Culture is Digital: Cultural Participation, Diversity and the Digital Divide

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Abstract

Digital media are seen as important instruments of increasing participation and diversity in arts and culture. To examine whether this view is justified, this article draws on two bodies of research that have hitherto remained disconnected: research on cultural participation, and research on the digital divide. Building on these insights, the article examines the Taking Part Survey data on digital media and cultural participation in the UK between 2005/06 and 2015/16, focusing on museums and galleries. While the results confirm that digital media provide an important means of engaging new audiences, they also show that the engagement with museums and galleries both on- and off-line remains deeply unequal. Most worryingly, the gaps between the haves and the have nots are even wider on-line than in the case of physical visits. Rather than helping increase the diversity of audiences, online access seems to reproduce, if not enlarge, existing inequalities.

Keywords: cultural participation, diversity, inequality, digital divide, museums, galleries, public culture

The involvement of social media in the rise of populist leaders and far-right movements in many countries has led several commentators to question the potential of digital technologies to enhance public life. Instead of acting as harbingers of democratic renewal and increased political participation, many now warn that digital platforms have given unprecedented visibility to populist rhetoric and hate speech, and contributed to the growing fragmentation, incivility and polarization of public debate (e.g. Pariser, 2011; Sunstein, 2017). Yet, amid a growing sense of disillusionment with the impact of new technologies on politics, digital optimism seems to have found a new frontier in the domain of arts and culture. Digital technologies are seen as powerful instruments of growth in the cultural sector, capable of unleashing a new wave of creativity and widening access to publicly funded cultural activities. The purpose of this article is to assess whether or not this digital optimism with respect to cultural participation is justified.

In the UK, the recently released government report *Culture is Digital* puts high hopes in the synergies between culture and technology, arguing that the UK technology and cultural sectors 'make the ultimate power couple' which has the capacity to 'drive our cultural sector's global status and the engagement, diversity and well-being of audiences' (DDCMS, 2018: 5). One of the key benefits of digital technologies mentioned in the report is their capacity to reach larger and more diverse audiences, 'including those who may have been previously disengaged or uninterested' (p. 9). The belief in the capacity of digital media to enhance diversity also serves as a key justification for public investment in the development of digitised cultural content. The Government's *Culture White Paper*, released in 2016, expresses commitment to making the UK 'one of the world's leading countries for digitised public collections content' (DCMS, 2016a: 39), and publicly funded cultural organisations are increasingly expected to have a digital policy and plan (Nesta, 2017: 4). Over 60 percent of arts and culture institutions in the country have already digitised significant portions of their collections (DDCMS, 2018: 11–12) and many of them share the government's digital optimism; according to a large-scale survey conducted among UK arts and culture institutions, increased diversity has consistently been among the major positive impacts associated with digital technology (Nesta, 2017: 28).

Yet, is this optimism (and the ensuing public investment) warranted? What evidence do we have for seeing digital media as an important factor in contributing to diversity in the arts and culture sector? More generally, what is the role of the new media in the changing patterns of cultural participation and social inequality? To address these questions, this article draws on two bodies of research that are rarely brought together: research on cultural participation and research on the digital divide. We argue that the rise of digital platforms as dominant vehicles of mediated cultural participation has not only greatly increased the volume, accessibility and diversity of cultural content but also created new opportunities for cultural distinction, segmentation, and hence inequality. Thanks to the specific technological

affordances of digital platforms, as well as their reliance on commercial revenues (Van Dijck et al., 2018), digital media are likely to exacerbate rather than ameliorate existing inequalities in access to culture.

Building on these insights, the second part of the article examines data on cultural participation in the UK between 2005/06 and 2015/16, derived from the Taking Part Survey. We focus on museums and galleries, a segment of the cultural sector which has a long history of engagement with digital technology, and which registered a notable increase in audience engagement since 2005/06. We investigate the association between this increase and the parallel growth in both household internet access and use of museums and galleries websites. We also ask whether this increase in engagement has been paralleled by an increase in the diversity of both on- and off-line audiences. Apart from contributing to key scholarly debates, the results presented here also have important implications for policies and initiatives related to the use of digital media as a means of increasing participation and diversity in the cultural industries.

Cultural participation, diversity, and the media: A changing landscape

Issues of diversity have received unprecedented policy attention in the arts and culture sector in recent years. Publicly funded cultural institutions, from museums and galleries to public libraries, are now more aware of the limited diversity and social reach of their activities, and have taken steps to make their work more socially inclusive. In the UK, the Arts Council England, the leading public body for arts and cultural development, has been seeking to tackle diversity in the sector since the 1980s, and achieved notable progress in some areas (Hammonds and Bhandal, 2011). The UK museums and galleries sector has been one of the main benefactors of this increased emphasis on public participation: the proportion of adults visiting a gallery or a museum increased from 42.3 percent in 2005-06 to

52.5 percent in 2015-16, with growing levels of engagement registered across all demographic groups (DCMS, 2016b: 3).

That said, there is little doubt that state-supported arts and culture is still highly exclusive, and that higher levels of engagement have not necessarily gone hand in hand with greater diversity (Miles and Sullivan 2012). Recent research also highlights the importance of place and spatial inequalities, indicating that cultural consumption in England is marked by a complex regional geography, which includes the familiar North-South divide and the London effect (Cutts and Widdop, 2017; Leguina and Miles, 2017). Similar patterns are evident in museums and galleries participation, which varies considerably with one's social position, education, ethnicity, age, as well as with place (Widdop and Cutts, 2012; Brooks, 2016). It should also be noted that widening participation initiatives remain largely limited to state-supported, 'high-brow' forms of arts and culture: in this situation, those most likely to benefit from such initiatives are those who are already highly engaged, and already possess high levels of economic and cultural capital (Taylor, 2016). Indeed, one could argue that in order to tackle the persistent lack of diversity in cultural participation, we should first expand the notion of 'culture' itself and include everyday forms of participation beyond traditional 'high-brow' culture (Leguina and Miles, 2017). This is particularly important in light of evidence that suggests interest in highbrow culture is decreasing among young generations (van Ejick and Knulst, 2005).

Nonetheless, the greater awareness of issues of diversity in the state-funded arts and culture sector is significant, and arguably forms an integral element of more wide-ranging changes in the role of culture in the organisation of social divisions in contemporary societies. These changes include the blurring of traditional boundaries between 'highbrow' and 'lowbrow' culture, the growing mediatization and transnationalization of cultural production and consumption, as well as the intense commodification of culture and the attendant erosion of boundaries between the aesthetic and the economic (cf. Prior, 2005; Savage, 2015: 101-

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102). When Bourdieu (1984) conducted his seminal study of relationships between cultural tastes and class in 1960s France, he was able to find clear differences in cultural tastes between people belonging to different socio-economic classes, with upper classes systematically preferring 'high', 'elite' or 'legitimate' forms of culture such as classical music or theatre, and working classes opting for 'lowbrow' or 'mass' cultural forms including popular music and entertainment. Bourdieu argued that the 'legitimate' forms of culture preferred by the middle classes are precisely those that tend to be venerated in the educational system and supported through established cultural institutions such as theatres, museums and art galleries. Through engaging with these institutions, upper and middle classes can accrue much higher levels of cultural capital, develop a sense of entitlement and authority, as well as a range of skills that can enable them to develop more successful careers and 'translate' their cultural capital into other firms of privilege. Arguably, it is this recognition of the importance of cultural capital in sustaining social inequality that is in part responsible for the growing public investment in widening participation initiatives across the cultural sector, and specifically within state-supported, 'high-brow' cultural activities.

More recent studies, however, have pointed out that the correspondence between socio-economic inequalities and distinctions between 'highbrow' and 'lowbrow' culture has become much less clear-cut, with individuals from higher socio-economic backgrounds often simultaneously enjoying both 'highbrow' and 'lowbrow' forms of culture (Peterson and Kern, 1996, for an overview see Rossman and Peterson, 2015). Yet, the existence of 'cultural omnivorousness', as it came to be known, does not suggest that cultural capital has lost its importance. Rather, the ability to appreciate diverse forms of culture itself functions as a new form of cultural capital, and helps consolidate and perpetuate existing inequalities (Warde et al., 1999). As Prieur and Savage (2013) point out, a similar argument can be developed in relation to various 'emergent' forms of cultural capital, including 'cosmopolitan' cultural

capital, which involves a preference for cultural goods that originate from beyond one's immediate, nationally circumscribed environment.

One of the factors that have been linked to the demise of traditional cultural hierarchies is the proliferation of new communication technologies, and especially the rise of broadcasting. Thanks to its capacity to assimilate diverse cultural forms and make them available in the comfort of one's home, broadcasting was able to challenge existing hierarchies of taste, and exposed people from all walks of life to forms of culture they would not have ordinarily encountered (cf. Meyrowitz, 1985). Of course, the cultural effects of broadcasting cannot be reduced to its technological affordances alone. In Europe, the rise of radio and especially television broadcasting coincided with the growth of welfare states, and with significant public investment in the provision of public goods, from healthcare to education and culture. Broadcast technology was seen as an ideal means of advancing this public agenda: for early champions of public service broadcasting, radio and later television had potential to act as powerful engines of cultural elevation, enabling citizens from less privileged backgrounds to enjoy the very best of cultural production that their country had to offer (Scannell and Cardiff, 1991; Mihelj and Huxtable, 2018). As a result, broadcasting has arguably contributed to the blurring of boundaries between high-brow and low-brow culture, at least in countries with a strong public service media sector: making opera, theatre and classical music available to everyone diminished their exclusivity and hence their capacity to act as means of distinction. To be sure, television audiences remained divided in their likes and dislikes for specific genres and programmes, but these divisions correlated less strongly with class than did distinctions in other forms of cultural consumption such as music, reading and visual arts (cf. Bennett et al., 2009: 133-123).

At first sight, digital media promise to push the blurring of cultural hierarchies even further. The proliferation and mobility of digital devices have made cultural content accessible in an even greater variety of environments, both private and public. At the same time, the

participatory affordances of digital platforms and relative ease of cultural production has enabled a much wider range of cultural producers to make their creations available to the public. This, in turn, led to a veritable explosion of digital cultural content. Yet, this growth of choice and accessibility is accompanied by developments that are threatening to make access to culture increasingly unequal. The rise of digital media has coincided with a crisis of public service media, the privatization of communication infrastructures, and growing reliance on commercial revenues within the media sector. As a result, digital media follow the logic of commercial profit, with much of the cultural content protected by paywalls or embedded into digital platforms that are privately owned and reliant on advertising revenue (cf. Schiller, 2014; Van Dijk, 2017). Unsurprisingly, a large majority of search engines and recommendation systems that operate in this environment, and which shape citizens' digital cultural diets, are driven by commercial considerations rather public interests. As such, they operate on the principle of market segmentation, seeking to tailor recommendations to specific niche markets rather than aiming for universal access (Turow, 2006). Also worth noting is the accompanying rise of a 'curatorial culture' within which everyone is expected to 'curate' their own cultural diet (Robinson, 2017: 24-25). While this emphasis on audience choice may seem welcome, we should keep in mind that the ability to curate one's own content implies specific skills and knowledge – in short, cultural capital. As cultural capital is unevenly distributed (cf. Bennett et al., 2009; Savage, 2015), this may mean that people from traditionally disadvantaged groups have less capacity to benefit from the increase in the volume and choice of cultural content provided through digital media. As we discuss in the next section, these arguments resonate with the conclusions reached in the literature on the digital divide.

Cultural participation and the three levels of digital inequality

Research on the 'digital divide', or better following Di Maggio and Hargittai (2001) digital inequality, is almost twenty years old. The first phase of research around the turn of the

millennium focussed almost exclusively on issues of access to technology, meaning access to hardware, software and/or the Internet (for accounts and critique of this phase see Di Maggio et al., 2004; Zillen and Hargittai, 2009). Researchers were interested in correlating access to technology with socio-economic factors such as income, ethnicity, age, gender, education, and geographical location. The basic thesis of this approach was that inequality in technology access reflected broader inequalities within and between societies and that the greater the socio-economic inequalities, the greater we would expect the digital divide to be. One might say that this is a first level divide: who does and who does not have access and why? Mansell (2017) has argued that this instrumental research tradition is still very prominent and assumes that 'connecting the unconnected progressively improves people's lives' (2017: 148). There is often a type of technological determinism operating here accompanied by a free market and/or technological utopianism as if access to the Internet in itself provided by global corporations could solve most, if not all, of the world's problems, unaccompanied by other policy interventions. An example of this is Free Basics, a limited 'zero cost' Internet data service provided by Facebook and local network providers in many poor countries, that is claimed by Facebook as a major contribution to development goals but by critics as failing to meet the needs of local populations (see Advox, 2017). As digital technologies become more widely diffused globally some argue that the digital divide will decrease as more privileged groups reach saturation point in their possession of digital technologies allowing other groups to catch-up (Pepper and Garrity, 2015). Others argue that as one divide closes another opens up with the advent of new hardware, software, speed of connection to the Internet and so on (for a recent elaboration of this argument with reference to smartphone access see Lee et al, 2015). Within advanced capitalist countries the majority of research associates advances in technology with increasing inequality via skill-biased technological change with the predicted employment effects of artificial intelligence simply being the latest manifestation of this process. Clearly the digital divide in terms of access is a complex and moving target.

Although research on the first level divide is still very common it has been supplemented and surpassed, according to Van Dijk (2017), by research on what Hargittai (2002) termed the second level divide. This research focussed not on issues of access per se but on the use of digital media where inequalities between actual usage of technology by different groups was explained by a skill or a knowledge gap. The basic thesis of this approach is that even if two groups of users have access to the same hardware and software their use of the technology will be determined by their skill levels related to both the medium and to the task at hand (for example, retrieving particular types of cultural content). A declining digital divide in terms of access may not then lead to a declining digital divide in terms of use because of the persistence of skills and knowledge gaps between different groups of people. In terms of the subject matter discussed in this article, this means that even if digital media become equally accessible to all socio-demographic groups, this does not mean that people from traditionally under-represented groups will start using them to access publicly funded cultural content, even if such content is made freely available on-line.

If these are the first two levels of digital inequality, what could constitute the third level? Van Dijk argues that 'the strongest media effect imaginable would be looking for *consequences* of having more or less access. This would mean paying attention to the benefits of (un)equal access' (2017: 8, emphasis added). We argue that this is the exactly right approach, and also resonates with the concerns of the analysis of cultural participation and consumption examined earlier in this article. After all, it is not that access and use of digital technology is of crucial importance in itself but rather that it might have consequences in terms of increasing or decreasing existing inequalities in society. Do greater digital access and higher levels of digital skills help people secure employment, gain educational qualifications, or increase quality of life by participating in a wider range of leisure and cultural activities? Which socio-demographic groups are able to extract greater benefits from digital technology? As Mansell (2017) argues this is a fundamental ethical issue since it concerns

whether individuals are full and equal citizens or whether various forms of social inequality and technological stratification inhibit such relationships to develop.

Despite the obvious importance of this third level research for policy development it is the first two levels of research that have been influential in policy formation (Mansell, 2017: 150). We see this article as our initial contribution to establishing this level of digital inequality research on a more secure footing (for a systematic review of second and third level digital divide literature see Scheerder et al., 2017). In a key study of the third level digital divide (Van Deursen and Van Dijk, 2014), conducted in 2013 and based on a representative sample of almost 1200 Dutch people, respondents were asked about their participation in a number of socio-economic, political and educational areas. This study shows that it is the same social groups who have more access to digital technologies benefit substantially more from Internet use than groups with less access in terms of participation in a broad range of social, economic, political activities. As a consequence, inequalities in Internet access and use act to exacerbate broader existing inequalities. Digital technologies, in other words, act as engines of inequality. Similar findings were reached by other recent studies which have attempted to study who benefits most from digital media use in different countries (e.g. Blank and Lutz, 2018; Helsper et al., 2015; van Deurson and Helsper, 2015; Scheerder et al, 2017) Van Deurson et al's (2017) discussion of 'compound' and 'sequential' inequalities arising in particular domains and arising from unequal access, use and skills represents a significant step forward in third level digital divide thinking about outcomes.

Our article contributes to this body of work in two ways. First, existing work on the third level digital divide is based on cross-sectional surveys, making it impossible to investigate how the differential levels of digital access, skills and benefits change over time. In contrast, we adopt a longitudinal design, using annual snapshots of survey data to investigate the outcomes of digital media use over a span of more than a decade. Second, existing research focuses primarily on economic, social and political benefits of digital media use, while saying little about cultural benefits. While van Deurson et al, 2017 do investigate

'cultural' aspects, they use a very broad definition of anthropological culture to include, for example, attitudes to gender and ethnicity whereas we focus on participation in cultural institutions where participants may accrue cultural capital that may lead to other economic and social benefits. This is particularly important given the already mentioned public investment in digital technologies within the arts and culture sector, and in light of ongoing attempts to tackle persistent inequalities in this sector.

Research questions, data sources and methodology

Drawing on the preceding discussion, the rest of the article addresses the following three research questions:

RQ1: What is the relationship between access to internet, use of the internet to access and digitised public culture, and deriving benefits from such access in the form of either online or offline cultural participation?

RQ2: Has the increase in digital engagement been paralleled by an increase in the diversity of off- and on-line audiences?

RQ3: Are the groups traditionally under-represented among participants in publicly funded culture, also under-represented in the digital realm?

To answer these questions, we examine data on (self-reported) cultural participation in England derived from the Taking Part Survey (TPS), an annual face-to-face survey of a representative sample of the English population aged 16 and above, funded by the UK's Department for Digital, Culture, Media and Sport (DCMS, 2016c). As the main source of information on cultural engagement in England, TPS contains a broad range of questions about participation in arts, leisure, sports, media and digital activities. TPS data frequently features in academic literature on cultural sociology of participation and stratification (e.g. Leguina and Miles, 2017) but is also a rich untapped source of information for media and communication scholars interested in the role of media in cultural engagement. While biased in favour of 'high-brow' culture – a feature that also guided our choice of or focus – the TPS

has become somewhat more open to a wider range of media and cultural participation indicators in recent years.

Our analysis focuses on participation in museums and galleries, drawing on data derived from all eleven survey waves available to date, from 2005/06 (wave 1) to 2015/16 (wave 11). The relevant survey questions cover (a) access to internet, (b) use of the internet to look at museum and gallery websites, (c) reasons for using museum or gallery websites, e.g. for booking tickets, checking opening hours, looking at collection items etc. and (d) museum and gallery attendance in the last 12 months (not for work or study). We should immediately acknowledge the limitations of these data sets. Data on the use of the internet to look at museum and gallery websites offer only a partial measure of the use of internet to access digitized public culture; especially in recent years, audiences can also access digitized public culture through social media applications such as YouTube or Twitter. To measure the cultural benefits derived from accessing digitized public culture, two main indicators were used: actual visits to museums and galleries (physical cultural participation) and online engagement with digitized collections, virtual tours, and finding information about particular subjects on-line (online cultural participation). In the first case, audiences use websites instrumentally, as a tool to extract benefits in the form of physical cultural participation, while in the second case, websites themselves serve as a site of cultural participation and thus cultural benefits. We are aware that these indicators capture only a limited range of cultural benefits, and also cannot provide insight into the nature of causal relationships at work: while audiences may be inspired to visit a museum or gallery after visiting the website, it is also possible that they decided to visit in advance, and only used the website to purchase tickets or check opening hours – disentangling this would require additional qualitative work. Finally, the development of any claims about causal relationships is hampered by the fact that historically the TPS survey is not based on a stable panel of respondents. Nonetheless, we believe that these weaknesses are more than outweighed by the strengths of the TPS

survey, especially its longitudinal nature and the fact that it includes a range of variables on

both media use and cultural participation.

To answer RQ1, the first part of our analysis looks at trends in these three data sets over

time and examines them alongside data on changing levels of household Internet access.

For this purpose, we use time series compiled from all the eleven TPS waves, from 2005/06

to 2015/15 (there are two gaps in our data sets, both in 2009-2010, when information on

household access to internet and for reasons for using museums and galleries websites is

missing). The second part of our analysis addresses RQ2 and RQ3. We seek to explain the

unequal distribution of museum attendance and website visits, both dichotomous variables,

for 2005/06 and 2015/16 waves. The analysis considers the impact of several socio-

demographic variables that have been found to influence cultural participation: age (16-29 /

30-59 / +60); sex (female / male); educational level (fewer than 5 GSCEs or below / 5

GSCEs or higher secondary qualifications / university degree or above); ethnicity (White /

Non-white); longstanding illness or disability (No / Yes); occupational class (recorded using

the standard NSSEC schema, i.e. higher managerial, administrative and professional /

intermediate / routine and manual / never worked and long-term unemployed / student); and

place of residence (North / Midlands / South / East / London).

To investigate the demographic distribution of museum attendance, our analysis relies on

logistic regression (Agresti, 2012), a generalized linear model that tests how likely a positive

outcome is for one or more numerical and/or categorical variables and their interactions. To

study temporal differences between off- and on-line engagement, four models, separated by

wave and form of engagement, were adjusted. We are aware that due to data limitations it is

not possible to compare estimated coefficients directly. However, our analytical strategy

nonetheless provides important insights into the changing patterns of social stratification in

relation to both cultural and digital inequalities.

Another benefit of logistic regression lies in the fact that it allows us to test the existence of

interaction between variables. An interaction model is a model that considers situations

where the effect of one variable depends on the value of a second variable (and vice versa) in a non-additive way. Our models include several second order interactions previously reported by studies using TPS data on museum/gallery attendance, i.e. ethnicity – sex, ethnicity – education, ethnicity – age, place – age, and place – education (Brook, 2016; Cutts and Widdop, 2017; Leguina and Miles, 2017; Widdop and Cutts, 2012). We are particularly interested in seeing whether these second-order interactions also appear at the level of digital engagement with museums and galleries.

Results and discussion

As expected, time series data reveal a stable growth in levels of household internet access, visits to museums and galleries, and access to their websites throughout the period covered (Figure 1). The pairwise correlations between the time series are quite high, above 0.94 in all cases. Visits and website use evolve almost in parallel, reaching 52.6% and 28.6% in 2015/16, confirming that digital media do indeed play a growing role in citizens' engagement with publicly funded culture. At the same time, these results also suggest that tackling the first level digital divide (i.e. increasing household internet access) does not necessarily erase the second level digital divide (i.e. inequalities in terms of using internet to access museums and galleries website) nor the third level digital divide (i.e. in this case, the extent to which citizens use the internet to facilitate actual visits to museums and galleries). As evident from Figure 1, use of museums and galleries websites lags well behind internet access, and internet access is in fact growing at a faster rate than both museums and galleries attendance and website use. Seen through the lens of digital divide literature, we could argue that citizens accessing the internet do not necessarily possess the skills necessary for navigating museums and galleries websites, or for extracting benefits from them, such as learning about history, culture and art, or deriving pleasure from engaging with digital exhibits. Drawing on debates surrounding cultural participation, we can push this argument further and suggest that citizens accessing the internet also do not share the same cultural tastes – which, in turn, means that they may simply not be interested in acquiring the skills

and knowledge necessary to engage with museums and galleries (see Helsper and Reisdorf, 2017, for a similar argument).

[Figure 1 around here]

Although informative, the time series presented in Figure 1 offer only limited insight into the precise relationship between digital and physical engagement with museums and galleries. Is the internet helping attract new visitors who have not previously engaged with museums and galleries? Do websites act as a replacement for actual visits, thus helping extend the benefits of publicly funded culture to those UK citizens who are unable to visit museums and galleries physically? To answer these questions, Figure 2 offers a detailed breakdown of the relationship between visits and website use, over time. This breakdown shows that the proportion of people who are not engaging with museums and galleries at all – i.e. are neither visiting museums and galleries nor using their websites (lowest portion of bars – black) – is decreasing steadily over time. At the same time, both the proportion of people who only visit museums and galleries physically (stiped black), and conversely, the proportion of people who only use their websites (block grey), remain mostly unchanged. The increase in engagement with museums and galleries is therefore entirely down to an increase in the proportion of the population that engages *both* physically and virtually (striped grey). Two conclusions can be drawn from this. First, while digital access provides an important means of engaging new audiences, these audiences also tend to engage off-line, meaning that websites act as a complement to, rather than a replacement for, actual visits. Second, and relatedly, only a very small proportion of the population is benefiting *only* from digital culture, and this proportion is not increasing over time. We should also note that our data offers little clarity on whether websites themselves prompted audiences to attend, or whether the decision to attend came prior to using the website – a more detailed set of questions, possibly combined with qualitative research, would be needed to ascertain that.

[Figure 2 around here]

While actual visits to museums and galleries can be seen as one kind of benefit resulting from website use (subject to the proviso above), citizens can also benefit from websites in other ways, i.e. by learning about arts, culture or history through engaging with digital collections, or by deriving pleasure or satisfying curiosity through attending virtual tours. To what extent are UK citizens deriving such benefits from museum and galleries websites, and how has that changed over time? To investigate this, Figure 3 traces the evolution of museums and galleries website use by type of usage: finding out about or ordering tickets for an event or exhibition, finding out information about a particular subject, taking a virtual tour, looking at collection items, checking opening hours, and viewing or downloading a digital exhibition or event. As the results show, most of the growth in website use (solid line) can be attributed to ticketing, which is arguably a rather shallow form of engagement with digital culture and cannot be seen as a cultural benefit in itself (rather, it facilitates cultural benefits in the form of physical attendance). In contrast, the deeper forms of digital engagement, such as looking at items from collections and seeking for information about a particular subject, have seen a decline over time. This is an interesting finding: Given the low and stagnating levels of public engagement with digitized public culture, is the extent of public investment into the development of such resources justified?

[Figure 3 around here]

Having surveyed the broad patterns of on- and off-line engagement, let us now turn to the changing social composition of museum and galleries audiences. As noted earlier, we used statistical modelling and logistic regression for both physical attendance and website visits to museums and galleries, based on two TPS waves. This analysis provides the higher granularity needed to unpack the relative strength and significance of different demographic factors in shaping citizen engagement with museums and galleries both on-and off-line, and investigate change over time. Estimated odds ratios, their standard errors and significance levels are shown in Tables 1 and 2 below, while Tables 1a and 2a in the online appendix provide their predicted probabilities.

A comparison of models for those visiting museums/galleries in 2005/06 and 2015/16 reveals a mixed picture (Table 1 and 1a). In both 2005/06 and 2015/16, having a university degree has the highest effect, and almost doubles the odds of visiting compared with secondary education. Higher occupational class likewise remains a strong predictor for both periods, as does ethnic minority status: in both periods, higher occupational classes are considerably more likely to visit museums and galleries than their lower counterparts, while ethnic minority members are considerably less likely to visit museums and galleries than citizens identifying as white. However, participation among ethnic minority groups has grown, particularly so among middle age groups and individuals with primary or no education, whose levels of participation have edged very close to those of their white counterparts. For the younger age group among ethnic minorities, change is much less obvious, suggesting that growth in cultural participation in this group has stalled, which is worrying. The effect of place of residence remains important, too, although in slightly different ways for each of the waves: residing in the North significantly decreases the chances of visiting in 2005/06, while residing in London or in South England significantly increases the likelihood of visiting in 2015/16, particularly among older and higher education groups. To put it differently, while living in the North is now less disadvantageous than in the mid-2000s, the cultural benefits of living in London or in the South have increased, meaning that overall, regional divides remain very important. The effects of disability/longstanding illness remain: citizens with disability or longstanding illness have seen their likelihood of visiting reduced in comparison to those without. In terms of gender, women were more likely to visit museums and galleries in 2005/06, an effect that remains in 2015-16. In sum, while the effects of education and occupational class have remained unchanged, slight improvements can be noticed with regard to ethnicity, age and place of residence – although notable inequalities persist. Disturbingly, residing out of London and disability/longstanding illness remain an obstacle.

[Table 1 around here]

With regard to website use, logistic regression models for 2005/06 and 2015/16 display similar effects of socio-demographic variables as seen with regard to visits (Table 2). However, in many cases, the gaps between the haves and the have nots are even wider than in the case of physical visits. This means that rather than helping increase the diversity of audiences, online access seems to reproduce, if not enlarge, existing inequalities. As with visits, having a university degree and belonging to a higher occupational class remain stronger predictors of participation, while ethnic minority membership continues to have strong negative effects. Contrary to visits, the effects of gender seem to have disappeared: while women were less likely to visit museums and galleries websites in 2005/06, this is no longer the case in 2015/16. As further evidence of similarity with patterns in off-line participation, citizens with disability or longstanding illness see their digital engagement reduced in comparison to those without. However, age inequalities are considerably more pronounced in the digital realm than off-line, particularly so when combined with ethnic minority membership. Finally, regional effects are visible, too, with participants residing in London, East and South of England considerably more likely to engage with museum and galleries websites in both periods. The benefits of residing in London are particularly clear for younger and better educated groups, who have seen their digital participation increase to a much greater extent than their counterparts residing elsewhere. Seen from the perspective of current policy aims, the emphasis on diversity, and the digital optimism associated pervading the sector, these results are rather worrying. At the very least, one wold expect that investment in digitization would have benefited those who are physically less able to benefit from museums and galleries physically, i.e. those living outside of London and the South, older age groups, and those with longstanding disability and illness. Yet these are precisely the three groups that have seen the rates of digital engagement with museums and galleries decline over time.

[Table 2 around here]

Conclusions

The results presented in this article suggest that the digital optimism currently pervading the cultural sector is ill-informed. While we found strong correlations between household Internet access, museum and gallery attendance, and access to museum and galleries websites, the growth in the use of museums and galleries websites lags well behind internet access. Although our data confirm that digital media provide an important means of engaging new audiences, we have shown that these audiences also tend to engage with museums and galleries physically, meaning that websites act as a complement to, rather than a replacement for, actual visits. In contrast, only a very small proportion of the population is benefiting only from online resources, and this proportion is not increasing over time. Furthermore, public engagement with digitized collections and virtual exhibitions has seen a decline over time. These findings raise doubts over the current direction of cultural policies with regard to digitization: although public investment in digitization is important, existing practices need amending to ensure that public engagement with digitized resources becomes more widespread and beneficial to a greater range of social groups – a point we return to further on.

The most disquieting conclusions, however, arise from our analysis of the socio-demographic diversity of museum and galleries audiences, both on- and off-line. Regression models confirm that despite the overall growth in participation, engagement remains deeply unequal. Belonging to higher occupational classes, having a degree, not having a disability or longstanding illness, and residing in the capital city all remain strong predictors of participation, while ethnicity has a strong negative effect. Most worryingly, the gaps between the haves and the have nots are even wider on-line than in the case of physical visits. This means that rather than helping increase the diversity of audiences, online access seems to reproduce, if not enlarge, existing inequalities. Of particular concern is the fact that investment in digitization brought few if any benefits to groups that are less likely to visit museums and galleries due to old age, disability, or due to living in a region with a lower concentration of museum and galleries. While one could argue that the effects of ethnicity,

occupational class and education are unlikely to be moderated by digital access alone, it would be reasonable to expect that on-line access would have benefitted those living outside of London, older age groups, and those with longstanding disability and illness. Yet as our analysis shows, this is not the case.

These conclusions add important new insights to existing research on cultural participation and the digital divide. First, the fact that inequalities in online participation are even greater than those found in off-line participation add weight to arguments about the potential negative effects of digital technologies on cultural participation, at least in the current socio-economic environment: while digital media help enhance the quantity, range and accessibility of cultural products, they also create opportunities for new forms of cultural segregation and exclusion, and therefore exacerbate rather than ameliorate existing inequalities. Second, our conclusions align with the results of existing studies on the third level digital divide discussed earlier, as well as demonstrate the benefits of longitudinal designs in this area of study: while the gap in household internet access is closing, the ability to use digital media as a means of extracting benefits in terms of cultural participation (either on or off-line) remains unequally distributed. Third, our results confirm the continued importance of key socio-demographic variables known from existing sociological research on cultural participation: occupational class, education, ethnicity, age, and disability/illness, while showing a decreasing importance of gender differences. At the same time, our work also highlights the importance of place as a key determinant of cultural participation, even in the digital arena, and suggests that further research on media and cultural participation should add place/region to the roster of key socio-demographic variables. Taken together, we believe that these insights demonstrate that the interface between (new) media and cultural participation provides a rich field for research, and that our collective understanding of contemporary cultural dynamics can benefit from a closer collaboration between communication and media scholars and cultural sociologists working on these topics.

Of course, our study has its limits. Examining the effects of digital engagement outside of the UK and in other areas of cultural participation, including areas that fall outside of the narrow category of 'high-brow' culture, may have produced different results. We should also note that qualitative data, such as in-depth interviews with citizens from particular (under-represented) groups could have given much more precise insights into the mechanisms that shape inequalities in digital engagement with culture. Such work would also open an opportunity for a broader reflection of the limitations of current uses of 'culture' in policy and public debate – uses that continue to privilege 'high-brow' culture and are incapable of reflecting the full range of cultural participation in contemporary societies, especially in a digital context. These are some of the areas that remain open for future exploration.

By way of conclusion, let us reflect on the significance of our findings beyond the domain of scholarly research. Above all, we hope that this work will help tamper some of the excessively optimistic expectations associated with digital culture. Of course, we are aware that at least some of the cultural policy-makers and museums and galleries professionals are aware of the limits of digital technology. Indeed, the DDCMS *Culture is Digital* report itself acknowledges that 'simply making digital content available does not mean that audiences will automatically engage' (DDCMS, 2018: 21). We hope that this article has provided some tools that can help think of creative solutions that might help enhance the potential benefits of digital access. First, by bringing together the insights from research on cultural participation and the digital divide, we have hopefully offered a useful interpretive framework for understanding the opportunities and challenges created by digital technology. Second, by offering a detailed breakdown of the evolution of off-line and on-line cultural participation, we have identified areas that require a more concerted effort and new solutions – such as the more in-depth engagement with digital resources, including, for instance, more widespread use of digital collections for educational and research purposes. Third, by examining the detailed patterns of social inclusion and exclusion, we have highlighted a range of

demographic groups that should – but are not – benefiting from digital access, and hence require closer attention. One potentially fruitful avenue for the development of new solutions in the sector involves the use of action research, developed in collaboration with representatives of underrepresented audience groups, museum and galleries practitioners, and cultural policy makers. Also worth exploring are collaborative ventures involving schools, which could incorporate the use of digitized cultural resources as part of teaching. Above all, any search for new solutions should remain open to the possibility that the most effective ways of enhancing cultural participation – at least among some groups – are those that do not involve digital media at all.

Funding

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Figure 1. Trends in household internet access (solid line), museum/gallery visits (dashed line), use of museum/gallery website (dotted line) p.a., 2005/06-2015/16.
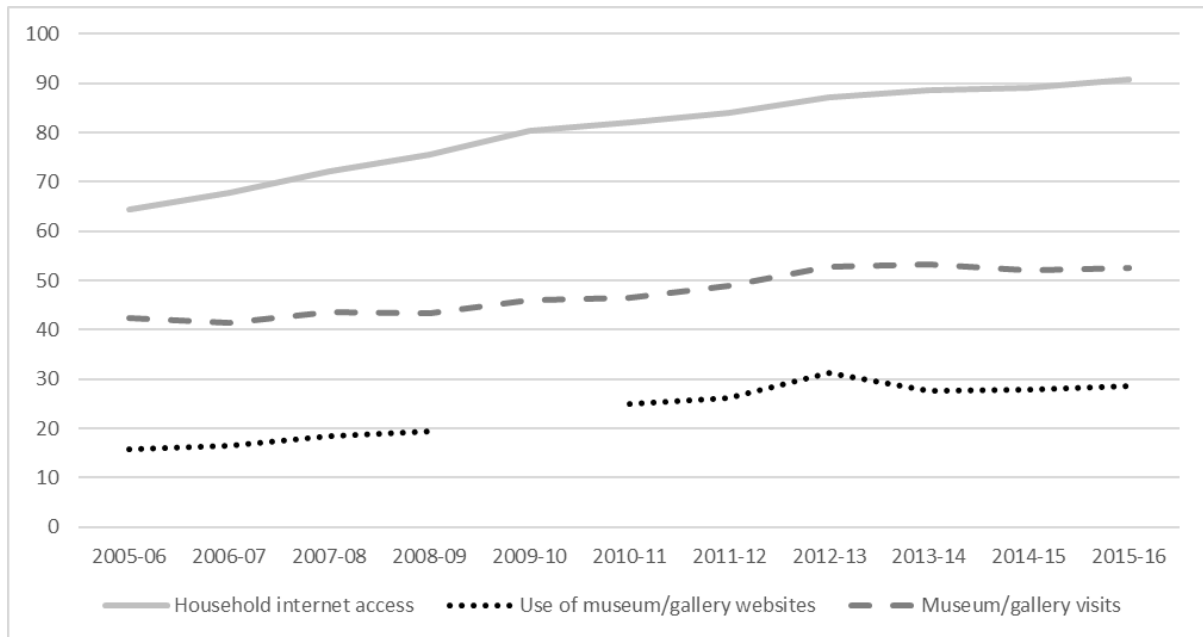
Figure 2. Evolution of combined patters of website use and visits to museums and galleries
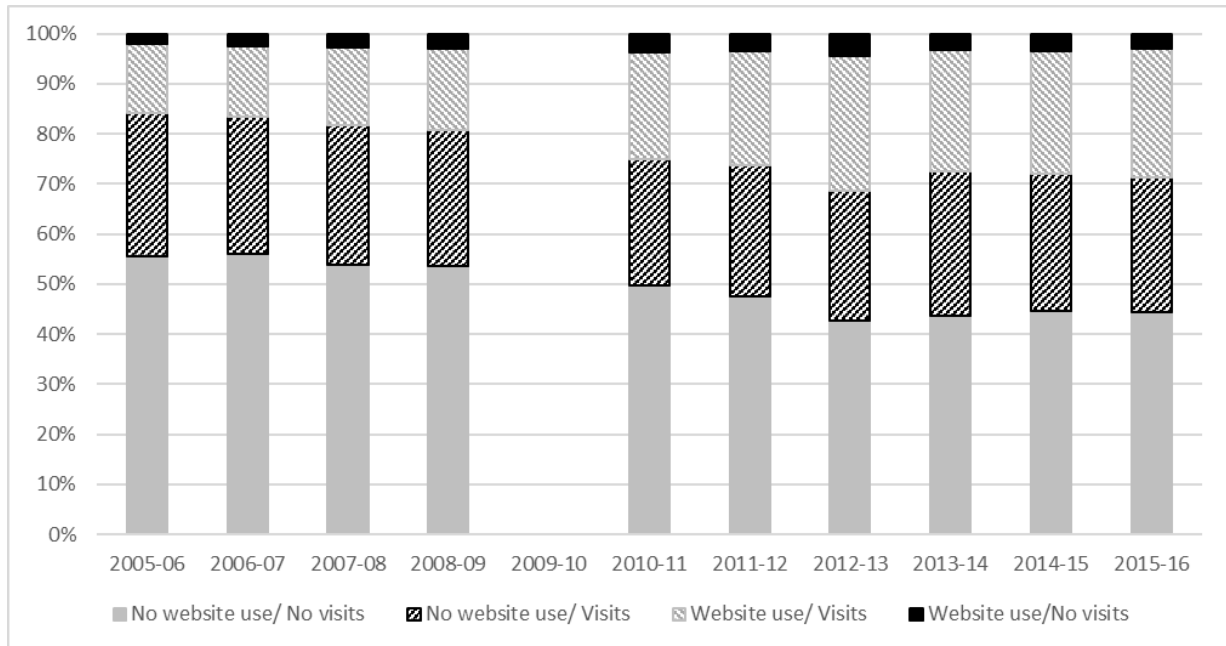
p.a., 2005/06–2015/16.

Figure 3. Evolution of museum and gallery websites use by type of usage p.a., 2005/06–2015/16.
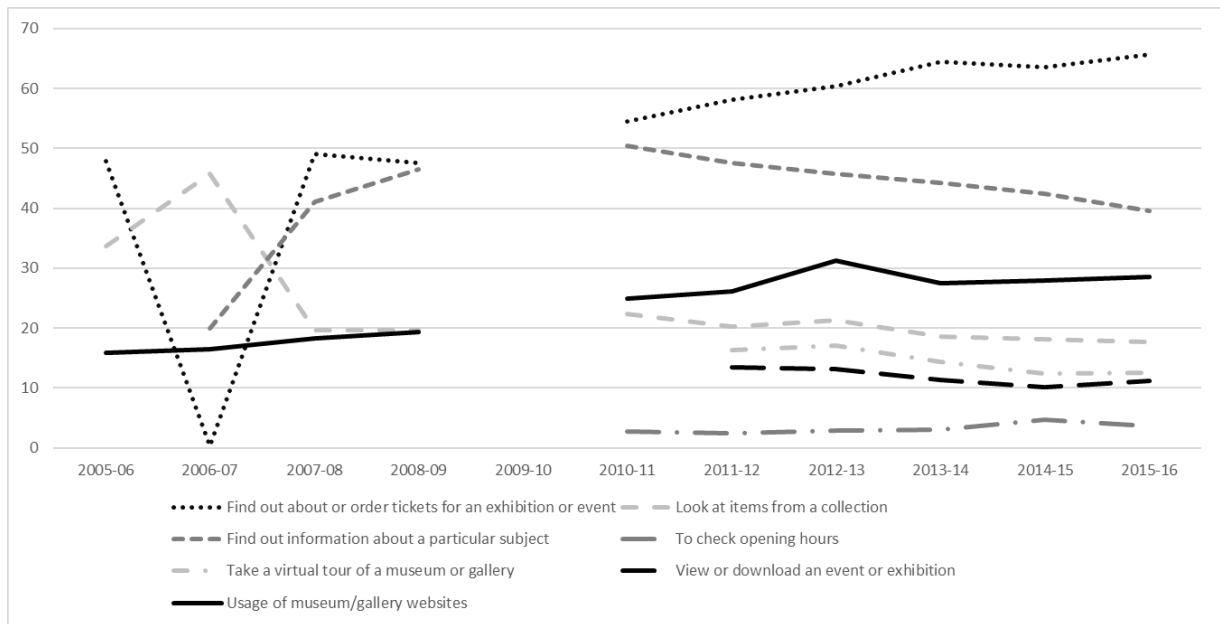
Table 1. Logistic regression for visiting museums/galleries, 2005/06 and 2015/16.

*Significant at p=.05. **Significant at p=.01. ***Significant at p=.001.

Independent variables	2005/06		2015/16	
	Odds Ratio	Std.Err.	Odds Ratio	Std.Err.
Occupational class (reference: Intermediate)				
Higher managerial, administrative and professional occupations	1.216***	0.045	1.291***	0.076
Routine and manual occupations	0.699***	0.024	0.715***	0.041
Never worked and long-term unemployed	0.613***	0.051	0.447***	0.079
Students	1.516***	0.127	1.611**	0.264
Education (reference: Secondary)				
Degree	1.967***	0.159	1.912***	0.233
No education	0.410***	0.029	0.453***	0.054
Ethnicity (reference: White)				
Non white	0.538***	0.048	0.576***	0.099
Region (reference: Midlands)				
North	1.169*	0.076	1.213	0.126
South	1.038	0.070	1.194	0.134
East	1.159	0.098	1.166	0.159
London	1.310**	0.116	1.508*	0.244
Sex (reference: Male)				
Female	1.133***	0.033	1.109*	0.051
Age (Reference: 30-59)				
16-29	0.815*	0.070	0.790	0.132
60+	1.216**	0.087	1.159	0.123
Longstanding illness, disability or infirmity (reference: Yes)				
No longstanding illness, disability or infirmity	1.376***	0.046	1.428***	0.071

Non white x Female	1.057	0.085	1.345	0.215
Non white x Degree	0.784*	0.081	0.804	0.152
Non white x No education	1.387**	0.146	1.637*	0.372
Non white x 16-29	1.235*	0.124	0.817	0.190
Non white x 60+	0.615***	0.093	0.681	0.158
North x 16-29	0.771*	0.082	0.920	0.189
North x 60+	0.808*	0.072	0.804	0.107
South x 16-29	0.819	0.095	0.866	0.195
South x 60+	0.865	0.082	0.898	0.127
East x 16-29	0.831	0.120	0.893	0.249
East x 60+	0.810	0.097	0.911	0.162
London x 16-29	0.988	0.130	1.196	0.340
London x 60+	0.733*	0.094	0.957	0.200
North x Degree	1.124	0.116	1.294	0.202
North x No education	1.243*	0.110	1.217	0.180
South x Degree	1.224*	0.128	1.291	0.208
South x No education	1.204*	0.116	1.172	0.192
East x Degree	1.273	0.168	1.116	0.228
East x No education	1.178	0.142	1.162	0.234
London x Degree	1.559***	0.197	1.663*	0.359
London x No education	1.11	0.138	0.763	0.179
Constant	0.588***	0.038	0.742**	0.076

2005/06: Log likelihood= 3526.240 Pseudo R2= 0.100 n= 26,612

2015/16: Log likelihood= 1331.740 Pseudo R2= 0.100 n= 9,701

Table 2. Logistic regression for using museum/gallery websites, 2005/06 and 2015/16.

*Significant at p=.05. **Significant at p=.01. ***Significant at p=.001.

Independent variables	2005/06		2015/16	
	Odds Ratio	Std.Err.	Odds Ratio	Std.Err.
Occupational class (reference: Intermediate)				
Higher managerial, administrative and professional occupations	1.289***	0.063	1.310***	0.083
Routine and manual occupations	0.562***	0.032	0.666***	0.047
Never worked and long-term unemployed	0.530***	0.089	0.660	0.151
Students	1.638***	0.180	1.183	0.215
Education (reference: Secondary)				
Degree	1.753***	0.172	2.389***	0.293
No education	0.289***	0.040	0.323***	0.057
Ethnicity (reference: White)				
Non white	0.414***	0.055	0.496***	0.105
Region (reference: Midlands)				
North	0.884	0.082	0.95	0.111
South	1.229*	0.113	0.995	0.123
East	1.119	0.129	1.46**	0.213
London	1.652***	0.192	1.455*	0.246
Sex (reference: Male)				
Female	0.880**	0.036	1.079	0.056
Age (Reference: 30-59)				
16-29	0.809	0.099	0.725	0.137
60+	0.482***	0.060	0.678**	0.083
Longstanding illness, disability or infirmity (reference: Yes)				
No longstanding illness, disability or infirmity	1.058	0.056	1.261***	0.076
Non white x Female	1.289*	0.151	1.147	0.211

Non white x Degree	1.092	0.149	1.106	0.235
Non white x No education	1.422	0.293	2.116*	0.684
Non white x 16-29	1.190	0.172	1.014	0.265
Non white x 60+	0.542	0.188	0.363	0.126
North x 16-29	0.708*	0.113	0.916	0.218
North x 60+	0.806	0.132	0.773	0.123
South x 16-29	0.803	0.129	1.270	0.317
South x 60+	0.803	0.127	1.080	0.172
East x 16-29	0.766	0.154	0.550	0.177
East x 60+	0.922	0.181	0.836	0.164
London x 16-29	0.932	0.160	1.371	0.397
London x 60+	0.879	0.177	1.290	0.284
North x Degree	1.430**	0.180	1.012	0.156
North x No education	1.135	0.204	0.899	0.207
South x Degree	1.224	0.151	1.123	0.177
South x No education	1.094	0.204	1.435	0.333
East x Degree	1.499**	0.230	0.757	0.150
East x No education	1.091	0.257	1.439	0.387
London x Degree	1.426*	0.208	1.026	0.208
London x No education	1.101	0.244	0.872	0.270
Constant	0.225***	0.020	0.347	0.040

2005/06: Log likelihood= 3362,600 Pseudo R2= 0.160 n=26,612

2015/16: Log likelihood= 16611.230 Pseudo R2= 0.140 n= 9,707