Are We All Online Content Creators Now? Web 2.0 and Digital Divides*

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Despite considerable interest in online content creation there has been comparatively little academic
analysis of the distribution of such practices, both globally and among social groups within countries.
Drawing on theoretical frameworks used in digital divide studies, I outline differences in motivation,
access, skills, and usage that appear to underlie and perpetuate differences in online content creation
practices between social groups. This paper brings together existing studies and new analyses of existing
survey datasets. Together they suggest online content creators tend to be from relatively privileged
groups and the content of online services based on their contributions may be biased towards what
is most interesting or relevant to them. Some implications of these findings for policymakers and
researchers are considered.

Keywords: Prosumer, produser, digital divide, participation divide, convergence culture, digital
literacy, creativity, web 2.0, Wikipedia, self expression, citizen journalism.

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Introduction

This paper applies a theoretical framework derived from the study of digital divides to available research
and data to analyse the prevalence of and barriers to online content creation (OCC) - the use of
online spaces (often, but not always, commercial) where users are encouraged to create and share
“content.” The use of services that enable OCC - including weblogging sites like WordPress, photo
and video sharing sites and collaborative content sites like Wikipedia - has been analysed variously
as (creative) ‘prosumption’ (Ritzer & Jurgenson, 2010), produsage (Bruns, 2008), and ‘pro-am’
(professional/amateur) creation (Leadbeater, 2007). The growth of these practices has been considered
as heralding a new economic model, (Benkler, 2006) and more broadly it has been celebrated as
potentially a politically and culturally emancipatory force (Bruns, 2008; Jenkins, 2006; Leadbeater,
2007) although there have also been more pessimistic voices which suggest online content creators are
exploited for the benefit of others (Fuchs, 2010; Terranova, 2000).

Of course the medium of the internet has always been available as a means of content production
as well as consumption for its users. The primary inventor of the World Wide Web, Tim Berners-Lee,
noted his intention was always to enable two-way flow of information- “we ought to be able not only to
find any kind of document on the Web, but also to create any kind of document, easily.” (Berners-Lee,
1999, p. 182). As Thomas and Wyatt have suggested, “during the early 1980s when the internet was
mostly confined within the computer science community there was relatively little distinction between

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the producers of internet services and content and the consumers,” (Thomas & Wyatt, 2000, p. 34) but this changed as less technically-minded people joined the internet. The process of creating more than a very simple homepage required a good deal of specialist knowledge and as a result early surveys found fewer than one in 10 online adults in Britain or America had their own webpages (Lenhart, Horrigan, & Fallows, 2004; Office for National Statistics, 2002).

More sophisticated, database-driven websites that made it easier for people to create their own personal sites and contribute information to others’ began to emerge in the mid-2000s - a phenomenon dubbed ‘Web 2.0’. The term Web 2.0, once coined by Tim O’Reilly, has been interpreted subsequently in many different ways. O’Reilly’s definition is mainly about technical and commercial changes (and encompasses many aspects besides increased user input), but a focus on enabling users to contribute to websites is nonetheless apparent— “Tim Berners-Lee’s original Web 1.0 is one of the most ‘Web 2.0’ systems out there — it completely harnesses the power of user contribution, collective intelligence, and network effects” (O’Reilly, 2006).

According to Van Dijck and Nieborg (2009), a recurring theme in both academic and popular discourses is that “all [web 2.0] users are equally creative and are created equal” (p. 860). Jenkins, in his influential work Convergence Culture, admits that most of the OCCs in his book are early adopters - “disproportionately white, male, middle-class and college-educated” (2006, p. 23). Although he does express concern about a “participation gap,” the thrust of his argument appears to be that the media industry will chase these early adopters and that media consumers will thereby be encouraged to adopt these practices to the point that they become mainstream (2006, p. 23). As Couldry suggests, however (2010), there is some doubt that this will come to pass, and Hargittai and Walejko have meanwhile begun to examine what they term the “participation divide” (Hargittai & Walejko, 2008). The purpose of this paper is to provide some preliminary evidence regarding such participation divides (on multiple axes), to explore some of the factors that may contribute to such divides, and to begin to examine the social consequences.

Implicit in the literature on the digital divide which informs this paper is the assumption that certain forms of computer use benefit those who practice them, and among these, OCC practices are often characterised as among the most sophisticated and most beneficial (Celot & Perez Tornero, 2009), although the extent to which these practices are beneficial at an individual or social level may depend on what the nature and motivation is of the content creation being analysed and can be hard to measure.

The survey data analysed in this paper shows that active OCCs are a minority of internet users, and they tend to have higher sociodemographic status than the broader Internet-using populations they come from (which in turn tend to be of a higher status than non-internet users). In the first part of this paper I present some of the available evidence related to the stratification of OCC practices and how this is reflected in the content itself, and in the second I analyse underlying potential causes of differences in access and in use.

### Measuring OCC divides

This section summarises some of the evidence available for OCC divides both measured directly in the differing proportions of populations who engage in OCC and indirectly through systematic content imbalances in web services that rely on user-generated content (UGC). Before examining the data, however, there are several measurement problems that must be considered.

### Methodological issues

One difficulty in assessing the extent and nature of OCC divides is the imprecision of the definitions of what ‘content’ is and of what practices should be considered OCC. A report for the Organisation
for Economic Co-operation and Development (OECD) defines ‘user-created content’ as published, involving creative effort and created outside of professional routines and practices. As the authors note, however, “the nature and extent of this creative effort is hard to define and depends on the context” (Wunsch-Vincent & Vickery, 2007, p. 8). For example, is a picture of what someone had for breakfast ‘content,’ interpersonal communication, self-documentation, or some combination of the three? Does selecting the Facebook “like” button on a campaign video count as political commentary?

Another key problem is that the wide range of available tools for content creation and their changing nature makes measuring OCC using surveys of Internet use not primarily focused on this aspect of internet use quite difficult. Unfortunately, large-scale internet surveys seem generally to concentrate on measuring use of particular tools rather than measuring types of use across a breadth of tools. In (Wunsch-Vincent & Vickery, 2007, p. 9) for example, posting messages to chat rooms, newsgroups or forums, using peer-to-peer file sharing sites and creating a webpage are all treated as potential proxies for OCC, although it seems likely the bulk of peer-to-peer file sharing use at the time was for the consumption of professionally produced music, and chat rooms and forums are as often used for interpersonal communication as creative expression. As technology has progressed, posting photographs and video, writing blogs, and visiting social network sites have all been treated as potential proxies for OCC by, for example, the Oxford Internet survey (Dutton & Blank, 2011). The inclusion of social network site use is perhaps the most problematic of these choices. Much of the creation and sharing of new amateur-produced content that might once have taken place using dedicated photo, audio, text and video content sharing platforms has likely migrated to social network sites which allow a large range of sharing options “under one roof,” however such OCC activity seems likely to be a small proportion of the overall activity taking place on social networking sites much of which is interpersonal communication, redistribution of others’ content, or social surveillance.

In addition, the extent to which such content is publicly available may be relevant. Many of those studying OCC (Bruns, 2008; Jenkins, 2006; Benkler, 2006; Ritzer & Jurgenson, 2010) have tended to focus on the collaborative nature of OCC activity, building towards a common goal or product. Implicit in their definitions is the idea that to be prosumer, produser, or social production, content creation practices on the internet must be public. For example, the Internet is often used as a means of sharing photos or texts between friends and family. It is only to the extent that this uploaded content is public that it can contribute to a larger product (a global image collection, for example) – even if that contribution may not be not the primary reason for that sharing. OCC practices may be of sociological significance whether the products of those practices are widely shared and viewed or not, but there is nonetheless an important difference between OCC products which are widely available and used and those which circulate only in small groups - as implied in the first part of the OECD’s definition (Wunsch-Vincent & Vickery, 2007, p. 8). Unfortunately, most available statistical studies do not differentiate between levels of publicness in content sharing when measuring adoption of OCC tools, though there are some separate quantitative studies focused on online privacy that provide some indications (Madden & Smith, 2010).

Complicating matters further, not enough is known about how particular OCC technologies are implemented or used in different national contexts, and superficially similar tools may have quite different affordances. For example, Sina Weibo in China has been compared to Twitter, but it has a number of additional features and because each character in Chinese is the equivalent of a word, each Weibo posting can contain a great deal more content. (Zhang & Pentina, 2012). One of the few studies of how similar tools are used in different countries – a six-country survey of reasons why people create their own website - found several significant differences (De Rosa, Cantrell, Havens, Hawk, & Jenkins, 2007), with 26% of Germans and Japanese seeking to publish their own writing and music compared to 14% of British and 15% of U.S. users surveyed, for example.
Lastly, there is a lack of distinction in some survey reports between different levels of engagement. The Digital Future Report, for example, asks respondents, “do you display photos online?” (USC Annenberg School Center for the Digital Future, 2010) but a positive response could indicate the uploading of anywhere between one picture and thousands.

Bearing in mind these methodological problems, I have attempted to be conservative in my selection of metrics, trying where possible to find measures of “writing” or “posting to” sites and services rather than simply usage. Where I have reanalysed existing survey data I have used weblog creation and maintenance as a convenient proxy for OCC where possible.

Weblogging is one of the most frequently measured forms of OCC and weblogging has often associated in public discourse with internet practices deemed to be personally and socially beneficial – most notably political engagement, drawing mainly on its claimed influence in the US (Hindman, 2008; Smith, Schlozman, Verba, & Brady, 2009). One of the few large-scale surveys of motivations for weblogging, performed in the US, found the most popular major reasons given to blog was “to express yourself creatively” (52%) and other leading purposes included “sharing practical knowledge” (34%) and “influencing the way other people think” (27%), all of which have clear potential social value. It must be noted, however, that as with social networking sites (and indeed most internet uses), more banal uses for blogs are also common – “documenting your personal experiences or share them with others” (50%), “staying in touch with friends and family” (37%) and “storing resources or information that is important to you” (28%) (Lenhart & Fox, 2006, p. 8).

Who are the Online Content Creators?
Much of the academic discussion of the growth of OCC practices has been necessarily based on evidence from the US and Europe since (as discussed below) data on usage in other countries have only recently become available and are still patchy in quality and coverage. However, before examining the situation in developed countries, let us pause to consider OCC in less developed countries to the extent the data allows.

OCC in Less Developed Countries
The few statistics that do exist on OCC in less developed countries appear at first glance to reveal startlingly high levels of use – higher in many cases than similar figures in developed countries. Universal McCann has studied 38 countries, focused on what it terms ‘active internet users’ – that is, users between 16 and 54 years old who use the internet every day or every other day – a figure that they estimate covers one in three internet users globally. In the US, it found a third of these are blog writers, while in Brazil it found 51% are blog writers, in India 54% and in China 81%. The company similarly found that while 29% of Americans in their sample had ever uploaded video to a video sharing site, 67.5% of Filipinos and 57.8% of Indians had (Universal McCann, 2009). The World Internet Project, which pools academic survey research from several countries found that 23% of Mexican internet users, 21% of Columbian users, and 11% of Chilean users worked on weblogs weekly or more often (USC Annenberg School Center for the Digital Future, 2010). These figures do appear to suggest some international variations in OCC practices, but the fact that across all studies examined, internet users in less developed countries appear to be broadly more inclined to be OCCs than those in developed countries, despite a wide variety of cultural backgrounds, suggests confounding factors could be at work.

To take one example, (CNNIC 2012) shows that 26.7% of Chinese users are aged 10-19 and a further 29.8% are 20-29, age groups that, as will be explored in the usage divides section, tend to be more active users of OCC tools. High apparent levels of OCC behaviour in the developing world may be in part because the minority with internet access are disproportionately the same kind of people (early
adopters, young people) who tend to be OCCs. In other words if a broader range of their populations were online, the proportion who were OCCs might be closer to developed country levels. In the final analysis, even when OCCs make up a high proportion of internet users, the low proportion of internet users in less developed countries as a whole tends to counterbalance this. For example, although 67.5% of Filipino “active internet users” have uploaded video according to Universal McCann (2009), there were by their calculations only 4.2 m “active internet users” in a country of more than 90 m inhabitants.

The case of Twitter and Twitter-like services is an interesting one. Recent official Chinese figures show 62.1% of internet users had blogs or “personal space” online and 48.7% were users of “microblog” software like Sina Weibo (CNNIC, 2012, pp. 41–42). According to a study of Twitter postings that had been coded with their locations, the largest numbers came from (in order), (1) the United States, (2) Brazil, (3) Indonesia, (4) the United Kingdom, (5) Mexico, and (6) Malaysia (Graham & Stephens, 2012). This may indicate that in developing countries in particular, such services have disproportionate importance because no internet connection is needed to post messages and they can be sent and read on the most simple of mobile devices.

Little is known about how different OCCs are in social status in the developing world from other internet users but one study of internet and mobile phone use across 18 countries by Pew reveals that at least where social networking is concerned (it doesn’t mention blogging) there does appear to be a significant positive relationship between education level and use of social network sites. In Egypt, 13% of Internet users without a degree used social networking compared to 84% of college graduate internet users, and in China the figures were 28% and 79% respectively – all other developing countries have similar gaps though few are as pronounced (Pew Global Attitudes Project, 2011, p. 7).

OCC in Developed Countries

What Van Dijk terms “material access” (whether people have internet access, regardless of what they use it for or how often) is more widely diffused in developed countries than less developed countries ~ 66% of households in the developed world compared to 16% in the developing world had access to the internet at the end of 2010 (ITU, 2011, p. 3). It is widely accepted, however, that even in the most developed countries younger, better-educated, and higher-earning people are more likely to have access to and use the internet (Dutton & Blank, 2011; USC Annenberg School Center for the Digital Future, 2010; Zickhur & Smith, 2012), although the gap in access between men and women observed early in the diffusion of the internet seems to be diminishing (Yu, 2006). I have gathered below some initial evidence about OCC usage in particular which tends to suggest OCCs in developed countries represent a privileged subgroup of internet users, although as noted toward the end of this section some data tells a more complicated story.

My reanalysis of data from a survey of U.S. internet users (Pew Internet & American Life Project, 2009) reveals stratification of OCC practices in several dimensions. The clearest stratification is by age - 38% of 18–24 year olds with internet access had ever shared “something online that you created yourself, such as your own artwork, photos, stories or videos” (content sharers). This figure declined steadily to 15% of 65 + -year-olds.

This is not a self-evident result - after all older people have many more experiences they might seek to share, and given that 65 + -year-olds are less likely to have internet access to begin with, one might expect those who are nonetheless online to be closer to early adopters. Some stratification by education and income is also apparent but the overall pattern is less clear.

The unexpected ‘bulge’ among the lowest-income or lowest-education cohorts may be due to the higher number of students in these groups (whose measured education and income levels often rise later). A more recent Pew survey just of US online picture and video sharing suggests similar results
with 67% of online 18- to 29-year-olds posting photos online compared to 26% of over 65 s (Rainie, Brenner, & Purcell, 2012).

A 2009 survey of UK internet users (OxIS, 2009) shows a similar relationship between age and social class and OCC. It measured class directly, and it showed that regular blogging did appear to be significantly more popular among the upper middle class than among the working class.

In the US there appears little difference between genders in their content sharing behaviour (Lenhart, Purcell, Smith, & Zickhur, 2010) but in the UK there seems to be a significant difference – women (63%) surpassed men (57%) in social networking use but were much less likely than men to blog (28% vs 18%) (Dutton & Blank, 2011).

Lastly, Hargittai and Walejko examined the determinants of online content creation among 1,060 first-year undergraduate students (Hargittai & Walejko, 2008). The questionnaire they used was of particular interest because it was directly focused on a wide variety of creative uses of the internet and measured this across all modes of internet use instead of having to infer it from the particular internet tool chosen. They found that male students and students with a higher socioeconomic status (SES) - who have at least one parent with a graduate degree - are significantly more likely to create content.

While the figures above relate to broad categories of OCC, there are two particular forms that have received more in-depth study – citizen journalism and contribution to Wikipedia.
A German survey of active ‘participatory journalists’ online revealed that they had significantly higher educational qualifications than the population as a whole – 26% had university degrees, compared to 12.2% of the whole German population (Frohlich, Quiring, & Engesser, 2010) – though gender was relatively balanced, with 43% of contributors being women.

A survey in Britain about citizen journalism found that gender and social class appeared to have a significant impact on whether people witnessing a news event (a fire) would contact the media about it or share a picture with a news organisation. They found “16% of people in the upper professional class would take a photo and share it compared with 4-7% of people in the other social classes.” Twice as many men as women would photograph a fire, and of such photographers twice as many men as women would share it with a news organization. (Wardle & Williams, 2008).

A self-selected survey of Wikipedia contributors found that 23% had Masters degrees or PhDs (Glott, Schmidt & Ghosh, 2010) – even in the U.S. population over 25 this proportion would be 11% (U.S. Census Bureau, 2011) and in most other countries much lower still. Another study found overall only 18% of Wikipedia editors were women and that while among the majority of editors the number of revisions by men and women was similar, among the 25% most active editors only 27% of revisions were made by women. As the authors conclude, “the most active Wikipedians are also
those who largely set policies, arbitrate disputes, and do other high-level tasks into which biases of worldview and temperament can subtly creep. This is the very group among which women may need more representation” (Antin, Yee, Cheshire, & Nov, 2011, p. 4).

There is some counterevidence, however, suggesting that in at least some cases some forms of online content creation are not necessarily linked with higher social status. For example, there is broad consensus across surveys and countries that younger people and students in particular are more intensive OCCs than older people, both absolutely and relatively (even when taking into consideration young people’s greater propensity to be online at all). To the extent that the middle-aged and older people may be of higher social status, this would run counter to the notion that OCC tends to be practiced by those of higher status in society.

In the US, a survey of political participation through OCC found, “neither political involvement on social networking sites nor posting material about political or social issues on the Web is strongly associated with socioeconomic status” (Smith, Schlozman, Verba, & Brady, 2009, p. 53), although the authors note (as I have done) that their calculations are complicated by the fact, “the 18-to-24 year olds who constitute such a disproportionate share of those who engage in these forms of internet use have not yet come to rest in terms of level of income or education and are, in fact, the least affluent and least well-educated group in the survey.” (Smith, et al., 2009, p. 55). Lenhart and Fox (2006) found by contrast that bloggers on political topics tended to be in their 30s and 40s and were more likely to be college educated, but this was based on a smaller and earlier sample.

Patterns of participation can vary between the different tools used for OCC. Although higher Twitter use in the US was linked to education, with the college educated twice as likely to be users than high school graduates, nonwhites were significantly (and increasingly) more likely to use Twitter than whites – 19% of Hispanic and 25% of black adults had used it compared with 9% of whites (Smith, 2011) – a result at variance with patterns of usage of other tools. It is not clear however what proportion of any of these groups is using it for OCC as opposed to social monitoring and news or media consumption – one study has suggested 22.5% of Twitter users produced 90% of all tweets (Sysomos, 2009), and Hargittai and Litt find that, among young Americans at least, Twitter appears predominantly a means of keeping track of celebrities rather than of learning about or commenting on other forms of national and international news (Hargittai & Litt, 2011).

The overall picture will remain unclear until representative surveys in both developed and developing countries focused directly on measuring better-defined OCC practices like ‘sharing of artistic works you created’ across different digital platforms become available (instead of those which measure just

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**Chart 5** Percentage of UK internet users who wrote a blog entry at least weekly by age (OiS 2009)

N = 141 aged 15 and older
use of different online applications). Nonetheless the balance of the evidence does seem to suggest that stratification of OCC is an observable and widespread if not universal phenomenon.

How OCC divides affect online content
Since the Internet began to be widely adopted in developed countries, scholars and commentators have been hopeful that it would provide a means for communication between different social groups and nations, and in particular a way for those previously without access to media to reach potentially large audiences (Kellner, 1998). The advent of social media and Web 2.0 applications, which make it easier for individual users to become producers online has raised these hopes further (Bowman & Willis, 2004).

If OCCs tend to be from privileged groups, however, one might expect UGC (what OCCs produce) to be skewed towards what they find interesting or relevant – although little research has been done to systematically characterise the nature of OCC content available online there is some early evidence for this. A study of placemarks accessible via Google Maps found, “the geography of peer-produced information is not uneven due to the global unevenness in population density […] the Tokyo metropolitan region is represented by three times as much content as the entire continent of Africa.” (Graham & Zook, 2011, p. 121). Moreover, the authors note, “the little representation that exists in peer produced cyberscapes [in parts of the world that are underrepresented] is often created from outside the developing world.” (Graham & Zook, 2011, p.129). Even within developed countries there is are signs of digital divides in UGC – a study of the Open Street Map project, which relies on user input to build public domain maps of areas, found that poorer areas of the UK were less well-mapped than richer areas (Haklay, 2009). Partly in reaction to the figures provided about Wikipedia editor demographics provided earlier, a working group has formed among Wikipedia editors to tackle what they term its systemic bias in favour of educated, white, male, Western contributors (Wikipedia, 2012).

What, then, might the major factors be underlying the unequal use of the internet in general, and what appears to be a still-more stratified use of OCC tools? In the sections that follow, the determinants of access and use of the internet in general that have been suggested by van Dijk (2005) are briefly outlined, and are supplemented by a more detailed examination in each case of the special factors which may apply particularly to OCC behavior.

Explaining OCC divides
Early popular and academic discussion about the digital divide (NTIA, 1998) focused on the most evident and easily measurable divide – the “access divide” between computer owners and nonowners or internet users and nonusers. As such access has grown rapidly across much of the world, much attention has now shifted to differences in the manner and extent to which digital technologies are used. A number of scholars of the digital divide have attempted to provide overviews of the relevant factors enabling or inhibiting ‘successful’ adoption (DiMaggio, Hargittai, Celeste, & Shafer, 2004; Norris, 2001; van Dijk, 2005; Warschauer, 2002). Naturally, each theorist focuses on different aspects but there is sufficient common ground for the broad concepts that, for simplicity’s sake, I have structured this part of this paper around the four-part hierarchical model of access to digital technologies outlined in (van Dijk, 2005). ‘Motivational access’ represents the desire for what digital tools can enable and a willingness to use them – important preconditions for access and use, ‘material access’ represents whether and under what conditions people have access to digital technologies, ‘skills access’ represents the extent to which people are able to use digital tools effectively, and ‘usage access’ the breadth and depth of people’s use of digital tools.
Motivational Access Divides

There are many reasons why even in countries where digital technologies are widely and inexpensively available people do not use them (or use them only to a limited extent). Many simply do not feel the internet offers them anything they need or want, or they feel they lack the time to adopt another medium. A UK qualitative study of non-adopters of social network sites found this and in addition two responses that are particularly relevant because they relate to the self-exposure common to some OCC practices – “witnessing the negative side of using social networking sites among friends and choosing to ‘steer clear’; and concerns around safety and being stalked by other users (on and offline)” (Ofcom, 2008, p. 34).

In the case of OCC practices simple awareness of the tools and their uses may also be an issue. Awareness of Web 2.0 tools among internet users can be low. In 2007, Hargittai surveyed first-year undergraduates in the US (who might normally be thought of as ‘digital natives’) and asked them about their awareness of key terms. On a 5-point scale from 1 (no understanding) to 5 (full understanding), ‘wiki’ scored 2.29 and ‘social bookmarking’ 1.68 (Hargittai, 2009). Despite the steady rise in media coverage of Twitter in 2009, a poll of U.S. adults found 69% of them did not know enough about it to comment on it (Milian, 2009).

Lastly, as noted earlier in the case of the telephone and other technologies that benefit from network externalities, (Katz & Shapiro, 1985) the perceived relevance of social media sites is likely to increase with the number of users and in particular with the number of friends already using those sites. While this has tended to drive adoption of services like Facebook, it would also (for similar reasons) tend to discourage Web 2.0 adoption by members of social groups who aren’t already users since they might doubt that they would be able to meet people like them, find their friends on such sites or even simply doubt that what they have produced would be read by people like themselves.

For whatever reason or reasons, it appears – at least on the basis of evidence like Ofcom’s representative surveys of UK internet users between 2003 and 2010 – that despite the extensive media coverage of the growth of Web 2.0 phenomena like uploading video, blogging and contributing to Wikipedia, a high and stable number of internet users (73–77% in Ofcom’s figures) say they simply have no interest in participating in these forms of OCC (Ofcom, 2011, p. 43).

Material Access Divides

Notwithstanding considerable growth in internet use worldwide, it is still evident that substantial differences remain in the proportions of people with internet access both between countries and within countries by demographic category or region (Dutton, et al., 2009; ITU, 2010; USC Annenberg School Center for the Digital Future, 2010). However as numerous digital divide scholars have noted (DiMaggio, et al., 2004; Norris, 2001; van Dijk, 2005; Warschauer, 2003) even the apparently simple measure of physical access is not a binary state – rather there are many forms of material access to the internet and differences between them may have an effect on the richness of internet use.

Whether a person’s Internet access is broadband appears to make a difference to their breadth of use (Horrigan & Rainie, 2002), and in one Pew survey broadband was found to be particularly important for content creators, 37% of whom had high-speed connections compared to 29% of all internet users at the time (Lenhart, et al., 2004). While high-speed Internet access makes every online task easier, it is particularly important for uploading and sharing pictures, audio and video content. Similarly, the particular devices used to access the Internet can influence the ease with which people can act as OCCs and the form such content takes. Those with Internet-enabled mobile phones are more able to contribute content at any time or place, for example, but on the other hand those who access the Internet only through mobile devices – 11.7% of Chinese internet users for example
may have more difficulty entering or reading textual data because of their small screens and limited text entry facilities, although they may for the same reason be more inclined to upload raw multimedia content than PC users (if their mobile phone tariff allows them to do so at a reasonable cost).

The national regulatory context can also have a strong effect on what DiMaggio et al. term autonomy of access – that is, the freedom with which people can use the internet in the ways they chose (DiMaggio, et al., 2004). Authoritarian countries with internet access tend to limit its use by the population in a number of ways – allowing only trusted elites access, monitoring use and blocking access to sites and services (Deibert, Palfrey, Rohozinski, Zittrain, & Haraszti, 2010). There is in particular evidence that many countries have restricted access to OCC tools and services (Investintech, 2012) though it is not clear whether these controls are on the whole more severe than controls on access to other internet services. It is not just in authoritarian countries where the regulatory regimes may hinder OCC practices – some argue that, for example, governmental acceptance of copyright protection tools that hinder fair use is also hindering the ability of OCCs to draw on the work of others to produce new products (Lessig, 2004).

The principal physical locations where users can connect to the internet is also important to consider, as they may imply different levels of autonomy of access. Workplaces, schools, and parents frequently block the use of social network sites and other “time wasting” activities (Livingstone, 2007). When it is not blocked, Internet access in parental homes, schools, and cybercafés may be particularly subject to formal surveillance, which could inhibit online expression. Even informal surveillance can have an inhibiting effect – Hargittai (2007) noted that university students who lived with their parents as opposed to living alone or with a roommate were significantly less likely to use Facebook for example.

Skills divides

It is one thing to have the equipment and physical connections necessary to access the Internet – it is another to have the skills necessary to use these tools effectively. Van Dijk (2005) differentiates three types of digital skill in order of complexity. First are operational skills (how to perform tasks with applications and using particular operating systems, how to type and use computers). Some forms of OCC can require users to learn specialist ‘languages’ – to contribute to Wikipedia, for example, users have to learn a certain amount of Wiki Markup Language – something the site’s cofounder acknowledges can be a barrier (Fildes, 2011), and creating and maintaining a weblog (or even writing postings on messageboards or comments on others’ blogs) can require at least a basic understanding of HTML. Thomas and Wyatt point out:

The increased emphasis on scripting languages, multimedia and links between the web interface and organisational databases (enabling the automated creation of customised webpages “on-the-fly”)) has meant that skilled programmers have more than regained any ground they may have lost to the mass of user producers in the web’s early days. It is not that simple documents cannot now be published. The development of graphically based web authoring programs means that simple pages can be produced with even less technical knowledge than before. There is a growing differentiation, however, between such basic web production and the more sophisticated production which is seen as the basis for competitive advantage for commercial firms and other organisations competing for attention, time and custom. (Thomas & Wyatt, 2000, p. 35)

Second are informational skills – here van Dijk (2005) concentrates implicitly on the internet as an information seeking rather than a productive tool, so he is concerned with such issues as the ability to
assess the quality of information sources, to develop good search questions and the like. Nonetheless there are some core informational skills that are relevant to OCCs as well – notably the ability to understand English adequately. According to Warschauer, English in many countries of the world is a language mainly used by national elites. Around 350 m (6%) of the global population speaks English natively, a similar number speak English as a second language and a further 700 m speak at least some English as a foreign language, leaving three quarters of the planet speaking almost no English at all (Warschauer, 2003, p. 95). Even in India, sometimes thought of as an English-speaking country, only 5% of the population speak it (Crystal, 1997).

Understanding English is not always necessary – as we have seen, there are many Web 2.0 services which are targeted at different national and linguistic user bases – but for OCC services with global reach and ambition, like Wikipedia, the dominant language is English – there are twice as many articles in the English language Wikimedia projects than the next-largest (German) one, for example, and more than four times as many active editors in English than in German. Moreover, just under half of all Wikipedia’s page views are in the English-language version, and English gets more than six times the page views of each of the next most viewed languages (Spanish, Japanese, and German) (Wikimedia Foundation, 2011).

Even where the dominant mode of contribution is audio or visual, some knowledge of English may still be important. For example, to contribute photos to a site like Flickr or videos to YouTube in a way that will be most useful for and attractive to subsequent users, they should be captioned and, importantly, tagged so they can be found and reused. Data that are tagged but not in English may circulate within local language communities but will not form part of the larger global English-language based pool of information and/or debate.

Lastly, there are the skills van Dijk (2005) calls “strategic” – by this he means the ability to apply the formal skills described above to solve a user’s concrete problems or fulfil particular needs. OCC practices may differ from other internet practices in their need for strategic skills in at least three ways. Firstly, OCCs may be concerned to reach the right audiences for what they have produced. This may involve the careful selection of the appropriate service where such an audience is most easily found – it may also involve an understanding of the ‘dirty little secrets’ of search engine optimisation (Segal, 2011) so web surfers will be most likely to find their site when searching for a given term or phrase, and potentially also a grasp of the tools of internet advertising and marketing.

Secondly, and relatedly, OCC authors may be seeking to influence their readers or viewers. Warschauer (2002) touches on this aspect in his discussion of differing levels of literacy required for internet use, including what he terms, “computer-mediated communication literacy.” He suggests that “at a simple level this includes the ‘netiquette’ of polite online communication. At a more advanced level, it includes the pragmatics of effective argumentation and persuasion . . . at the most advanced level, CMC literacy includes knowing how to establish and manage online communications for groups of people” (2002, p. 117). In effect this may involve a blend of conventional persuasive skills familiar from the fields of public relations, marketing, and advertising, with an understanding of the particular limitations and affordances of the new digital media landscape.

To the extent that OCCs want to reach a wide audience, there may be further structural barriers. There is ample evidence drawn from studies of links to web pages (Huberman, 2001) that on the internet attention (as measured by links to pages at least) is highly unequally distributed. There is also some evidence that web pages from outside of the US are systematically disadvantaged in their findability in search engines, for example (Vaughan & Zhang, 2007).

Overall, not enough is known about the extent to which the Internet is not just enabling individuals to have a voice using OCC tools but to have an effective voice. More importantly from a digital divide
perspective, it is not clear which kinds of people are most likely to have an effective voice through the use of OCC tools. A small-scale study (N = 75) by Hindman of the most successful political bloggers in the US (with more than 2000 visitors a week) suggests that they are mostly from privileged backgrounds. Of those who provided information on their education, almost all had attended university, nearly two thirds had attended what he classed as elite institutions and a similar proportion had masters degrees or PhDs. He also found that 37% of these bloggers had held senior corporate posts and only five of them were women (Hindman, 2008, pp. 113-128). My reanalysis of Pew data on bloggers also tends to suggest that the better educated are more successful at gaining visibility for their online content — 63% of those whose weblogs received media attention were college educated (Pew Internet & American Life Project, 2006b).

Usage divides
As van Dijk puts it, “a user may be motivated to use computers and the internet, have access to them physically, and command the digital skills necessary to use them” but may nevertheless not actually use them much or may not use them in ways that enhance their lives and life chances (van Dijk, 2005, p. 95). He claims that differences in the amount and diversity of use and in the degree of creative use are bigger than differences in physical access and in skills and posits that we are seeing what he terms a “Matthew effect” in internet use — that “those already having the most resources and the best positions in society also take the most advantage of every new resource” (van Dijk, 2005, p. 96). Differences in amount of internet use stratified by education and income have been observed in several studies (Nie, Simpser, Stepanikova, & Zheng, 2005; Helsper, 2011). There is also considerable evidence for differences in breadth of use of internet applications — Howard et al., for example, grouped internet users into four tiered levels and found, “The most innovative and aggressive users of the internet are Netizens. The composition of this group is heavily weighted toward men, the well educated, the relatively well-to-do, and Whites.” (Howard, Rainie, & Jones, 2001, p. 394). Interestingly, there are also suggestions that the more privileged internet users are most likely to choose uses of the internet that are most ‘beneficial’ (Zillien & Hargittai, 2009; Helsper & Galacz, 2009), though as noted above, defining what should count as ‘beneficial’ is by no means easy.

The most relevant measures of differences in type of use have already been discussed in “Who are the Online Content Creators?” above. However, as I alluded to there, usage should not be considered a binary variable — there is considerable variation in intensity of use between OCCs. For example, on Wikipedia, less than 10% of the contributors produce more than 90% of the contributions (Ortega, 2009, p. 106), and 46.5% of U.S. bloggers posted “every few weeks” or less often while 13% post daily or more frequently (Pew Internet & American Life Project, 2006a). Unfortunately, because OCCs already make up a small minority of internet users, there is little reliable statistical information available that breaks down OCC usage further into groupings by type or intensity of OCC use. There is, nonetheless, some evidence that those who are frequent OCC users are more likely to be members of higher status groups than those who may only have done OCC activities once or a few times. In a Pew survey, for example, 30% of those who had created or worked on a web page “yesterday” had some postgraduate education, and a further 26.5% were college graduates compared to 22.8% and 23.4% respectively of those who had ‘ever’ done this (Pew Internet & American Life Project, 2009).

Conclusion
From the initial evidence provided in this paper, it seems that OCCs themselves may tend to be members of privileged minorities, both globally and within their national contexts, although as noted earlier
more research and conceptual work is necessary firstly to define more precisely which practices should
‘count’ as OCC ones and then measure their prevalence among internet users in more detail and across
more countries than are at present covered.

It would also be useful to know more precisely what kinds of people are drawn to become active
and/or effective OCCs. The extent to which any internet user in much of the developing world
is by definition part of a privileged minority makes it hard at this point to analyse how differing
national and cultural factors influence what kind of OCC users of different backgrounds are inclined
towards.

Faced with the rich variety of online content creation practices and tools, more widely agreed upon
categorisations of OCC practices that take into account their differing natures, intensities and potential
benefits and drawbacks would help in future analysis. The act of sharing a holiday photo online with
friends is clearly different in its motives and consequences from sharing a picture of police brutality on
a news website, for example.

Why should the differences in levels of participation in OCC be of interest to academics and
policymakers? Let us consider first the content itself and then those who create it. If UGC-based
services disproportionately lack input from more disadvantaged groups, this is important for three
reasons. Firstly, one of the factors which may be exacerbating digital divides is that content relevant
to disadvantaged groups is less likely to be provided online than content aimed at more wealthy and
educated groups, and this may in turn discourage the disadvantaged from going online (Roberts,
2003; Warschauer, 2003). OCC tools offer the hope that these users could share their own relevant
information but so far adoption appears limited.

Secondly, the media and governments are sometimes inclined to consult the views of ‘the people’
by listening to what OCCs have to say or by following trends in OCC behaviour. Interviews with BBC
journalists found, for example, that many of them “felt confident that those who write in are diverse
and represented their audience.” (Wardle & Williams, 2008), and the viability of ‘mining’ online public
opinion automatically as a guide for policymakers is already being explored (Wegov, 2011). To the
extent journalists or policymakers do rely on OCCs for views, they risk having a distorted view of what
the whole population might believe or want. Morozov (2011) and Srinivasan (2011) are among those
who caution that inequalities in access in countries may result in particularly distorted perceptions
when the Western media conflates the opinions that they find online from countries like Iran and Egypt
with broader public opinion in those countries. As Srinivasan put it, “Well-off Twitter users [in Egypt
during the Arab Spring] wrote about liberty or freedom. Blue-collar demonstrators were more likely
thinking about things like [the cost of] tomatoes” (2011).

Lastly, in the interests of a richer public political and cultural sphere online, it is important that
anyone who could have something relevant to contribute should be able and encouraged to do so.

But the nature of the online content created is not the only matter of importance. The benefits of
OCC for those who create should also be considered now that the tools to distribute creative content are
(in principle at least) available to a much wider potential population than ever before. Gauntlett (2011)
argues that the production of culture in everyday life is beneficial to the individual creators, making
them more satisfied by giving them a project they can share with others, and also benefits society at
large by helping to build social capital and giving those who may not be accustomed to wielding power
and influence a sense of their ability to make a difference.

For all these reasons, broadening the base of people who know about, can access, and can effectively
use online content creation tools is an important and underconsidered goal. While technological
advances and market forces may go some way to broaden OCC use, governments and educators should
measure, value, and highlight online creativity to a greater extent than they have done at present
alongside educative, commercial, and other more obviously instrumental internet uses.
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Notes

1 Its methods are not documented and the company may have a commercial interest in asserting a high level of social media use in less developed countries, so their results should be treated with caution.
2 Although there were only 19 blogs in the sample that did receive media attention, so this finding should be used with caution.

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