the way particular identities become salient or foregrounded at particular moments. Individuals maintain multiple identities in different spaces and in one space but at different times. Social identities are neither stable nor passively received understandings of social differences; therefore it is not possible to explain inequalities through a single framework. Intersectionality, as spatially constituted and experienced, supports the understanding of the intimate connections between the production of space and the systematic production of power (Valentine, 2007).

This research focuses on lesbian and gay sexual identities because of their strong relation to spatial dimensions. Sexual identities depend to some extent on particular spaces for their production, and space is also produced through the performance of identities. Spatial visibility has been and still is particularly important in the development of lesbian and gay civil rights movements (Mitchell, 2000). An individual's sexual identity may be read as lesbian or gay from the space they occupy, or a person may only feel able to "come out" and identify as gay in a lesbian or gay space. (Mitchell, 2000; Valentine, 2001). Pride marches, self organized neighbourhoods with lesbian and gay friendly ambience, specific public places announced to be safe and

discrimination-free, and the negotiation of place-related identities (sexual orientation disclosure only in specific places), all have a common attribute: space.

Sexual orientation has an additional relevant characteristic for this research – the possibility of invisibility. People can decide not to disclose their sexual orientation, and invisibility is a common option on a context of social discrimination (Ferreira, 2008). Although there have been significant legal steps towards equality in the European Union, discrimination on grounds of sexual orientation is still a widespread reality. Lesbians and gays invisibility is simultaneously a consequence and a cause of inequalities in their everyday lives, and contributes to their disempowerment (Agency for Fundamental Rights, 2009).

2.1. The pervasive invisibility of lesbian and gay sexualities in public spaces

Sexuality is a process of power relations which mediates our everyday interactions, rather than a feature of private life (Valentine, 1993:246). Hegemonic discourses, such as heteronormativity, are literally inscribed in space. As an example, relevant to this research, the performance of non-normative identities in public space, such as lesbian and gay sexual identities, disrupts and therefore exposes the way in which the street is commonly produced as “naturally” or “normally” a heterosexual space (Bell, 2001; Valentine, 2001).

The intimate connections between the systematic production of power and the production of space have been uncovered and studied by a diverse range of researchers. In particular spaces, there are dominant spatial orderings that produce moments of exclusion for particular social groups (Massey, 1999; Mitchell, 2000; Smith, 1991; Valentine, 2007).

‘Mapping the landscape’, the first phase of the research project “Reconceptualising Public Spaces of (In)Equality: Sensing and Creating Layers of Visibility”, aimed to map physical and online spaces of lesbian and gay visibility in Portugal and to explore same-sex displays of affection in public spaces. The results provided original empirical data on the interrelations of sexual identities and space (Ferreira, 2011). The study focused on behaviours (same-sex public displays of affection) rather than on identity discourses. This approach made it possible to stress the significant relations of sexual orientation disclosure with space, and to uncover some examples of dissonance in the self - identity

discourse of lesbians and gays. Public displays of affection are rather common in the Portuguese socio-cultural context, a fact which offers a special opportunity for exploring how lesbians and gays negotiate same-sex displays of affection in public spaces.

The research results (Ferreira, 2011), based on semi-structured interviews and an online survey, indicate that same-sex public displays of affection (such as holding hands, hugging, kissing) are not frequent for the homosexuals and bisexuals that participated in this research. The main reasons the participants identified for refraining from public displays of affection, are: a) the feeling of “not being safe” / fear of discrimination; b) the understanding that people in general are not prepared to deal with same-sex public displays of affection and that homosexuals and bisexuals should not confront others (which can be identified as internalized homophobia); and c) the need to take into consideration their partners’ attitudes towards same-sex public displays of affection. Only a small percentage of the respondents answered that they had the right to express their affection regardless of other people’s reaction or society’s respect for diversity. Most of the respondents reported an ever-present feeling of a lack of safety associated with same-sex public displays of affection and the understanding that these behaviours imply the disclosure of one’s sexual orientation.

Analysing the results according to age did not reveal any differences. Due to the significant increase of LGBT associations and comprehensive legal changes which have occurred in Portugal since 1996 (Ferreira and Silva, 2011) we would expect a higher percentage of younger lesbians, gays and bisexual persons having same-sex public displays of affection. The Eurobarometer on discrimination in the EU (European Commission, 2009) can contribute to better understanding these results, as it reveals that the younger citizens perceive the discrimination on grounds of sexual orientation as being more widespread than the older citizens. A greater awareness of the risk of being discriminated can contribute to a more cautious/defensive behaviour in public spaces.

Another noteworthy result is that some of the interviewees who had previously “come out” to their families, friends or co-workers, also reveal avoiding public displays of same-sex affection. These results can be better understood if we acknowledge that the process of “coming out” is a complex and difficult process in which individuals

negotiate space/time strategies such as deciding not to have same-sex public displays of affection (Valentine, 1993).

This research (Ferreira, 2011) also explored the relation of the characteristics of public spaces with same-sex displays of affection. Most of the respondents identify isolated public spaces away from “other people’s eyes” as safer for same-sex public displays of affection. Public spaces are constructed around particular notions of appropriate sexual comportment, reflecting and reproducing heteronormativity, as they exclude non-normative sexualities, such as lesbian and gay sexualities (Hubbard, 2001). Another clear idea stands out: proximity to place of residence or work limits same-sex public displays of affection given that most of the respondents do not want to be identified as lesbians or gays by people with whom they interact daily. On the other hand, spaces identified as LGBT friendly, like some nightlife areas in large cities characterized by a sense of anonymity, are facilitators of same-sex public displays of affection. An analysis of space/time contexts is interesting. Lesbians and gays may feel comfortable in public spaces that they usually do not consider friendly, but that at specific times become so, such as during Pride events or LGBT film festivals. The presence of visible lesbians and gays can transform a heteronormative space into a homo-friendly one (Bell, 2001; Valentine, 2001).

The research results (Ferreira, 2011) point out that if we were to draw a map of friendly public spaces to same-sex public displays of affection, we would have to draw as many maps as individuals; the importance of residence and workspaces dictates the need for personal maps of lesbian and gay visibility; there would be no single map that would meet the specificities of each individual; probably only some nightlife areas in large urban areas would be common spaces to all personal maps.

Research on the experiences of being lesbian, gay or bisexual can contribute to improve our understanding of sexuality as a process of power relations which mediates our everyday interactions.

3. Participatory geospatial web

Space representation through maps is a socially constructed form of knowledge that contains different meanings and reflects diverse relations of power (Harley, 1988; Wood & Fels, 1992). As the ability to map and mark places become more widely available

through technology, the power of shaping reality through mapping is increasingly the privilege of many (Barnett, 2003). The rich diversity of media in everyday life and the rapid democratisation of geographic information, enable people to actively participate in space representation through adding and sharing of cartographic content, giving rise to the geospatial web. Due to the increasing sophistication in location-aware portable devices, such as mobile phones, together with web technologies, maps can easily be created, modified, and shared (Silva et al., 2009).

Current web mapping services provides features for users that support the creation and sharing of location-based content and people are increasingly using web maps to connect with each other and with the urban and natural environment in ways that no one had predicted (Roush, 2005).

A wide diversity of research projects on mobile devices and collaborative web mapping are being carried out by universities and research centres. Projects, such as Social Tapestries (<http://socialtapestries.net/>) promote a participatory approach to data collection, exploring the potential benefits and costs of collaborative web maps generated by means of public authoring systems. Public authoring is the mapping and sharing of local knowledge using pervasive computing technology to create and support relationships beyond established social and cultural boundaries and the development of new practices around place, identity and community (Airantzis et al., 2008:11). Public authoring proposes that everyday people become the authors of a complementary flow of knowledge, information, memories, stories and experiences that adds local specificity to the more generalised material that can be offered by media companies. Social Tapestries projects have focused specifically on how public authoring can support grassroots participatory activities to contribute to an alternative experience where people are presented with the opportunity to be agents, actors and authors (Lane et al., 2005).

Participatory approaches to collaborative web mapping are numerous and participation patterns vary. Goldman et al. (2009) propose three models: Collective Design and Investigation - individuals define what, where, and why to map, interpret the data and act on the results; Public Contribution - participants are actively involved in the collection of data they find meaningful, but not necessarily in the definition of research questions or use of the results; and Personal Use and Reflection - individuals log

information about themselves and use the results for personal discovery. Participatory approaches create the opportunities for community and personal discoveries, allowing people to use today's technologies to observe, document, and act on issues that matter to them. It fosters positive changes and empowerment in peoples' lives (Goldman et al., 2009).

4. Creating landscapes

The methodological approach of this phase of the research is centred on two structured workshops: 'Collaborative web mapping' - a collaborative web map of Portugal was produced, based on georeferenced data created by lesbian and bisexual women; and 'Layers of Visibility' - a web map with positive lesbians' experiences on public spaces was created and made accessible on web browsers and directly on location with mobile devices (tablets, mobile phones).

The decision process of designing "Creating landscapes" workshops was based on the results of previous research tasks (Figure 1). Considering the objective of this phase of the research: to create and to access georeferenced layers of web maps; and the need to use a free and usable software (so that participants could easily collaborate), did not support the choice of a software that enables the creation and access of web maps information both online and on local. The available software with these features is not yet user friendly and/or requires mobile phones with access to the Internet (this is not a feature commonly used in mobile phones in Portugal¹). Additional constraints were related to the need of using free and usable software compatible with a diverse set of hardware, considering that the participants had to use their own equipments (the research had no funding).

Based on the information shared by the participants on the previous phases of research we became aware of some aspects that had to be taken into consideration, namely: the need to organize an engaging and interactive activity; to ensure that the participants' personal information, and in particular their sexual orientation, was not disclosed publically; and to protect information on participants location for security reasons (on

¹ State of Communications 2011, ANACOM, available at <http://www.anacom.pt/render.jsp?contentId=1127309>

accounts of the discriminatory social context). These aspects led us to opt for a collaborative/shared web map that was visible only to the workshop’s participants.

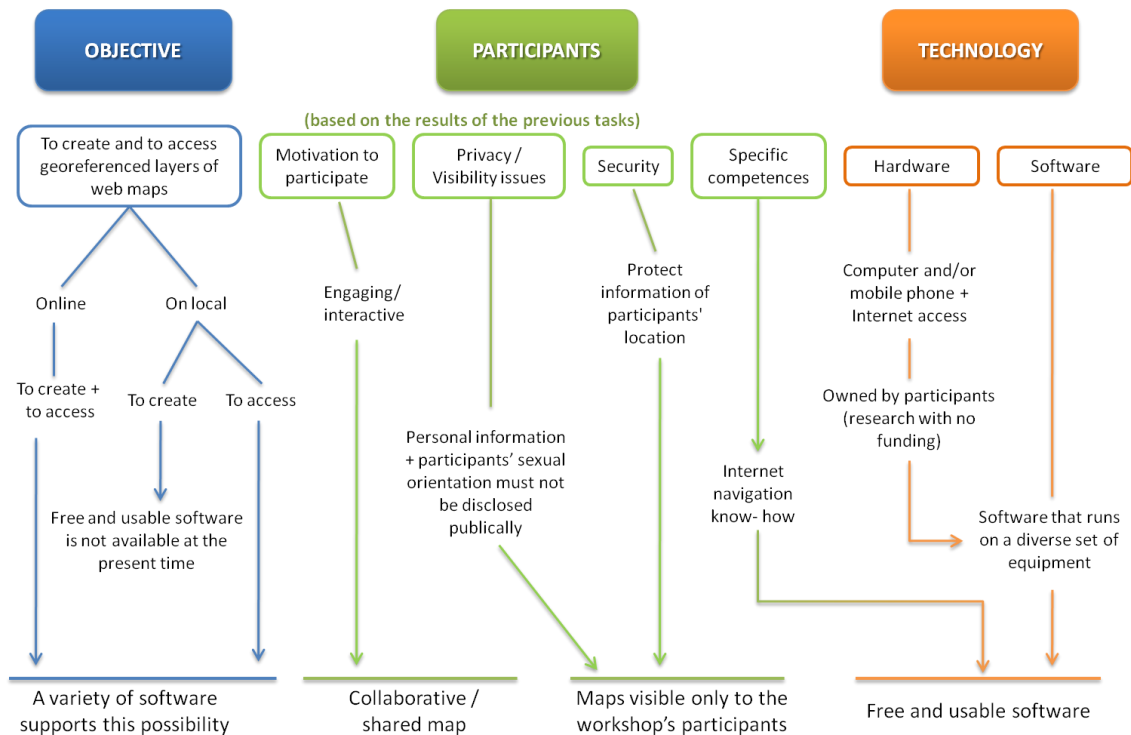


Figure 1 - Map of the decision process of designing “Creating landscapes” workshops

As a result of this decision process the choice was to use Google Maps with the privacy and sharing settings set to ‘Unlisted’, which allows sharing its content only with selected people who have the map's URL². The field work period was from January to July 2012.

4.1. ‘Collaborative web mapping’ workshop

This workshop consisted of a collaborative web map of Portugal, based on georeferenced data created by lesbian and bisexual women. The call for participation was explicit that the collaborative web map should be based on impressions, experiences, thoughts, emotions or memories, related to public spaces. A Google Map “Camadas de Visibilidade” (unlisted – not accessible through search engines, available only to people who have the map's URL) was created by the researcher and participants

² Uniform resource locator (URL) is a specific character string that constitutes a reference to an Internet resource.

were invited as collaborators; all collaborators could create placemarks³ and/or comment (add content) to placemarks created by other collaborators. The steps of the workshop were: to call for participation on LGBT Portuguese mailing lists and on Facebook; to create an initial map with some placemarks with information from the previous phases of the research project so that collaborators did not face an “empty” map; to send detailed instructions and regular mails to collaborators (1 per week) to remind that the workshop was running; to make regular backups of kml files⁴ (feature available on Google maps) to record the process of the web map creation; and to publish an online survey⁵ to assess collaborators activity during the workshop. The period of web map creation was 7 weeks.

Initially 24 women accepted the invitation to participate in the ‘Collaborative web mapping’ workshop, however only 14 created (or commented) placemarks. Most of the participants identified themselves as lesbians, live in urban areas, have at least a secondary level of education, and are more than 30 years old. The professional occupation is diversified and in various areas of activity. Two of the participants were unemployed.

The survey to assess collaborators activity during the workshop explored: the clarity of the instructions; frequency of web map visualization; number of placemarks created and/or commented; access with mobile phone; and the effect of their participation on their perception of the spaces where they usually circulate and/or areas that they are familiar with. Based on the results we can conclude that the participants considered that the instructions on how to participate were clear and easy to follow. In what concerns the participants’ activities during the ‘Collaborative web mapping’ workshop: 6 participants accessed the web map at least once a week and 8 less than once a week; 9 participants created 5 or less placemarks, 4 created between 6 and 10, and only 1 created more than 10 placemarks; 6 participants commented on placemarks created by others; and only 1 participant accessed the web map on a mobile phone. The main ideas expressed by the participants on the effects of the workshop on their perception of spaces, are related to: the unexpected overall positive content of the placemarks; access

³ Placemarks can have descriptive text, including rich text and HTML, photos and videos.

⁴ Google Earth's file format for storing placemarks.

⁵ <http://pt.surveymonkey.com/>

to information about country areas where lesbians are more ‘visible’; and an increased awareness of the surrounding space.

“It is positive there are not many references to homophobic attitudes; I expected more on this topic.”

“I got a clearer picture of areas of the country in which lesbians are visible and perhaps, indirectly, where there are more LGBT people.”

“I became more attentive to what is happening around me.”

The analysis of the web map produced during the ‘Collaborative web mapping’ was based on the following steps: **Geo localization** - to count the number of placemarks according to their geo localization; **Transcript** - to create a table with the content of the placemarks: identifying the place, type of icon, content (words and/or photos); and to make a list of all the words used in the placemarks; **Coding** - to code each placemark as positive, negative or neutral, according to their content; to code the types of content of each placemark; and to identify all the placemarks related to same-sex public displays of affection; and **Analysis** - to analyse the words used on the placemarks interrelations and the coding results.

The final Google map “Camadas de Visibilidade”⁶ (Figure 2), after removing the initial placemarks created by the researcher, had 88 placemarks: 43 in Lisbon Region (which includes Greater Lisbon and Peninsula of Setubal), 14 in Porto, 5 in the Littoral (considering the entire area of the Portuguese littoral with the exception of Algarve), 5 in the Algarve, 2 in Azores, 1 in Coimbra; and the rest scattered in the interior areas of the country (mostly with indication of holidays). Notwithstanding that most of the collaborators were from Lisbon, the distribution of the placemarks is similar to the results of ‘Mapping the landscape’ (Ferreira, 2011). An interesting data is that there is only 1 placemark in Coimbra although 3 participants live in that area. The 2 placemarks in Azores are of particular interest since it is one of the geographical areas of Portugal that did not have any data on the previous phases of this research. However we may assume that they were created by someone on holidays, since none of the collaborators lives in the Azores.

⁶ <http://goo.gl/maps/dC6I>

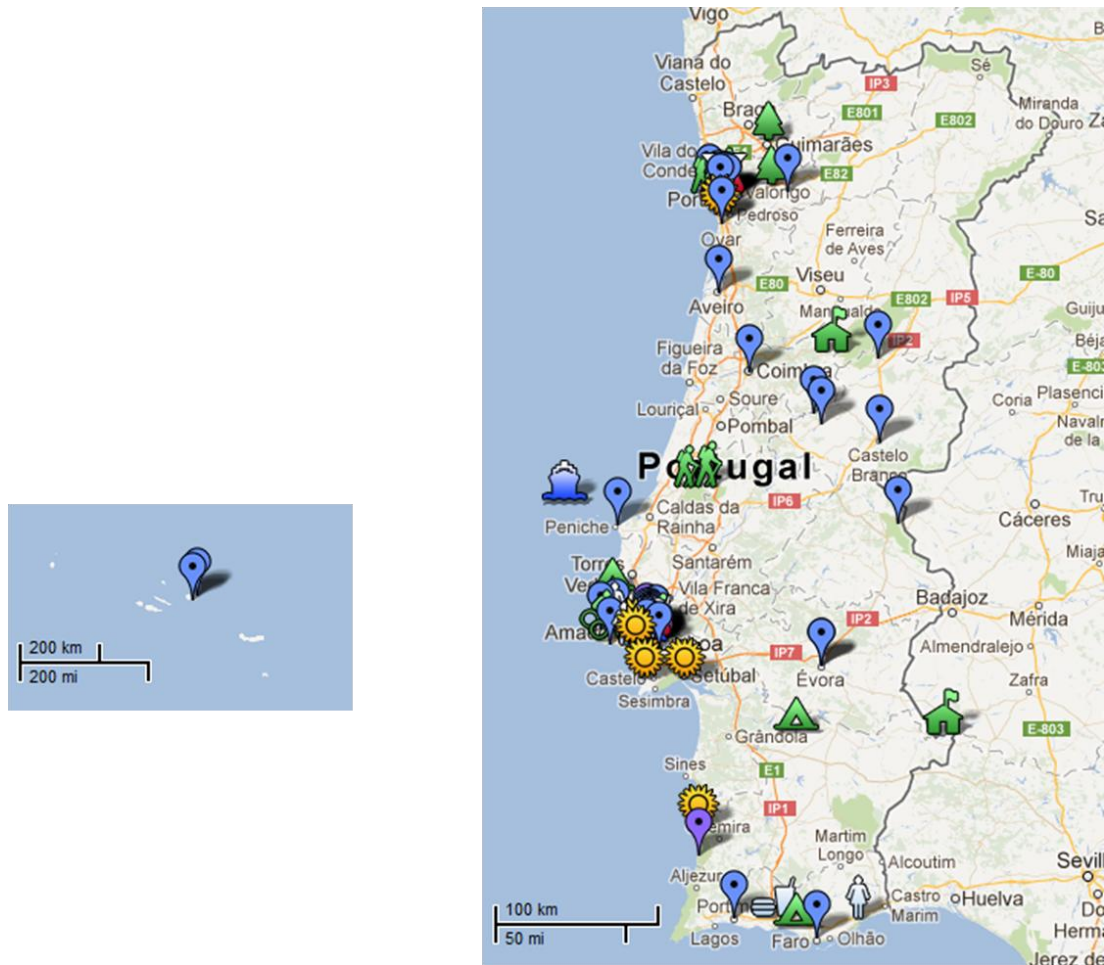




Figure 2 – Final web map of the ‘Collaborative web mapping’ workshop

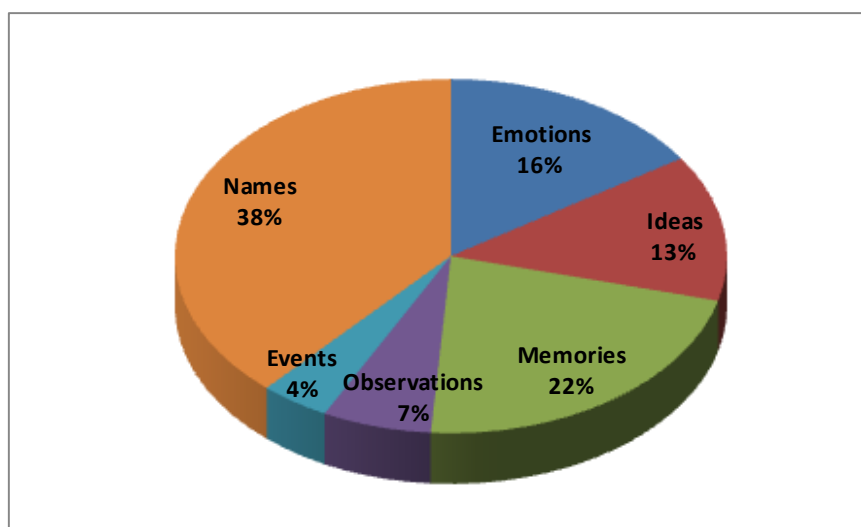
From the 88 placemarks on the web map, 66 (75%) have text. Most of these placemarks have full sentences or small texts; only 14 (16%) have a single word, mostly the name of the location. These results indicate that participants actually contributed with information to the web map.

Although the instructions explained step-by-step how to insert photos on the placemarks and how to change the icon, only 7 (8%) have photos, and 43 (49%) of the placemarks use the default Google maps icon . Out of the 45 changed icons, 12 (14%) are a woman symbol , and the rest is quite diverse, from camping tent, train, food, danger signal, tree, sun, etc. We may say that the graphic aspect of the map was not the most important for the participants, words were privileged over images.

In terms of positive/negative/neutral connotations of placemarks, most of them 59 (67%) have a clear positive content, and the rest are equally divided in negative or neutral connotation. These results present a prevailing positive content of the web map.

Although the call for participation was rather general, asking for participants to contribute with: impressions, experiences, thoughts, emotions or memories, related to public spaces, it is noteworthy that 33 (37,5%) placemarks are related to same-sex public displays of affection. These results might be related to the context of the research project; by the time of this workshop the research project was widely publicized on a wiki with information on previous phases' results and current activities, and participants might be aware that the overall objective was focused on same-sex public displays of affection. The fact that 30 (90%) of the 33 placemarks related to same-sex public displays of affection have a positive connotation might seem unexpected. Although, if we consider the fact, based on the content of the placemarks and the results of "Mapping the landscape", that most same-sex public displays of affection are usually performed in isolated spaces, away from others' eyes, preventing the occurrence of negative reactions, this result becomes more easily comprehensible.

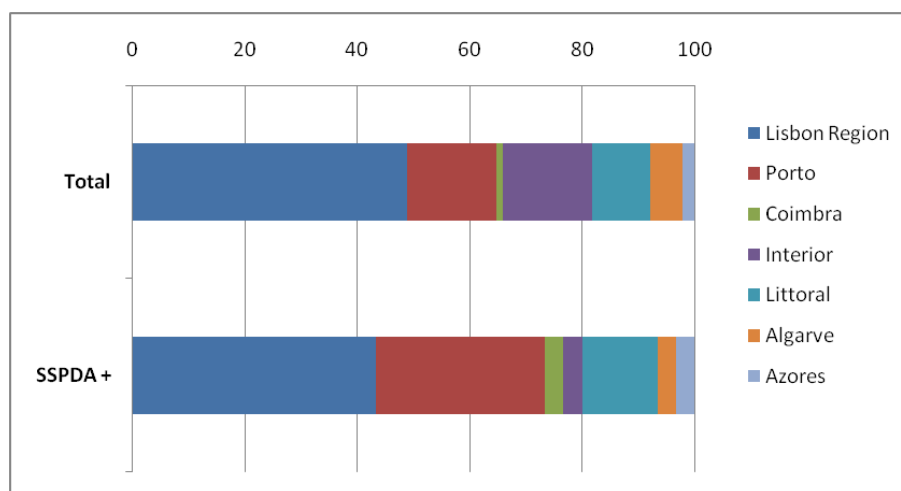
Analysing the type of content of the placemarks we can further explore these results. The categories used to code the type of content, were: **Observations**: description of something that was noticed or perceived; **Ideas**: thoughts, conceptions or opinions; **Memories**: Personal situations experienced; **Names**: just the name of the place; **Events**: reference to specific events; **Emotions**: expression of feelings. According to the content each placemark could have multiple coding, resulting on 172 coding data on 88 placemarks. The Graphic 1 presents the results of this process.



Graphic 1 – Percentage of types of content of the placemarks on the web map

It is interesting to note that participants felt the need to name (38%) the places where the placemarks were positioned, notwithstanding that this information was provided by their geolocation on the web map. Besides the name of places, personal situations experienced (Memories), expression of feelings (Emotions), and thoughts, conceptions or opinions (Ideas) were the most frequent type of content. A description of something that was noticed or perceived (Observations) and reference to specific events (Events) were minor. Participants did contribute with their own experiences, emotions, thoughts and opinions, which was the main objective of the workshop. The collaborative creation of this web map provided a lived representation of georeferenced experiences, emotions, thoughts and opinions of lesbians and bisexual women.

Crossing the information on placemarks related to same-sex public displays of affection with a positive connotation and their geolocation, discloses some interesting results. The percentages of placemarks on specific regions⁷ of the country (Lisbon Region, Porto, Coimbra, Interior, Littoral, Algarve and Azores) differ when we compare the overall distribution with the 30 placemarks related to same-sex public displays of affection with a positive connotation (SSPDA+), as illustrated on Graphic 2.



Graphic 2 – Percentage of types of content of the placemarks on the web map

For instance, Porto has a higher percentage of placemarks on the universe of SSPDA positive placemarks (30%) when compared to the total placemarks (16%), and the Interior has a lower percentage (3% of SSPDA positive placemarks and 16% of total placemarks). These data may indicate that georeferenced experiences, emotions,

⁷ See Pg. 11 for the description of these regions.

thoughts and opinions of the participants have a different geographical distribution if related to same-sex public displays of affection. Porto relevance on the web map's representation is more significant if we consider positive placemarks on same-sex public displays of affection, and the Interior of the country registers the opposite situation. Lisbon Region, Porto and the Littoral are represented on this web map as more friendly to same-sex public displays of affection.

Analysing the words more frequently used on the placemarks (Table 1) it is clear that most of the content was related to same-sex relationships: couple(s), girlfriend, dating, kisses and lesbians, are amongst the words most frequently used. These results are in line with the workshop's context and demonstrate that participants did comply with the workshop's objective.

Couple(s)	15	Lesbian(s)	10
Girlfriend	15	Lisbon	10
Dating	15	Gaze	10
To kiss, kisses	11	LGBT	8
Porto	11	People	8
Beach	11	Public	8

Table 1 – Words more frequently used on the placemarks

A particular contribution was quite interesting. In this case it was possible to determine the authorship of the placemarks by the date of their creation and the type of content (given that the placemarks creation was anonymous). This contribution consists on the last 17 placemarks of the web map (on the left sidebar of the Google map there is a list with all the placemarks ordered by the day they were created or commented on) and reports a personal history. It illustrates how a web map can tell a georeferenced history; by reading these georeferenced placemarks we can understand the relation of different places with specific episodes of life, states of mind, emotions and individual positionality. We come to understand the path lived by this woman, from her adolescence in a small town characterized by loneliness and oppression, through her university years in Porto when her sexual orientation was a cause of distress as well as a trigger to self-awareness and active resistance, passing by some years of suffering and destructive behaviour, the discovery of the independence of having her own house, to a

time of change and LGBT activism in the 90's in Lisbon. This history fits in the context of the LGBT movement in Portugal; it was until the 90's and in Lisbon that LGBT associations became relevant and visible.

Summarizing the results we can say that the content of the placemarks indicate that the participants contributed to the web map with their own experiences, emotions, thoughts and opinions related to same-sex relationships. On the online survey participants acknowledged that the 'Collaborative web mapping' workshop made them more attentive to the surrounding spaces. The content of the placemarks was mostly positive even when related to same-sex public displays of affection. However the results point to a heterogeneous geographical distribution of positive placemarks related to same-sex public displays of affection. Lisbon Region, Porto and the Littoral are represented on this web map as more friendly to same-sex public displays of affection, in concordance with the results of the previous phases of the research. The collaborative creation of this web map provided a lived representation of georeferenced experiences, emotions, thoughts and opinions of lesbians and bisexual women, and one particular example illustrated how a web map can tell a georeferenced history.

4.2. 'Layers of Visibility' workshop

A web map with positive lesbians' experiences on public spaces was produced by the researcher with information from 'Collaborative web mapping' workshop and made accessible on web browsers and directly on location with mobile devices (tablets, mobile phones). The decision about the area of the map of 'Layers of Visibility' workshop, Parque das Nações in Lisbon, was made based on information gathered on the first phase of the research "Mapping the landscape". This particular area of Lisbon has some characteristics suitable for the workshop: it is not identified as LGBT friendly (the objective of the workshop requires a hetero pervasive reality), and it is a cosmopolitan area with lots of people walking by (the cosmopolitanism and peoples' presence can provide security – this is particularly important since the map used in the workshop can create the impression of a lesbian friendly area and participants may feel safer to have same-sex public displays of affection).

The placemarks displayed on the map used in this workshop⁸ were selected from all the placemarks created by the collaborators of the ‘Collaborative web mapping’ workshop. The criterion to select the placemarks was related to positive lesbians’ experiences on public spaces. Most of the placemarks on the map of ‘Layers of Visibility’ workshop (12 out of 16) contain information on positive experiences of same-sex public displays of affection. The placemarks were moved from their original locations (diverse places all over Portugal) to ensure collaborators privacy, and their georeferentiation was chosen in order to cover the whole area of Parque das Nações.

The initial idea was to publish and to gather information on reactions to the map of ‘Layers of Visibility’ workshop through Facebook. The procedures were: to create a group on Facebook (members were selected from Portuguese lesbian groups on Facebook); to set the privacy level to ‘secret group’ (only group members can see posts, members by invitation only); to share the “Layers of Visibility” web map with *the Wikitude MyWorld* Facebook App; and to call for comments on the Facebook group about the mapped area (reactions in terms of representation and possible behavioural changes). *Wikitude myWorld* is a feature of the *Wikitude World Browser*, announced at the Mobile World Congress 2012 in Barcelona (27 February - 1 March, 2012). *Wikitude World Browser* was the first mobile Augmented Reality⁹ browser worldwide. It allows the search for points of interest by current position and to view them on a map, list, and on an Augmented Reality (AR) camera view. With *Wikitude myWorld* users can create georeferenced tags to places with descriptions, photos and comments producing an Augmented Reality (AR) World directly from their mobile device and share it with Facebook friends. Places can be created in real time on Smartphones or by interacting with a world map via the *Wikitude myWorld* Facebook App¹⁰ on the web. *Wikitude myWorld* is available on Android, iOS and BlackBerry handsets. Although *Wikitude myWorld* enables the creation and access of information on local (see Figure 1 - Map of the decision process of designing “Creating landscapes” workshops) it requires mobile phones with access to the Internet (it is not yet a feature commonly used in mobile phones in Portugal¹¹).

⁸ <http://goo.gl/maps/jHcp>

⁹ AR allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. (Azuma, 1997).

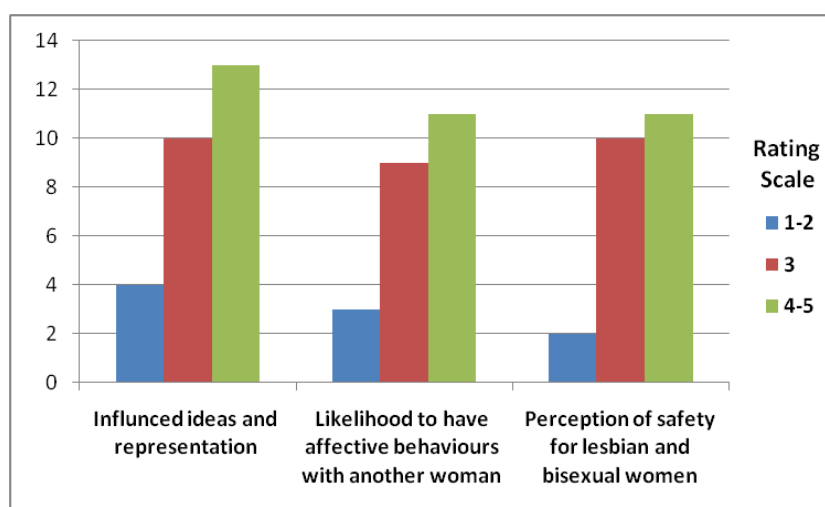
¹⁰ Wikitude myWorld Facebook App: apps.facebook.com/wikitude

¹¹ <http://www.anacom.pt>

Although the Facebook group had 62 members (self identified lesbian and bisexual women), almost no-one commented on the map. Some participants mentioned that they were not comfortable using a Facebook App because it requires that the user grants access to personal information. In order to promote participants' reactions to the 'Layers of Visibility' map it was created an online survey¹² based on the Google maps version. Most of the 23 women who answered the online survey identified themselves as lesbians, live in Lisbon region, have at least a graduate degree, and are more than 30 years old. The professional occupation is diversified and in various areas of activity.

It is interesting that not only women from Lisbon answered the online survey. Parque das Nações is a well known place even for people out of Lisbon (this was the site of Expo 98 and since then it has been a rather cosmopolitan and touristic area).

The online survey asked some questions about the effect of the web map on: ideas and representation of the area; likelihood to have affective behaviours with another woman in this space; and perception of safety for lesbian and bisexual women. The answers required both the use of a rating scale (from 1=not at all to 5=completely) and a text.



Graphic 3 – Rating scale results (number of answers) of the online survey's questions

The answers to the rating scales (Graphic 3) indicate that most of the participants acknowledge the effect of the web map on their ideas and representation of Parque das Nações, namely that they perceive this space as safer for lesbian and bisexual women, and that it is more likely to have same-sex public displays of affection.

¹² <https://sites.google.com/site/layersofvisibility/>

The text answers contribute to better understand the effect of the web map on the participants' representation of Parque das Nações and possible future behaviour. Some participants explicitly refer to the sense of belonging, safety and joy elicited by the visualization of the web map with positive lesbians' experiences on this public space. The positive emotional reaction to the web map is worth mentioning if we consider that participants (as we all) live in a pervasive heteronormative public space that discriminates non-normative sexual orientations.

It was refreshing and liberating to understand that a space that I know is a space of visibility and affection for people with the same sexual orientation than mine. I feel joy, belonging, freedom. Bisexual, 24 years old

One interesting outcome is the increased awareness of the importance of space to lesbians and bisexual women's behaviours. Although the intimate connections between the disclosure of sexual orientation and space have been uncovered and studied by a diverse range of researchers (Valentine, 1993; Mitchell, 2000; Ferreira, 2011) it is worth mentioning that some of the individuals enduring discrimination on grounds of sexual orientation are not themselves aware of this fact.

It seems to me that more people are disclosing their sexual orientation in some areas and it provides a sense of security. I had never thought about the spatial aspects of lesbian visibility. Bisexual, 45 years old

Some participants speculate on the possible reasons for this particular public space to have reports of positive lesbians' experiences, which can point to some scepticism about the reality revealed on the map.

Most of the areas identified on the map, are near the river, which means that only half of the space can have people, restraining the visibility issues. Is this one of the reasons for these behaviours?? At least there no one sees us. On the other hand in this space people may be more absorbed in jogging, cycling or conversations. It is a place frequented by urban people, with a neutral behaviour. It is an area with no apparent risk of adverse extreme reactions. Bisexual, 40 years old

The most evident change on the participants' representation is an increased perception of this space as safer for lesbians and bisexual women. This change is supported by the

reasoning that more frequent same-sex public displays of affection can contribute to people's indifference and the corresponding decrease of other's gaze (identified in the first phase of this research as one of the most unpleasant aspects of public space for non-heterosexuals and inhibitor to same-sex public displays of affection).

Because imagining myself surrounded by people who share my ideals can make me feel safer, knowing that there is less likely to be discriminated. Bisexual, 24 years old

Given that there is a greater lesbian visibility it is likely to be a safer place. Bisexual, 19 years old

Knowing about the existence of these behaviours among women on this space, I assume that it can contribute to an indifference of "others" towards these behaviours. Lesbian, 40 years old

First, because I do not think people will have any other aggressive behaviour besides staring, then because if more of us do the same, perhaps the gestures become more trivial and less noticed. Lesbian, 40 years old

Another reason for the increased feeling of safety is based on the idea that other people can intervene and support in case of possible negative reactions. This idea is strongly related to a sense of belonging, of being a part of a group of anonymous people that will stand up for you. This kind of feeling is uncommon for most non-heterosexuals in public spaces, if they choose to disclose their sexual orientation, with the exception of LGBT friendly areas or specific time/space events, such as Pride marches or LGBT film festivals.

Yes, because I see that there is not as much discrimination as I had imagined, and because the fact that there are more people with the same behaviour than me (affective behaviour with another woman) I think that in this space if there was a case of active discrimination I would feel more protected by this group of unknown people. I imagine that for example before any physical or verbal aggression, I could have reactions of solidarity by same-sex couples who witnessed the situation. Lesbian, 45 years old

Watching and witnessing others experiences feeds our understanding of spaces. Having access to information about other lesbians and bisexual women positive experiences on public spaces can work as a facilitator to same-sex public displays of affection.

Probably I will not be the only lesbian walking around with a girlfriend or wife and if there have been no strong negative reactions to others then it should not be to me. Bisexual, 45 years old

I learned that this space is more welcoming than I thought, because there are other couples at ease, it helps me to feel comfortable too (for kissing, hugging, holding hands). Lesbian, 40 years old

The 'Layers of Visibility' web map did contribute to change most of the participants' representation of Parque das Nações, in terms of safety, belonging and increased possibility of same-sex public displays of affection. The most significant change has been the perception of this space as safer for lesbians and bisexual women. One of the arguments for this change in perception is associated with the fact that more frequent same-sex public displays of affection can increase people's indifference to overt lesbians and bisexual women. The increased sense of belonging is particularly relevant and worth exploring in future work, being an uncommon feeling for most non-heterosexuals in public spaces.

Notwithstanding some scepticism about the reality revealed on the web map it is noteworthy that its visualizations has contributed to increase the awareness of the importance of space in lesbians and bisexual women's feelings, attitudes and behaviours.

We are aware that one single experience of being exposed to information on the positive experiences of lesbians and bisexual women is not sufficient to effectively impact peoples' representation, but it can trigger reflection and questioning, which can precede change. However these results support the possibility of using this strategy to promote a non discriminatory public space, in what concerns sexual orientation. Further work is needed to investigate whether these changes endure in time and if the representations and ideas are put into practice and transformed in behaviour.

Based on the results of ‘Layers of Visibility’ workshop we can assume that this strategy contributes to create landscapes of non-discriminatory public spaces that are more equal and friendly to lesbians and bisexual women.

5. Conclusions

Acknowledging that sexuality is a process of power relations which mediates our everyday interactions (Valentine, 1993), and that hegemonic discourses are literally inscribed in public space (Massey, 2005), supports the understanding that the spatial invisibility of lesbians and gays contributes to their disempowerment. Moreover the public expression of non-normative identities, such as those of lesbians and gays, disrupts and therefore exposes the way in which the street is commonly produced as “naturally” or “normally” a heterosexual space (Bell, 2001; Valentine, 2001).

In what concerns discrimination on grounds of sexual orientation there have been significant legal advances towards equality in Portugal. A consistent and significant set of legal measures has been implemented, from the decriminalisation of homosexuality in 1982 to the 2010 same-sex marriage law. It is a remarkable change, framed by the revolution of 1974 and the accession to the European Union in 1986. Portugal has wide-ranging anti-discrimination laws and is one of the few countries in the world to include in its Constitution a ban on discrimination on the grounds of sexual orientation. However social discrimination is still a pervasive reality and a number of important areas of legal inequality remain (Agency for Fundamental Rights, 2009).

One of the most pervasive forms of social discrimination is the strong societal pressure to confine and hide lesbian and gay sexuality within private spaces (Valentine, 1993). The results of a recent research conducted in Portugal on same-sex public displays of affection indicates that the majority of lesbians and gays tend to confine displays of affection to private spaces (Ferreira, 2011), which supports the understanding that social discrimination on grounds of sexual orientation is a widespread reality in Portugal.

The results of ‘Creating landscapes’ illustrate that lesbian and bisexual women can create new landscapes by sharing and creating geospatial web content with their experiences, emotions, thoughts and opinions on same-sex relationships. Providing a lived representation of same-sex public displays of affection through collaborative web

maps and participatory geospatial web can contribute to disrupting hegemonic heteronormativity. Having access to web maps with layers of positive lesbians' experiences in public spaces can affect the perception of safety and belonging and increase the possibility of same-sex public displays of affection. Virtual layers of positive lesbians' experiences on public spaces can facilitate the occurrence of same-sex public displays of affection, and more frequent same-sex displays of affection on public spaces feeds-back the way these spaces are perceived on a cyclical process that can contribute to a more equal and non-discriminatory space.

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