

# **#LoveLibraries - Hashtags and folksonomies in public library Instagram accounts**

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### **Abstract**

This study explores the impact on user engagement that hashtags and folksonomies can have in the context of the Instagram app, specifically in a post COVID-19 context, where services like libraries were stripped of their physical provisions and may have increased their use of social media.

To achieve this, secondary data from pre-existing Instagram accounts was gathered using a coding schema, for the means of investigating current trends in hashtag use. A selection of social tags that were deemed popular in correlation with boosting engagement were examined and then adapted to create tailored hashtags to be posted by the collaborative public library service, Orkney Library and Archives. This was implemented through an action research approach, with pre-existing Instagram accounts acting as the diagnostic phase, with the application of the customised tags by Orkney Library enacting the therapeutic stage. The research was designed to be unobtrusive, in keeping with themes central to passive netnography.

The study found there to be a positive correlation between the use of emotive hashtags and user comments, with a higher volume of comments found on posts containing this type of hashtags, and respondents more likely to leave text-rich qualitative responses as opposed to only emojis. Other hashtag types which were found to have value in driving engagement were geographical and rallying types.

Due to time constraints, only one cycle of action research approach was able to be conducted, and it is recommended that further research on this topic is continued to gain a more comprehensive understanding of the impact social tags can have on engagement.

### **Keywords**

Hashtags, folksonomies, COVID-19, public libraries, Instagram

## **1.0 Introduction**

### **1.1 Background and rationale**

Within the last 20 years, social media has developed at such a rapid rate that its sheer existence has contributed to the significant division of generations into two categories: digital natives and digital immigrants. “Digital immigrants”, a term that Marc Prensky (2006) claims to have coined, describes mostly Gen-X individuals, who were raised without readily available computers or digital media. On the other hand, “digital natives”, those that fall into the millennial and Gen-Z generations, have been raised alongside some level of digital technologies. While digital natives certainly have fluency in these technologies, regardless of which category one falls into, one thing is for sure; social media has woven into the fabric of everyday life. This has not only impacted the way we communicate, but also the way we shop, and as a result generates billions of dollars annually in revenue. The value of harnessing such a powerful tool, for any business, is undeniable and public libraries are no exception.

When COVID-19 hit the UK in early 2020, services across all sectors were thrown into uncertainty as lockdown was imposed, creating a service provision environment that was completely unprecedented. This was explored in the context of public libraries in the *Libraries In Lockdown* study, which states “by and large, library services – alongside virtually every other type of organisation – were not prepared for a full closure of their services. They had many admirable contingencies in place” (Reid and Bloice 2021 p.19). As a result of these limited services, many libraries harnessed the power of social media as an essential strategy in disseminating information and boosting engagement (McKrell 2021), providing digital contact where physical services were no longer possible. This need for social media during the pandemic is emphasised by expert on computing, Dr Alice Good, who stated “Our screens have become a portal to reach out to people, raise morale, but most importantly, to recreate the communities that have been slowly dissipating. We are stronger and more resilient together” (Barr 2020). The essentiality of public libraries is highlighted by the Carnegie Trust’s *Libraries, Lockdown and Looking Ahead*; “Public library services are a vital part of social infrastructure. The best of them enable, empower and equalise. COVID-19 has not changed the strategic priorities of the library services so much as sharpened their focus” (Peachey 2020 p.4). As such, social media is a vital resource for these organisations to reach their users during the pandemic.

As COVID-19 is a recent phenomenon, with lockdown restrictions lifted a matter of months prior to the period in which this research was conducted, there are many aspects of the impact of the pandemic yet to be fully explored. The value of photo-sharing sites like Instagram by use of public libraries is something that has the potential to be further investigated, and there have been multiple recommendations to conduct more detailed research into this pairing (Choi and Harper 2019) even before the pandemic occurred.

The following paper details the rationale and methodology behind the research question, followed by the findings from each dataset. These findings are explored in an effort to illuminate any valuable findings which may be passed on to library services seeking to boost engagement online, or to provide the basis for a framework.

### **1.2 Aims and objectives**

#### **1.2.1 Overall aim**

This research aims to work alongside a public library/libraries on content creation for their Instagram account, creating content focused on the use of social tagging and folksonomies in driving engagement. These posts will serve as the basis for an analysis into the engagement of user communities in relation to hashtags used.

### **1.2.2 Research objectives**

1. To explore pre-existing library Instagram accounts and identify exemplars, using a collection of these to examine the hashtags used by these services and the levels of engagement achieved.
2. To create separate coding schemas to categorise both Instagram posts and hashtags.
3. To gather primary data, assessing tags and from these creating tailored hashtags for the collaborative library service(s).
4. To unobtrusively observe the application of these hashtags, examining their success in driving engagement through the quantification of likes and comments.
5. To propose further potential action based on these findings for the benefit of library services seeking to boost user engagement.

## **2. Literature review**

The following literature review examines a collation of topics relevant to the study as a whole. The research question has been broken down into component topics, including social media and Instagram as a platform, folksonomies, hashtags, social media use by libraries, and the impact of COVID-19 on public libraries. This is with the aim of creating a wider picture of the existing literature.

### **2.1 Social media and Instagram as a platform**

The rapidity with which social media has developed over the past 20 years is groundbreaking, with over one hundred million users attracted to the first generation SNS (or “social network services”) tools such as MSN messenger in the first 4 years. Followed by the rampant success of Web 2.0, social media sites have integrated into our daily lives with their convenient immediacy and slick ability to tailor content to every want and need of the user (Zhu et al. 2018). This integration and significance in everyday life has created a wealth of parallel worlds, or “networked publics” (Boyd and Ellison 2007 p.221) in which communities can gather and interact. Boyd describes networked publics as “a type of mediated public; the network mediates the interactions between members of the public” (Boyd 2007 p.125), with the distinctive properties of both persistence (permanence) and searchability. Combine this with invisible audiences, and networked publics create the potential for information to travel through audiences unconstrained by geography, space and time. The choice of social media platform is important, then, to harness this boundless potential for broadcast.

Created in 2010 by computer programmer Kevin Systrom, Instagram is a photo-sharing app which allows users to post images teamed with captions (Instagram 2021) to build a profile. An example of a “mobile-first” social network, the app was designed specifically for use by handheld devices, with the major focus on the then-novel smartphone camera for content creation (Anderson 2015). Over time the site has evolved, and now not only boasts desktop operability but a range of features such as “Reels” (akin to TikTok videos), “Stories” which serve an ephemeral offering, and “IGTV”, which allows users to post videos ranging from 15 seconds to 10 minutes long, with the aim to “increase users experience and keep them connected” (Mazzarolo, Mainardes and Innocencio 2021 p.2). The engagement of these activities can be measured by “likes”, “comments” and “saves”, all of which impact the algorithm which dictates how the content is distributed. More recently, Instagram have also added a “shopping” feature, which indicates the value that the adoption of the app can have for businesses and services alike.

The algorithm was introduced in 2016 under the guise of providing the users with “the moments we believe you will care about the most” (Instagram cited in Cotter 2018 p.895), leading users to think that the introduction of the algorithm would be beneficial. Some users it no doubt does benefit; accounts which effectively play what Cotter terms as “the visibility game”, where users attempt to identify and adhere to the rules “embedded in algorithms that regulate visibility” (Cotter 2018

p.896) can use the algorithm to their advantage. Rader, Cotter and Cho (2018) argue however that the implementation of the algorithm largely disadvantages users, with the automated selection and ranking of content acting as a gatekeeper, defining what is relevant, knowable, and authoritative. This, they argue, leads to “a lack of information diversity, or echo chambers of ideas in which users are closed off from opposing points of view” (2018 p.1).

Historically, the app has proven more popular with the younger generation; a 2021 study of Instagram use in the UK revealed that of the 30.57 million UK users, 30.7 percent of these were aged between 25 and 34 years old, followed by 18-24 year olds who make up 24.9 percent of the demographic (Statistica 2021), implying that it appeals to the digital native generation. While the impact of COVID-19 saw an increase in social media usage in general, an Influenster survey in 2020 found consumption of Instagram to have grown the most over lockdown, with 67 percent of those surveyed claiming that their use of the platform increased overall (Influenster cited in Netimperative 2020). It may be hypothesised that this increased traffic through the app has presented businesses and services with an enhanced opportunity to engage with their audience.

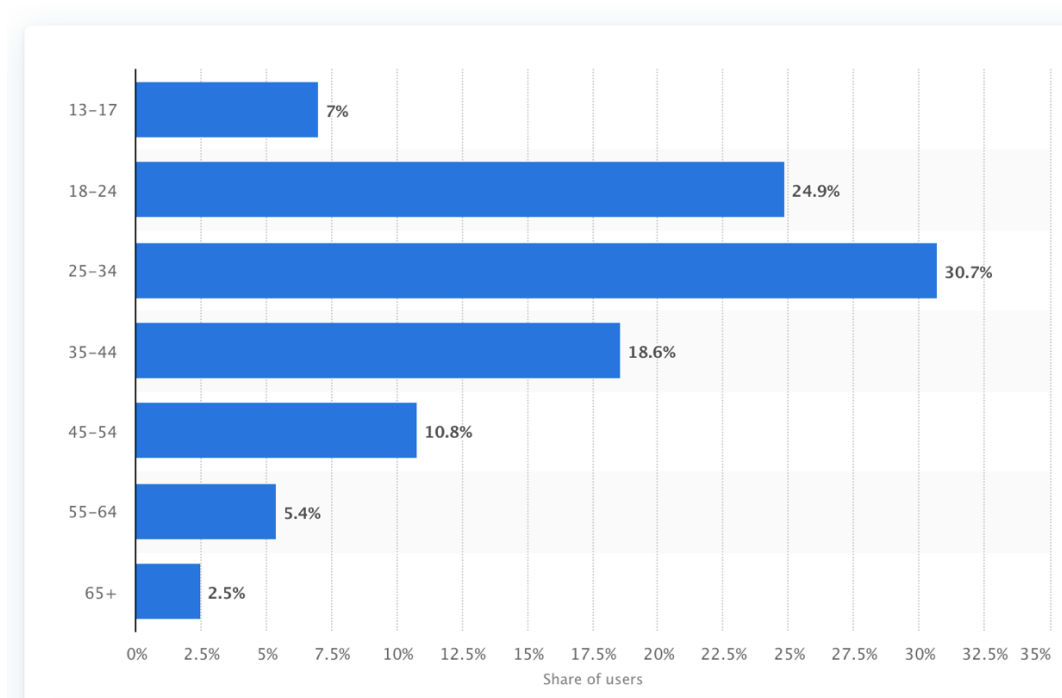


Figure 1. Share of Instagram Users in the UK (Statistica 2021)

## 2.2 Folksonomies

With the inception of Web 2.0 came an evolution in the way people used the internet; formerly passive users who simply consumed material were provided with an avenue by which they could publish content independently on the web in an easy and accessible way (Peters and Stock 2008). This evolution of passive to active users is described by Toffler (1980) as a “prosumer”; where the consumer of knowledge turns into a knowledge producer (Toffler cited in Peters and Stock 2008). The origination of prosumers, and the subsequent “collective intelligence” (Weiss 2005 p.17) paved the way for the open user annotation systems, more commonly known as “folksonomies”.

The term folksonomy was coined in 2004 by information architect and Internet developer Thomas Vander Wal, fittingly in a comment on a blog post. He described the act of tagging as the “people’s

taxonomy”, where users take ownership of categorising information or content for their own use (NY Times 2005). A myriad of terms have also been used; “grass-roots categorisation”, “community cataloguing” and “social classification” to name a few (Trant 2009). Trant provides a comprehensive definition of folksonomy and its relationship with the tagging process as follows “think of *tagging* as a process (with a focus on user choice of terminology); of *folksonomy* as the resulting collective vocabulary (with a focus on knowledge organisation); and of *social tagging* as a socio-technical context within which tagging takes place (with a focus on social computing and networks)” (Trant, 2009). On its inception the concept of folksonomies gained some critical acclaim, even featuring in the New York Times Magazine’s *Year in Ideas* in 2005 (Trant, 2006).

Some of the benefits to folksonomies have been explored in Mathes’ *Folksonomies - Cooperative Classification and Communication Through Shared Metadata*, where the author identifies two of the key strengths of a folksonomic system as serendipitous finding and desire lines. The former, he argues, lends itself well to “browsing to find interesting content” (Mathes 2004), a strength that reflects the driving force of categorisation for leisure which lies at the heart of a folksonomy. “Desire lines”, first applied to folksonomies by Merholz, describe a digital equivalent of off-the-beaten-track paths. “Ethnolocation systems can similarly ‘emerge.’ Once you have a preliminary system in place, you can use the most common tags to develop a controlled vocabulary that truly speaks the users’ language” (Merholz cited in Mathes 2004). More of the merits of folksonomies are further explored by Kroski, who cites their inclusivity, cost-effectiveness, currency and engendering of community, to name a few (2005). In the context of digital shelf life, Anderson highlights the folksonomy’s ability to sustain traffic to content over extended periods of time, creating “an entirely new economic model for the media and entertainment industries” (Anderson 2004). If all these virtues were not enough, folksonomies are even perceived as “an anti-authoritarian symbol, that embrace a multiplicity of world views” (Weinberger cited in Trant 2009 p.9).

As with all forms of knowledge organisation, folksonomies are not without their limitations. The merging of languages, for a start, presents issues in user-led classification due to trans-language synonymy and homonymy; for example, the tag “gift” would read as a present to an English user, however to a German user this would mean “poison” – a completely different sentiment altogether (Peters and Stock 2008). The lack of precision is another drawback regularly cited (Kroski 2005; Quintarelli 2005), prescribed by Quintarelli to the “function of user behaviour and the lack of synonym control in current implementations” (2005). He also criticises the absence of a hierarchy, claiming that prosumers are unlikely to craft the complex structures of tags to fully describe their content. For these reasons, along with its inability to produce the accuracy of formal classification, Peterson branded folksonomies inherently flawed, to the detriment of the user (2006).

Vander Wal, the aforementioned coiner of the folksonomy, cites two classes into which they can be identified – broad and narrow. The distinction between the two is described by Helic et al. as “broad folksonomies are structures that have been generated as a result of aggregating data from many people tagging the same resource, narrow folksonomies are structures that have been generated as a result of aggregating data from single users tagging their own resources” (2012 p.63). In layman’s terms, Vander Wal (2005) highlights the difference between the two in the tagging systems of sites *Delicious* (formerly del.icio.us) and *Flickr*. Delicious represented a collaborative tagging system, with any number of users tagging the same object with any number of tags (tag repetition permitted), whilst on Flickr the act of tagging is done by a sole user and with singular use tags.

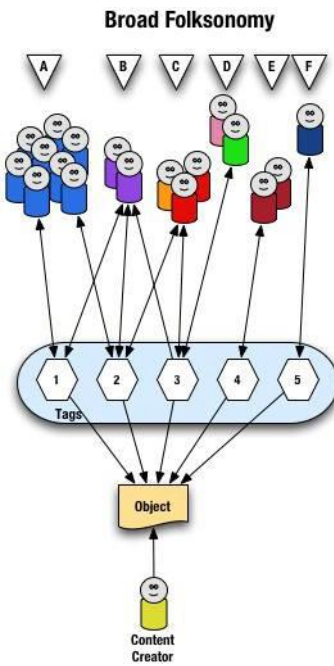


Figure 2. Broad Folksonomy (Vander Wal 2005)

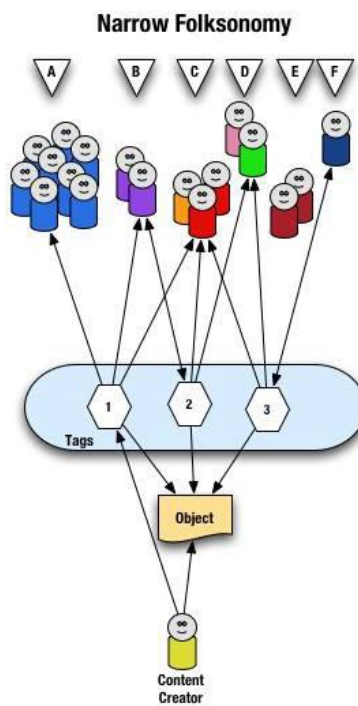


Figure 3. Narrow Folksonomy (Vander Wal 2005)

The benefit to a broad folksonomy, Vander Wal argues, is its richness in tag provision which make it possible to analyse the long tail of a tagged item. The “long tail” refers to the more niche tags applied by a small minority which still add to the classification of an item, allowing demographics of others who would use the same tags to find the item (Vander Wal 2005). Narrow folksonomies are beneficial when categorising an object that is not easily searchable such as images, but cannot depict a special distribution of tags due to the singular use nature of the tags (Peters and Stock 2008).

## 2.3 Hashtags

An invaluable tool in information retrieval, the hashtag is a “#” symbol which allows users to engage in a type of user-generated indexing, in which a term or grouping of terms is assigned to information or content and thus aides its return in online searches (Tamara 2011). Not only are these tags searchable through social media apps and websites, but they also contribute to “trending” lists which can spread a topic rapidly over the web, raising awareness and with the potential to make it instantly famous (Shahzad, et al. 2017). Xu et al. describes this as “a grass root approach to form a so-called ‘folksonomy’, which is neither hierarchical nor exclusive. With tagging, a user can enter labels in a free form to tag any object; it therefore relieves users much burden of fitting objects into a universal ontology” (2006 p.1).

As these hashtags are free, requiring only an internet connection and a suitable device (Buarki and Alkhateeb 2015), any user can benefit from their implementation – however, users aren’t the only beneficiaries. The use of hashtags also contributes to interoperability and the semantic web, by utilising metadata from users directly (Xu et al. 2006). New hashtags are constantly being created (Na and Kim 2019), and the description of these labels vary from precise tags to emotive feelings or specific events. Some more abstract hashtags don’t aim to convey the content in the image, and instead are linked to trends (Denton et al. 2015).

Buarki and Alkhateeb’s article *Use of Hashtags to Retrieve Information on The Web* (2018) provides a good example of how to collect secondary data regarding hashtags, specifically as used through Instagram and in a public library context. The study, conducted through a workshop, aimed to reveal how people use hashtags as a medium of information retrieval and dissemination, and how hashtags are used in social media tools, such as Instagram. The results of the study reported on the usability of Instagram, and how the designated hashtags were found to “strengthen social/personal relations among users” (2018 p.301) – an important factor in the manner in which hashtags can serve to rebuild communities post COVID-19.

## 2.4 Public libraries and social media engagement

While Facebook and Twitter are typically more often utilised by libraries, the use of social media by libraries in general is continually rising, and as time passes more libraries are turning to Instagram to engage their audience (Doney, Wikle and Martinez 2020). As the popularity of social media by libraries rises, as does the focus of this as a topic for research, with a wide range of applications of social media as a tool for libraries reported (Tekulve and Kelly 2013). Measuring the efficacy of this has proven difficult for researchers, however, as there are many variables from institution to institution, and patrons interact with content both passively and actively (Hastings cited in Doney, Wikle and Martinez 2020).

Though the body of research is increasing, the use of Instagram by libraries is still relatively unexplored, and research that does cover this topic often uses case study methodology (Doney, Wikle and Martinez 2020). Research that has been conducted suggests that Instagram can be an incredibly valuable tool for libraries, with Instagram listed as one of 18 “great technology initiatives” for libraries because “it creates a visual representation for events, services, and resources available” (Kroski cited in Tekulve and Kelly 2013). Anderson (2015) argues that Instagram is an app tailor-made for the kinds of content libraries create, claiming that storytelling is a concept libraries and librarians are familiar with, and this coincides with Instagram’s ability as a storytelling tool. De Sarkar’s 2017 web-based survey on photo-sharing sites as tools for libraries found that the use of these types of social media instilled a sense of familiarity to users, which in turn made online interactions livelier, alongside a strengthening of communities. The same study also provides a list of guidelines for libraries based on the findings, which highlights the importance in outlining a well-developed strategy before embarking on content creation (De Sarkar 2017).

## 2.5 Libraries and COVID-19

While our understanding of the true impact of COVID-19 is still in its infancy, one thing is for sure; the world has changed dramatically because of it (Kemp 2020). The disruption caused by the pandemic has impacted almost every aspect of our lives, and libraries are no exception. Entire communities were shut down, and the vast majority of public libraries around the world closed. The implications of these closures were significant, especially for communities for which public libraries provide invaluable services such as internet access and the provision of safe space for vulnerable users (Matthews 2020). These offerings, along with the basic connection of human services, are almost impossible to substitute without physical space. Ironically, the strain COVID-19 has placed on communities mean that these services are more needed than ever (Jones 2020).

When exploring how the removal of physical space during the pandemic could be combatted as a barrier, Smith posits that digital technologies are “a vital aspect of public libraries’ continued engagement with their communities both pre- and post- COVID 19” (2020 p.423). This corresponds with Kemp’s *Most Important Data on Digital Audience During Coronavirus* report, which demonstrated not only that digital behaviours changed dramatically as a result of coronavirus-related lockdowns, but that many people expected their new digital habits to continue after the COVID-19 pandemic passes (Kemp 2020).

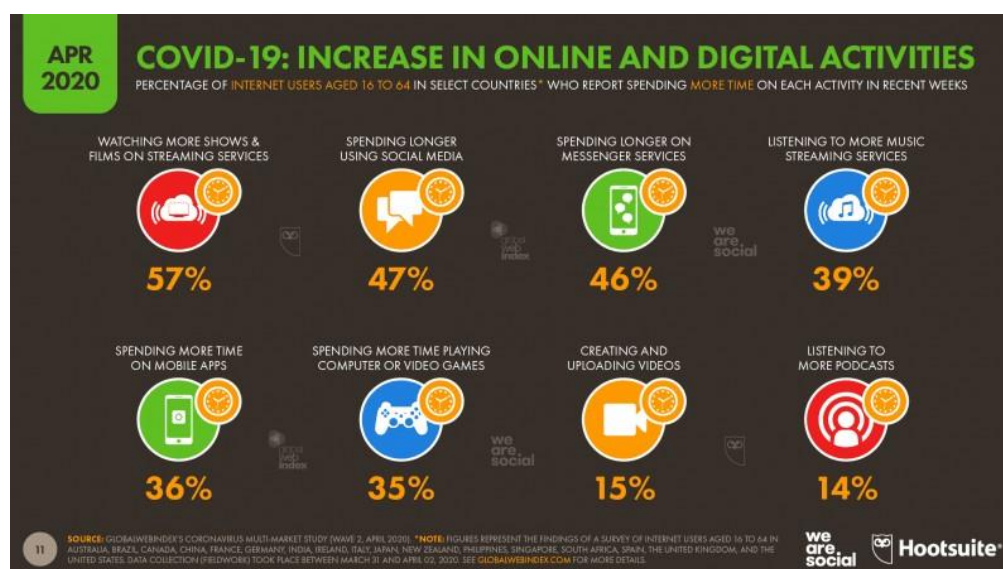


Figure 4. Increase in Online and Digital Activities (Kemp 2020)

## 2.6 Key texts

As evident from the literature explored, the research question is a multi-faceted issue that will require a continued review of resources to create a more in-depth picture of the subject. Key texts have been identified in Buarki and Alkhateeb’s *Use Of Hashtags To Retrieve Information On The Web* (2018) and De Sarkar’s *Adopting A Photo-Sharing Site As A Library Tool: A Web-Based Survey* (2017), in that both these articles provide guidelines which can be applied in the content creation phase of the research; Doney, Wikle, and Martinez’s *Likes, Comments, Views: A Content Analysis of Academic Library Instagram Posts* (2020) is also invaluable in its provision of a coding schema that may be adapted for the means of secondary data collection. Similarly, Daer, Hoffman and Goodman’s *Rhetorical Functions of Hashtag Forms Across Social Media Applications* (2015) was vital in its provision of a solid hashtag coding schema upon which provided the basis for hashtag categorisation throughout all data collection phases. The work and ideas of Thomas Vander Wal also proved instrumental in further understanding folksonomies. The use of both SAGE and Elsevier were key in finding pertinent journals such as the *Journal of Librarianship and Information Science* and *Information Technology and Libraries*.



### 3. Methodology

#### 3.1 Research philosophy

As highlighted by Doney, Wikle and Martinez (2020), in previous studies on the use of Instagram by public libraries, case studies are often applied. As the focus of this study is on the use of language, and more specifically folksonomies of online communities, the most appropriate approach has been identified as interpretivism, as this approach adopts a qualitative design with a focus on hermeneutics in the form of discourse analysis and semiotics. Walsham states that “interpretive methods of research adopt the position that our knowledge of reality is a social construction by human actors” (1995 p.376), claiming that all data gathered in research has value on the basis that interaction between the researcher and the subjects impacts their respective preconceptions. This will be applied through passive netnography, conducted through either a single or multiple case studies.

#### 3.2 Action research theory

The application of action research theory ties into the interpretivist approach to the study, which Baskerville claims is unavoidable due to the fact that “the fundamental contention of the action researcher is that complex social processes can be studied best by introducing changes into these processes and observing the effects of these changes” (Baskerville 1999 p.4). Whitehead and McNiff describe action research theory as the focus being on the practitioner; the acts of investigation, observation, description and explanation forming the core of the action research cycle (2006). Baskerville breaks down action research into two basic stages; the diagnostic stage, which involves an analysis and evaluation of the social problem, followed by the therapeutic stage, which involves the implementation of change experiments where changes are enforced and consequently studied. This reflects the intention of this research problem, in that once the data collection phase returned meaningful results in the form of effective or highly engaging hashtags, the findings were then applied in the public library case study by implementing these hashtags through the public library Instagram accounts.

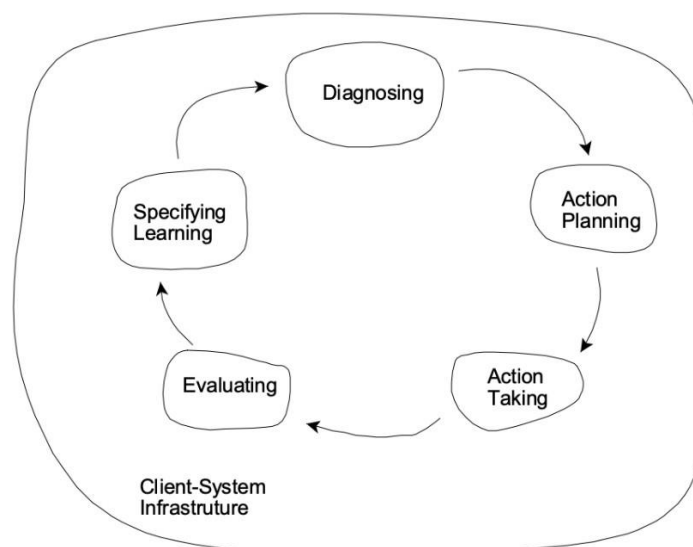


Figure 5. The action research cycle (Baskerville 1999)

Following the action research cycle (see figure 1), this research project will follow the outlined phases as an overall structure, with the diagnosing and action planning stages acting as the diagnostic phase, and the action taking, evaluating and specifying learning stages forming the therapeutic phase.

### **3.3 Library case study**

To enact the aforementioned approaches, the collaboration with a public library service/public library services is essential. A number of public library services were identified through both proximity to the researcher and recommendations from staff at RGU, and were approached once they were deemed to have active Instagram accounts. The best method of approach was deemed to be email (appendix A.1), as this medium is unobtrusive and swift to transmit (Dürscheid and Carmen, 2013), as well as a preferred method of communication among professionals. Two Scottish public library services and one Welsh public library responded with interest, and the potential of collaborating with multiple services was considered to provide a richer set of data. This was eventually narrowed down to the two Scottish services, both of which expressed similar needs in the data that would be supplied to them. Both of these services had very active pre-existing Instagram accounts, which would provide strong platforms on which to collect data.

Their Instagram accounts were to act as the subjects for case studies, where the therapeutic stage would be conducted. One of the benefits of choosing library services with pre-existing Instagram accounts was the potential to use their previous posts for the diagnostic stage and primary data collection. When interacting with library services, some of the principals of case study research were implemented, such as the preservation of a chain of evidence as each analytic step is conducted (Yin 1981). In the instance of this study, the chosen public library/libraries acted as the case, and the aspects of the chain of evidence included background research into the history of the library, knowledge of the population it serves, and its strategic aims. The chain of evidence will span both the diagnostic and therapeutic phases of the research, tying it into the action research theory element.

### **3.4 Passive netnography**

Netnography is an adaptation of ethnography, which applies ethnographic quantitative research practices to the communications and networking within social media (Kozinets 2020, p.19). Netnography is often referred to as enacting “thick description”, a term which was first elaborated on by Geertz in his book *Interpretation of Cultures* (1973). This “thickness” refers to the many anthropological layers of a social event or interactions, examining both the context and the experiential understanding of what goes on. This manner of description may be invaluable in the comparison of multiple case studies, taking the aforementioned instantial nature of public libraries into account.

In the context of this project, passive netnography will be applied in the qualitative data collection stage. Pollock, Lüttgens and Piller describe the objective of passive netnography as “an unobtrusive and non-influencing monitoring of the communication and interaction of community members to gain practical insights into their usage behaviour” (2014 p.2), which accurately describes the secondary data collection method of observing the interactions by users with the content created for the public library accounts, a significant part of the therapeutic stage, encompassing the data analysis phase. Other benefits of netnography include “anonymity, cocreation, rich communication, emergent data, and support groups” (Costello, McDermott and Wallace 2017 p.3). While the passive nature of netnography may appear to conflict with the interventionism of action research, in this study the two are applied harmoniously to the relevant stages, with action research encompassing the diagnostic stage of the study, and the qualitative elements of passive

netnography applied to the data analysis.

### 3.5 Methodological steps

A multi-method approach will be implemented in the study, applying both quantitative and qualitative approaches at different stages.

#### 3.5.1 The diagnostic stage

The first step in the diagnostic stage was to identify a sample of Instagram accounts which will act as the content population for the quantitative analysis element. For this purpose, ranked BuzzFeed articles such as *13 Libraries Book Lovers Need To Follow On Instagram* (Beaton 2018), which provide lists of popular library Instagram accounts, was used to identify the sample. This method of identifying a sample is recommended by Anderson who states “following the libraries that are currently using Instagram is an excellent way to observe the different ways to use the app and identify frequently used library hashtags” (2015 p.12). The majority of the 10 accounts identified for the primary data collection were found through this method, and the remaining were discovered through chaining on the Instagram app itself, taking advantage of the “similar accounts” function on the app. A mix of public libraries and academic libraries were used.

Once this sample was identified, other factors such as time period and units to be analysed were defined. In the pursuit of generating quantitative data, the categories of data types to record were determined as hashtags used, number of likes, number of comments, number of hashtags, like % (calculated as number of likes out of total follower count) and post category. These fields were chosen for their unobtrusive nature, meaning that access to the library service’s private analytics would not be required, complying with the “non-influencing monitoring” aspect of passive netnography outlined by Pollock, Lüttgens and Piller (2014). At this stage, Doney, Wikle, and Martinez’s coding schema (2020) was observed so as to provide guidance on how the coding framework should be designed. As all of the categories outlined were deemed pertinent to the research question, they were adapted into the coding schema for this research, with the addition of a “humanising (meme)” category, to specifically apply to memes either reposted by the library services or created by them. This addition was to reflect the distinction between humanising posts that express sentiment, which are popular in historical photos from archives, and humanising posts intended to incite feelings of humour or relatability.

Table 1. Post Type Coding Schema adapted from Doney, Wikle, and Martinez (2020)

Crowdsourcing	Posts that were created with the intention of generating feedback within the platform. If the content of the post itself fits within a different classification category, but the image is accompanied by text that explicitly asks for viewer feedback, then the post should be classified as crowdsourcing. Includes requests for followers to like, comment on, or tag others in a particular post.
Humanising	Posts that aim to emphasize human character or elements of warmth, humour or amusement. This includes historic/archival photos used to convey these sentiments. This code is only used if both the text and the photo or video can be categorized as humanizing because many library posts contain a “humanising” element.
Humanising (meme)	Posts that serve to specifically incite feelings of humour or relatability. Must visually fall into the meme category.
Interacting	Posts with candid photographs or videos at library and library associated events. Includes events within or outside the library.

Orienting	Posts that situate the library within its larger community, especially regarding locations, artifacts, or identities. Text often includes geographic information.
Placemaking	Posts that capture the atmosphere of the library through its physical space and attributes. Includes permanent murals, statues, etc.
Showcasing	Posts that highlight library or campus resources, services, or future events. Can include current or on-going events if people are not the focus of the image (e.g., exhibit, highlight of collection, etc.). These posts can also present information about library operations, such as hours and fundraising. Posts can also entice their audience to do something, outside of Instagram, such as visit a specific website.

Due to the time constraints of the research, it was decided that 10 posts from each of the primary services would be collected prior to the date 14/06/2021. Having a set number of posts used for data collection from each Instagram account, as well as working reverse chronologically, meant that there was no reliance on frequency or volume of posting. Each post was captured through screenshot and saved in a Padlet workbook (appendix A.2) to ensure continued access. This meant that while the video posts collected were saved as a single image rather than the entire video, and posts which contained more than one image were represented by the first image in the post, they were still categorised on the whole post as opposed to just the screenshot. The data was collected manually and collated in an excel spreadsheet, with each post assigned a unique identifier for reference, with each library service assigned a number to make them readily identifiable. This made the data easier to manipulate, with tools such as the percentage formula and *text to columns > delimited* tool, enabling the easy separation of the hashtags by setting the hashtag symbol as a delimiter. Combined with the *paste > transpose* function, this permitted the researcher to separate large blocks of hashtags into individual cells within one column.

A similar coding schema was adapted for the categorisation of the hashtags present in the samples. This was based on the Daer, Hoffman and Goodman's *Rhetorical Functions of Hashtag Forms Across Social Media Applications* (2015).

Table 2. Hashtag Type Coding Schema, adapted from Daer, Hoffman and Goodman (2015)

IDENTIFYING	Functions to express some identifying characteristic, mood, or reflective descriptor. Can be used for hashtags that claim affinity to a particular group. Examples: #LibrariesOfInstagram; #Vintage; #MastersStudent
BRANDING	Hashtags that are specific to the promotion of the library service. These are quite often inclusive of the title of the service, or an aspect of the service which is specific to that library. Examples: #BritishLibrary; #NYPLDigitalCollections; #mywplkids
DEFINITIVE	Used to add emphasis or call attention to something visually present in the post or something the post describes or refers to; usually expressed without judgment as a comment or reflection. Examples: #Print; #Engraving; #moredogcontent

GEOGRAPHICAL	Hashtags that indicate a location associated with the photo. Examples: #worcesterma; #Cambridge; #Liverpool
RALLYING	Functions to bring awareness or support to a cause or campaign. Often begins as organic, metacommunicative tag when deployed by individual users (e.g., #pitbullisnotacrime; #liftyourvoice; #standyourground; #whyshouldcareaboutsocalsecurity; #thestruggleisreal) but could morph into indexical tag via quick re-distribution within and across networks. Examples: #talesandtailssummerreading; #PrideMonth2021; #MuseumWeek2021
EMOTIVE	Expressive hashtags that associate feelings or sentiments towards the subject of the image. Examples: #LoveLiverpool; #welovelibraries; #librarylove
ITERATING	Used to express humour by referring to a well-known internet meme. Examples: #caturday; #PandemicProblems
ACTION	Functions to incite users to action. Examples: #CaptionThisMW; #Take10ToRead; #FinishThis
CRITIQUING	Used when the purpose of the post is express judgment or verdict regarding the object of discussion (a described experience, an image). Examples: #bestpicturebooks; #childrensbookrecommendations; #BeautifulAdverts

A number of new hashtag categories were added to the existing types (“emphasising”, “critiquing”, “identifying”, “iterating” and “rallying”). “Emphasising” was changed to “definitive”, due to the stative nature of its purpose. “Branding” was an essential category to add, as many of the library services sampled included service-specific branding hashtags in their posts. Location based hashtags was another frequently identified type, for which the categorisation of definitive did not seem specific enough, and so the “geographical” classification was added. “Emotive” and “action” types were also included for the purpose of this study, as while they weren’t the most commonly occurring hashtag types, the other categories once again did not seem specific enough to properly reflect the purpose in these tags.

Once the content of the sample was coded, the researcher was tasked with identifying the most relevant category for the image(s)/video(s) to be classified into. It was decided that each post would only be assigned one category, despite a large quantity of posts having evident sub-categories or an equal weighting of two. In these instances, both the text and the visuals were considered, and a judgement call was made. In this manner, the classification aspect of the data gathering was interpretive, and it was noted that the collaborative library services may not interpret the classification of their posts in the same manner that the researcher would.

### **3.5.2 The therapeutic stage**

Once each post was categorised, the data was quantified, and the results were subsequently analysed. This initial analysis was gathered to provide the relevant information that may be tailored to the strategies or campaigns of the collaborative public library service(s). It was deemed necessary to collect a small sample of primary data from the library services that would be releasing the hashtags, to determine a number of factors about their service. These include insights into their average likes, frequently used hashtags and their like-to-follower percentage. This data was gathered to ensure that the hashtags provided do not conflict with, or too closely replicate, the tags that the services ordinarily apply to their posts. It was decided that the main focus would be the number of likes accumulated, to be complemented with the number of comments. This choice was made due to the irreplicable nature of the like; a single account or user cannot like a single post more than once, but they can comment as much as they like. In this manner, likes were judged to be a more accurate quantification of the users engaged with. The content was then submitted to the service to be approved and posted, which constitutes the action research element approach to the study and complies with the narrow folksonomy method of tagging.

It was determined that the most unobtrusive way to implement the identified hashtags was to issue a list of the desired tags to the service, detailing which tags were to be used depending on the category of the post. This is beneficial to the library services in that they would be able to continue their normal posting habits, creating content that is in keeping with their usual themes and strategies. For the researcher to create entire posts, both the visual and text elements, without being local to the services themselves, may have resulted in jarring and disingenuous content that may have impacted the engagement generated. This method also benefitted both parties, in that it put little demand on repeated communication between the two, giving the researcher the opportunity to fulfil their observational role.

Finally, once all the content was posted, and data regarding engagement levels with the posts had been collected, passive netnography was to be used to observe the impact of the content and constitute the qualitative element of data analysis. If meaningful results are revealed, this could lead to a list of recommendations or guidelines for public libraries to follow when creating content for Instagram.

### **3.6 Study limitations**

Potential limitations were identified in the preliminary stage. One of the major factors is the reliance the project has on the participation of a public library/public libraries. This reliance involves a continued level of communication and support from these organisations. The impact of this was evidenced when contact was lost with one of the two Scottish library services. While the study was still able to continue with the collaboration of just one service, this did weaken the study somewhat by removing the compare/contrast element of the two different services that was planned for the secondary data.

Limitations surrounding the use of Instagram and the social media platform include access to, and permissions for, data. Some data may be blocked through profiles set to the "private" setting, making it inaccessible. Even content that is accessible may require permissions for use as secondary data, which some libraries may not want to provide. The data that was gathered from Instagram will be limited to English language content, which means the results of the research may not be indicative of wider cultural uses of the app. Once the data has been collected, GDPR compliance is also an important consideration.

Another aspect of the study to consider is the length and depth of the data collection. In comparison to some more comprehensive studies, the 100 posts sampled for the primary data collection is a small pool and may not accurately represent the wider community of library Instagram accounts.

The time constraints also factor into this – the aforementioned digital shelf-life or aspect of persistence (Anderson 2015; Boyd 2006) associated with social media content means that an Instagram post has the potential to accumulate likes over an extended period of time. On this level, recording the likes within the fortnight after the content has been posted may not be a true reflection of the “final” level of engagement that a post can achieve. Instagram has several settings which impact the study; for example, the option to delete a like or comment which, while unlikely to make a significant or sustained impact on the data gathered, is another consideration. Also on video content posted, the number of likes is substituted with the number of views for any users viewing the content other than the author. This makes it impossible for those observing the video content to know the amount of likes without enquiring with the author, breaking the fundamental unobtrusiveness associated with passive netnography. For the purpose of the study, it was decided to simply quantify a view as if it were a like – this is problematic, of course, because users can watch whole videos whilst scrolling without harbouring any positive feelings towards the content. The decision to quantify views as likes was ultimately made because excluding video content from the study would be misrepresentative of the library service’s content, and regardless of the motivation governing a user to watch a video, a view still counts as engagement.

### **3.7 Ethical considerations**

#### **3.7.1 Collaborating with libraries**

In the interest of keeping the libraries’ best interests central to the manner in which the project is conducted, a social media terms of agreement was drafted and presented to the collaborating service (see appendix A.3). This provided these services with a clear list of deliverables and scope of work, along with the opportunity to dispute any of the terms included. The terms of agreement made evident that, while hashtags would be submitted to be applied to a maximum of one post per day, it was at the discretion of the service as to whether or not these would be applied. It also, if they should wish, offered the option to withdraw from the project at any point, and that they also have the option of anonymisation if the manner that they will be represented is a concern.

#### **3.7.2 Use of secondary data**

For quantitative and anonymised data, permissions will not be needed, however when including visual or actual content from an Instagram account, then it is good practice to request permission. ICC/ESOMAR International Code on Market, Opinion and Social Research and Data Analytics gives a section on using secondary data, which specifies that researchers must use secondary data in a manner which will not result in harm to data subjects implement measures to guard against such harm (International Chamber of Commerce 2016). This is a valuable resource when considering ethical issues surrounding the data collection element. These guidelines were revisited by the researcher alongside the General Data Protection Regulation rules (Proton Technologies AG 2021) during the diagnostic stage of research.

## 4. Results and discussion

### 4.1 Primary data collection

This section of the report serves to outline the primary data collected from both the diagnostic library services and the primary Orkney data set, with a further discussion on how these results formed the subsequent strategy implemented in the therapeutic data collection phase.

#### 4.1.1 Diagnostic library services

Of the ten services selected the most common category of service was university libraries which accounted for 40%, followed by both singular public libraries and public library systems which both accounted for 20% each, with one national library and one museum library system. At the time of data collection, the range of Instagram followers for these accounts varied from a maximum of 479,000 to the minimum of 5,853 with an average of 101,540 followers.

Table 3. Diagnostic Instagram Profiles

Service	Type of Library Service	Instagram Followers
British Library (@britishlibrary)	National Library	~363,000
New York Public Library (@nypl)	Public Library System	~479,000
Worcester Public Library (@worcesterpubliclibrary)	Public Library	8,392
Provo Library (@provolibrary)	Public Library	6,321
Manchester Libraries (@manclib_archives)	Public Library System	5,853
John Rylands Library (@thejohnrylands)	University Library	~14,000
Smithsonian Libraries Archives (@silibraries)	Museum Library System	~69,100
Cambridge University Library (@cambridgeuniversitylibrary)	University Library	~20,700
Uni of Liverpool Library (@livunilibrary)	University Library	6,474
Bodleian Libraries (@bodleianlibs)	University Library	~48,100



Of the 100 posts, a total of 794 hashtags were applied, the highest recorded on a single post at 24, with 9 posts choosing to attach no hashtags at all. The total number of likes accumulated came to 75,749, of which the highest found on a post was 13,691, the lowest of which gained only 13. The highest like-to-follower percentage recorded in the data was 11.8%. The total number of comments weighed in at considerably less than the likes, with a total of 352 comments made throughout the posts sampled. Of these, 58 comments were the highest volume of comments to be found on a post, with 35 of the posts sampled accumulating no comments whatsoever. The most frequently occurring category of post was showcasing (37 counts), closely followed by humanising (34), with crowdsourcing and interacting accounting for only 5 posts combined.

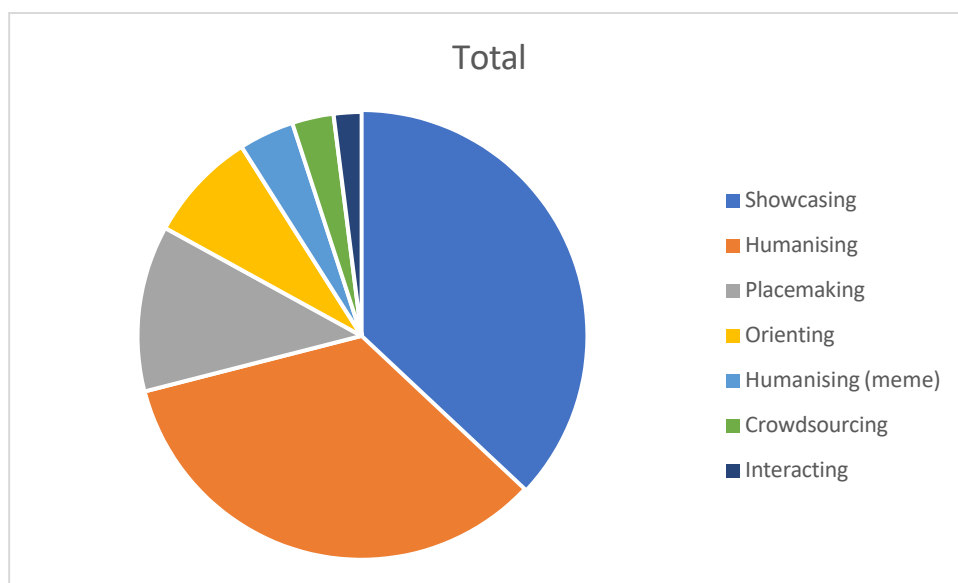


Figure 6. Distribution of post categories in primary data

The popularity of showcasing as a post category may reflect that the primary social media strategy of the selected libraries is the promotion of services, combined with a large proportion of humanising posts to endear the users to the services.

#### 4.1.2 Diagnostic data by post category

For the purpose of gaining a deeper understanding of the categories within the primary data, this section of the report will detail the insights gained by the analysis of data in each post category.

##### Showcasing

As to be expected of the most frequently occurring post category, the showcasing posts amassed the highest total number of likes (33,794) and hashtags (304), however did not accumulate the most comments altogether – humanising ended with 157 total comments, while showcasing totalled 120. The average number of likes per post in the showcasing category was 913, with an average of 3 comments and 8 hashtags per post. The highest like-to-follower percentage in this category was post 10A, at 11.8%, but this may not be considered a true reflection as this content was video based therefore the views were translated into likes.



Figure 7. Post 10A, Bodleian Libraries Instagram Video

Of the 303 hashtags used within this category, identifying accounted for most of these, leading considerably with 185 counts. This was followed by branding type hashtags (44 counts) and definitive (33 counts), with rallying (16 counts) and geographical (15 counts) of a fairly even weighting, then negligible amounts of emotive (8 counts) and critiquing (2 counts) present (see fig. 7). There were no iterating or action type hashtags observed within this post category.

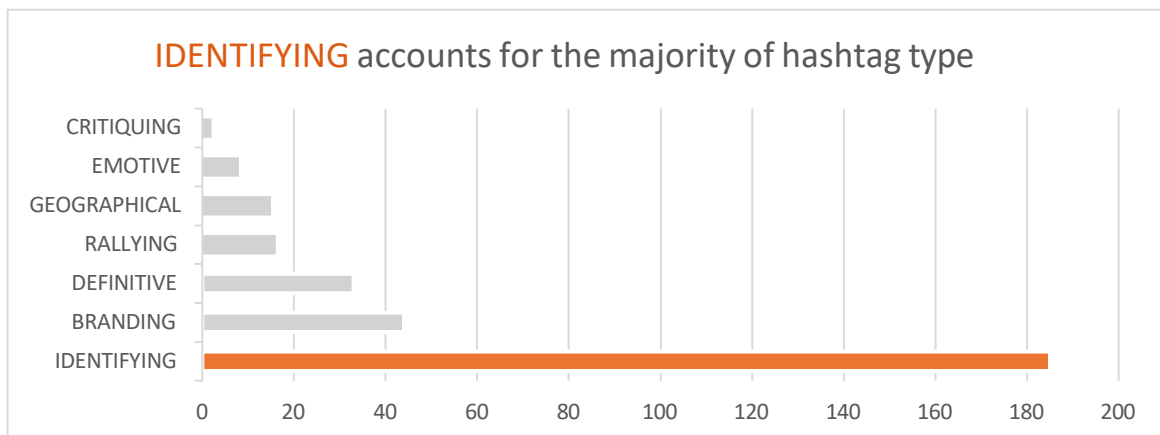


Figure 8. Showcasing hashtag type distribution

Of the hashtags used, the five most frequently recurring were #Library (9 counts), #librariesofinstagram (8 counts), #BritishLibrary (5 counts), #worcesterma (4 counts) and #worcesterpubliclibrary (4 counts). This concurs with the showcasing category's overall hashtag type distribution.

### Humanising

Accounting for just over a third of all the posts, the humanising category gained the highest number of overall comments at 157, alongside 18,393 likes. A total of 208 hashtags were distributed over the 34 posts, with an average of 6 hashtags per post. The average number of likes per post was 541, with the highest like-to-follower percentage at 6.8% on post 9E (see fig. 9).



Figure 9. Post 9E, University of Liverpool Library

Of the 208 hashtags applied to the posts within this category, identifying and definitive types were found to be the most frequently used, with a deficit of 78 (identifying) to 60 (definitive). This was followed by branding (36 counts), and rallying and geographical types again nearly tied at just one hashtag difference. Critiquing and emotive types were infrequent but present, and unlike showcasing, iterating was present with a single hashtag used. Action type hashtags were unused in this category.

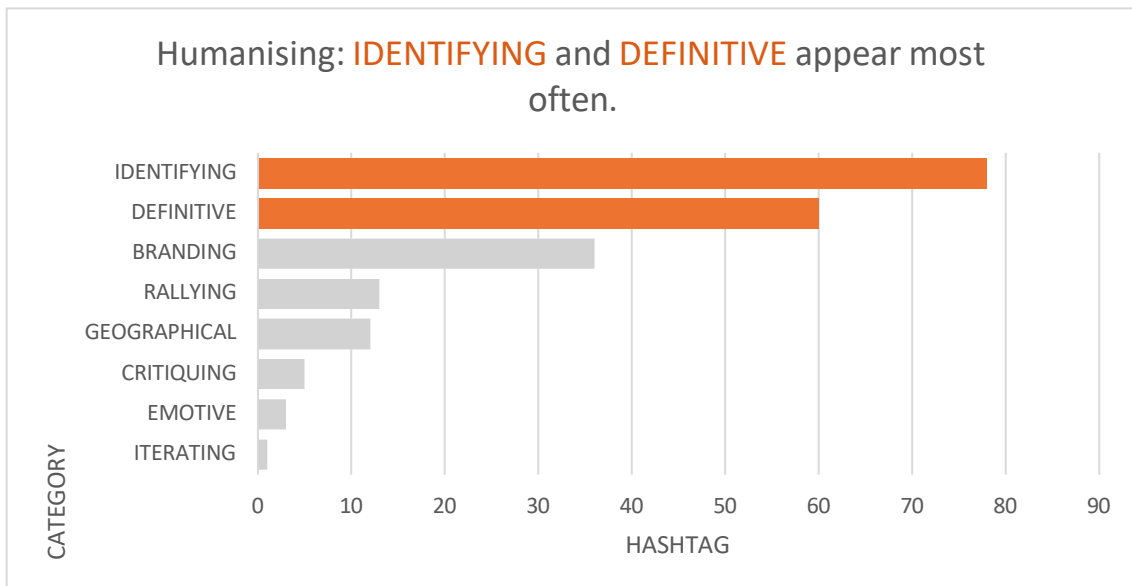


Figure 10. Humanising hashtag type distribution

There was a wide use of recurring hashtags within this category, with #manchester and #LibrariesofInstagram occurring 6 times, #NYPLDigitalCollections and #NaturalHistory both occurring 5 times, and #RareBooks, #blackandwhitephotography, #SciArt and #Library all applied on 4 different occasions.

Humanising (meme)

The humanising (meme) category accounted for 4 out of the total 100 posts gathered for the primary data, gaining a total of 918 likes overall and averaging 230 likes per post. The highest like-

to-follower percentage within the 4 posts identified was 4.2% (post 4I see fig. 11), considerably less than the previous two categories. There were 11 comments in total, with an average of 3 comments per post.

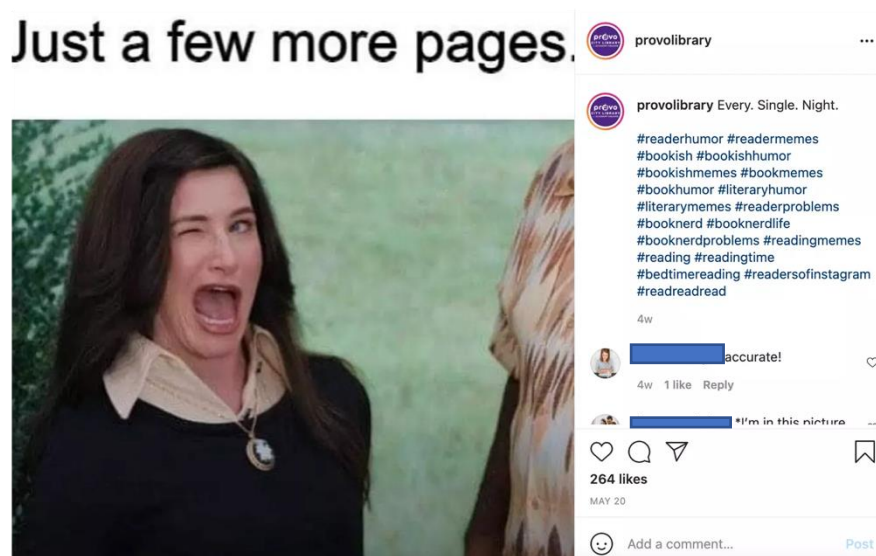


Figure 11. Post 4I, Provo Library

63 hashtags were distributed throughout this category, the majority of which were of the identifying category (40 counts), followed by definitive (16 counts) and branding (4 counts). There were negligible accounts of geographical (2 counts) and iterating (1 count), with an absence of rallying, emotive, action and critiquing type hashtags.

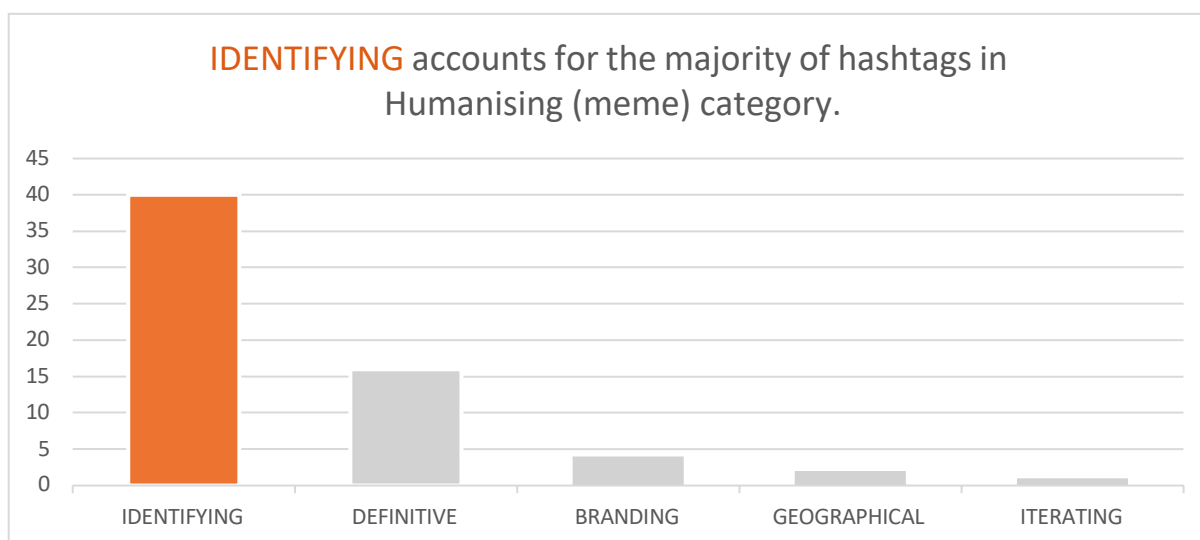


Figure 12. Humanising (meme) hashtag type distribution

The most frequently recurring hashtag used within this category was #bookhumor with a total of 3 uses; all other hashtags were used either twice or once.

## Placemaking

Placemaking posts accounted for 12 of the 100 posts sampled. These 12 posts had a total of 5,003 likes with an average of 417 likes per post. The highest like-to-follower percentage on a single post in this category was 4.1% on post 9B (see fig. 13), a similar figure to the humanising (meme) category. There were 111 hashtags applied to this content, with an average of 9 hashtags per post. 31 comments were observed, with an average of 3 comments per post and 7 of these posts garnering no comments at all.



Figure 13. Post 9B, University of Liverpool Library

Of the 111 hashtags applied, identifying was once again the most frequently used type, accounting for 58 of the hashtags used. Like the showcasing category, this was followed by branding type hashtags (34 counts). This is followed by definitive (8 counts), and then similar uses of geographical (4 counts), rallying and emotive (both 3 counts). Critiquing is present on a singular occasion, and iterating and action type hashtags were unused.

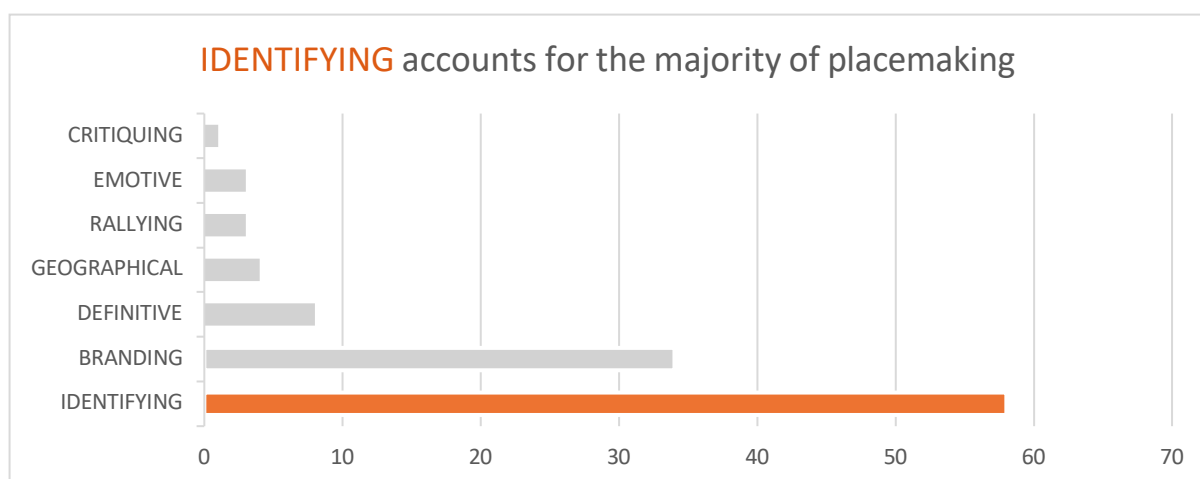


Figure 14. Placemaking hashtag type distribution

Within the placemaking category, the most frequently used hashtag was #LibraryLife (5 counts), followed by #CambridgeUniversity and #Library, both used 4 times.

## Orienting

While only 8 of the total 100 post were classed as orienting, this category amassed an impressive 10,627 likes, with an average of 1,328 likes per post. The highest like-to-follower percentage within this category was 5.3% on post 9J.



Figure 15. Post 9J, University of Liverpool Library

17 comments were identified in this category, with an average of 2 per post and 3 posts eliciting 0 comments. The total number of hashtag applied within this post type was 77, with an average of 10 per post. Of the 77 hashtags recorded, identifying type hashtags were once again accounted for the majority of these (47 counts), with branding the second most commonly occurring (15 counts) followed by definitive (6 counts). This was then followed by 3 accounts of both rallying and geographical hashtags, and a single occurrence of action, emotive and critiquing types. This leave iterating as the only hashtag type to remain unused for this category.

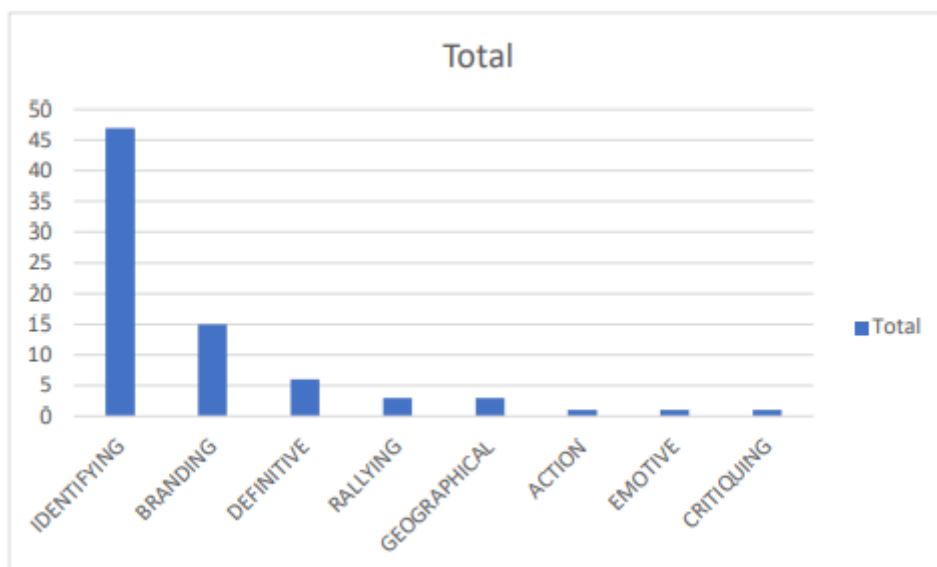


Figure 16. Orienting hashtag type distribution

The most commonly recurring hashtag used within this post category was #Library (3 counts).

## Crowdsourcing

Of the data collected, there were only 3 posts that fell into the crowdsourcing category. Within these posts, there were 29 different hashtags applied, with an average of 10 hashtags per post. This

category gained 6,677 likes in total, with an average of 2,226 likes per post. The highest like-to-follower percentage within this category was just 1.1%, on post 2D, however as before, this content was presented in video format, so may not provide a fair representation of how well liked this content truly was. The posts within this category gleaned a total of 16 comments, averaging at 5 comments per post, with one post having no comments at the time of data collection.

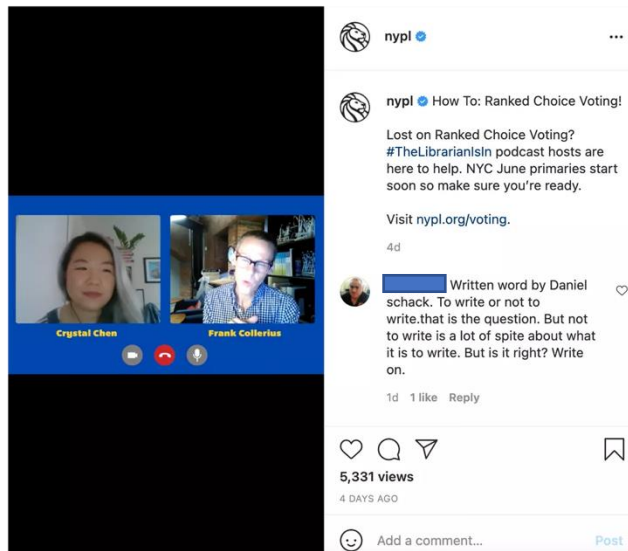


Figure 17. Post 2D, New York Public Libraries

The smaller pool of hashtags within this category meant that the hashtag type classes were much closer in number than in previous examples. Whilst identifying was the most commonly occurring hashtag type (10 counts), this was only by a difference of one hashtag, with branding in a close second (9 counts). Rallying (4 counts), definitive (3 counts), geographic (2 counts) and action types (1 count) all decline by 1. This leaves emotive, iterating and critiquing unrepresented in this category.

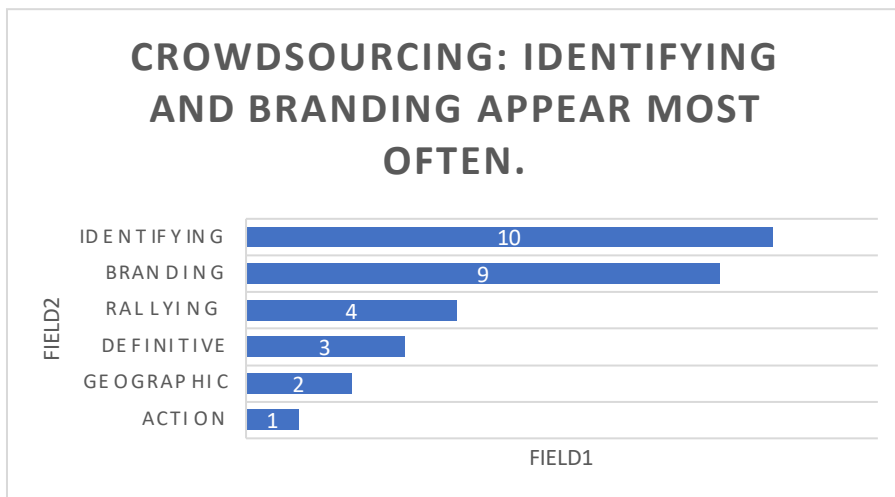


Figure 17. Crowdsourcing hashtag type distribution

Each hashtag used was unique within this category, with no hashtags applied on multiple occasions.

### Interacting

With only 2 posts and a total of 3 hashtags applied, the interacting category does not provide a rich data group. The total of likes came to 337, with an average of 169 per post; significantly the lowest out of all categories recorded. The highest like-to-follower percentage for this type of post was 1.9%, recorded from post 5B. There were also no recorded comments on either post.



Figure 18. Post 5B, Manchester Libraries and Archives

Of the 3 hashtags used, only 2 hashtag types were represented: rallying (2 counts) and identifying (1 count). This is the only category in which identifying is not the most frequently recorded hashtag type.

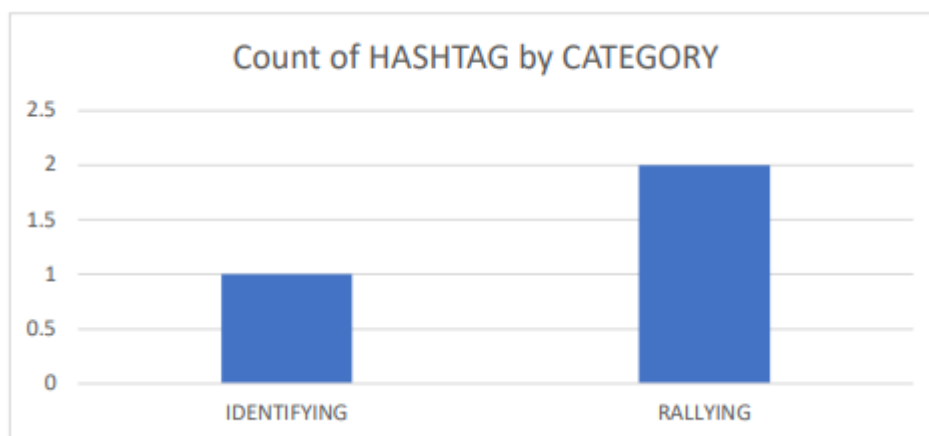


Figure 19. Interacting hashtag type distribution

Like the crowdsourcing category, there were no accounts of hashtag repetition within this type of post.



### 4.1.3 Diagnostic library data discussion

Table 4. Diagnostic phase data

Post Category	Total Likes	Like Average	Highest like %	Total Comments	Average Comments	Total Hashtags	Average Hashtags
Crowdsourcing	6677	2226	1.10%	16	5.33	29	9.66
Orienting	10627	1328.37	5.30%	17	2.125	77	9.625
Showcasing	33794	913	11.80%	120	3.24	303	8.18
Humanising	18393	540.97	6.80%	157	4.617	208	6.117
Placemaking	5003	416.91	4.10%	31	2.58	111	9.25
Humanising (meme)	918	229.5	4.20%	11	2.75	63	15.75
Interacting	337	169	1.90%	0	0	3	1.5

The data gathered from the Instagram accounts of the library services provided some interesting insights. As touched on previously, it should be emphasised that the decision to class views as likes impacted the results in a number of ways; for example, as per table 4, crowdsourcing is listed as having the highest average likes per post. This is not a true reflection of the likes amassed on all crowdsourcing content, as this category only contains 3 posts, meaning that the presence of one video – posted by a service with one of the highest follower counts – skewed the data for that category considerably. A total 3 out of the 7 post categories had video posts with the highest like-to-follower percentage out of all their content, which demonstrates perhaps how unequal likes and views really are.

While the focus of the study was primarily on how many likes each post acquired, the analysis of the quantity of comments was also valuable. Unlike likes, comments take more time and effort for the user to construct and then post, which may convey a higher dedication in the user than a simple like. While the showcasing category may have gained the most total likes, humanising provoked the most comments from users. Without hermeneutically analysing the content of each comment, we cannot know whether every comment was positive or negative in nature; however, both negative and positive comments constitute as engagement. Of the data collected, the humanising category received the most comments, despite having fewer posts than showcasing. This could potentially be due to the relatability factor associated with the humanising category, intended to reach users on a more personable level.

In terms of the hashtag categories used, the identifying type constituted for the most used in every post category aside from interacting. This is evidenced in the top recurring hashtags identified (see table 5), with the top 3 (#Library, #LibrariesOfInstagram and #LibraryLife) all falling into the identifying category. These appear to be a part of a set of hashtags that some services apply to all posts as a standard; a valuable strategy which could be applied when aiming to improve engagement.

Table 5. Top recurring hashtags

Hashtag	Count
Library	24
LibrariesOfInstagram	21
LibraryLife	17
worcesterma	10
BritishLibrary	10
LivUniStudents	9
TeamLivUni	9
mywpl	9
UniversityOfLiverpool	9
CambridgeUniversity	9
CambridgeUniversityLibrary	9
LivUni	9
LivOriginal	9

Similarly, branding type hashtags are commonly applied multiple times by a range of services. While this seems to be an especially popular tactic by the academic library services, it's also applied by public libraries and a national library, reflecting the value in this hashtag strategy to any type of library service seeking to raise engagement.

The average number of hashtags per post is also an important observation. Ranging from the lowest (interacting) with an average of 1.5 hashtags per post, to the highest (humanising (meme)) with an average of 15.75, there was an overall average of 8.58. Those categories with the highest average likes (crowdsourcing and orienting) both had an average hashtag number of 9.6 per post, indicating that this number of hashtags could be applied within the secondary data collection phase as a successful way to drive engagement.

Viewing the language used in the top recurring hashtags from a hermeneutic perspective, most of the tags contain terms directly related to either libraries as a whole or branding for their own service. Alongside these, some other concepts have been introduced; the presence of "life" within #LibraryLife creates a personal perspective and centres the library using community in the focus of the hashtag. #TeamLivUni, while technically a branding type hashtag, creates a similar feeling of group identification with the use of the word "team", indicating that creating a sense of unity within the tags is a valid strategy. The "original" within #LivOriginal could be in reference to two things; the originality of the content posted, in which the service is claiming creative ownership of the content, or the original nature of the service, and the users it appeals to, itself. If it's the latter, once again this language deeply roots the tag in the concept of group identity, a key notion in creating hashtags for the therapeutic data collection stage.

#### 4.1.4 Diagnostic Orkney data collection

With its inception in 1683 as the "Publeck Liberarie of Kirkwall" (Orkney Archive 2022), Orkney Library and Archive boasts the title of the oldest public library in Scotland. The library consists of 2 branches, located in Kirkwall and Stromness, and a popular mobile library named "Booky McBookface". The service gained publicity during a tongue-in-cheek Twitter feud with Shetland Library in 2016 fuelled by author J. K. Rowling (Molloy 2016) and has a following of 78.6 thousand on that platform. Their Instagram platform has a following of 4,500.

To ensure that the content provided to Orkney Library for the therapeutic stage did not conflict or overlap with their current social media strategy, a small data sample of was collected from their Instagram account. The data consisted of 20 posts posted prior to 11<sup>th</sup> June 2021, and the same data categories that were recorded for the diagnostic library services were collected.

Over the 20 posts, a total of 237 hashtags were applied, with an average of 11.85 hashtags per post. The posts gained a total of 5,720 likes, with an average of 286 likes per post. The highest like-to-follower percentage recorded was 27.4% (post O18), which consisted of video content. This post also gained a relatively high number of comments (7), which was the second highest after post O4 with 10 comments. Only 3 of the posts remained un-commented on, with a total of 60 comments on all 20 posts and an average of 3 comments per post.

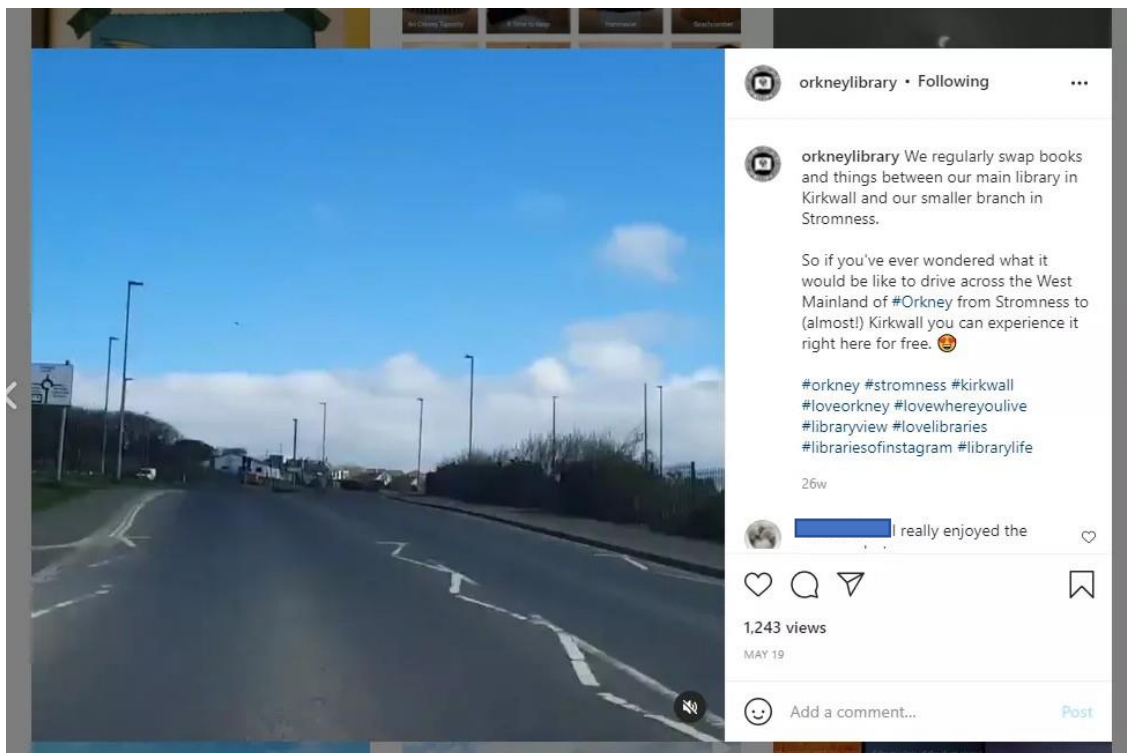


Figure 20. Post O18, Orkney Library and Archives

Only 3 of the total 7 post categories were used in the data collected, the most common of which was showcasing with a total of 11 posts, followed by orienting with 6, and humanising with 3. This suggests that while promoting aspects of their service is of the highest strategic priority, the local geographical element of orienting posts is a key part of the service's online identity. The usage of humanising type posts indicates the efforts by the service to endear the users through humour or sentiment (see post O4).

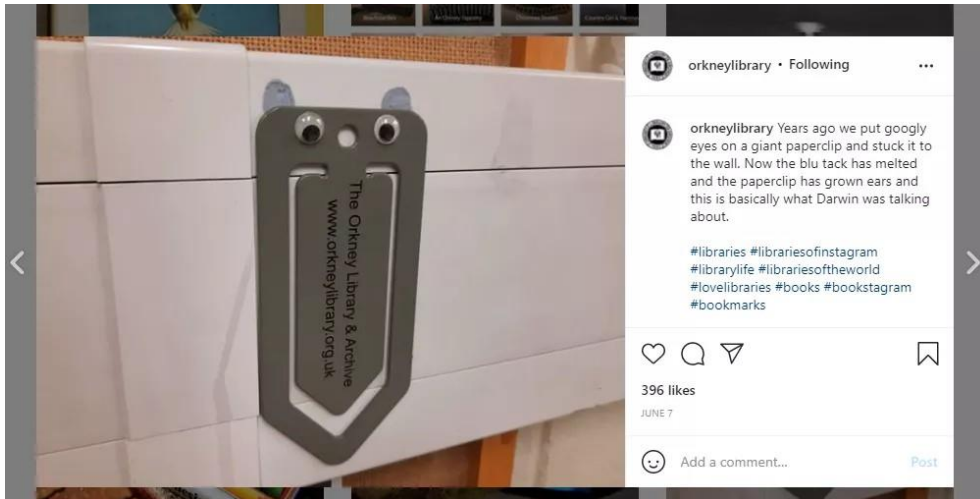


Figure 21. A humour-driven humanising post from Orkney (post O4)

Of the total hashtags used, the majority were identifying types (112 counts, 47%) followed by emotive (36 counts, 15%), definitive (34 counts, 14%) and geographical (33 counts, 14%). Appearances were made by critiquing (10 counts, 4%) and rallying type hashtags (8 counts, 3%), with branding hashtags occurring the least frequently (3 counts, 1%). There were no uses of either action or iterating type hashtags.

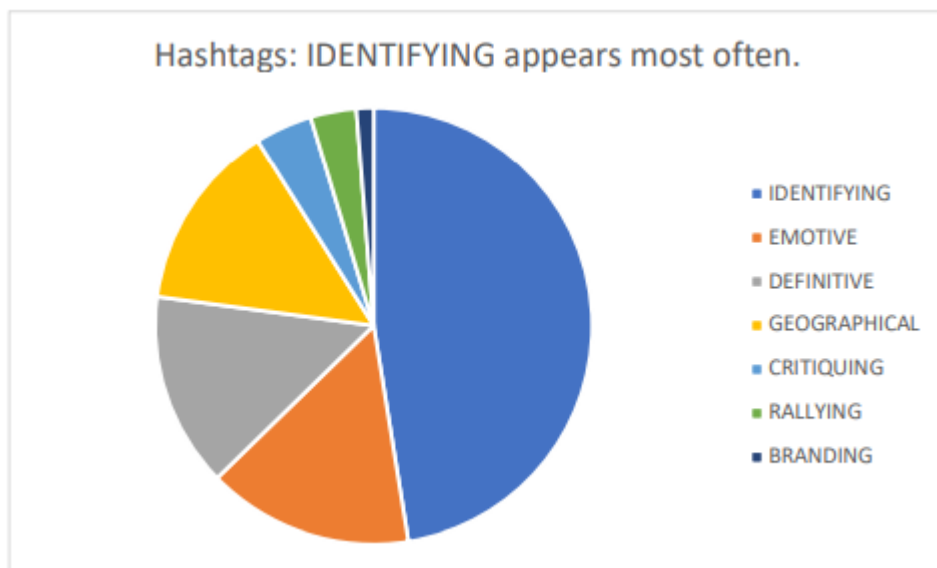


Figure 22. Hashtag distribution for diagnostic Orkney dataset

Within the hashtags used, there were a number of repeated tags, the most frequently applied of these being #lovelibraries, which occurred on 17 of the 20 posts. #Orkney/#orkney was also popular and was used on a total of 16 of the 20 posts. As each hashtag was classified under one singular type, this tag was classified as geographical; however it also serves in most contexts as a branding type tag as well. #librarylife and #librariesofinstagram were also frequently repeated, mirroring the results of the primary data collection.

Table 6. Most frequently recurring hashtags

Row Labels	Count of Field1
lovelibraries	12
Orkney	11
librarylife	9
librariesofinstagram	9
bookstagram	7
librariesmatter	5
lovelibraries	5
books	5
orkney	5
libraryview	5

The usage of hashtags #bookstagram and #books emphasise Orkney Library’s strategic focus on the content of their libraries. While only 3 of the total 20 posts promote specific reading materials, another 5 of the 20 serve to disseminate information about the mobile library service, “Booky McBookface”. Posts centred around this service tend to be very successful in engaging users, with the comments totalling at 18, and a total of 2,655 likes. #libraryview is also a key tag for Orkney, with the landscape surrounding the library frequently being used as the visual content for the Instagram page. This use of local beauty spots for images reiterates familiarity and endearment for Instagram users native to Orkney, and as a point of interest for followers situated outside of Orkney. Overall, this repetition of certain tags indicate that Orkney, like many of the library services that contributed to the initial dataset, have set hashtags that they apply habitually to their posts, adding more relevant tags depending on the post category.



Figure 23. Post O3 – Booky McBookface

## 4.2 Secondary data collection

Once both diagnostic datasets were collected and analysed, a comparison was made between the findings in both to assess which hashtags could be issued to Orkney Library to add to their content. It was decided that, due to the popularity in application of standard sets of hashtags to every post (evident in both the diagnostic library services’ dataset and data gathered from Orkney Library’s Instagram account), generic tags intended for every post would be supplied alongside specific tags for each post category. While this involved relying on the understanding of the coding schema by those responsible for posting, it was deemed advantageous in returning more specific results. For

this reason, the contact at Orkney was supplied with the coding schema and the hashtags to be applied in advance, so that time was allowed to gain an understanding of the different categories.

#### 4.2.1 Therapeutic hashtags

The tags that were supplied to Orkney Library were a mix of both specific tags and guidance on hashtag types which could be applied. This is because without knowing the specifics of the content being posted, to provide exact tags for every post would not only be difficult to design, but may come across as disingenuous to the user and conflict with the existing standard to which Orkney Library write their captions. The hashtags were provided as follows.

##### #’s to be applied to every post:

- # Library
- # LibrariesOfInstagram
- # LibraryLife (these top 3 #’s ranked as the most frequently used in the data collected)
- # TeamOrkney (based on the popularity of “#TeamLivUni” ranking highly)
- # MyOrkney (there were 7 accounts of #’s which contained “my”)

##### Crowdsourcing posts:

Crowdsourcing was one of the fewer used categories (3/100 posts) within the primary dataset, however used a wide range of hashtags.

Action type hashtags that encourage the user to enact on it in some way, e.g., #CaptionThis, were to be applied to this post if possible.

##### Humanising posts:

The top hashtag types used in the humanising category include geographical, identifying, rallying and definitive tags.

Rallying type hashtags can be difficult to generate without knowing the cause they are promoting (e.g., #PrideMonth, #ElmerDay). Any appropriate rallying type tags that are relevant to the content were to be attached.

Geographical type tags were to be applied depending on the area associated with the post (e.g., #Orkney or #scapaflow).

A definitive tag should also be applied to reflect the image used, e.g., #knittedhats or #childrensbooks.

The identifying type hashtags were to be accounted for in the standard tags that are applied to every post.

##### Humanising (meme) posts:

The humanising post category has been split into two, with a specific category for memes. The hashtag types for meme posts in the data set are heavily weighted in the identifying class, which reflects the intent for the meme to come across as relatable. In most cases, memes are used to convey humour, so tags #BookHumour and #ReaderHumour can be applied. In the event that the meme being posted isn’t relevant to either of those tags, alternative hashtags were to be created with a relevant noun followed by ‘Humour’, e.g., #CatHumour.

##### Showcasing posts:

The most commonly occurring tags in the showcasing category was identifying, branding and geographical. The identifying and branding tags are covered in the standard hashtags to be applied to every post, so alongside these relevant geographical tags were to be applied (e.g., #Orkney, #scapaflow).

##### Orienting posts:

The most commonly occurring type of hashtags for orienting posts were a mix of identifying,

branding and emotive. As identifying and branding tags are covered in the standard set, the emotive category was to be accounted for by the use of #LoveOrkney (or similar, e.g., #LoveScotland or #LoveBooks).

#### Placemaking posts:

Aside from identifying, branding type hashtags accounted for the majority of the most used tags. For this reason, the standard set was to be used alongside #OrkneyLibrary, to reflect the physical space of the library.

#### Interacting posts:

Interacting only accounted for 2 posts of the 100 sampled, so limited data was gathered for this category. Of the 3 hashtags used, 2 of these were rallying type and one was identifying. When posting an interacting photo or video, a rallying-type tag was to be used, alongside the standard set, relevant to the cause it's promoting, e.g., #ElmerDay or #PrideMonth.

### 4.2.2 Therapeutic data collection results

Over the course of the 14 days allocated for data collection, Orkney Library posted 15 images and 0 videos over 12 separate posts to their Instagram account. At the time of data collection, the account had 4,598 followers. Over the 12 posts, a total of 138 hashtags were applied, with an average of 11.5 tags per post, and the highest total hashtags applied to a single post was 14 (post T10). Of the 139 tags applied, identifying was the most frequently used category (63 counts), followed by branding (26 counts), definitive (24 counts) and emotive (12 counts). There were equal instances of rallying and geographical type tags (5 counts each), and iterating (2 counts) and critiquing (1 count) both made appearances, leaving action type hashtags as the only excluded category.

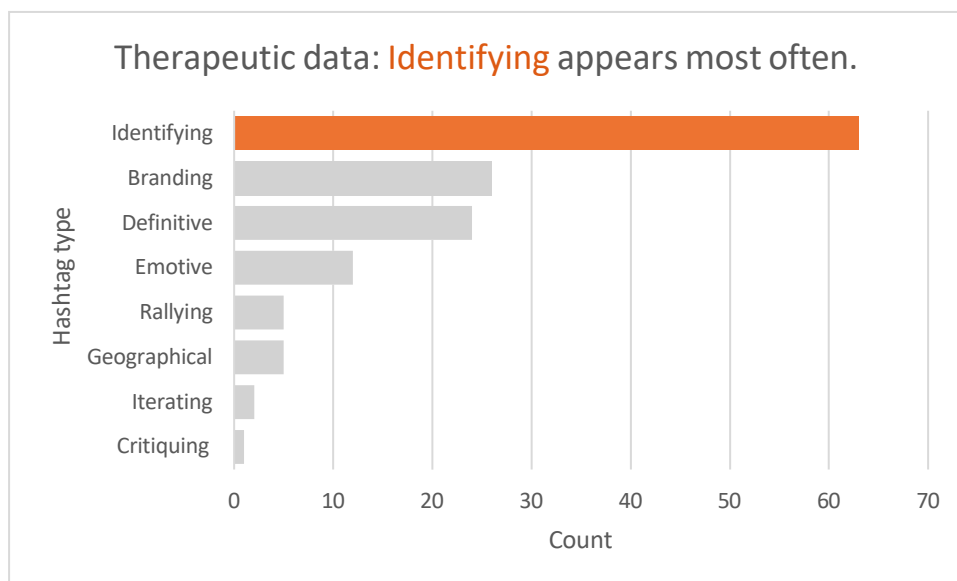


Figure 24. Hashtag type distribution for therapeutic dataset

The total likes accumulated over the 12 posts came to 2,476, averaging at 206.3 likes per post and a peak of 492 likes on a single post (T05). The fewest likes on a post were recorded on post T10 with 104 likes. The highest like-to-follower percentage recorded within the data was 10.7% (post T05), and the lowest was 2.3% (post T10). The total comments made came in at 64, with an average of 5.3 comments per post; the highest on a single post was 16 and the lowest of which was 1, meaning all posts gained comment-based engagement on some level. Showcasing and humanising (meme) type posts were tied as the most frequently occurring (4 counts each), followed by orienting (2 posts), with instances of humanising and placemaking posts (1 count each). The frequency of humanising (meme) type posts may reflect efforts by the service to engage users through humour

and relatability, with an absence of any crowdsourcing or interacting type posts.

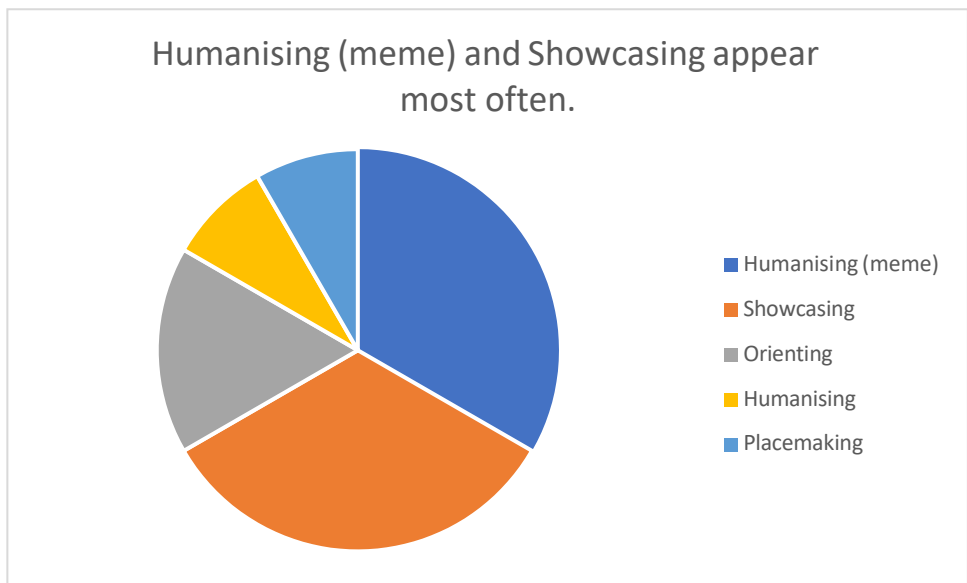


Figure 25. Post category distribution for therapeutic dataset

For the purpose of analysing the data collected in the therapeutic stage of the study, the results will be broken down by individual post in this section. Posts will be referred to by their unique identifier assigned to them for the purpose of organising the results on the Padlet page and within the excel documents and will be discussed in chronological order.

### Post T01

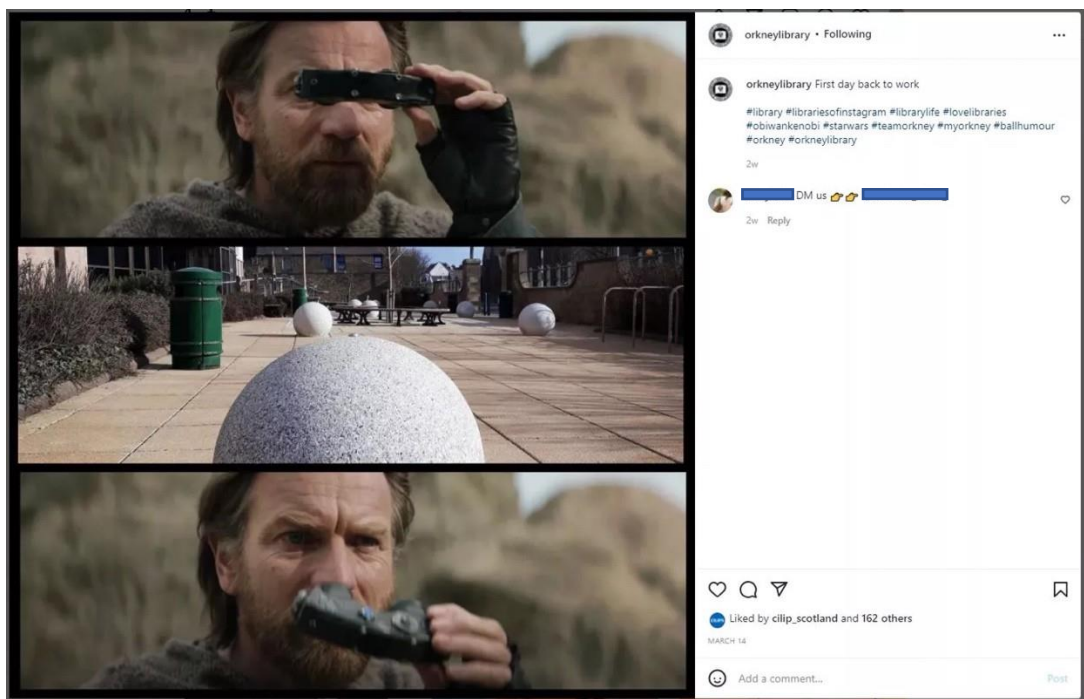


Figure 26. Post T01, Orkney Library and Archives



The first post recorded from the Orkney Library Instagram page during the data collection period was of a humanising (meme) category, with the nature of the image borrowing images from, and referencing, the film franchise *Star Wars*. The decision to reference this franchise may have been a strategic choice to garner more engagement, due to the heightened fan anticipation of the soon to be released *Obi Wan* series. This is indicated through the definitive type hashtags #obiwankenobi and #starwars. There were a total of 11 tags applied, covering identifying, emotive, definitive, geographical and branding hashtag types with #ballhumour fulfilling the meme-specific instruction to create a tag with a relevant noun followed by “humour”. The post gained 163 likes and one comment, ranking it relatively low in comparison to their average engagement.

### Post T02



Figure 27. Post T02, Orkney Library and Archives

The second post from which data was collected fell into the showcasing category, though arguably has strong elements of humanising evident through the author’s addition of the “googly eyes”. 11 hashtags were applied, the majority of which were identifying type (6 counts), with instances of branding, definitive (both 2 counts) and emotive (1 count) type tags also. The post gained 138 likes, with a like-to-follower percentage of 3%, ranking it the second-to-least liked post of this dataset. 4 comments were posted, all expressing positive sentiments.

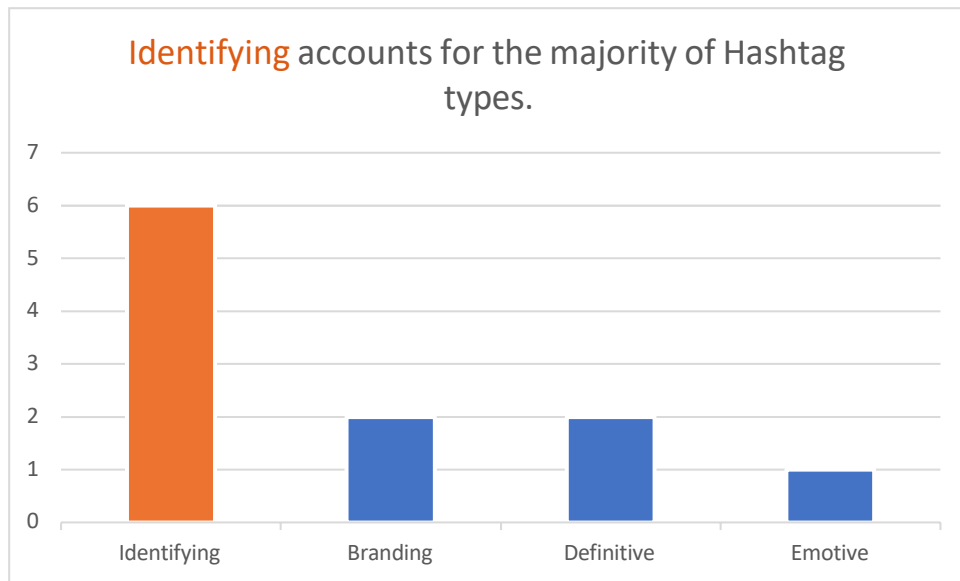


Figure 28. Hashtag distribution for post T02

Of the hashtags used, there was a considerable focus on the wildlife photography element of the image, with #wildlifephotography, #wildlifephotographer, #wildlifephotographeroftheyear and #naturephotography contributing to both identifying and definitive type hashtags, presumably intended to appeal to users to whom this is an interest.

### Post T03

Post T03 fell into the humanising (meme) category, with the image posted centring on a pun of the “ides of March”, on which the post has used the phonetically similar “guides of Marge” as a paronomasia. The relevance of this post works on multiple levels. Most predominantly, posted on the 15<sup>th</sup> of March, it coincides with the Ides of March; but secondly, it also harnesses the popularity of *The Simpsons* as a pop culture reference. Combined with the element of humour within the caption, the post had a multifaceted approach with which it could appeal to a range of users.

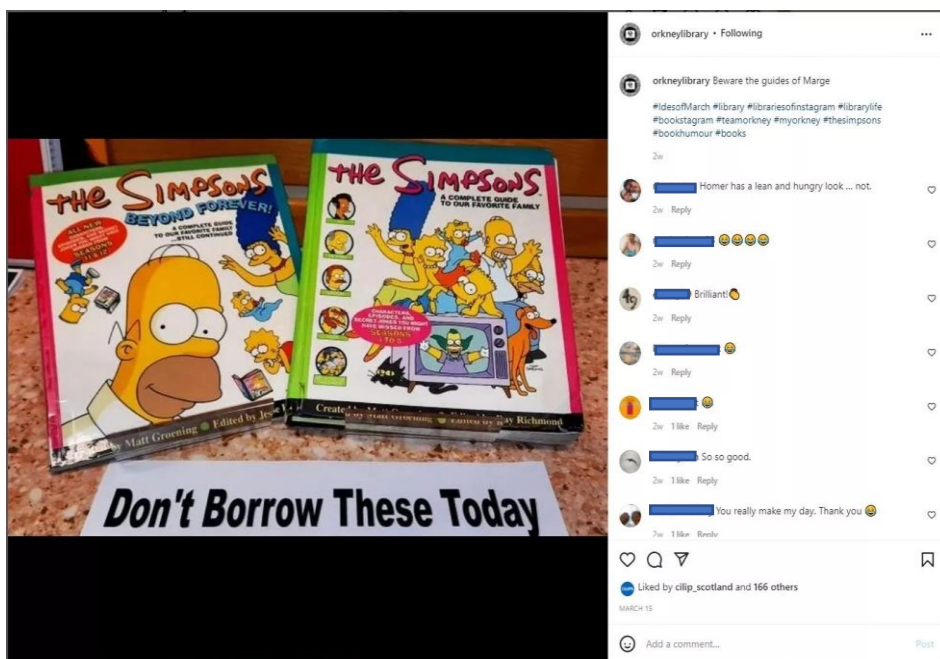


Figure 29. Post T03, Orkney Library and Archives

The post utilised 10 hashtags, the majority of which fell into the identifying category (6 counts), with an equal weighting of both branding and definitive tags (2 counts each). The post gained 167 likes, with a like-to-follower percentage of 3.6%; slightly under average for this dataset. While likes may not have seen an impact in engagement, the comments for the post were higher than average, and ranked as the second most commented post within this dataset. In these comments, the “laughing face” emoji was posted 7 times, indicating that the humorous element of the post was a contributing factor to an increased engagement in user comments. This is reinforced by comments such as “Brilliant! [clapping emoji]”, “So so good” and “You really make my day. Thank you [laughing emoji]”.

#### Post T04

The fourth post collected in the therapeutic dataset was an archival photograph which fell into the orienting category, though elements of humanising were tied into the caption.



Figure 30. Post T04, Orkney Library and Archives

170 likes were recorded on the post at the time of data collection, with a like-to-follower percentage of 3.7%. There were a wide range of hashtag types covered in the 11 tags applied, with identifying the most commonly used (5 counts), alongside equal examples of branding and emotive (both 2 counts), and definitive and geographical (1 count each). 4 subsequent comments were posted by users with positive reiterations, some quite rich with detail. One comment tagged another user, therefore drawing more traffic to the post, a consideration for ways in which to drive engagement in the future.

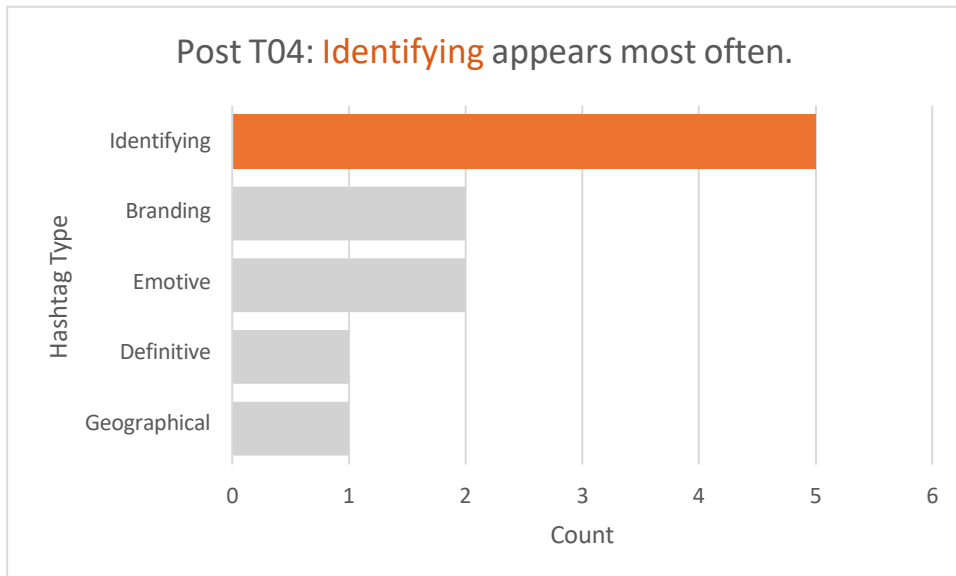


Figure 31. Hashtag type distribution for post T04

### Post T05

Post T05 was categorised by the library service as placemaking. While generally posts that discuss the services available and operations within the library are considered showcasing, the categorisation chosen was accurate due to the nature of both the image and the caption. The book displayed in the image is anonymous, therefore cannot be classed as the showcasing of a specific title; and the humorous nature of the caption changes the intent of the statement from being genuinely informative, to amusing the user through the use of blatancy, “This is #GlobalRecyclingDay so we’re taking back all the books that people have read, putting them onto shelves for people to look through, then giving them out again to all the people who haven't read them yet. #Libraries are amazing”. This post was by far the most successful in terms of engagement; at the time of data collection, it had gained 492 likes, with a like-to-follower percentage of 10.7%. The comments on the post totalled at 16, once again with high counts of the “laughing face” emoji, which appeared 13 times within the comment section. This also included a comment from a profile with Instagram’s verified “blue tick”, indicating that the profile is that of an “authentic presence of the public figure, celebrity or brand” (Instagram 2022).



Figure 32. Post T05, Orkney Library and Archives

Of the 12 tags applied, identifying was the most common hashtag (5 counts), followed by branding (3 counts) and emotive (2 counts), with single instances of both rallying and definitive tags. The main themes within the tags were recycling, libraries, Orkney and books, and the emotive hashtags applied both centred around “love” (#lovebooks and #lovelibraries).

### Post T06

The sixth post collected as a part of the data collection fell into the humanising (meme) category, the theme of which focused on the currently popular word puzzle *Wordle*. The post gained 146 likes, with a like-to-follower percentage of 3.2%, ranking the post relatively low on the average amount of likes for this dataset. At the time of data collection, post T06 had 2 comments from users, once again with the “laughing face” emoji making an appearance and generally positive feedback.

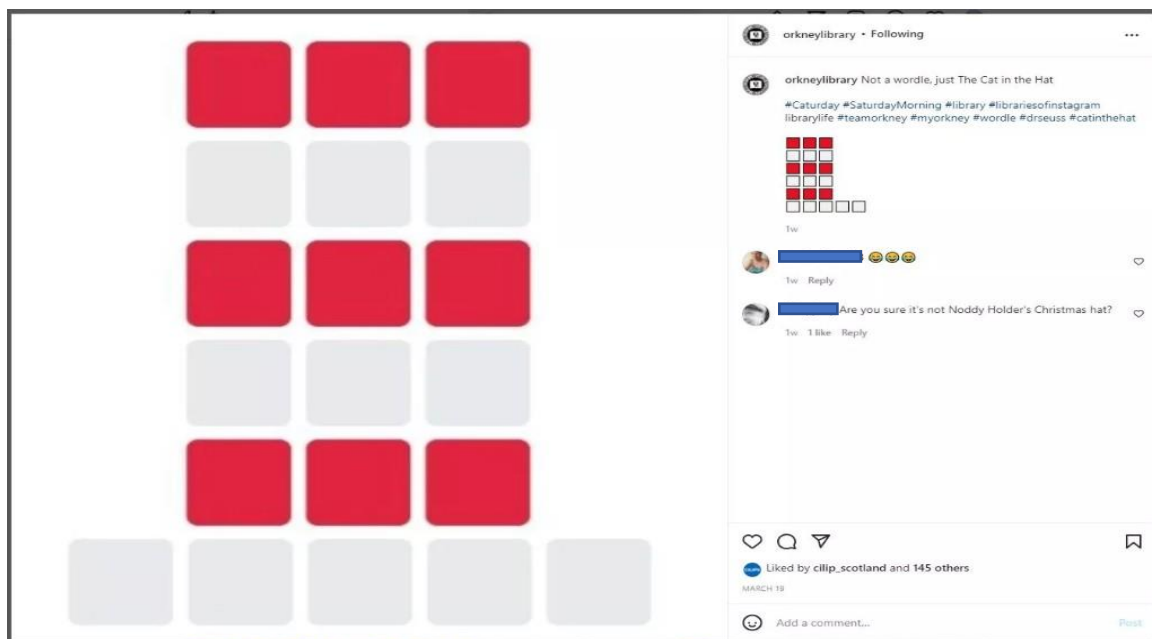


Figure 33. Post T06, Orkney Library and Archives

Of the 10 hashtags applied, identifying was the most frequently used category (5 counts), followed by branding and definitive (2 counts), and a single instance of iterating. The iterating-type hashtag applied was #Caturday, referencing a popular online movement where content surrounding cats is posted on Saturdays. This tag may have been an attempt to boost engagement by harnessing this particular following, whilst tying the theme into the library aspect through the reference to Dr Seuss literature. Similarly, the “Wordle” reference may have similar intent, due to the heightened popularity of the game at the time of data collection.

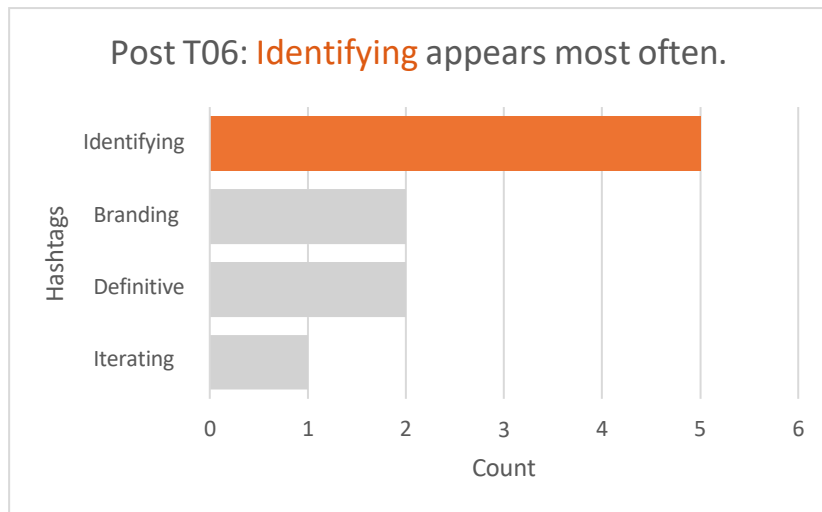


Figure 34. Hashtag distribution for post T06

### Post T07

Post T07 of the therapeutic dataset was once again categorised as a humanising (meme) type post; while the image is arguably more obviously of the placemaking classification, the humorous nature of the caption, and the hashtags applied, clearly set it within the humanising (meme) category. This post amassed 203 likes with a 4.4% like-to-follower percentage, ranking the post within the top third most liked of this dataset.

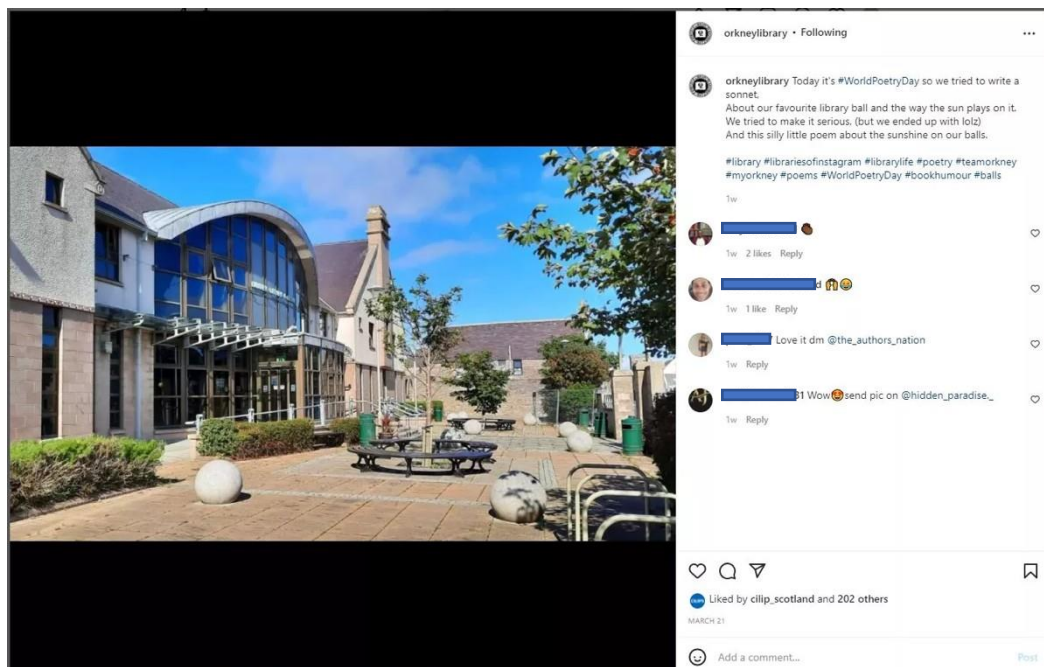


Figure 35. Post T07, Orkney Library and Archives

The post gained 4 comments, however 2 of these appear to be automatically generated, and are perhaps phishing or spam. The two genuine comments consist entirely of emojis but appear to be expressing appreciation or amusement (use of “clapping” and “laughing face” emojis). Of the 11

tags applied, identifying accounted for the majority (6 counts), with equal counts of rallying and branding (2) and one example of definitive. #WorldPoetryDay was repeated within the post, essentially rendering the second use void, and #bookhumour was the humanising (meme) specific tag applied.

### Post T08

The eighth post collected was categorised into the orienting class, as evidenced by the geographical hashtags applied, however could also have been classed as humanising, due to the historic and archival nature of both the image and caption.

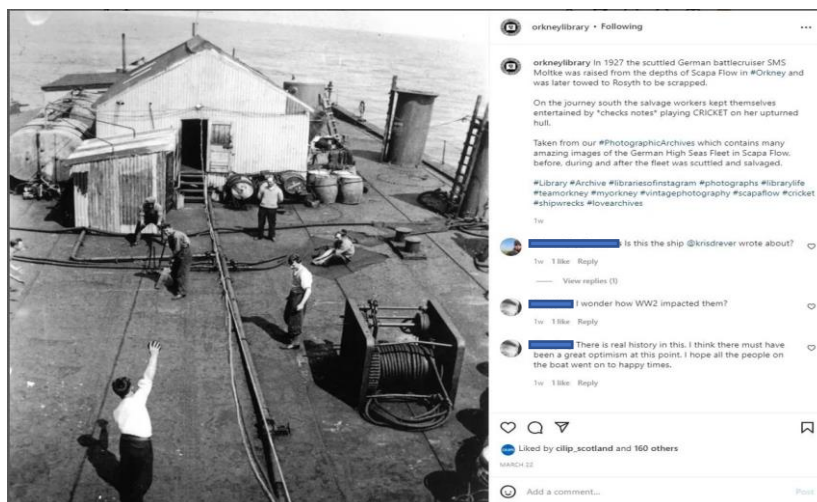


Figure 36. Post T08, Orkney Library and Archives

The post gained 161 likes with a 3.5% like-to-follower percentage, placing it below average in terms of quantified engagement levels. At the time of data collection there were 4 comments, 2 of which came from the same user, alongside an instance of user tagging. All 4 comments were rich in text and contained no emojis. 14 tags were applied to this post, the highest number of hashtags to be applied within this dataset, and of these there was a relatively wide range of hashtag types. Identifying was, once again, the most frequently occurring hashtag type (5 counts), followed closely by definitive (4 counts), then an equal distribution of geographical and branding tags (2 counts each) and a single emotive hashtag.

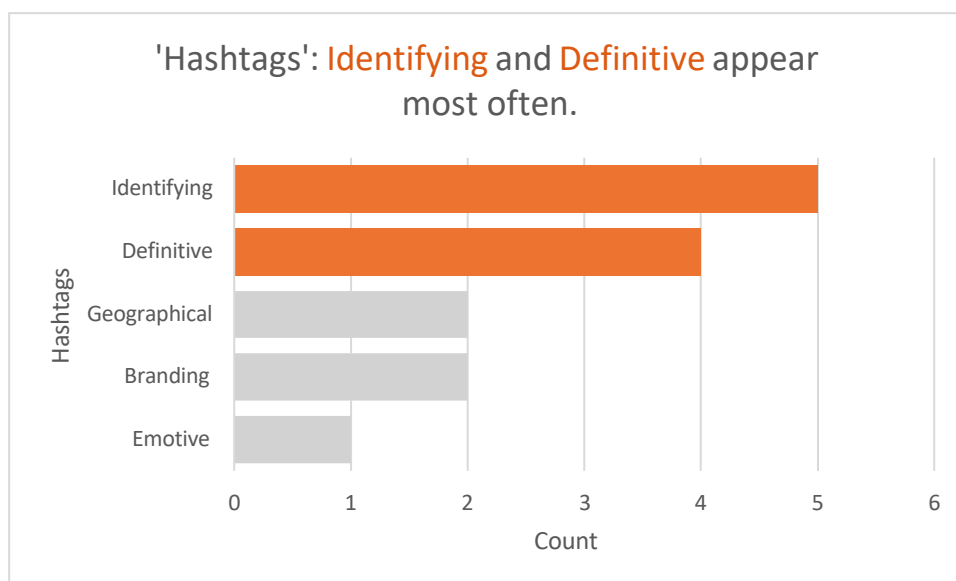


Figure 37. Hashtag distribution for post T08

### Post T09

Post T09 of the therapeutic stage was classed as humanising and ranked the lowest in this dataset in terms of engagement, with 104 likes and a like-to-follower percentage of 2.3%. The post also received the joint fewest number of comments on a post in this dataset, with a single comment recorded at the time of data collection; though the comment left was valuable, in that it appears to be both genuine and text-rich, “Possibly my favourite read of 2021”.

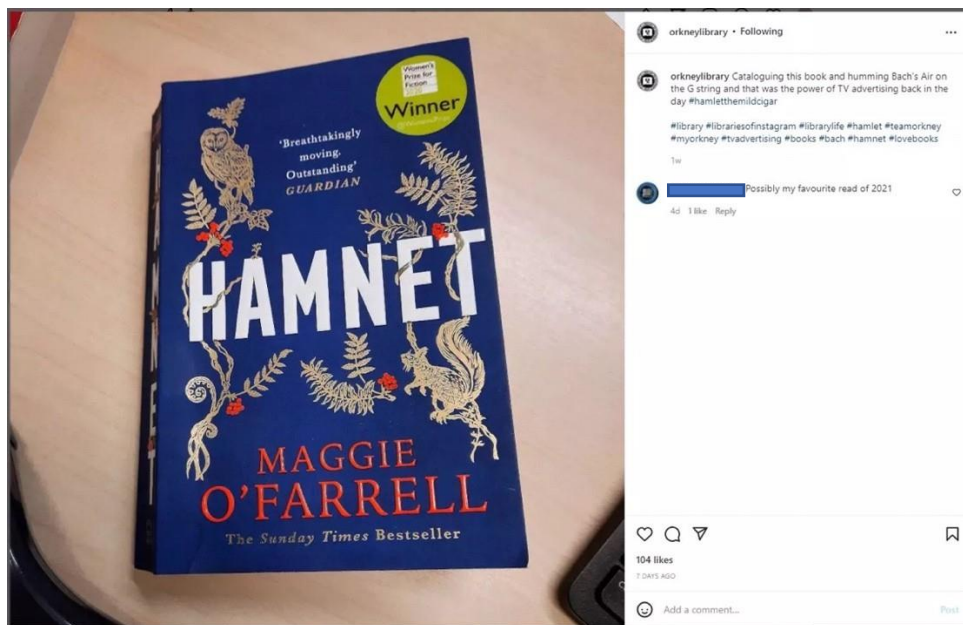


Figure 38. Post T09, Orkney Library and Archives

The post was assigned 12 hashtags, the majority of which were identifying (7 counts), followed by both definitive and branding (2 counts each) and one emotive hashtag.

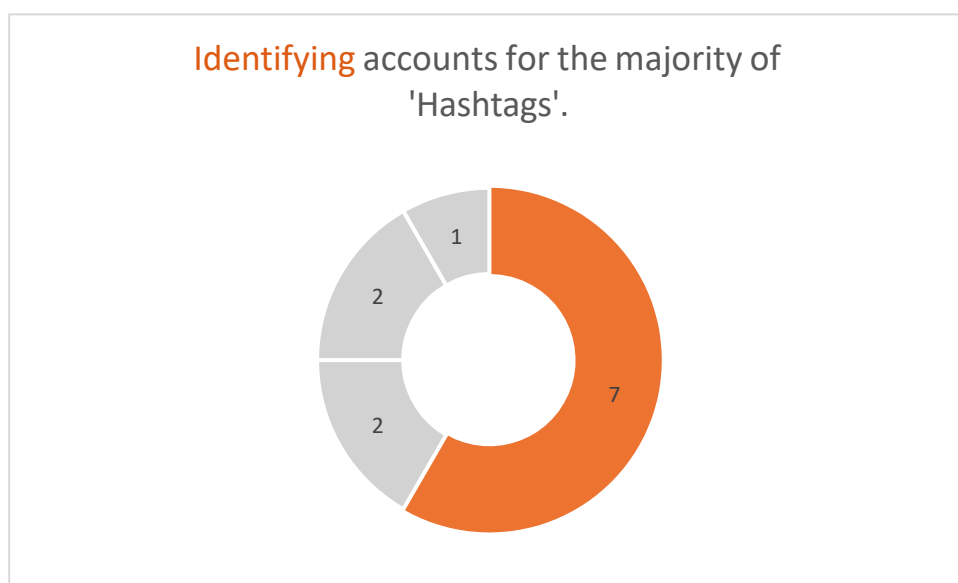


Figure 39. Hashtag type distribution for post T09

As is the case with most posts from this library service, the caption contained elements of comedy, and this was reflected in the tags applied, particularly within the reference made in #hamletthemildcigar; a specific tag which appeals to an older audience, due to the banning of



tobacco advertising in 1991 (ASH: Key Dates In Tobacco Regulation 2018). The specificity of the reference within this post, and the hashtags used, may be a contributing factor to the poor engagement it received.

### Post T10

Categorised as a showcasing-type post, T10 ranked as the second most liked within this dataset, totalling 309 likes and a like-to-follower percentage of 6.7%; 2.2% higher than average for the data collected in this phase.

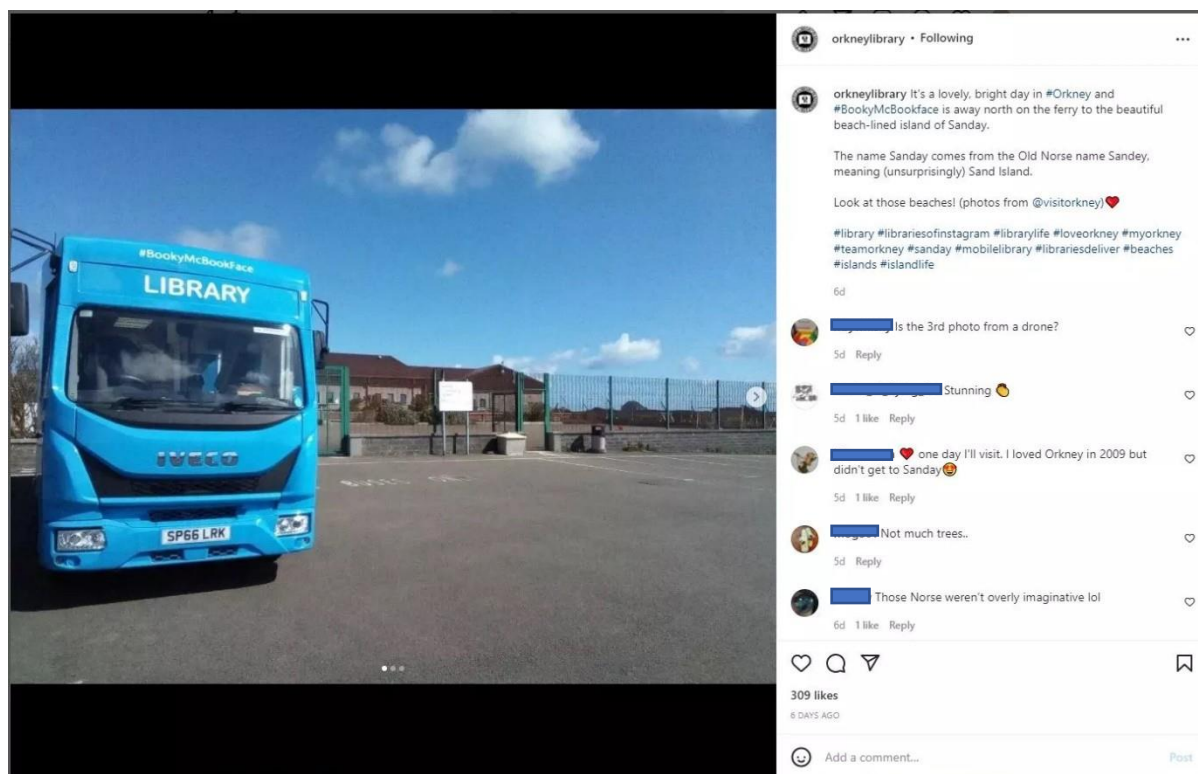


Figure 40. Post T10, Orkney Library and Archives

This was the only post within this dataset to include multiple images, and the main theme centred the showcasing of Booky McBookface, the service’s mobile library. The 6 comments that the post received all either expressed praise or engaged with an element of the caption or image, for example “Those Norse weren’t overly imaginative lol”, and “Is the 3<sup>rd</sup> photo from a drone?”. The geographical element of the post proved popular in the comments, indicating that identifying and definitive hashtags that include geographical elements, such as #beaches or #islandlife, may be a factor in driving engagement alongside geographical hashtags themselves.

Table 7. Most frequently recurring hashtags

Row Labels	Count of Hashtags
Identifying	4
Definitive	4
Geographical	2
Branding	2
Critiquing	1
Emotive	1
<b>Grand Total</b>	<b>14</b>

Of the 14 hashtags applied, identifying and definitive type hashtags jointly accounted for the most frequently occurring (4 counts each), followed by both geographical and branding (2 counts each), and critiquing and emotive (1 count each). This application of a wide range of hashtag type may be a contributing factor in the success of this post.

### Post T11

Post T11 of the therapeutic dataset was categorised as a showcasing post and received 186 likes with a like-to-follower percentage of 4.0%. This places it just slightly below average for likes within this dataset. This post accumulated 7 comments from users, making it the third most commented on image of the therapeutic stage. The comments made left sentiments of appreciation, with 6 instances of the “heart” emoji present.

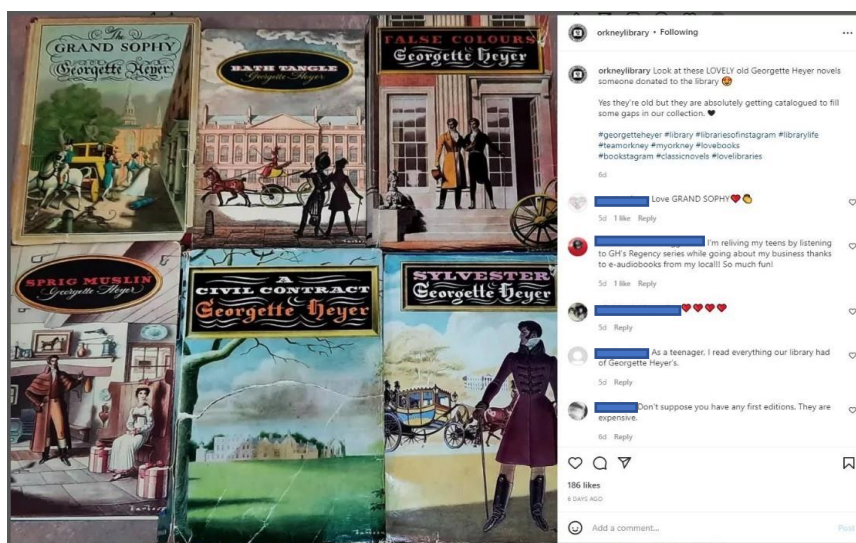


Figure 41. Post T11, Orkney Library

Of the 10 hashtags applied to the post, identifying accounted for the most frequently occurring (4 counts), followed by equal weightings of emotive, branding and definitive tags (all 2 counts). All hashtags used related to Orkney library, libraries in general, or some literary aspect, and the emotive hashtags used both expressed sentiments of love (#lovelibraries and #lovebooks).

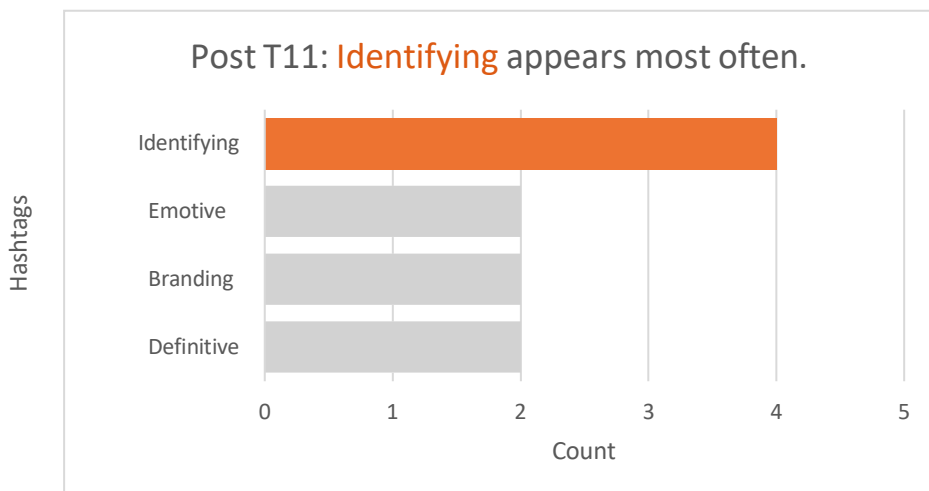


Figure 42. Hashtag type distribution for post T11

### Post T12

The final post collected for the therapeutic data collection phase was another showcasing post, which gained 237 likes in total and had a like-to-follower percentage of 5.2%, which ranked it as the third most liked post within this dataset. The theme of this post was centred around Tolkien Reading Day, and despite being categorised as showcasing had strong comedic elements, the use of puns once again playing a large part in the caption.

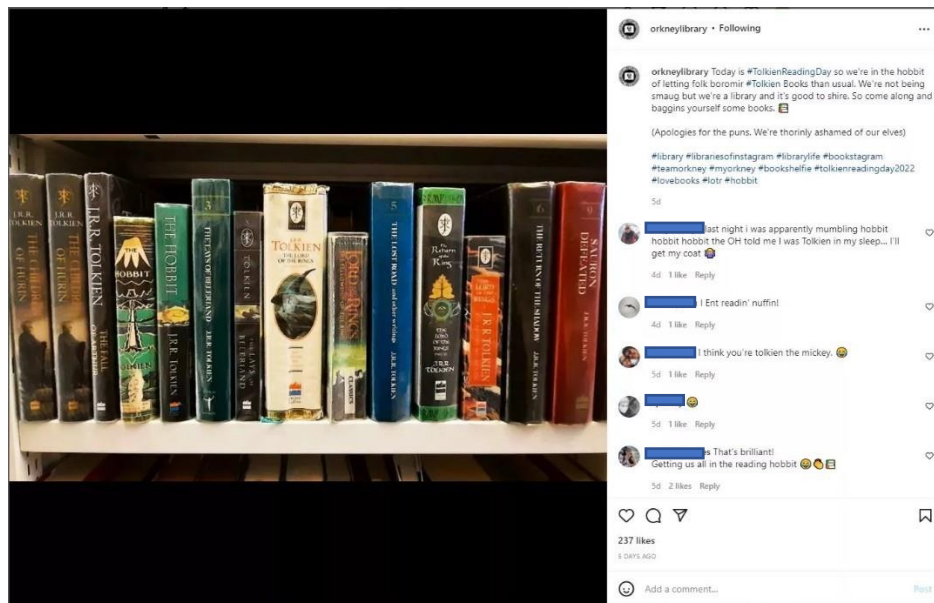


Figure 43. Post T12, Orkney Library and Archives

This post received 6 comments from users, placing it in the top 4 posts within this dataset for most comments received. 4 of these 6 comments mimicked the puns used in the caption, for example “I Ent readin' nuffin!” and “I think you’re tolkien the mickey. [laughing face emoji]”, suggesting a kind of online rapport. The humorous element of this post certainly seemed to drive engagement, also possibly enhanced by the reference to a book series that holds an enthusiastic fandom.

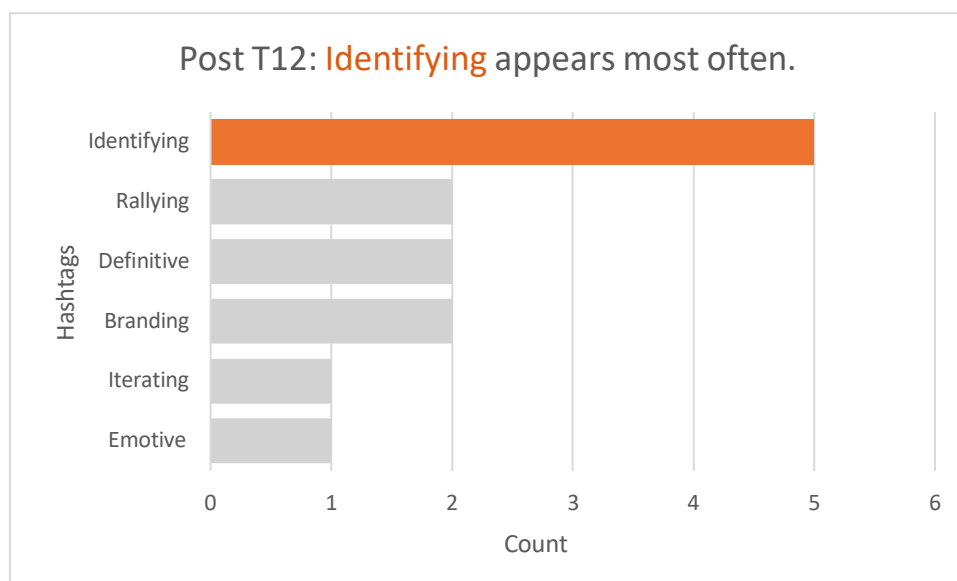


Figure 44. Hashtag type distribution for post T12

Of the 13 tags applied to this post, identifying accounted for the most frequently occurring hashtag type, followed jointly by rallying, definitive and branding (all 2 counts) and single instances of

iterating and emotive types. Once again, the presence of a wide variety of hashtag types could be a contributing factor to the success of this post.

### **4.3 Therapeutic data discussion**

For the purpose of identifying the impact of the hashtags used within the therapeutic data collection, a comparison will be drawn between the findings within the datasets, followed by insights into each individual hashtag type.

Firstly, it is important to remember that the datasets were not created equally in terms of the volume of data; the diagnostic dataset collected from Orkney Library's Instagram consisted of 20 posts, while the therapeutic set only 12 posts. Another disparity between the two are the number of followers the service had at each point of data collection – Orkney gained a total of 44 followers during the period between the diagnostic and therapeutic data collection, a gain of nearly 1%. Whether or not this has impacted the resulting data remains unidentified.

The volume of hashtags applied to each post remained fairly consistent, with the average tags per post falling by only 0.4% from Orkney's diagnostic dataset to the therapeutic. This could be due to the nature of the guidelines for hashtags that were issued, with service open to apply as many surplus hashtags as they pleased alongside those issued for each post category. While the number of hashtags per post remained steady for Orkney Library's standards, it was high compared to the full diagnostic set, which averaged at 7.94 per post. A correlation was found between the amount of likes and hashtags on a post within the therapeutic dataset, with Orkney Library's 3 most liked posts also being those in the dataset with the highest volume of hashtags. To fully understand whether or not there is a true link between the two, further and more detailed research would need to be conducted.

The most frequently occurring hashtag types in all 3 datasets were those of the identifying category. The consistency of the popularity of this tag type could be due to a number of reasons; it could reflect that identifying type tags are a common choice for successful library Instagram accounts, and therefore complicit in a successful social media strategy, or it could reflect on the lack of specificity of the hashtag type itself. To explore this further, this hashtag category could benefit from being broken down into subcategories to gain a true reflection of which aspect of this tag type drives engagement.

Another consistent aspect between all 3 datasets was the most frequently occurring post category, for which all returned showcasing type posts as the most common. This ties in clearly with an appropriate social media strategy for a library service, as it serves to inform each user demographic of the services or items which may benefit them. For Orkney, this was followed by both humanising (meme) and orienting type posts, indicating their frequent use of humour and geographical individuality which form their online identity.

In terms of achieving an increase in like-based engagement, the hashtags issued failed to generate an improvement. The posts within the diagnostic Orkney dataset returned an average like per post of 286, while the therapeutic dataset saw an average of 206.33. The deficit of 79.67 average likes is a considerable proportion and could reflect that the tags issued actually achieved the opposite of what they were intended to, resulting in fewer likes. Another explanation for this drop in likes could be the lack of video content present in the therapeutic dataset, for which the views, counted as likes, generally contribute a large portion towards the total likes. This once again highlights the flaw in the decision to make views and likes comparable. This having been said, when considering the fewest likes recorded on a post in each dataset, the therapeutic dataset saw the highest of the three datasets, with 104 likes being the smallest recorded on a single post, as opposed to the diagnostic sets, which saw 56 likes being the lowest likes on a post for Orkney Library and 13 likes recorded on

a post from Manchester Libraries. This implies that while the hashtags issued did not generate an increase in likes, they may have contributed to a more sustained level of mid-range likes.

While the hashtags issued in the therapeutic stage may have failed in generating more engagement in terms of likes, the data showed an improvement in comment-based engagement. The initial diagnostic dataset which sampled posts 10 different library services recorded an average of 3.52 comments per post, while Orkney Library's diagnostic dataset had an average of 3. This was nearly doubled in the therapeutic results, with the final dataset recording an average of 5.33 comments per post. The highest volume of comments on a single post was found to be 16 in this dataset, compared to 10 in the previous Orkney data collection, a considerable improvement of 60%; also, the therapeutic dataset was the only instance where there were no posts recorded without any comments at all, making it the only dataset where every post had evidence of comment-based engagement.

When observing correlations between the most commented-on posts between both the diagnostic and therapeutic datasets from Orkney Library, there was a consistent presence of emotive hashtags. The diagnostic set saw instances of emotive hashtags in all but one of the top 5 most commented on posts (Posts O4, O18, O15, O1 and O14), including tags such as #lovelibraries, #lovewhereyoulive and #lovearchives. This link between comment-based engagement and emotive hashtags was echoed in the therapeutic dataset, again with the top 5 most commented on posts bar one containing emotive tags such as #lovelibraries, #loveorkney and #lovebooks. The data collected in the therapeutic stage also suggested that emotive hashtags may impact on like-based engagement positively, with the top 3 most liked posts all containing emotive tags as well. These tags, all centred round the sentiment of "love", are evidently an important consideration in boosting engagement in the future.

Another hashtag type that was evidenced to have a positive impact on engagement in the therapeutic dataset was the rallying type. While only 5 rallying tags were applied in the therapeutic stage, accounting for only 3.59% of the total hashtags used, all 5 tags of these tags were applied in the top 4 most liked posts. These tags all contained references to specific celebrated days, such as #GlobalRecyclingDay, #WorldPoetryDay and #TolkienReadingDay. Using hashtags to recognise these celebrated national or worldwide calendar days could be a powerful tool for public libraries in engaging users.

The standard hashtags which were issued to be applied to every post (#Library, #LibrariesOfInstagram, #LibraryLife, #TeamOrkney and #MyOrkney) were designed with the hopes of improving the average amount of likes per post. While this was not achieved, with a drop of average likes per post of 286 in the diagnostic Orkney Library dataset to 206.33 in the therapeutic set, this fall in likes cannot be directly attributed to these core tags. It could be hypothesised that the lack of success of the branding type of these hashtags (#TeamOrkney and #MyOrkney) could be due to the language used within these tags; adapted from hashtags frequently applied by the Liverpool University Library Instagram account, the concepts expressed may not appeal to Orkney Library's demographic in the same way they would the students of Liverpool University. In this way, it may be more beneficial to adapt hashtags specifically from public library services, or at least services which share a similar targeted user group as the service designated to promote.

One strategy that was identified as being used by Orkney Library in the therapeutic stage was to centre posts around pop culture phenomenon, examples of which can be found in T01 (Star Wars), T03 (The Simpsons) and T06 (Wordle). These posts averaged at 158.66 likes per post, ranking them lower than average for the therapeutic dataset, and significantly lower than the diagnostic dataset. This could be attributed to the volume of definitive type hashtags applied to these posts, which while effective in describing the content of the image, can lack specificity. Posts T01 and T06 both reported low volumes of user comments, and the comments (1 comment and 2 comments,

respectively) that were recorded from these posts lacked a richness in text and were heavily emoji-based. The combination of the findings surrounding definitive type hashtags would suggest that there is little value to be found in the strategic use of these tags in generating engagement.

The second most liked post in the therapeutic dataset – T10, the theme of which was the service’s mobile library “Booky McBookface” – demonstrated the value of geographical type hashtags in appealing to Orkney Library’s community. While only two geographical tags were applied to this post, many of the other branding and identifying type hashtags included elements that reflect Orkney’s local identity, such as #sanday, #islandlife and #beaches. The local element does not only appeal to the residents of the island, as reflected in the user comments, with statements such as “[heart emoji] one day I’ll visit. I loved Orkney in 2009 but didn’t get to Sanday [heart eyes emoji]” and “You know we’re jealous I hope [heart emoji]”, demonstrating that the showcasing of the island’s natural beauty can help in boosting engagement with users worldwide. Whether or not the success of this post can be contributed to this geographical element, or whether the humorous #BookyMcBookface was the driving factor, for a service whose identity is focused heavily on its locality geographical type hashtags and content as a whole is an important strategy.

## 5. Conclusion and recommendations

As per the aim of this research, a collaboration was founded with a public library service, Orkney Libraries and Archives, for the purpose of creating content on their behalf to drive engagement. For the purpose of creating consistent and authentic content in keeping with Orkney Library’s pre-existing online profile, it was evident that the method of issuing tags to be applied to images supplied by the service was the most suitable approach for this research, consistent with the fundamentals of unobtrusive netnographic approach. To ensure that the tags designed for the service were evidenced to be successful, model library Instagram accounts were identified through online research and the use of browsing and chaining on the Instagram app. The data that was gathered from 100 posts of these services, alongside 20 posts from Orkney Library’s Instagram account, formed the diagnostic phase of the action research cycle, informing the researcher’s design of the tags to be issued in the therapeutic data collection phase.

### 5.1 Summary of findings

The data gathered within the diagnostic phase of the research demonstrated several recurring strategies in tag application on Instagram. First and foremost, the repeated application of generic identifying type hashtags #Library, #LibrariesOfInstagram and #LibraryLife was a popular approach, indicating that the use of “standard” identifying hashtags – those that are applied to every post, regardless of the post category – is a valuable tool. The diagnostic dataset gathered from Orkney Library confirmed that this was already implemented to some extent by the service, with #librarylife and #librariesofinstagram applied to 45% of the posts collected. #library was recommended to be applied alongside the aforementioned tags to every post in the therapeutic stage, however the drop in average likes per post was not indicative of this being a successful strategy.

Hashtags containing themes of identify and group belonging were also found to be popular in the diagnostic dataset; concepts of “team” and “my” were frequently included in tags, indicating the users’ value of networked publics and sense of belonging and possession. Orkney Library were not found to be utilising this language in their tags at the diagnostic stage, therefore the branding type tags #TeamOrkney and #MyOrkney were recommended to boost engagement. The application of these tags within the therapeutic stage were not found to have a positive impact on engagement, possibly reflection on a disparity in values between Orkney Library’s user community and those of the University libraries’ which frequently used the hashtags originally.

Correlations between certain post categories and hashtags categories were made evident in the diagnostic phase. Iterating tags were uncommon, but when used often paired with humanising and

humanising (meme) type posts, and geographical type hashtags were often assigned to humanising and showcasing type posts – two categories commonly posted by Orkney Library. The results of the therapeutic stage reflected a positive correlation between likes and geographical type hashtags, an unsurprising result considering the strong physical identity of the island.

An unexpected outcome of the therapeutic phase was the success of rallying type tags, which occurred in 3 of the 4 most liked posts. These tags are difficult to generate due to the spontaneous nature of the posts theme, so pose a challenge when attempting to issue predetermined tags. The success of these tags, on a variety of different post types (placemaking, showcasing, humanising) reflect the potential to harness current events in the pursuit of generating user engagement. Perhaps the most important result from the therapeutic stage, however, is the success of the emotive type hashtags (specifically those expressing sentiments of “love”) in engaging users in the comments section.

## **5.2 Limitations**

The most significant limitation in this research was the adoption of the action research approach in a limited time frame. Due to the time constraints, only one cycle was completed, meaning that the return to a second diagnostic phase in which the learning outcomes from the therapeutic stage could be implemented was impossible. This also impacted the volume of data collected within each of the stages, resulting in unevenly weighted datasets.

Several aspects of the data collection and categorisation also proved to be problematic; the choice to manually collect the data left the potential for human error, an issue that would not be present had an Instagram analytics tool been implemented. The interpretive nature of the post types meant that there was margin for disparate interpretations of the coding schema, potentially resulting in the application of hashtags unintended for the type of post used. The decision to assign only one hashtag type to each tag may also have limited to research, as in most cases tags could be categorised into multiple fields.

Another limitation in the data collected was a lack of specificity as to whether the hashtags implemented were the driving force in the success, or lack thereof, in the post’s engagement. With an average of 11.5 hashtags applied to each post in the therapeutic stage, the success of a singular hashtag was difficult to track. Other qualitative elements such as the visual content of the post or the caption could also be factors in driving engagement, which remained unaccounted for in the data collected.

## **5.3 Recommendations**

It is evident that further research is required to gain more comprehensive data on the subject. The completion of one, if not several, more action research cycles would provide the opportunity to implement the findings from the initial cycle. Further research would benefit from expanding the considerations of the study to enrich the results with qualitative methods such as conducting interviews with user communities or issuing questionnaires, which could provide insight into what draws users to specific hashtags. As evidenced in the findings, comment based engagement is also a key consideration, and further hermeneutic analysis of libraries’ Instagram comments section would be beneficial. The adoption of Instagram analytics tools in future research would aid in the historic tracking of hashtag popularity, which could provide a more conclusive picture as to whether user engagement with certain hashtags has evolved over time. This could be particularly useful in considering the impact the COVID-19 pandemic has had on users’ social media habits.

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