Studying Web2.0 interactivity: a research framework and two case studies

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ABSTRACT

In order to gain insight in interactivity on Web2.0 platforms, and thus to assess the impact of Web2.0, we develop an analytical framework. Based on a conceptual analysis of interaction, a phrase omnipresent in the discourse on new communication technologies, the Internet and Web2.0 in particular, our framework can take into account the objective, structural features of Web2.0 platforms (expressed in structural affordances) and the functional, subjective perception and usage of these features by the users of those Web2.0 platforms (expressed in functional affordances). In order to test the value and usefulness of this analytical framework we setup a small, qualitative research project (n=27). Our goal was to use the developed framework to explore how agency and engagement on Flickr and deviantART, two Web2.0 sites, is reflected in the use of Web2.0 affordances, and thus demonstrate the usability and value of the developed framework.

KEYWORDS: Internet, Web2.0, interactivity, affordances, case study, research framework, Flickr, YouTube

1. INTRODUCTION

With more than one third of the world's population being online, the Internet has increasingly become part of modern living, giving rise to popular literature on the Internet that often takes a teleological and celebratory perspective (Curran, Fenton, & Freedman, 2012), heralding the Internet, and Web2.0 in specific, as an enabler of participation, democracy and interactivity. However, although Web2.0 has become a central concept in contemporary discussions about the Internet, the actual meaning of the phrase is still subject to discussion and several authors emphasize its hyped character (Stern & Wakabayashi, 2007). In a sense, Web2.0 can be considered as 'the marker of a discourse about the nature and purpose of the internet in the recent past' (Allen, 2012) through which we make sense of the web and which enables us to tell the 'history' of the web as introducing versions means articulating change and continuity.

As they afford Internet users to easily consume (read, listen, watch, download, search and buy), create (personalize and contribute), share (publish, upload), facilitate (tag, recommend, subscribe to channels and items through RSS) and communicate (send messages, post comments and chat) online (Beer, 2009; Slot & Frissen, 2007), Web2.0 can be understood as a large-scale shift towards a participatory and collaborative version of the web. Web2.0 supports and mutually maximizes collective intelligence and added value for each participant (Hoegg, Martignoni, Meckel, & Stanoevska-Slabeva, 2006) and in contrast to web environments that use proprietary data sources (Hudson-Smith, Batty, Crooks, & Milton, 2009), users create content themselves (Gruber, 2008; Jakobsson & Stiernstedt, 2010). In short, we can frame Web 2.0 as a medium that creates a new degree of agency in constructing engagement with online resources and with other Internet users.

In this respect, Natalie Fenton (2012) concludes that the Internet and Web2.0 sites are first and foremost expressive tools and should therefore be understood in terms of their potential for articulating the dynamics of political environments. Other authors that have explored the ideological meanings, and the social, political and ethical implications of Web2.0 argue that

Web2.0 functions as a framing device (Scholz, 2008) or as a tool or framework for (peer) surveillance (Fuchs, 2012; Albrechtslund, 2008; Zimmer, 2008) contributing to the increased corporatization of online social and collaborative spaces and content (Andrejevic, 2012; Petersen, 2008). From this viewpoint, Web2.0 does not provide an 'architecture of participation' (O'Reilly, 2003) but rather an 'architecture of exploitation that capitalism can benefit from' (Petersen, 2008).

Although the phrase Web2.0 is characterised by its conceptual vagueness, most agree that Web2.0 sites employ notions of collective intelligence, network-enabled interactive services, and user control (Song, 2010), pointing to the importance and significance of participation and engagement through interactivity on Web2.0 sites. However, one should not take these technological affordances of Web2.0 for granted. Instead, one should look into the ways Web2.0 users understand, appropriate and experience interactivity on Web2.0 sites (Barassi & Treré, 2012). As a contextual and holistic approach for analysing user interactions on Web2.0 sites is missing, the goal of this article is to address this shortcoming by developing an analytical research framework based on a conceptual analysis of interactivity. We will also test the value and usefulness of this analytical framework using a qualitative, small-scale and exploratory research design targeted at the users two Web2.0 sites.

This paper is structured in four parts. Firstly, 'interactivity' is theoretically unpacked. Secondly, we suggest a framework, encompassing a descriptive vocabulary and a methodological approach for the study of Web2.0 interactivity. Thirdly, the developed framework is applied to two cases: the websites Flickr and deviantART. Finally the value of the proposed framework is evaluated and linked to the exploratory study of interactivity on Flickr and deviantART.

2. A CLOSER LOOK AT INTERACTIVITY

Interactivity is a difficult concept to grasp. The concept is often used in relation to new media and the (theoretical) discourse on new communication technologies. Scholars working in the discipline of computer-mediated communication (CMC) have been using the concept since the mid-1980s. Three important perspectives on interactivity can be detected in the literature. The first perspective focuses on the (technical) properties of media (Jensen, 1998; Steuer, 1992). The second emphasizes the properties of the communication process (e.g.: Rafaeli, 1988; Rafaeli & Sudweeks, 1997). The third approach of interactivity looks at the perception of interactivity by the user (Leiner & Quiring, 2008; McMillan & Hwang, 2002; Wu, 2005; Quiring, 2009).

Subsequently, several tendencies in interactivity research can be identified: human-to-human interactivity, human-to-documents interactivity and human-to-system interactivity (Kiousis, 2002; McMillan, 2006). In the first tradition, human interaction is placed at the forefront of interactivity research. McMillan notes that the direction of communication and the level of control over the communication environment are key aspects when studying such human-to-human interaction in a technology-mediated environment. The second tendency, research into human-to-documents interactivity, emphasizes the active role of the audience, focusing on interactive media as opportunities for exchanges between audiences and content creators. The last tendency studies a form of interactivity that is central to new media, i.e. the interaction between people and the computer (system) itself.

The interaction framework used in this article combines the perspective that considers interaction to be a feature of the communication process and context with the perspective that considers interaction to be a feature of media technology. In our view, the phrase *interaction* refers to the features of a medium (its potential for interaction in general) and to the extent that people will use these features. Our approach to interactivity thus distinguishes three kinds of interactions: (1) user-to-user, (2) user-to-document and (3) user-to-website (McMillan, 2006; Szuprowicz, 1995):

- User-to-user interaction concerns direct communication and cooperation between two or more users and addresses relational or interpersonal control. It includes functions that enable communication (e.g. an instant messaging tool), collaboration (e.g. a mutual events calendar) or networking (e.g. joining a group).
- User-to-documents interaction refers to content consultation and the control that users exert over the document or content, encompassing functions for search (e.g. a search box), content creation (e.g. assigning tags) and user control (e.g. determining who is allowed to send messages or look at one's recent activities).
- User-to-website interaction encompasses interaction between the user and the website itself and implies control over the process or the interface including functions to customize (e.g. change the look and feel of the website) and sustain social awareness (e.g. consulting the recent activity of a user) (Mechant & Evens, 2011).

3. THE DESIGN OF A RESEARCH FRAMEWORK FOR WEB2.0 INTERACTIVITY

3.1 Affordances on a structural level

Based on the distinction between user-to-user, user-to-document and user-to-website functionality we created Figure 1 that describes the features that express the interactive potential of a Web2.0 sites. We define these features as the structural affordances of a Web2.0 site. Thus, the interactive potential of a Web2.0 site is expressed in the site's structural affordances, in user, document and website affordances. The use of these affordances results in media, narrative, and metadata user-generated content (UGC). Media UGC, such as an uploaded video or a photo, is created through an intensive process of user-to-website interaction. Narrative UGC originates in user-to-user interaction and can result in comments, weblog and forum entries. Metadata UGC is created in the process of user-document interaction (Courtois, Mechant et al., 2009).

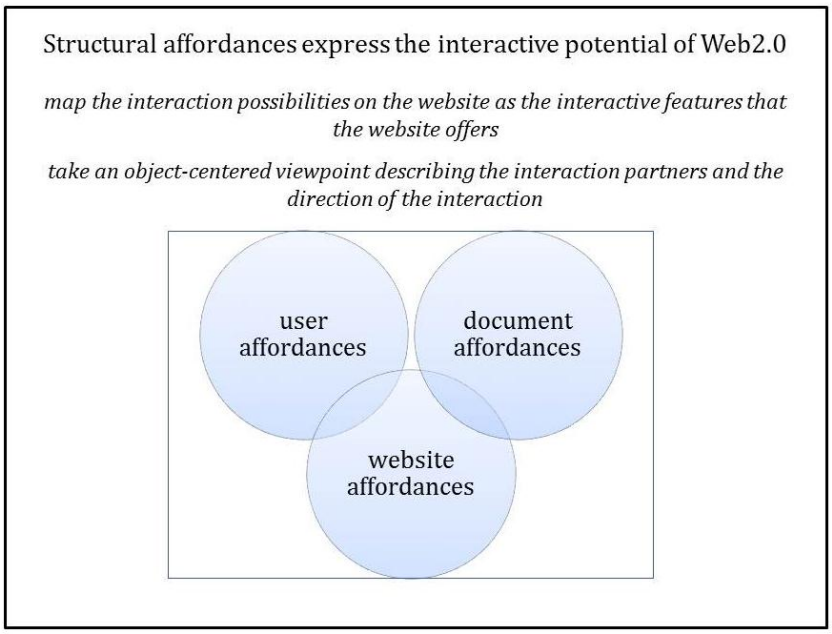

Figure 1: Web2.0's structural affordances

We define an affordance as 'what one system provides to another system', in specific, as what Web2.0 systems provide to their users. An affordance also encompasses the perceived functional significance of a website feature for an individual. Affordances have a complex if active history in ecological psychology and other disciplines (Hogan, 2009). They are a supremely relational concept because they link the external environment and internal states of mind.

As affordances are the things that we recognize rather than the networks or website structure that we infer, they offer a key and underrecognized link in a theory of structure and agency (Hogan, 2009). Web2.0 sites assemble a cohesive set of structural affordances that correspond closely to the website's goal and users. Thus, insight in the structural affordances present on a Web2.0 platform, provides us with knowledge about the performative infrastructure that the website supplies to Internet users.

For our purposes, we use the definition of affordances by Donald Norman describing them as: "the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used" (2002, p. 9). Following this definition we describe user affordances as website features that are targeted at other Internet users and enable communication, collaboration or networking. Document affordances refer to features that enable a Web2.0 user to interact with content and website affordances provide features for interaction between users and the websites, such as profile creation, uploading content, adaptive interactivity and social awareness.

3.2 Affordances on a functional level

In order to understand how agency and engagement of Web2.0 users is expressed we need to gain insight in how these structural affordances are actually used. Hence, we suggest to add a set of affordances on a functional level (see Figure 2), namely inter-action, intra-action and outer-action affordances:

- Inter-action affordances point to the use of structural affordances for communication. They reflect the use of structural affordances from a 'process' viewpoint; as a type of information exchange between two or more Internet users. They enable conversations (see also 'conversational affordances' (Reid & Reid, 2010)) and are thus 'social' affordances.
- Intra-action affordances are affordances enabling interaction "from a person to himself/herself and time separation is essential (as space separation is not applicable). As the individual receiving the message is (due to time separation) in a different state from the moment when the message was issued, the message is likely to contain something 'new' and hence, valuable to the receiver, something that is not in his/her immediate field of attention, and yet, pertinent to his/her overall goals" (Hwang, Hsu, Lee, Chou, & Lee, 2009, p. 225). Intra-action does not describe a mental or cognitive process but the process of external representation of a mental process. In that sense, intra-action affordances can also be called 'personal' affordances.
- Outer-action affordances are affordances supporting "a set of communicative processes *outside of* information exchange, in which people *reach out* to others in patently social ways to enable information exchange" (Nardi, et al., 2000, p. 79). They enable negotiations about availability, assist in finding ways to establish connections, and support the progress of an interaction. Outer-action affordances scaffold information exchange. They also play an important role in awareness systems intended to help people construct and maintain awareness of each others' activities, context or status; they are 'context' affordances.

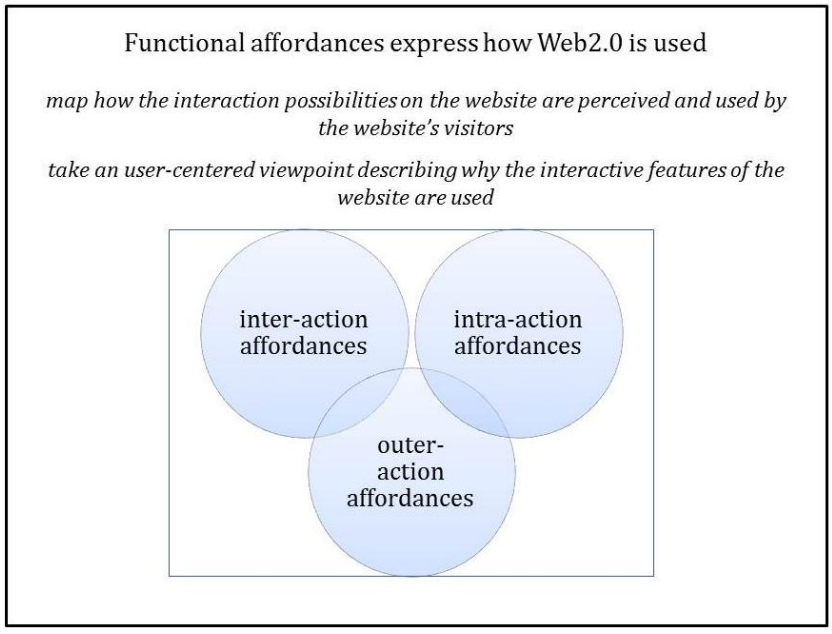

Figure 2: Web2.0's functional affordances

Of course, these types of functional affordances are seldom used independently. Structural affordances may be first used as an outer-action affordance for example, communicating a simple greeting in the Web2.0 environment or indicating a person's availability. Next, once rapport is established, structural affordances may be used as an inter-action affordance supporting communication between website users. After the conversation, a website user might employ structural affordances as an intra-action affordance, for example by tagging or storing parts of the conversation as a message to him- or herself at a later moment in time.

3.3 Both levels combined: a research framework for the analysis of Web2.0 interactivity

The combination of the structural and functional affordances typology creates a twofold analytical lens or research framework that can be used to describe interactivity on Web2.0 sites in objective, structural terms as well as in subjective, functional terms. The structural affordances show us Web2.0 as a space of object-oriented user, document and website affordances. The functional affordances describe Web2.0 as a space of perceived inter-action (social), intra-action (personal) and outer-action (context) affordances. This twofold framework for Web2.0 interactivity thus takes into account structure and agency, synthesizing both the structural properties of the Web2.0 environment as well as the ways that users perceive and interact with these capabilities.

Web2.0 users will often resort to user affordances (as social affordances) to setup conversations with others, they will use document affordances (as personal affordances) to interact with the Web2.0 content, and they will often use website affordances (as context affordances) to interact with the Web2.0 platform. Juxtapositioning structural and functional affordances shows that (1) structural user affordances can be linked to functional inter-action or 'social' affordances; (2) structural document affordances can be linked to functional intra-action or 'personal' affordances; (3) structural website affordances can be linked to functional outer-action or 'context' affordances. Figure 3 summarizes the components of the twofold research framework for the analysis of Web2.0 interactivity.

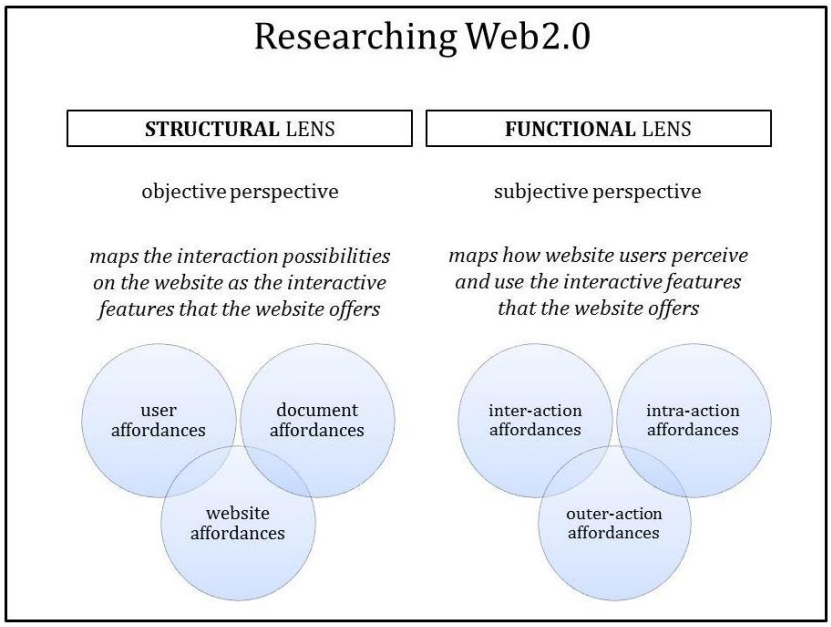

Figure 3: research framework for studying Web2.0 interactivity

Although there are strong parallels between the structural and functional component of the framework, their relation sometimes differs. Such differences point to the true significance of the Web2.0 site for the user(s), reflecting his or her commitment and engagement on that site. Literature on 'tagging' (assigning labels to content) for example, shows that 'tagging' as a structural document affordance is used as a functional intra- and outer-action affordance (Golder & Huberman, 2006; Hammond, Hannay, Lund, & Scott, 2005; Marlow, Naaman, Boyd, & Davis, 2006). In other words, some users tag as part of an externalization of a personal and cognitive process, assigning organizational or selfish tags for their personal benefit our goal (tagging as the use of an intra-action affordance), while others assign social

or altruistic tags for yet others to retrieve and use (tagging as the use of an outer-action affordance).

4. TWO CASESTUDIES USING THE FRAMEWORK

4.1 Flickr and deviantART

To test the usefulness of the research framework we conducted two case studies using the developed framework to explore how agency and engagement on Web2.0 sites is reflected in the use of Web2.0 affordances. In specific, our research question was: "How is agency and engagement of users of the websites Flickr or deviantART reflected in the use of the websites' affordances?".

The first case, the website Flickr.com, is an archetypical Web2.0 site (e.g.: Alexander, 2006; Breslin, Passant, & Decker, 2009; Cox, 2007; Millard & Ross, 2006; Negoescu & Gatica-Perez, 2008; O'Reilly, 2005; Pissard & Prieur, 2007; Prieur, Cardon, Beuscart, Valafar, Rejaie, & Willinger, 2009) and was launched during the Web2.0 hype. The second case, deviantART.com, is less frequently associated with Web2.0 (e.g.: Christodoulou & Styliaras, 2008; Conole & Alevizou, 2010; Leitner & Grechnig, 2008; Rigby, 2008), probably because it was launched well before the phrase 'Web2.0' attracted buzz and attention.

Flickr, was launched in February 2004 out of one of the components of the online multiplayer game 'Game Neverending' (Prieur, et al., 2009). On Flickr Internet users can access a huge repository of photographs. Registered users can upload photographs and share them with others. They can also edit, enrich and organize their content and can network or communicate with other Flickr users. A Flickr user, also known as 'Flickrite', has a profile page and a page displaying his or hers 'photostream'. Registering on Flickr is free. Users who pay a small fee have access to premium services not available for non-paying users. Early 2009 Flickr was reported to have 47 million members (Laurent, 2009). Flickr is among the top 100 most visited websites in the world according to the Alexa WebMonitor. In Flanders (the Northern part of Belgium), the region where respondents were recruited, figures from DigiMeter, an annual survey on the adoption and use of ICT, show that about 5% of the Flemish Internet users have a Flickr account (De Marez & Schuurman, 2011).

deviantART was launched in the middle of the dot.com burst (August 2000) as part of a larger network of music-related websites called the Dmusic Network. Although initially focused on displaying skins (custom graphical appearances for software) the website took the concept further and moved toward an art community that was very lenient for 'deviant' artworks, ensuring their members freedom-of-expression with as few restrictions as possible. deviantART enables emerging and established artists to exhibit, promote, and share their works. deviantART users, also known as 'deviants', have profile pages and exhibition spaces (galleries). They can converse about art in one deviantART's online discussion fora or in their chatrooms. They have social networking features at their disposal and can comment on and interact with the artwork on deviantART. deviantART is strongly status-focused: by means of different punctuation marks in front of user names, the status of deviants is expressed (e.g. ~ = member, * = premium member, ´ = senior member). Moreover, similar to Flickr, Internet users who pay a small amount, get access to premium accounts offering features not available or restricted for non-paying deviants. deviantART is among the top 150 most visited websites in the world according to the Alexa WebMonitor. Figures, revealed by deviantART's CEO Sotira showed, in his closing speech on occasion of deviantART's tenth

birthday, that deviantART counted 14.4 million registered users who submit 140 000 pieces of artwork , add 1,4 million pieces of artwork to their favorites and post 1,5 million comments on a daily basis (Sotira, 2010). For Flanders, no membership figures exist. Based on observations of the website and on earlier research on Internet use in Flanders, we suggest that the percentage of the Flemish Internet population participating on deviantART is significantly lower than on Flickr.

4.2 Methodology

Recruitment

To select information-rich research topics for in-depth analysis we chose a 'purposeful' sampling strategy and recruitment method (Patton, 2002; Strauss & Corbin, 1998). We decided to use various criteria for the recruitment of Flickr or deviantART users. This set of criteria was created after numerous group discussions and consultation meetings with university students and colleagues, after analysis of the literature on the two cases and after thorough observation of the websites. During the recruitment a 'maximum variety sample' (Morse, 1998) was targeted, ensuring that the sample was heterogeneous with core observable commonalities of experience (Patmore, Qureshi, & Nicholas, 2001). In order for a Flemish Flickrite to be recruited he or she had to comply to at least two of the following criteria:

- number of photos uploaded greater than 100;
- number of memberships to groups greater than 50;
- number of favorites added to the profile greater than 200;
- person had to be a "pro" Flickr user (has a paid, premium account).

In order for a Flemish deviant to be recruited he or she had to comply to at least three of the following criteria:

- number of deviations watched greater than 1000;
- number of deviations uploaded greater than 50;
- number of placed comments greater than 100;
- number of favorites added greater than 500;
- account created prior to February 2009 (member of deviantART for at least a year).

Sample

A total of 27 respondents were recruited (12 deviants and 15 Flickrites). Like any qualitative sample, ours does not claim to be representative for Flemish Flickr or deviantART users. The majority of the respondents (N=18) spent more than 2 hours online on an average day. Only a small fraction of the sample (N=3) spent less than an hour online on a daily basis. The 15 Flickrites were in general very Web2.0-savy, with all of them having a Facebook account and with more than two thirds having accounts on instant messaging applications and bookmarking websites. More than half of the respondents (N=8) managed a weblog. The same goes for the 12 deviants: except one, they all had a Facebook account. Also, the majority had an account on YouTube. Similar, to the Flickr respondents eight out of the twelve deviantART users has their own weblog. Sixty percent of the sample was male (N=16) and the average age of the respondents was 27,4 years. Tables 1 and 2, created by harvesting data from the respondents user profiles, show how the deviantART respondents

posted on average 177 deviations. For Flickr, this numbers is much higher: the interviewed Flickrites posted on average 3565 pictures.

Flickr respondents	Account type	# contacts	# favorites	# posted pictures	Membership (years)	Gender	Age
Isolde	Free	30	40	200	4	F	30
Tony	Pro	101	486	6450	5	M	30
Jenny	Pro	133	72	939	2	F	39
John	Pro	157	582	4758	3	M	34
Miriam	Pro	83	136	1830	5	F	21
Mike	Pro	253	265	4724	5	M	26
Pieter	Pro	6	49	2263	4	M	30
Bart	Pro	85	142	329	2	M	22
Ilse	Pro	180	132	2465	5	F	40
Griet	Free	214	2556	161	2	F	22
Greta	Pro	69	2465	27089	5	F	65
Steve	Free	20	20	151	2	M	22
Marcel	Pro	12	2	524	3	M	44
Willem	Pro	65	45	1484	2	M	49
Natalie	Pro	316	1489	117	4	F	22
MEAN		**114**	**565**	**3565**	**3.5**		**33**
MEDIAN		**85**	**136**	**1484**	**4**		**30**
ST. DEV		**92**	**876**	**6802**	**1.3**		**12**

Table 1: the Flickr respondents

deviantART respondents	Account type	# accounts watched/ being watched	# favorites	# posted deviations	Membership (years)	Gender	Age
Niels	Member	66/220	2316	27	3	M	20
Floor	Member	188/133	877	316	5	F	23
Ingrid	Member	57/53	44	49	6	F	22
Matthias	Senior	398/1266	1680	100	4	M	26
Britt	Premium	233/92	643	147	6	F	22
Chris	Premium	345/170	4141	180	6	M	30
Anja	Beta tester	-	777	398	7	F	24
David	Gallery	1047/6620	684	178	6	M	26
Mark	Member	79/86	1893	525	3	M	37
Rudy	Senior	96/2101	204	67	4	M	25
Els	Member	0/110	91	36	3	F	21
Roos	Beta tester	430/234	389	103	4	F	24
MEAN		**267/1007**	**1144**	**177**	**4.7**		**25**
MEDIAN		**188/170**	**730**	**125**	**4.5**		**24**
ST. DEV		**297/1971**	**1192**	**157**	**1.4**		**5.4**

Table 2: the deviantART respondents

Interviews and semi-structured topic list

Using a semi-structured topic list, we interviewed the 27 respondents between February and March 2009. The interviews (with an average length of 80 minutes) were recorded and later transcribed. The interviews took place in the vicinity of a computer so that the respondent could log in to his/her account and illustrate his/her statements, habits and practices. The semi-structured topic list was structured in four parts:

- questions on the usage of the website and on the meaning that respondents assign to the website;
- questions on interactivity with other users of the website and on the social aspect of using the website;
- questions on interactivity with the (user-generated) content on the website;
- questions on interactivity with the website itself.

Coding methodology

We used a deductive methodology to code the transcripts of the interviews, enabling us to code through a predefined (theoretical) perspective, namely the twofold research framework that we developed. Deductive coding consists of three coding phases (Miles & Huberman, 1994). First, descriptive codes are assigned to text snippets based on predefined areas of interest, whether factual, thematic or theoretical in nature (Lewins & Silver, 2007). We used the structural component of our framework encompassing user, document and website interaction affordances to assign codes describing the usage of the website features. In this way we gained insight into *which* website features were used. Next, interpretative coding took place, digging deeper into the meaning of the descriptive codes. Here, we used the functional component of the twofold research framework encompassing inter-, intra-, and outer-action affordances in order to describe *how* and *why* website features were used. Finally, moving on to a more inferential and explanatory level by examining the parallels, differences and oppositions between the descriptive and interpretative codes, we assigned pattern codes. Codes describing which website features were used were juxtapositioned to codes describing how and why these features were used. Using the structural component of the framework to assign descriptive codes, and using the functional component of the framework to assign interpretative codes enabled us to compare, during the process of assigning pattern codes, the (technological) structure of the website with how the website is actually perceived and used. This cyclic coding process was iterated several times until no further insights could be extracted from the texts.

5. RESULTS

We structure the results in three sections. First we describe how our respondents used the structural user affordances of Flickr and deviantART. Next, we focus on document affordances on both websites, in specific on website features enabling tagging, faving and commenting. Finally, the usage of the website affordances of Flickr and deviantART is addressed. In each section, we will also analyze these practices in terms of inter-, intra- and outer-action, thus reflecting on their functional significance.

5.1 User affordances

We defined affordances targeted at other Internet users as structural user affordances. From a functional perspective, these are closely linked to inter-action or social affordances. Although our data shows that, in general, user affordances are seldom activated by our respondents, we did find various examples of how users manage these affordances to converse, interact and network with others.

In contrast to the Flickr interviewees indicating that they do not send private messages (FlickrMail) or use the website extensively for networking, most Flickr respondents did mention that they actively seek membership of Flickr groups. Joining a group however not only functions as an inter-action or social affordance. It also has an important role in creating an audience or a public for one's photographs which illustrates how the affordance to join a group is used as an outer-action or context affordance scaffolding future interactions:

"The first group I joined was the group 'ScoreMe', because members give points to each other's pictures. Now, I take pictures and then I start looking for groups where I can post my pictures. Especially in order to get comments on them" (Bart, Flickr pro, 22 years).

Except for the user affordance to create or join groups, most user affordances (enabling for example sending a private message or adding a contact to one's Flickr network) were not key for the Flickrites that we interviewed. Isolde's quote is typical for the position of our respondents:

"*I like Flickr for the photos, and my photos especially, but the whole system of Flickr is not really for communication or interaction. The focus is only on those photos. Given that there is such a thing as Facebook, why do something else, why should I look for something else?"* (Isolde, Flickr free, 30 years).

deviantART offers, in contrast to Flickr, a broad range of user affordances, enabling both synchronous and asynchronous interpersonal and group communication, as well as networking with other deviants and the surveillance of the work of others (through the deviantWATCH affordance). We noticed that these user affordances often serve as inter-action affordance enabling deviants to discuss a wide variety of topics in a wide variety of groups:

"*I talk about anything and everything. That can really vary. It might be about politics, for example when there are elections … but also about stupid things in groups such as 'LOLcats'. So ... it can sometimes be very serious but also very brain-less"* (Niels, deviantART member, 20 years).

5.2 Document affordances

Structural document affordances are interaction features targeted at Web2.0 content elements. These document affordances are closely linked to intra-action or personal affordances from a functional perspective, reflecting the externalization of a cognitive process. We will discuss tagging, faving and commenting as the use of three main document affordances, enabling interactivity with content of Web2.0 platforms.

Our interviews show that on Flickr the document affordance 'tagging', is mainly used as an 'intra-action' affordance, as a means to communicate to oneself or organize photographs for oneself. In addition, 'tagging' also serves as an outer-action affordance, because assigning

sufficient and clear labels to one's photographs helps making them visible and searchable. Likewise, on deviantART, 'tagging' content is most often an 'intra-action'. Moreover, as outer-action, the inappropriate use of tags is despised by all deviants that we talked to:

"Yes, I tag my deviations, but I do not misuse the system. I assign 'to-the-point' tags such as 'make up', 'wig', 'medieval' or 'fantasy' and such. But I do not misuse tags. That is very annoying; some people tag their deviations with tags such as 'sex', 'porn' or 'girls'. Others use very generic words, thus polluting the search system. I hate those kinds of deviants!" (Britt, deviantART premium, 22 years).

With regards to 'faving' (adding a content element to his or her list of favorites) we notice two functional dimensions. Most Flickr as well as deviantART respondents indicated that they primarily use this document affordance type to add a photograph or an artwork to his or her private collection, thus creating an own art or photography collection (using the document affordance as an intra-action affordance). Other Flickrites and deviants told us that they add content to their favorites because it helps them to communicate their appreciation to the photographer or artist (using the document affordance as an inter-action affordance). The following quote shows that the 'faving' affordance can be used alternately as a social or inter-action affordance and as a personal or intra-action affordance:

"*Sometimes I assign photos of others to my favorites. Sometimes, I do this to show the creator that I find his or her work really good, without having to put much effort in it. Most often however, I just try to create a collection of beautiful things"* (Jenny, Flickr pro, 39 years).

Our respondents use commenting, the last document affordance that we discuss, sparingly. Often they refer to the phatic or trivial character of most comments to explain why they do not use this affordance. Still, sometimes comments are used to gather and give constructive, positive feedback on others' work and to start conversations. We note here that the respondents use this document affordance as a social affordance: they seek a conversation or a dialogue about the photograph or artwork:

"When I want to give a comment, it is never a comment like 'nice picture' or 'well done'. I find such comments pointless and try to offer real feedback. I write, for example, 'That's a pretty kadrage with that pole on the right …, well done, I would do it a bit more so and so'. There are so many 'empty' comments written on the Internet that it works on my nerves sometimes" (Tony, Flickr pro, 30 years).

In this respect we want to point to deviantART's document affordance 'Critique' which is only available to premium deviantART members. The 'Critique' feature was created to avoid the phatic or meaningless content that was submitted through the regular comment affordance of deviantART. deviantART emphasizes the profound, thoughtful and respectful character of a 'Critique' describing it in their Frequently Asked Questions-section (FAQ) as: "designed to help artists get in-depth, critical feedback and commentary on their work. (…) The Critique system co-exists with the original comments system but provides a space that is designed for considered, thoughtful and RESPECTFUL criticism".

5.3 Website affordances

Affordances that target interactivity with the Web2.0 website itself were defined, from a structural perspective, as website affordances. From a functional perspective, these

affordances are closely linked to outer-action or context affordances, enabling users to create a social framework and conditions that support them in their future actions on the website.

Of course, on both websites, the website affordance to upload content is of utmost importance for our respondents. This affordance enables them to share their content and strive for 'publicity'. Moreover, the website affordance of deviantART to upload content is appreciated and used because of its flexible, open and lenient character:

"*I follow drawing lessons and I now regularly draw nudes. The advantage [of deviantART] is that I can upload those drawings and sketches without being blocked. Other websites, for example a social networking site such as Netlog, block such content. If you are repeatedly blocked, they even deny you access!"* (Mark, deviantART member, 37 years).

Our respondents also presume the willingness to share and do not appreciate people who use the upload affordance as a means to create a personal, private archive of content, shared with no one:

"It is really a shame to use Flickr as a mere photo bucket, as a mere online repository. I use Flickr to share my photos and learn or pickup ideas from others. If nobody would share his or her photographs that would not be possible" (Natalie, Flickr free, 22 years).

Especially interesting are website affordances that communicate from the website to the website user. Two of those website affordances are 'social navigation' and 'social browsing'. Social browsing refers to content exploration based on the practices, uploads and preferences of one's social network on the website. Social navigation refers to content exploration based on the practices, uploads and preferences of the whole website community. Our interviews show that both affordances, which enable adaptive interactivity between website and website user, are frequently used.

'Social browsing' was spontaneously mentioned by most respondents as an important way to encounter new and interesting content on Flickr or deviantART:

"*What I really like is to see my contacts' new photos. I take pictures with a Lomo … in the Lomo group, of which I am member, every day new photographs appear and that's just interesting"* (Isolde, Flickr free, 30 years).

'Social navigation' is also supported by website affordances. An example on Flickr includes the 'Interestingness' page that shows the 500 most interesting pictures of that day based on an algorithm that takes into account where the clickthroughs on a photo are coming from; who comments on the photo and when; who marks the photo as a favorite; its tags and other metrics which are constantly changing.

Yet another website affordance that supports Flickrites in their practice of taking photographs is the automatic display of the Exif (exchangeable image file format) data of photos. This helps Flickrites to gain insight in the technical aspects of a particular photograph. On deviantART we encountered website affordances supporting adaptive interactivity such as the possibility to tweak the content presentation to show only content that fits the field of interest of the deviant. Other website affordances of deviantART support social awareness, displaying, for example, a community mood (the aggregation of individual moods of the deviants). Again, website affordances function as outer-action affordances, creating a

communication context and helping deviants to understand the website's context and environment, thus supporting (future) inter- and intra-action.

6. DISCUSSION AND CONCLUSION

Our research framework enables us to describe websites in objective, structural terms as spaces of user, document and website affordances. The framework also makes it possible to talk about the two websites in subjective, functional terms, describing them as spaces of perceived inter-action, intra-action and outer-action affordances. We discern three important merits of the research framework.
Firstly, using the framework one can interpret Web2.0 as a medium 'through' which Internet users can communicate, as well as a medium 'with' which Internet users can communicate. This perspective breaks with the instrumental view that considers, both in name and in function, the Internet as an instrument or medium. Nowadays, Web2.0 websites actively participate in communicative exchanges as a kind of additional agent and/or (inter)active co-conspirator. Web2.0 platforms take the position of a social actor with whom one communicates and interacts, challenging long standing assumptions about the role and function of technology.
Secondly, the developed framework also supports the analysis of Web2.0 sites as spaces where interaction '*goes beyond*' the mere consultation and selection of content, as spaces supporting the (co) creation of content and value.
Thirdly, the framework takes into account structure and agency and helps us to understand processes of collective or individual agency, thus enabling further insight into the emancipatory or participatory potential of these spaces.
Moreover, the framework helps us to focus on the relationships between users and the website because the concept 'affordance' makes a connection between (the properties of) the environment and the cognitive and mental processes among the users of that environment. With our twofold framework we integrate both the structural properties of Web2.0 and the ways that users interact with these capabilities; it takes into account human agency as well as the technological tools and components of Web2.0.

In general, the majority of respondents consider Flickr and deviantART to be a meeting place for photo- or art lovers, suggesting that the sites are virtual 'third places'. Virtual 'third places' are places that exists outside the home and beyond the 'work lots' of modern economic production where people gather to enjoy each other's company (Oldenburg, 1999; Soukup, 2006). From a holistic viewpoint our results also confirm that affordances provided by media-oriented Web2.0 platforms are changing the ways in which amateur photographers or artists engage with other users. Not only do Web2.0 sites facilitate amateurs to (co)create, they also enable the reproduction and distribution of content, and create possibilities to consume photographs or art in new and novel ways. Thus, Web2.0 websites are generating a new kind of media logic with regards to media consumption and production, a media logic that is expressed in the affordances of those websites.

Flickr and deviantART are spaces, where, quietly under the surface or in full view of all, affordances are used to create spaces for engagement and community building. Both Web2.0 sites provide lots of user, document and website affordances that can serve as inter-action or social affordances. However, we saw that these affordances are seldom used to engage in real conversations or to create an online consensus. In that respect, we also noticed a lack of commitment among our respondents who indicated that the quality of the dialogues is often poor. In line with Papacharissi's (2008) claim that the Internet is a public space but not a

public sphere, we conclude that Flickr and deviantART are public spaces. This finding emphasizes the democratic potential of Flickr and deviantART, but also points to the effort and work needed to fulfill this potential. In this article, we described how people use Flickr affordances to gain access to a community of practice or a virtual third place. In that way, the acts and practices of our respondents reflect Flickr's baseline: 'Share your photos. Watch the World'. We also noticed how deviantART, 'where art meets application', represents more than just a mere 'space' where one can share amateur art. For most of our respondents deviantART was more than a 'virtual settlement', for them the website acted as a 'virtual community'.

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