Libraries and the geography of use: how does geography and asset “attractiveness” influence the local dimensions of cultural participation?

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ABSTRACT

The project “Understanding Everyday Participation – Articulating Cultural Values” (2012–2018) explores the ways in which the “situatedness” of participation is an important factor in understanding the socio-political dynamics of cultural participation [Miles, A., & Gibson, L. (2016). Everyday participation and cultural value. Cultural Trends, 25(3), 151–157]. This paper on the geography of library use is an early presentation of ongoing research which seeks to understand the impact of geography and asset “attractiveness” on particular kinds of cultural participation. Many studies have focused on traditional “push” factors to participation, understanding attendance and participation in their various forms through individual- and household-level demographic and socio-economic characteristics [e.g. Bennett, T., Savage, M., Silva, E., Warde, A., Gayo, M., & Wright, D. (2009). Culture, class, distinction. London: Routledge]. However, a number of recent studies have also revealed the significant effects of supply and proximity on participation [Brook, O. (2013). Reframing models of arts attendance: Understanding the role of access to a venue. The case of opera in London. Cultural Trends, 22(2), 97–107; Brook, O. (2016). Spatial equity and cultural participation: How access influences attendance at museums and galleries in London. 25(1), 12–34; Widdop, P., & Cutts, D. (2012). Impact of place on museum participation. Cultural Trends, 21(1), 47–66; Hooper-Greenhill, E., Phillips, M., & Woodham, A. (2009). Museums, schools and geographies of cultural value. Cultural Trends, 18(2), 149–183].

In this paper, our approach to the geography of cultural participation focuses on the role of what we are terming “pull factors” to participation at specific locales over others. Many forms of participation in socio-cultural activities involve a level of spatial decision-making, weighing up factors relating to the destination(s), and the time and effort of getting there. How much do these “pull factors” impact on participation, and are they quantifiable? In order to understand if these spatial considerations are an explanatory factor in explaining the socio-demography of library use, we have applied the urban planning concept of trip-chaining and a geographically defined categorisation of asset attractiveness [O’Reilly, N., Berger, I. E., Hernandez, T., Parent, M. M., & Seguin, B. (2015). Urban sportscapes: An environmental deterministic

KEYWORDS

Cultural participation; geography; library use; trip-chaining; asset attractiveness

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Introduction

In this paper, we argue that geography plays a significant role in everyday participation in leisure and cultural practices of all kinds. Many studies focus on understanding attendance and participation in their various forms through demographic and socio-economic characteristics (for instance, although each use different approaches, Bennett et al., 2009; Chan & Goldthorpe, 2005; DiMaggio & Mukhtar, 2004). Such analyses focus on sociological attributes as primary explanatory factors in understanding participation in different kinds of culture and leisure activities. But can we also understand participation in terms of the specifics of a particular location? Can location be a more important predictor of participation than social class? Here we are interested in how transport infrastructure and the quantity and quality of social and cultural spaces impact on participation, for ease of reference we have termed these features “pull factors”. In order to test the strength of these “pull factors” on participation in relation to social class, we must also understand the extent to which socio-economic classifications are explanatory factors for participation. In doing this, our analysis uses a segmentation-based classification of populations in the form of the National Statistics Socio-economic Classification (NSSEC) data. Following Bennett et al. (2009), who find that class is the primary determinant of cultural participation, we are terming social class a “push factor” to participation. In this study, we test the extent to which this is still a primary explanatory factor for participation when assessed in relation to location specific “pull factors”.

In analysing the impact of location on participation, we are developing from a number of recent studies which have also sought to reveal the effects of supply and proximity on participation (e.g. Brook, 2013, 2016; Hooper-Greenhill, Phillips, & Woodham, 2009; Widdop & Cutts, 2012). Brook (2013) demonstrates that geographic variables (in particular accessibility) used alongside socio-demographic variables are a better predictor of attendance at Opera venues in London than using socio-demographic variables alone. We concur with Brooks that accessibility to a cultural destination is an important factor in participation. Where Brooks measured accessibility on the basis of proximity, we add measures of transport access points and routes to the geospatial variables used for assessing accessibility. Using data from the Taking Part survey, Widdop and Cutts (2012 and see 2016 for a further development of this work looking at the regional level) argue that after accounting for individual socio-demographic characteristics, “place” as a variable is significant to understanding participation in museums. In their multilevel logistic model results, they demonstrate that place matters, but they do not continue to assess what it is about a place that could cause this effect. Leguina and Miles (2016) in this volume also use Taking Part data and find a regional place effect to participation patterns which exists beyond or in addition to the explanatory frames of social stratification and education. Our research...
focuses on understanding place effects at the very local level and seeks to provide some assessment of the spatial distribution of everyday spaces and their effect on participation/usage levels at specific cultural assets.

In the “Understanding Everyday Participation- Articulating Cultural Values” (2012–2017) project, we are exploring the ways in which the “situatedness” of participation is an important dimension to its analysis (Miles & Gibson, 2016). In the six English and Scottish locations (or “ecosystems”) which are the focus of study, we have mapped social demography, alongside the location of cultural and community assets such as shops, community halls, banks, medical facilities and so forth. In Aberdeen, Gateshead and Manchester we are also generating geographic representations of datasets of participation in activities funded by local government focusing on library and sports centre memberships. This will be integrated with the data emerging from the household interviews and ethnographies and will contribute to informing our understanding of the specific characteristics of each participation ecosystem. This article discusses intensive mapping work undertaken in Gateshead analysing the specific geography of libraries in relation to library use in order to ask: (1) What is the impact of “pull factors” – spatial decision-making in relation to asset attractiveness and proximity to other social and cultural facilities – on library use? (2) What is the impact of these “pull factors” in relation to “push factors” – socio-economic-based characterisations of use?

In quantifying “asset attractiveness”, we are drawing on two separate theoretical frameworks. First, the phenomenon of trip-chaining drawn from transport planning which refers to the practice of visiting multiple destinations during a single trip between an origin and destination; such as place of work and home for example (Bertolini, Le Clercq, & Kapoen, 2005; Thill & Thomas, 1987). Primerano, Taylor, Pitaksringkarn, and Tisato (2008) note that complex trip chains most often combine shopping with social and recreational activities, drop-off and pick-up, work and personal business. Following Primerano et al. (although they do not mention libraries specifically) and for the purposes of this analytical exercise, we posit that a visit to the library is likely to take place in the course of multi-segmented journey. This may be in conjunction with visiting other “everyday places” in order to complete auxiliary tasks, such as shops, health-care facilities, schools, banks and so forth. If this is applicable, then the transport infrastructure and urban character of the immediate locale surrounding the library gains importance.

O’Reilly et al. (2015) assess what they term the “Sportscape” of Greater Toronto in order to gain a greater understanding of youth participation in diving and water polo. In doing so, they recorded a number of factors which added to the “attractiveness” of sport centres and that impacted on the likelihood of participation. These included number of club meeting rooms, numbers of teams, availability of coaches, number of changing rooms, food service types and proximity to transit access points. Drawing on this research, a range of attributes were generated that were presumed to be influential in terms of a user’s decision-making process to attend one library over another. This library “attractiveness rating” quantified both internal and external factors. Internal factors were deemed to be the quality of the library’s provision defined by total hours open per week and the number of drop-in user groups offered (defined below). External factors are based on the notion of trip-chaining, therefore proximity to other significant cultural and social assets, places and services are included. Through these means we generated an overview
of the relative attractiveness of a library, defined in terms of the services it offers and its surrounding geographical locale.

**Gateshead Borough – the socio-geographic context**

Gateshead is a Metropolitan Borough located in the North East of England; it is one of five boroughs within Tyne and Wear along with the City of Sunderland, South Tyneside, North Tyneside and the City of Newcastle upon Tyne. The Borough comprises several urban and peri-urban built-up areas and a significant proportion of rural, low-density agricultural land. Within the centre of Gateshead is the Team Valley Trading Estate, one of the largest built in the UK, formally heavy industry-based but increasingly retail and business orientated. The Central Business District is located in the north of the borough and notable places include the MetroCentre, a 190,00 m² shopping centre opened in 1986, the BALTIC Centre for Contemporary Art opened in 2002 and, the Sage, a performing arts venue opened in 2004. Gateshead Borough is bisected by the A1, and has seven metro or train stations, connecting it to the wider Tyne and Wear region.

Table 1 provides a brief overview of the socio-demographic profile of Gateshead residents compared to England. The Gateshead population is generally typified as having a higher proportion of people describing themselves as White British, with more people living in social housing, lower car ownership, less qualifications and higher numbers of elderly living in poverty than the general British population. These traits are most pronounced in the urban core of the Borough, less so in the peri-urban and rural areas.

**Gateshead libraries – subject and sample**

In order to explore the effect of asset attractiveness on everyday participation, we required cultural institutions with data that captured individuals making a choice between different spatial locations that offer broadly similar service provision. Libraries are one of the few cultural facilities that fit this requirement.2

There are 17 libraries in Gateshead, providing a variety of services for a range of different communities. Physically the libraries range from stand-alone buildings such as the libraries in Chopwell and Pelaw, to those incorporated within new community “hubs”

| Socio-demographic variable                  | Gateshead | England |
|---------------------------------------------|-----------|---------|
| % population aged 45+                       | 45        | 41      |
| % no car ownership                          | 37        | 26      |
| % of social renters                         | 28        | 18      |
| % of households no children                 | 59        | 57      |
| % in full-time employment                   | 63        | 67      |
| % in retirement                             | 28        | 25      |
| % White British                             | 94        | 80      |
| % NSSEC I II                                | 27        | 31      |
| % NSSEC V VI VII                           | 40        | 32      |
| % population no qualifications              | 28        | 23      |
| % gaining Level 4 qualifications            | 21        | 27      |
| % children in poverty (IDACI)               | 26        | 22      |
| % elderly in poverty (IDAOGPI)              | 25        | 17      |

ONS: Census 2011.
such as at Leam Lane and Blaydon. Since 2013, six libraries have been run by volunteers; Dunston, Lobley Hill, Low Fell, Ryton, Sunderland Road and Winlaton, with the other 11 remaining council-run.

A telephone audit was carried out in order to ascertain what services each of the libraries provided (May–June 2016). All libraries provided a core service including standard book, large print and audio book loans, PC with internet and MS Office, Wi-Fi, photocopying and fax. Some had supplementary services including newspapers and magazines, local history information, DVDs to loan and community rooms for hire. Of interest to this analysis was the provision of regular “user groups” that provide socio-cultural participation spaces, such as readers groups, baby and toddler groups, school visits, computer classes, ward councillor surgeries and children’s holiday activity clubs. The number of such regular groups the library provided per week was used as a variable in the attractiveness rating on the premise that the range of social opportunities could be a contributing factor in using a library further away. The membership database provided by Gateshead Borough Council captured data on the last used library of active members for all 17 of Gateshead’s libraries. The fields provided were the home postcode of the member, the library at which they became a member and the last library they used in the previous 12 months. From this data, we extracted only the members whose home postcodes where within the Borough’s boundary, leaving us with $n = 18,383$ current members. The following map (Figure 1) illustrates the topographical location of the 17 libraries within the Borough, distinguishing between council and volunteer-run, the symbol sizes indicating the number of members who used that library on their last recorded visit.

![Figure 1. Gateshead Borough Libraries: location, governance and where members last used a library.](image)
Assessing participation in Gateshead

Socio-economic profile of membership

In the first instance and in order to understand the presence of “push factors” in the specific context of Gateshead’s libraries, we were interested in assessing the relative diversity of library memberships in relation to the NSSEC segmentation. In order to generate an assessment of the socio-economic diversity of the membership of the libraries, the home postcodes of the members of each library were joined to their Output Area and assigned the attributes from the 2011 Census table KS611EW (ONS, 2011). Each postcode therefore contained a percentage of four NSSEC categories; combining classes I & II, III & IV, and a third group classes V, VI & VII. The final category was the percentage of long-term unemployed. The Gini-Simpsons Index of Diversity was utilised which assesses both the “richness” and “evenness” of the sample, whereby a score of 0 indicates a totally homogenous population and 1 a totally heterogeneous population. This exercise revealed that the overall combined library population is similar in diversity to the wider Gateshead population for NSSEC profile (see Figure 2).

Library use from outside the catchment area

We are interested in assessing the percentage of users who last used a library that was not their nearest, as this implies that it could be the geography of the locale and/or variables in the transport infrastructure are “pulling” them to use another library in preference to their local facility. A hypothetical “catchment” area around each library based on proximity was created by plotting the library locations in a Geographical Information System and generating Thiessen polygons. These draw an area around a library within which any location inside that polygon is closer to that library than any other (see Figure 3). In reality, the transport network would distort these catchment areas; driving time along major routes or an access point on the rail network would impact upon a member’s decision-making process as to which library is more proximal. However, as a basis for partitioning the Borough into rational spatial catchments, this was deemed an acceptable approach given the available resources. Using the membership database, we employed the home postcode as the origin and the “last library used” as the destination to explore the journeys people were making. We subsequently calculated the proportions of members who travelled to libraries from outside the local catchment area, as defined by the Thiessen polygons (see Figure 3). Blaydon, for instance, has 72% of its usage coming from members living in other library catchment areas, which means 72% of people who used Blaydon library on their last recorded visit had another library closer to their home. Central library has 58% of its usage from members who come from other catchments, and the other libraries have a range of usage profiles from Crawcrook at 34% to Birtley which has only 7% of its use coming from members based in other catchments and therefore has a very local usage profile.

“Attractionness” rating of libraries

The final assessment sought to discern if potential “pull factors” to participation provided an alternative understanding of library usage profiles. In order to do this, we established
Figure 2. Gateshead Borough Libraries: index of diversity (least and most diverse) for NSSEC proportions of users per library.
the relative attractiveness of each individual library by quantifying a range of services provided by the library (internal factors), and a range of characteristics in the surrounding locale (external factors). Adapting O’Reilly et al.’s approach to assessing sport venues in Toronto, we considered the following library attributes as influential “pull factors” and in so doing built our own “attractiveness” rating (see Table 2): Internal factors (nature of provision):

- Number of user groups regularly held at the library
- Total number of hours open per week

External factors (geographic context):

- Number of everyday assets within 400 m\(^5\) (e.g. shops, medical surgeries, Post Office, banks, cafes, etc. See Appendix, online version only.)
- The presence or absence of a supermarket within 400 m\(^6\)
- Number of educational facilities within 400 m
- The presence or absence of parks and playgrounds within 400 m
- Number of unique bus routes within 400 m\(^7\)
- The presence or absence of a rail/metro stations within 400 m

In order to compare these variables, again following the methodology of O’Reilly et al., z-scores of the variables were calculated to standardise the data. z-scores give an indication of the degree of difference a variable is from the average. For example, most libraries may have around 15–20 unique bus routes within 400 m, their z-scores would be between –0.5 and 0.5. However if a library has far fewer bus routes, it would have a
| Library       | Number of user groups | Total open hours | No of everyday assets | Y/N supermarket <400 m | No of edcn <400 m | Y/N playground <400 m | Bus routes <400 m | Rail access <400 m | Attractiveness mean z-score |
|--------------|-----------------------|------------------|-----------------------|------------------------|-------------------|------------------------|-------------------|-------------------|--------------------------|
| Birtley      | 1.58                  | 1.17             | 1.43                  | 0.45                   | 0.45              | 0.45                   | 0.31              | −0.63             | 0.65                     |
| Felling      | 0.17                  | −0.30            | 2.01                  | 0.45                   | 0.45              | 0.45                   | −0.13             | 1.50              | 0.57                     |
| Blaydon      | 1.11                  | 1.11             | 0.45                  | −0.82                  | −2.10             | 1.63                   | 1.50              | 0.51              | 0.49                     |
| Whickham     | 0.64                  | 1.17             | 0.92                  | 1.09                   | 0.45              | −0.13                  | −0.63             | 0.49              | 0.33                     |
| Central      | 0.17                  | 1.33             | 1.11                  | −2.10                  | 1.09              | 0.45                   | 1.19              | −0.63             | 0.29                     |
| Crawcrook    | 0.64                  | 0.27             | −0.19                 | 0.45                   | 1.72              | 0.45                   | −0.42             | −0.63             | 0.17                     |
| Pelaw        | 1.11                  | 0.27             | −0.15                 | 0.45                   | −0.82             | 0.45                   | −1.45             | 1.50              | 0.15                     |
| Dunston      | −1.25                 | 0.51             | 0.18                  | −0.19                  | 0.45              | −0.42                  | 1.50              | 0.15              | 0.15                     |
| Winlaton     | −0.78                 | −0.83            | 0.27                  | 0.45                   | 1.09              | 0.45                   | 1.19              | −0.63             | −0.06                    |
| Leam Lane    | −0.78                 | 1.17             | −0.54                 | 0.45                   | −0.19             | 0.45                   | −0.42             | −0.63             | −0.17                    |
| Wrekenton    | 0.64                  | −0.30            | −0.19                 | 0.45                   | 0.45              | −2.10                  | 0.31              | −0.63             | −0.15                    |
| Chopwell     | 0.17                  | −0.62            | −0.66                 | 0.45                   | −0.82             | 0.45                   | −0.72             | −0.63             | −0.30                    |
| Lobley Hill  | −1.25                 | −1.93            | −1.14                 | 0.45                   | 0.45              | 1.04                   | −0.63             | −0.32             | −0.39                    |
| Low Fell     | 1.11                  | 0.11             | −0.87                 | −2.10                  | 0.45              | −2.10                  | 0.90              | −0.63             | −0.39                    |
| Rowlands Gill| −0.78                 | −0.87            | −1.19                 | 0.45                   | −1.46             | 0.45                   | 0.02              | −0.63             | −0.50                    |
| Ryton        | −0.78                 | −1.19            | −0.87                 | 0.45                   | −1.46             | 0.45                   | −0.72             | −0.63             | −0.59                    |
| Sunderland   | −1.72                 | −1.11            | −1.21                 | −2.10                  | −1.46             | 0.45                   | −2.18             | 1.50              | −0.98                    |

*Italics: volunteer-run libraries.*

**Table 2. Gateshead Borough Libraries: attractiveness rating z-scores (italics: volunteer-run libraries).**
lower z-score, perhaps of around –1.5 and conversely if a library had many more, it would have a z-score closer to 1.5. These scores are indicative of how many standard deviations a variable is from the mean. Once the z-scores have been calculated for each of the attractiveness attributes, the mean of these is calculated to produce an overall cumulative attractiveness rating (see Table 2).

On this basis, we can see that there are some libraries that have a great number of “pull factors” in their favour. We can also see that the libraries at the bottom of the table are poorly connected to both transport and other everyday destinations, and are also open fewer hours with relatively few user groups. It is notable however, that volunteer-run libraries are not concentrated at the very bottom, with Dunston and Winlaton in the middle of the rankings.

Drawing all these attributes together – recent members’ usage, NSSEC diversity, users from beyond the local catchment and the library attractiveness rating – Figure 3 illustrates the different results per attribute. The largest, most diverse or attractive library having the tallest bar, and least the shortest bar.

Analysis

Push factors: social class

In the first instance, we wanted to find out whether the NSSEC categorisation is an accurate predictor of cultural participation as posited in other studies (Bennett et al. etc). In this case measured through the recent usage by members (i.e. book borrowing “users”) of libraries in Gateshead. Literature on library membership and use tells us that of all forms of cultural attendance participation in libraries is the least associated with social class (Buraimo, Jones, & Millward, 2011; DCMS, 2016). This is borne out in the case of library membership in Gateshead where we found that the aggregate membership of all libraries has a similar socio-economic profile to the general Gateshead population. At the level of specific libraries the socio-economic profile of membership matched the profile of the area. So, for instance, Wrekenton, Felling and Leam Lane libraries have around 50% of their local catchment population categorised as NSSEC V–VII – the highest proportion of Gateshead, and this is reflected in the user profiles of those libraries, which have greater numbers of members from these classes. Those catchments that have higher proportions of people in NSSEC I and II, Whickham, Crawcrook and Rowlands Gill, similarly have the highest proportions of users in NSSEC I and II.

Considering the data for library users who travel outside of their local catchment area presents a similar picture. Here the three libraries with the highest proportions of users coming from beyond their local library catchment, Blaydon, Central and Crawcrook, have slightly above average proportions of users from NSSEC I and II and average or lower levels of use from people in NSSEC V–VII. However, only Crawcrook’s users are greater than one standard deviation from the Gateshead mean for the NSSEC profile of all library users. Possible reasons for this local pattern are discussed in greater detail below.

In summary, participation at a library does not strongly correlate with any particular social class in Gateshead. Furthermore, it is not evident that any social class has a greater propensity to travel to a library other than their local branch. Instead, the NSSEC profile of users is closely reflective of the local populations. This is perhaps not surprising
as unlike participation at other types of cultural venues such as museums or performing arts centres, library use is a relatively unstratified activity. Therefore, we would expect to see the socio-economic profile of users matching the socio-economic profile of the local population. Thus, social class is not a useful explanatory factor for understanding participation in libraries outside of a member’s own catchment area.

“Pull factors”: library attractiveness rating

Our second question was to understand the effect of “pull factors” on participation in Gateshead libraries. By quantifying a range of “attractiveness” factors (in Table 2), we can see that Birtley library scores the highest overall in “pull factors”; it has long opening hours, many regular user groups, and is proximate to plenty of other “everyday” places including a supermarket, playground and park, with an average number of bus routes within 400 m. However, it has the lowest usage by members coming from beyond its catchment area. This may be due to the peripheral nature of this neighbourhood; it is located at the south-eastern edge of the Borough, bordered by the relatively impermeable A1 motorway, severing it from neighbouring Washington in Sunderland. Of the subsequent four most “attractive” libraries, Felling, Whickham, Blaydon and Central, the latter three have the highest numbers of users of all Gateshead’s libraries and the latter two the greatest usage by members coming in from other catchment areas. Sunderland Road, Ryton and Rowlands Gill are the three least “attractive” in terms of the “pull factors” we have assessed; Sunderland Road and Ryton also have lower than average levels of recent usage suggesting that there is a link between the “attractiveness” factors we have quantified and participation. Crawcrook and Ryton libraries are in close proximity and it appears from the analyses of home postcodes of the users that many members living within the Ryton library catchment are not using that library in preference for Crawcrook. Exploring the factors in the attractiveness rating, Ryton scores below average in almost all variables, whereas Crawcrook scores around average but has two primary schools and a nursery within 400 m, along with a few more “everyday spaces” nearby which raises its overall attractiveness. This could account for the third of all users of Crawcrook library who live within the Ryton library catchment area.

The impact of the co-location of a library within a community “hub” remains ambiguous. They do not have notably higher levels of patronage, and the telephone audit revealed that these libraries offer average or below average numbers of services within the site, that other non-hub libraries do sometimes offer, such as Ward councillor or MP surgeries, community room hire and local history specialists. From our assessment, it seems that the density of other everyday spaces in the wider locale exerts a stronger influence than the services offered within the hub.

Finally, in assessing the differences between volunteer-run and council-run facilities, the libraries with the three lowest levels of usage (even when recalculated as a ratio of hours open) are all volunteer-run; Lobley Hill, Sunderland Road and Ryton. These libraries are also within the five least “attractive” according to our classification schema. However, the community run libraries that have average opening hours, Dunston and Winlaton, fare better in levels of usage, despite having fewer user groups.
Indeed, the total number of hours open per week was the single variable to most closely correlate usage levels for all libraries, with the number of everyday spaces within 400 m a close second. Libraries that have around average opening hours but have relatively lower levels of everyday spaces within 400 m such as Chopwell, Low Fell and Rowlands Gill do have lower usage levels.

The evidence discussed here shows clearly that libraries without the resource to provide at least average opening hours in order to allow people to visit in the course of carrying out other activities in the local community (trip-chaining) have usage levels which are not as high as they could otherwise be. This is an important finding given the recent and ongoing trend for local governments to “asset transfer” amenities to the community.

**Conclusion**

The primary aim of this research was to understand the effect of geography on everyday participation. Specifically, we tested the proposition that the local geography of provision and the level of service is a useful explanatory factor for participation. We further sought to understand this in comparison to using social class as a frame for understanding participation. Given that the libraries with the largest usage by members and greatest use by members from other catchment areas are also amongst the most attractive, and conversely those with the lowest usage are also ranked in the least attractive, we can conclude that this is a useful approach to understanding everyday cultural participation more generally. Thus, and echoing Widdop and Cutts (2012) in this study of libraries, we have demonstrated that location is an important factor for participation. In addition, though we have shown that the availability of everyday facilities surrounding a destination provides another important influence on participation. In the case of libraries in Gateshead, the data reveal that library members are more likely to make use of libraries which are attractive in a range of areas, particularly being nearby other facilities, shops, schools, banks and so forth, and having longer opening hours. This suggests that the ability to “trip chain” is an important aspect in assessing the attractiveness of one venue over another. We are in the process now of testing whether this finding holds for other types of venues, specifically sports centres, which like libraries, have a membership which can make use of a variety of facilities each offering a similar service. We believe that this research, revealing as it does the relationship between patterns of participation and location, has significant applications for thinking about cultural amenity planning as well as urban policy more generally.

**Notes**

1. NSSEC is a measure of social class: I and II are higher and lower managerial class; III and IV ‘intermediate’ level occupations such as clerical and sales; V are technical and lower supervisory occupations; and VI and VII are semi-routine and routine occupations.

2. Sports facilities run by local government also provide the type of data which allow us to test the interaction between categories of asset attractiveness and socio-cultural identity; research using these datasets is in process.

3. Gateshead Borough Council provided data of all library users who borrowed a book. It is unknown if they also used a PC, attended a group or another on-site activity. Similarly,
those who used the library without borrowing a book are not recorded so these data only partially capture the true usage of a library. However, it is confirmed that the ‘large majority of users do borrow a book’ (Gateshead Council Pers. Comm. October 2016).

4. Note that there was no metric given for the relationship between the numbers of members who last used a library and the overall level of library usage.

5. Four hundred metres is a commonly used distance to denote a 5-minute walk for someone with average mobility, see, for example, Parsons Brinckerhoff and ARRB Transport Research (2005).

6. Supermarkets, education facilities, parks and playgrounds were deliberately double counted within the everyday assets as a weighted asset; libraries were not double counted.

7. Car parking was not counted because all library facilities had free parking.

8. Readers might note that, aside from Ryton, these libraries seem to have average levels of members that come from beyond the immediate catchment area. Most likely this is an artefact of the smaller sample size giving spurious results, that is if you have only 29 members (Lobley) and 119 (Sunderland Road) you do not have to have very many members come from beyond your catchment (c29%) to get an average level.

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Appendix

List of everyday assets used in attractiveness rating:

| Class code | Class description                                                      |
|------------|------------------------------------------------------------------------|
| C          | Commercial                                                             |
| CC         | Community Services                                                    |
| CC04       | Public / Village Hall / Other Community Facility                      |
| CC04YR     | Youth Recreational / Social Club                                      |
| CC10       | Recycling Site                                                         |
| CE         | Education                                                              |
| CE01       | College                                                                |
| CE01FE     | Further Education                                                     |
| CE01HE     | Higher Education                                                       |
| CE02       | Children’s Nursery / Crèche                                            |
| CE03       | Preparatory / First / Primary / Infant / Junior / Middle School       |
| CE03FS     | First School                                                           |
| CE03JS     | Infant School                                                          |
| CE03JS     | Junior School                                                          |
| CE03MS     | Middle School                                                          |
| CE03NP     | Non State Primary / Preparatory School                                 |
| CE03PS     | Primary School                                                         |
| CE04       | Secondary / High School                                               |
| CE04NS     | Non State Secondary School                                            |
| CE04SS     | Secondary School                                                       |
| CE05       | University                                                             |
| CE06       | Special Needs Establishment.                                           |
| CE07       | Other Educational Establishment                                        |
| CL         | Leisure - Applicable to recreational sites and enterprises             |
| CL01       | Amusements                                                             |
| CL01LP     | Leisure Pier                                                           |
| CL03       | Library                                                                |
| CL06       | Indoor / Outdoor Leisure / Sporting Activity / Centre                 |
| CL06AH     | Athletics Facility                                                     |
| CL06BF     | Bowls Facility                                                         |
| CL06CK     | Cricket Facility                                                       |
| CL06CU     | Curling Facility                                                       |
| CL06DS     | Diving / Swimming Facility                                             |
| CL06EQ     | Equestrian Sports Facility                                             |
| CL06FB     | Football Facility                                                     |
| CL06FI     | Fishing / Angling Facility                                             |
| CL06GF     | Golf Facility                                                          |
| CL06GL     | Gliding Facility                                                       |
| CL06GR     | Greyhound Racing Facility                                              |
| CL06HF     | Hockey Facility                                                        |
| CL06HR     | Horse Racing Facility                                                  |
| CL06HV     | Historic Vessel / Aircraft / Vehicle                                  |
| CL06LS     | Activity / Leisure / Sports Centre                                    |
| CL06RF     | Rugby Facility                                                         |
| CL06RG     | Recreation Ground                                                      |
| CL06SK     | Skateboarding Facility                                                 |
| CL06TB     | Tenpin Bowling Facility                                                |
| CL06TN     | Public Tennis Court                                                    |
| CL06WA     | Water Sports Facility                                                  |
| CL06WF     | Cycling Sports Facility                                                |
| CL06PF     | Playing Field                                                          |
| CL06QS     | Racquet Sports Facility                                                |
| CL07       | Bingo Hall / Cinema / Conference / Exhibition Centre / Theatre / Concert Hall |
| CL07CI     | Cinema                                                                 |
| CL07EN     | Entertainment Complex                                                  |
| CL07TH     | Theatre                                                                |
| CL10       | Licensed Private Members’ Club                                         |
| Code   | Description                               |
|--------|-------------------------------------------|
| CL10RE | Recreational / Social Club                |
| CM     | Medical                                   |
| CM01   | Dentist                                   |
| CM02   | General Practice Surgery / Clinic         |
| CM02HC | Health Centre                             |
| CM02HL | Health Care Services                      |
| CM03HP | Hospital                                  |
| CO01GV | Central Government Service                |
| CO01LG | Local Government Service                  |
| CR     | Retail                                    |
| CR01   | Bank / Financial Service                  |
| CR02PO | Post Office                               |
| CR04   | Market (Indoor / Outdoor)                 |
| CR04FK | Fish Market                               |
| CR04FV | Fruit / Vegetable Market                  |
| CR04LV | Livestock Market                          |
| CR05   | Petrol Filling Station                    |
| CR06   | Public House / Bar / Nightclub            |
| CR07   | Restaurant / Cafeteria                    |
| CR08   | Shop / Showroom                           |
| CR08GC | Garden Centre                             |
| CR09   | Other Licensed Premise / Vendor           |
| CR10   | Fast Food Outlet / Takeaway (Hot / Cold)  |
| CR11   | Automated Teller Machine (ATM)            |
| LP     | Park                                      |
| LP01   | Public Park / Garden                      |
| LP02   | Public Open Space / Nature Reserve        |
| LP03   | Playground                                |
| LP03PA | Play Area                                 |
| LP03PD | Paddling Pool                             |
| OR01   | Postal Box                                |
| OT03   | Footbridge / Walkway                      |
| OT05   | Subway / Underpass                        |
| OU01   | Cycle Parking Facility                    |
| RC     | Car Park Space                            |
| RC01   | Allocated Parking                         |