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The representation of street art on Flickr. Studying reception with visual content analysis

AXEL PHILIPPS , SERGEJ ZERR and EELCO HERDER

Street art is public art; it's accessible; it's of the people; it's an urban voice; it's on public view; it's on-the-street. Nonetheless, the World Wide Web has been partly responsible for street art becoming both recognised and popular. As a result, this study is investigating how street art is represented on the open photo-sharing platform, Flickr. It is a social network site offering a large portfolio of photographs showing a wide range of images, which have been categorised and classified using 'tags'. By using a visual content analysis based on theoretically determined categories to examine the uploaded photographs, this investigation will shed light on what a selection of Flickr users recognise as street art and how they record and index it.

1. INTRODUCTION

The presence of written, etched, drawn or sprayed graffiti on public surfaces has become a familiar sight. The term 'graffiti' literally means 'scratching' in Italian and includes anything produced with pencils, markers, spray paints, chalk or sharp instruments. In the 1970s a new and distinct culture known as 'graffiti writing' appeared in the United States. It started with graffiti writer such as 'Taki183' who produced street interventions throughout the city of New York and this spread to other artists and other cities after the New York Times published an article about the phenomenon. Today, graffiti writings can be found across the globe, created by taggers, who limit themselves to producing ubiquitous scribbled signatures with markers, and muralists who paint intricate, large-scale images with spray paint. It seems that as soon as graffiti writings appeared in the streets activists, artists, scholars and others started to demarcate what graffiti writing is and what it's not. For example, the American artist John Feckner distinguished it from 'Fine Art' saying that street art means 'all art on the streets that's not graffiti' (Lewisohn 2008, 23). Later, Allan Schwartzman (1985) added to this preliminary definition by focusing on

Feckner's and other artists' works on the streets of New York. He described street art as an expanded variety of 'new public art' (Schwartzman 1985, 5) emphasising that 'the street work of traditionally trained artists is tempered by aesthetic postures. Unlike graffitiists, they have chosen to work in functional modes, documentary styles, or "styleless" styles, for direct access' (Schwartzman 1985, 43). Other curators and chroniclers (e.g. Austin 2010; Lewisohn 2008) followed Schwartzman's definition and accentuated the artistic features of street art by identifying its connections with established art. Recent academic writings have discussed the ephemeral, unsanctioned, visual works of street art in contrast to sanctioned, commissioned public art which is often sculptural (Bengtson 2014; Irvine 2012), or they have looked at alternative methods employed by unofficial and marginalised groups (Chaffee 1993; De Ruiter 2015; Philipps 2015).

In fact, defining and categorising street art is an on-going process. Its meaning changes with its context and it is still open to debate as various groups and actors take part in the discussion. With reference to Bourdieu's field concept (Bourdieu 1984; Bourdieu 1996; Martin 2003; Schneickert and Schumacher 2014), these relate street art to different commentators and different positions in any identified field, and struggle over the rules and definitions of categorisation. In particular, street artists and their supporters, being the core actors in the field of street art, formulate for themselves the way to distinguish street art from other art. In so doing, they reproduce the aesthetic ideology of the field of visual art, condemning commercialisation and ally themselves to the standards and criteria of the producing artists (Irvine 2012; Philipps 2015; Wuggenig 2009). They even draw a line between those who belong to and represent the street art world and external actors who interfere with it (Bengtson 2014). External groups, such as the mass media, politicians or users of social network sites, also describe street art by reporting on it and characterising it in generalisations. Unfamiliar with the field-specific, internal rules and

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standards of street art, their writings reproduce the principles of the media, the political, or the everyday. Consequently, internal and external actors influence the form and direction of street art as soon as they reinvent common understanding or shift attention to currently less well-known artists.

While most scholars concentrate on selected street artists and the characteristics of their creations, this article deals with the users of social network sites and how they represent street art in their photographs. These users upload and circulate a plethora of photographs, which constitute a 'global Web museum' (Irvine 2012, 242) – or to be more precise – a Web archive of street art. Akin to Arora and Vermeulen's (2013) observation of the growing impact of social network sites on the art world, Wuggenig (2009) and Rushmore (2013) state that, in general, the World Wide Web is more important for the advancement in artistic status and acclaim for street artists than the art establishment of galleries, dealers and critics. This argument also implies that it's the immense number of web references and documents about street art that is more influential than specific websites dedicated to the advancement of street art and its artists (e.g. Art Crimes¹, Wooster Collective²). Rushmore and Wuggenig's assumptions are challenged by empirical findings about the presentation of street art and its creators on the photo-sharing platform, Flickr. Most street art-related photo entries fail to offer background information on the artist and the context of their production (Philipps, Zerr, and Herder 2014).

This article, in contrast, deals with the content of widely distributed street-art photographs which have become readily available through the social network site Flickr. As a result, we are not interested in the work of the supportive chroniclers who produce street art-related magazines, websites, blogs, books and systematic collections, nor in street art as a practice, but in the representation of street art by the chroniclers on Flickr as external players in the field of street art. We assume this large collection of pictures – depicting a variety of street interventions – constitutes a certain notion of street art that may influence the way in which it is commonly perceived. Its potential is grounded in the enormous number of selected photographs, not all of street art objects, that are portrayed on Flickr. Moreover, these uploads are used increasingly as a source of pictures for search engines such as Google and Search.Yahoo or by content distributors like Reddit or Facebook (see Flickr statistics³; Maniu et al. 2013). Since search engines and content distributors are the most popular way of navigating the web (Hillis, Petit, and Jarrett 2012) they influence how specific topics and concepts, such as street art, are seen and conceptualised. The content of the pictures and collaborative tagging as a source for certain

search terms produces a framework of what people will potentially acknowledge as street art and what they will not. This article does not study specific Flickr groups devoted to street art but, instead, the large collection of photographs on Flickr which portray street art. Concentrating on this social network site, we initially explore how its users contribute to the categorisation and dissemination of street art. What do the studied Flickr users 'select' (i.e. recognise) as street art and represent in their photographs? What is the visual content and ascribed meaning of the uploads?

Using a visual content analysis contributes to visual studies in two ways. First, it offers quantitative data on the representation of street art on Flickr. In particular, it describes variations in street-art media visually documented in photographs. Based on the frequency of that documentation we argue for a distinct idea of street art prevalent among Flickr users. Additional investigations of associated terms (tags) underpin our findings. Second, taking into account that, according to Burnett and David Marshall (2003), users of the World Wide Web are both consumers and producers, their uploaded pictures reveal what they recognise as street art. As a consequence, user-generated visual and textual contents provide an opportunity to overcome a methodological weakness of visual content analysis. In the case of content produced by television, radio or newspaper editorial departments, research is restricted to the disseminated content and researchers are unable to study the actuality of how the audience reacts. However, concentrating on user-generated content it becomes possible to investigate what the onlookers perceive.

This article is separated into six parts. The first section discusses research approaches to street art and public art, based on earlier investigations. In the second section, the theoretical implications of photography and the characteristics of social network sites such as Flickr are combined. Both suggest that the practise of uploading photographs is connected to the representation of street art. The third section gives an overview of the methods employed, the data collected and its relevant categories. To outline and specify how Flickr users represent street art, the categories used are contrasted with the academic categorisation of street art. This is followed by the study's findings and a discussion of these. The last section contains some concluding remarks.

2. STUDYING STREET AND PUBLIC ART

Most research into street art concentrates on one of three topics. First, scholars study the work of street artists in order to characterise unsanctioned and anonymous visual

interventions on the streets in contrast to other modes of action. Riggle (2010), for example, makes a clear distinction between graffiti writing and street art. He argues that, while graffiti writers merely seek publicity, the material use of the street makes the meaning of street art relevant. Other scholars such as Austin (2010), Irvine (2012) or Snyder (2009) see a gradual differentiation between both, because of differences in the time they appear and in their intention. This academic discourse also centres around the connection of street art with the themes and the history of established art and in what way this is distinct from public art. More importantly, Riggle suggests that street art can be objectively defined once and for all. Others in contrast understand it as a social development that is constantly changing. A second thread in the academic discourse sees street art as a medium to gauge political sentiments (Chaffee 1993; De Ruiter 2015) unrelated to any artistic considerations. These political readings focus on those forms of street art most commonly and systematically employed by peripheral groups to mobilise and communicate political and social issues. Recently, a third field of research started to examine the relationship between street artists and their supporters. Blanché (2012) and Derwanz (2013), for example, investigated how street artists are connected and entwined with the artists and institutions of the established art world. Others scholars like Kimvall (2013), MacDowall (2017) or Snyder (2006; 2009) deal with chroniclers and artists in a broader context.

This latter research comes close to the approach selected in this article. It takes a more varied look at the different activists and institutions in the field of street art. However, these researchers often refer theoretically to Becker's concept of the art world (Becker 1982) highlighting the essential cooperation between artists and related institutions in producing art. From this point of view, they concentrate on the street artists and their supporters, describing their careers, their networks or their supportive context but this simply underscores the difficulty of demarcating and defining street art from an observer's viewpoint. Bengtsen's study of Web forums (Bengtsen 2014), for example, shows how street artists and their adherents constantly resist any attempt they discover to finalise a definition for street art. To capture this struggle between different players, we rely on Bourdieu's field theory (Bourdieu 1984; Bourdieu 1996) assuming that various actors and their representational practices constitute and shape a social field. From this perspective, definitions and access requirements in the field of street art are the historical outcomes of the struggle between the new and the established street artists, critics, gallery owners, collectors, chroniclers and the like. Nonetheless, according to Bourdieu (1996), an autonomous street art field would be relatively unaffected by external definitions and

representations. The core players in the field would be able to translate all external requirements and representations into internal ones. In fact, according to Wuggenig (2009) and Rushmore (2013), external participants and institutions, such as the mass media and the World Wide Web, have a strong influence on street art's recognition and representation. Consequently, we must consider street art as a widely heteronomous field shaped by the way journalists and World Wide Web users take note, discuss, collect, distribute and reward the creations of street artists. This raises the question of what they recognise as street art or in the remit of this systematic investigation: what do Flickr users represent?

The role of chroniclers on the World Wide Web is under-represented in current empirical research on street art. Nonetheless, Babon's (2006), Knight's (2008) or Senie's (2003) investigations of how public art is perceived offer feasible approaches. From research on public art, we know that the audience's expectations about public space affect their reaction towards its presence outside of museums and galleries. The everyday context influences their perception and appreciation. Consequently, as people are confronted by public art, both voluntarily and involuntarily, there are controversies about its function and relevance. Similar debates around street artists' appropriation of public space and vandalism are discussed in Irvine (2012) or Moreau and Alderman (2011).

Approved methods in museum research (e.g. Bourdieu, Darbel and Schnapper 1990; DiMaggio 1996; McClellan 2003) are also used when investigating the perception of public art. Common analytical methods are questionnaires, open interviews, participant observations and content analysis of coverage either online or in print. Senie (2003), for example, combined questionnaires, open interviews and participant observations in her study on how people perceive and react towards officially approved public art. Similar approaches could be applied to street art but it is difficult to select a typical street art object in order to study how onlookers perceive it. Scholars would be confronted with such a wide range of styles and subjects, which would make research either highly selective or very time consuming.

A different and valuable approach is offered in Babon's (2006) analysis of the print media coverage of public art. This reveals opinions on public art though, at the same time, it also defines its subject. As a consequence, it can report people's thoughts and feelings about planned public art in advance. However, most print media coverage about street art or related visual interventions in the street concentrates, according to Irvine (2012) or Moreau and Alderman (2011), on the damage caused and the removal costs for owners and councils. Street art itself is often not the subject of the debate.

In contrast to an on-the-spot observation or an investigation of print media coverage, this study examines a specific audience. It concentrates on Flickr users who shared photographs tagged as 'streetart'. These users not only consumed street art, they also produced representations of their findings. Consequently, we assume these representations reveal what users recognise as street art and what they do not.

3. PHOTOGRAPHS AND FLICKR

Without question, photography is pivotal for capturing events but quite apart from this significant feature photographs serve several functions beyond documentation as they also illustrate the photographer's priorities. The picture content reveals what the picture-taker sees as relevant and what fits into his or her understanding of the photographed object. Hence, the picture's content and its taggings are used in this study to convey the dominant thinking behind street art. In terms of content it asks the questions: What types of street art objects have been digitally reproduced? How are they described by the collaborative taggings?

According to Bourdieu et al. (1996), people with either semi-automatic (professional) or fully automatic cameras habitually select from a defined and limited selection of possible objects, subjects and compositions. Taking a photograph thus depends on the selection of what is in the photograph, a 'principle of selection' that allows for an 'unconscious deciphering of the countless signs which at every moment say what is to be loved and what is not, what is or is not to be seen' (Bourdieu 1984, 86). So, the selection of the subject of a photograph or its content represents the photographer's perception – how she or he sees the world (see also Friedman 2006).

On social network sites, the practise of photography changes and this gives new opportunities to study the common definition of street art among Flickr users. With reference to photography, for example, photo-sharing platforms provide amateur photographers with a wider audience; potentially the photo content reaches many more viewers. These photo-sharing sites are web-based services that allow users to create online profiles with personal (and professional) information, to link up with other users and to share updates (Boyd and Ellison 2007). Early social network sites such as SixDegrees.com were restricted to finding and managing lists of 'friends'. However, because of technological innovations in compressing digital data, larger memory cards and the speeding up of internet connections, further social network sites came into being with special features for sharing photographs (Flickr), videos (YouTube) or music (Last.fm). Flickr, launched in 2004, was followed by many other photo-sharing platforms such as Photobucket, Instagram and Snapfish. Today, media sharing is a common feature of most social network sites but Flickr, in contrast to other sites, is 'a user-generated content (UC) site with a strong networking component' (Van Dijck 2013, 91; see also; Rubinstein and Sluis 2008). Generally, its users are photographers who upload, categorise and organise their own photographs in order to store them and, more importantly, share them with others (see Figure 1). It is networking and community building through photographs. In other words: Flickr allows its users access to a wider audience and the ability to present their pictures with the central feature of collaborative tagging (Angus, Stuart, and Thelwall 2010; Miller and Keith Edwards 2007). The collaborative tagging also automatically connects a photograph to all other pictures that are given the same tag. In this way, photographs are searchable, widely

FIGURE 1. Screenshot of the Flickr platform (on a desktop). Image courtesy of Sabine Dittebrandt.

distributed and appear in new contexts and combinations depending on their given tag. Hence, this tagging feature allows us to study how Flickr users categorise street art using 'streetart'-tagged photographs.⁴

To sum up, this article concentrates on Flickr to explore the categorisation of street art photographs and the associated reasoning. First, Flickr users' activities are photo-centric: they usually view, share and store the photographs. Second, Flickr photographs are distributed through the photo-sharing platform as well as by external agencies (Maniu et al. 2013). Third, the website offers search algorithms for its publicly accessible content. In addition to such practicalities, Flickr has been extensively researched, for example studies have revealed that Flickr users mostly document the artistic work of others (Angus, Stuart, and Thelwall 2010) and categorise them with more tags than would an academic photo archive (Rorissa 2010).

4. METHOD AND DATA

4.1. Method

Visual content analysis is an established analytical procedure in the social sciences to investigate frequencies and contingencies of photographs (Rose 2012). It counts the frequency of certain visual elements such as content, size, or placement and the characteristics of each picture are captured and coded in a range of variables and categories. With user-generated pictures showing street art, a visual content analysis will be able to provide initial findings on what Flickr users recognise as street art and how they distribute it. The focus is on what has been selected, captured and uploaded to the Flickr platform. The most frequently-occurring elements are used to indicate what is understood as being street art so additional information in titles, descriptions and tag lists offer insight into how street art is textually presented and distributed and become part of what is represented.

4.2. Data and Data Collection

When this study began in 2013, Flickr hosted over 2.1 million photographs with the tag 'streetart'.⁵ This basic unit included all photographs uploaded between 2004 and 2013 and was rapidly increasing. Since at that time we were not interested in changes within this time period, but eager to avoid misleading imbalances in our sample, we took two precautions. Firstly, we concentrated on the most recent photo-uploads in the year 2012. However, this still contained photographs from both less-active and very-active users, with the

consequence that a randomly selected sample would contain more photographs from the very-active than from the less-active users. This is still not a study about the passionate chroniclers who slowly, carefully and systematically document street art. Instead, we produced a sample of all users who uploaded one or more 'streetart'-tagged photographs in 2012. Consequently, we decided to rely on these 10 868 users and randomly selected one 'streetart'-tagged photograph per user in order to provide a sample representing the population of the chroniclers of street art on Flickr. From this we selected 1000 photographs by a simple random strategy (with replacements). A representative sample with a level of significance of 1% requires more than 625 cases. Since it was seen that tags do not always refer to photographic content (Cox, Clough, and Marlow 2008), we decided to work with more photographs than the suggested minimum.

4.3. Data Analysis – Photograph and Coding

Employing a visual content analysis requires theoretically determined categories. In contrast to qualitative approaches using few cases, a content analysis operates with a codebook to examine a great number of visual and textual contents. The latter approach starts with preliminary findings flipping through the photographs and by allowing a theory-driven process to guide the system of manual coding. For the study under consideration, we observed different forms and styles in the photographs, which led to defining street art as a great variety of media employed to subvert and transgress common meanings and symbolic orders (e.g. Austin 2010; Schwartzman 1985). Consequently, we classified street art in the codebook as a creative intervention (in the public realm). A photographic reproduction of a street art object would, therefore, depict the result of the interference and transformation of the commonplace object (or utensil) into something different (e.g. a trash can into an animal).

In addition to this general understanding, there are also distinct academic concepts about street art. As we have already mentioned, some researchers have a restricted notion of street art which excludes all forms of graffiti writing (e.g. Riggle 2010) whereas others have a rather broad and inclusive concept (e.g. Bengtson 2014). To allow for such differences in the manual coding process, and in accordance with our preliminary findings, we therefore distinguished between *murals*: large, often multi-coloured and labour-intensive creations including wall, airbrush and spray can paintings (see Figure 2(a)), *tags and throw-ups*: stylised signatures in contrasting colours usually quickly executed with a one-colour outline and one fill-colour (see Figure 2(b)), *rollers*: signatures produced with a paint roller

FIGURE 2. Various forms of street art: (a) mural, (b) throw-up, (c) roller, (d) stencil, (e) supplement (Photo by @mosieurj / Flickr), and (f) installation (Photo by @mosieurj / Flickr, cropped).

(see Figure 2(c)), *stencils*: templates used to produce distinct and reproducible pictures and texts (see Figure 2 (d)), *supplements*: prints in various forms and shapes including posters, boards, wall tiles, wheat pastes and stickers (see Figure 2(e)), *installations*: 3-D objects (see Figure 2(f)) and other media⁶. As well as the photographic content, we also examined assigned titles, descriptions and tag lists in order to identify whether or not Flickr users employed distinctive categorisations (e.g. for media used in the photographs). A complete list and definitions of all categories are provided with the codebook in Appendix I.

Two researchers were involved in the human coding process. They worked with all photographs in the sample. Coder One coded $n = 700$ photographs and Coder Two $n = 400$ with an overlap of $n = 100$ photographs (1 000 pictures in total). The level of agreement was measured by using photographs coded by both human coders. The agreement between the coders was above 90% for all variables. A full list of values for agreements and Cohen's kappa for each category is provided in Appendix II.

5. FINDINGS

According to the used definition of street art, 95.7% of the photographic reproductions are coded as street art (see Table 1). In 43 cases, the photographs showed people, animals, and activities but were not creative interferences with, and transformations of, the commonplace. This could mean that the observed Flickr

users have a very broad understanding of street art, including street theatre and other activities. For example, they also captured performances by street musicians or pantomime artists and annotated these with the tag 'streetart'. In other cases, they uploaded photographs showing dogs playing, people in a market or people in front of a drugstore. Such photographs may be tagged 'streetart' by mistake or as a side effect of the repeated

TABLE 1. Annotated visual content.

Categories	Dimensions	Frequency	Valid per cent	Valid cases
Street art			100	1000
	Street art	957	95.7	
	Others	43	4.3	
Media			100	956
	Drawing	24	2.5	
	Mural	442	46.2	
	Tag & Throw-up	92	9.6	
	Roller	8	0.8	
	Stencil	112	11.7	
	Supplement	207	21.7	
	Installation	50	5.2	
	Chalk	14	1.5	
	Knitting	5	0.5	
	Light painting	2	0.2	
Identified medium			100	957
	Medium	299	31.2	
	None	658	68.8	
Graffiti term			100	957
	Graffiti	416	43.5	
	Others	541	56.5	

use of various tags. A strategy to increase the number of times a photograph is viewed is to assign a greater number of tags, so it is likely that unusually high numbers of tags for a photograph may contain many spam tags (Jeong, Hong, and Lee 2011). However, we continued to work only with the photographs coded as street art by our human annotators ($n = 957$).

Among the photographs coded as street art, the greatest proportion depicted murals (46.2%). Together with supplements (21.7%), these constituted more than two thirds of all the photographs. Apart from stencils, with 11.7%, and tags and throw-ups, with 9.6%, other media were included much less often on Flickr. Graffiti tags, throw-ups, and stencils usually outnumbered the inclusion of murals and supplements in the streets. In the German capital of Berlin, for example, Beyer (2012) found far more graffiti tags and throw-ups than street art objects in the streets of the urban districts of Kreuzberg and Prenzlauer Berg. The presence of such a great number of graffiti tags and throw-ups can be explained by the writer's strategy to 'saturate the city with your name' (Snyder 2009, 5). Moreover, such street art is quick to produce; making one- or two-colour graffiti, throw-ups and even stencils take much less time than a labour-intensive and elaborate mural (Ferrell and Weide 2010).

An additional look at the used Flickr-tags and the photographs revealed that only a small proportion of Flickr users provided details to determine the type of photographed street art objects (see Table 2). For the subcategories of media in our sample (with ≥ 50 cases), the average frequency for specifications such as 'sculpture' (Installation), 'sticker' (Supplement), 'tag' (Tag & Throw-up), 'stencil' (Stencils), or 'mural' (Mural) is 14.1%. Figure 3 depicts the distribution of tag themes over the main categories in the sample (namely Mural, Tag & Throw-up/Roller, CutOut/Supplement, Installation and Stencil). To this end we applied a structure-aware visualisation technique, described in Singh, Zerr, and Siersdorfer (2017). The tag themes are identified using LDA (Latent Dirichlet Analysis; Blei, Ng, and Jordan 2003)-based topic modelling, where each topic is represented as a ranked list of related tags.

In Figure 3, for each annotated category the most representative tags of the photographs are printed (for example 'sticker' in CutOut or 'sculpture' in Installation). Similar categories are ordered subsequently with connecting tags in between (for example Mural and Stencil are connected through 'paint urban wall'). In the middle of the figure, general tags (common in all categories) like 'urban',

TABLE 2. Street art media and the most frequently used determining tags.

Media	Determining Tag	Frequency	Valid Percent	Valid Cases
Drawing			100	24
	Ilustración	1	4.2	
Mural			100	442
	Mural	62	14	
Tag & Throw-up			100	92
	Tag	12	13	
Roller			100	8
	Roller	2	25	
Stencil			100	112
	Stencil	22	19.6	
Supplement			100	207
	Sticker	29	14	
Installation			100	50
	Sculpture	5	10	
Chalk			100	14
	Chalk	2	14.3	
Knitting			100	5
	Knitting, knit	2	40.0	
Lightpainting			100	2
	Lightpainting	2	100	

'wall', 'mural' are located. To compute how representative the theme was, we compared its probability to fall into the category (or category pair for connecting themes) with the probability of the same theme to fall into other categories. Thus, most representative are themes that are very likely to be found within a specific category and not common in most of the others. Although this automatic term distribution is not always exact, in most cases it supports the classification as conducted by the human annotators.

According to Figure 3, often the tags that are selected by Flickr users reflect the annotated categories. So, tags such as 'stencil', 'pochoir' (French word for stencil), 'stencilart', or 'Banksy' (an artist particularly known for his stencil art) constitute the category Stencil. Or tags such as 'tag', 'railway', or 'train' refer to the world of graffiti writers and associated activities such as producing tags, throw-ups and roller graffiti. In addition, there are many other tags in the tag clouds that, for example, relate to photographic practices such as 'iphonephotographi' or 'camerabag'. However, exploiting user tags opens a promising direction for possible automatic classification of street art photos in future work.

6. DISCUSSION

The occurrence of new interventions and defacements in the streets increases every day and extends what is

FIGURE 3. Tag clouds for different categories related to street art.

thought of as street art. In addition, various players, from street artists to curators and from academics to chroniclers, redefine and rewrite its character and scope. Taking into account the importance of the World Wide Web in the formation of street art, this article concentrates on the photo-sharing site Flickr and how its users present and categorise photographs of street art objects. Of course, mapping the contours of street art on Flickr is based on the theoretically determined categories used in content analyses. A different way of working might offer another perspective.

Our findings, however, disclose a distinct understanding of street art. Firstly, the street art medium ‘stencil’ receives a lot of both media and academic attention (e.g. Blanché 2012) through the acclaimed work of Banksy, Shepard Fairey or Blek le rat. In contrast to these highly recognised art interventions, the Flickr users in the study shared photographic reproductions of stencils less frequently: they only constitute 11.7% of all uploads. The users more often consider murals and supplements to be street art. We assume that aesthetics play an important part in this choice.

Second, Riggle (2010) postulates a distinction between graffiti writing and street art because of a difference in intention. He claims that street artists reflect the materiality

of the street in their works, whereas writers are just concerned with publicity. As a consequence, he considers something as street art ‘if, and only if, its material use of the street is internal to its meaning’ (Riggle 2010, 246). In contrast, our findings show that classic forms of graffiti writing, such as tags and throw-ups, are also seen in collections of photographic reproductions on Flickr (10.4% of the media). Moreover, in 43.5% of all streetart-tagged photographs Flickr users employed both the terms ‘streetart’ and ‘graffiti’ in order to determine content (see Table 1). We therefore argue that, in the opinion of these users, street art seems to be a very broad concept, which includes various media and forms of expression ranging from murals to throw-ups or stencils to chalk paintings. A closer look at the examples of installation or excluded photographs (not street art) even reveals that Flickr users also photographed officially approved public art or performers such as street musicians and bubble makers.

Moreover, even the idea of intervention (transgressing a dominant visual order; e.g. Blanché 2012; Irvine 2012; De Ruiter 2015) appears to be of less relevance for Flickr users: excluded photographs (not street art) and the category installations – as mentioned above – offer examples of non-subversive behaviour. The majority of excluded

photographs show non-transgressive performances, such as street music, bubble making and pantomime. Among the category 'Installation' are commissioned public arts, such as Terry Allen's *Shaking Man* from 1993 (Yerba Buena Gardens, San Francisco, USA) and Tom Otterness' *Immigrant Family* from 2007 (18 Yonge Condominiums, Yonge St. Toronto, Canada). Unfortunately, additional textual information does not reveal whether the represented street art was created on demand for private properties or with legal permission in public spaces. Nonetheless, murals form the greatest proportion of media in our sample and they are often produced without any time pressure. Generally, murals are commissioned works or have been created in abandoned places where there are few people about to ensure that the street artists have time to create their elaborate and impressive artworks. For that reason, we suggest that in most of the studies Flickr users see manifestations of street art merely as visually interesting phenomena. They seem to be more impressed by the artistic and creative qualities of the murals or other street art objects than they are concerned with the struggle to visually control urban space. In the same way as street photography, uploaded photographs seem rather to 'invite a response that is more like, "oh how extraordinary, isn't life richly marvellous"' (Rose 2012, 24).

Two other observations support this suggestion. First of all, the majority of uploaded photographic reproductions show what the human annotators coded as murals and supplements (67.9%). It is characteristic of both of these that the producers usually have the time and opportunity to concentrate on their creations as they have permission or are able to process posters, wheat pastes and stickers in privacy to produce artistically elaborate works. Compared with observations about the total number of stencils in an urban quarter (Philipps 2015), it becomes clear that Flickr users value elaborate and work-intensive creations. More than two-thirds of the stencils (69.1%) in the mentioned exploration were inaccurately performed. They showed uneven and irregular paint coverage, paint flaws or low contrasts. Hence, such irregularities are hardly ever present in examined photographic reproductions as the Flickr users mostly concentrated on murals and supplements.

Second, there are some textual entries by Flickr users that describe what they think or how they feel about the reproduced street art objects. These few written commentaries do not allow any quantitatively-based suggestions but such comments illustrate how Flickr users – usually those with only a few uploads – were pleased to find something unexpected in the street that is both artistic and delightful:

While out in Wimbledon Village for lunch, I came across this piece of street art under a shop window on the High Street. I thought it was a great piece of art so captured this image using my iPhone. (Flickr user with one upload in 2012)

A shot I got from a ferry in Greece, stoked! (Flickr user with two uploads in 2012)

Not a lot of great street art in Dublin, but this caught my eye (Flickr user with one upload in 2012)

Our focus on the visual content of photographs and assigned information on Flickr, however, generates some limitations. Uploaded photographs may increase the visibility of street art, its visual content may reveal how it is seen but such data are not comprehensive and exhaustive enough in an investigation of its representation. With Flickr photographs, we are restricted to people who evidenced at least some interest in one or more street art objects and were then willing to take a photograph and upload it. People who are indifferent to creative interventions, or simply dislike them, would hardly make the effort to share such a photograph with others. However, additional analytical procedures – such as open interviews, group discussions and participant observations – should offer access to other audiences and highlight aspects other than photographic reproductions. Nonetheless, our visual and textual content analysis provides new quantitative insights and forms a basis for further research.

7. CONCLUSION

This study adds to the literature on street art by empirically moving research beyond the artists and their works in the streets and trying to understand how social network sites, such as Flickr, represent and characterise street art. In the generic process shaped by various participants, Flickr users, as external actors in the field, represent and preserve street art in a specific way. On the online platform, users and viewers are linked via photographs. Photo-blogging allows users to document and share experiences. Furthermore, the tagging feature connects a photograph with others in those categories and allows the user to browse them. Hence, a photograph of a street art object tells us about a user's photographic preferences and, in addition, an assigned 'streetart' tag relates the photograph to a decontextualised group of similarly tagged photographs.

Taking into consideration that the main referrers to Flickr streams are Google.com (including Image.Google.com), Search.Yahoo.com, Reddit.com, Pinterest.com, or Facebook.com (see Flickr statistics⁷; Maniu et al. 2013), the major search engines and distributors of World Wide Web

content, Flickr's photographs are accessible outside of the photo-sharing platform. We assume therefore that Flickr is an essential online source and thus its representation of street art affects the way this is recognised online.

Consequently, we argue that the social network site and photo-sharing platform, with online mediated pictures and information, not only melts 'away any certain distinction between source and simulation' (Ferrell and Weide 2010, 59; see also; Rushmore 2013) but also influences the demarcation process in the street art field.

Based on the visual content approach, our study suggests that if the examined Flickr users encounter a street art object they often respond to what they see as a visually interesting phenomenon. They do not follow academic systematisations but instead take and upload their photographs of street art objects in order to share their experience with others and make the photograph searchable online. Accordingly, these Flickr users have a rather open concept of street art. In the broadest sense, the users include all visual phenomena in the streets – from graffiti writings to approved public art. At the same time, they have a rather narrow idea of documenting street art objects. Concentrating on elaborate artistic works in the form of murals and supplements, they pay less attention to the overwhelming majority of graffiti tags, throw-ups and stencils on the streets. Nonetheless, this view corresponds with the understanding of street art among the core actors in the street art field (street artists and their supporters) who orientate themselves with the standards and criteria of producing artists (Irvine 2012; Philipps 2015; Rushmore 2013; Wuggenig 2009). Both, Flickr users and core actors, value elaborate and unconventional street art works. Consequently, the observed users strengthen the conventions and ideas propositioned by the core participants of the street art field.

On Flickr, studied users combine street art with public art, graffiti writing etc. and have a tendency to reward visually interesting and artistic interventions in public spaces. What about others in this field? How do they characterise and represent street art? Further research is needed to achieve an understanding of street art by looking at the various actors, institutions, technologies and practices, which constitute the field.

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DISCLOSURE STATEMENT

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NOTES

- 1 <http://www.graffiti.org> (Retrieved 10 June 2015).
- 2 <http://www.woostercollective.com> (Retrieved 10 June 2015).
- 3 <http://statsr.net/flickr-stats/> (Retrieved 10 June 2015).
- 4 Regarding street art, Rushmore (2013: 77) argues 'Street art photos had been uploaded to Fotolog, Photobucket and other precursors to Flickr, but Flickr eventually became the dominant place for amateur photographers to post their work. [...] Myspace and Facebook were designed for sharing photos primarily among friends, but Flickr was always designed to be more of a public-facing photo repository with most images available to be viewed by anyone visiting the site, making it the choice for photographers who want to show their work to a larger audience.'
- 5 Accessed 6 April 2013.
- 6 Media classified as 'others' were differentiated in a second step into drawings (quickly executed abstract and figurative forms), chalk paintings, knitting and light paintings (laserbased).
- 7 See <http://statsr.net/flickr-stats/> (Retrieved 10 June 2015).

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APPENDIX I Codebook.

Category	Dimensions and descriptions
Street art	<p>Indicate whether the picture shows a street art motif or not.</p> <p>Streetart: The picture shows results of a creative intervention (in public). Intervention means someone interfered and illicitly transformed a commonplace object (or an object of utility) into something different (e.g. trash can into an animal).</p> <p>Others: The picture shows human interaction, human and non-human activities, architecture, legal or commercial signs and symbols but <i>no</i> evidence of a creative intervention.</p> <p>Unable to determine.</p>
Media (Styles and production method)	<p>Indicate the employed style or production method.</p> <p>Attention! Some photos contain imprinted information such as date, time, and name. Please ignore such imprints while coding.</p> <p>Murals are large, often multi-coloured, and labour-intensive paintings (e.g. pieces, wall paintings, airbrush paintings, spray can paintings).</p> <p>Throw-ups are designed for quick execution. Letters usually have a bubble shape and consist of a <i>one-colour outline</i> and <i>one layer of fill-colour</i>.</p> <p>Tags are stylised signatures that are often created in a colour that contrasts sharply with its background.</p> <p>Stencils are easily reproducible and portray distinct images or texts. The design is cut out of a medium such as paper or cardboard and then the image is transferred to a surface through the use of spray paint or roll-on paint.</p> <p>Supplements are prints in various forms and shapes. They include posters, boards, wall tiles, wheat pastes (made from vegetable starch and water) and stickers (printed onto adhesive vinyl).</p> <p>Rollers are pieces done with a paint roller instead of an aerosol.</p> <p>Installations enhance or interfere with 3-D objects in the streets such as fireplugs, trashcans and all kinds of boxes.</p> <p>Others include all other forms of expression such as chalk drawing, knitting, and so on. Please write the identified style or production method in the empty box.</p> <p>Unable to determine.</p>
Identified medium	<p>Note any information indicating used media in the title, description and tag list.</p> <p>Media: For details see the category Media above.</p> <p>Others: All other contents.</p> <p>Unable to determine.</p>

APPENDIX II Agreement rates and Cohen's kappa ($n=100$).

Categories	Agreement rate in per cent	Cohen's kappa
Street art	99	0.795
Media	98	0.973
Identified medium	95	0.896