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SCHOLARS' SEARCHING FOR AUDIO-VISUAL INFORMATION IN ARCHIVES

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Abstract: This paper contributes insights into scholars' information searching in audio-visual archives, more specifically in relation to postcolonial research projects. The paper introduces the concept of information needs based on the framework by Ingwersen. Further, the paper addresses the scholars' search strategies and the search challenges they experienced. Insights are obtained via in-depth interviews with six scholars. The scholars adapt collection-specific search strategies and make extensive use of keyword searching. The study demonstrates the complexity of searching archives for information and how demanding searching is with respect to requiring domain knowledge, artefactual literacy, and archival intelligence. Finally, the importance of access to the expertise of archivists is confirmed.

Keywords: Audio-visual archives, Information needs, Information searching, User study, Interviews

1 Introduction

This paper reports an empirical study of scholars' experiences with information searching for audio-visual material in three archives: the Netherlands Institute for Sound and Vision, the French Institut national de l'audiovisuel (INA), and the film and photography collections at the Pitt Rivers Museum, Oxford, UK. We have interviewed six scholars who search the archives for material related to postcolonial research projects. The purpose of the interviews is to obtain an understanding of how the scholars search the archives and the challenges they experience. This includes identifying what information needs and search strategies the scholars have and what makes their information search succeed or fail. The study is part of the project Polyvocal Interpretations of Contested Colonial Heritage (**PICCH**), which is an international, interdisciplinary research project aimed at understanding audio-visual material of colonial origin in

European archives. The project departs from the premise that, due to the three European nations' history as colonial powers, many audio-visual objects in these three archives contain visual and linguistic representations that perpetuate colonial ideologies, employ outdated or offensive terms and perspectives, or are otherwise problematic when viewed through contemporary critical frameworks. The two other research groups in PICCH investigate the colonial content of the archives' collections in more detail. Our task in the project is to shed light on information searching of audio-visual material of the three archives that participate in the project as associated partners. The overall ambition of the research project is to open a dialogue between the archives and the potential users.

The paper makes a central contribution by sharing reflections and experiences of the scholars as a user group who search for audio-visual material, and which furthermore constitute a user group that is rarely studied and of whom we have little knowledge. Archive user studies as a research discipline does not have a long tradition, dating back to the late 1990s. In general, there exist relatively few archive user studies.[1] User studies of historians and especially their information-seeking behaviour increased during the 2000s.[2]

The remainder of the paper is structured as follows: section 2 introduces the theoretical background concerning the conception of information needs and information searching, and section 3 presents related work. The methodology is outlined in section 4. Section 5 presents and discusses the findings based on the interviews. The paper closes with a summary and concluding remarks in section 6.

2 Types of Information Needs and Information Searching

The studying of information needs provides insight about what people search for and helps us to explain and understand why people engage in information searching.[3] Hence information needs are fundamental to the understanding of information searching.[4] In this paper we rely on the information need framework by Ingwersen[5] that consists of three types of information needs, these are: the verificative information need, the conscious topical information need, and the muddled topical information need. In short, the verificative information need is about fact-finding and the verification of information, e.g., the author of a document or the location of an institution. The two topical types of information needs differ with respect to the prior knowledge of the user. The muddled topical information need is a need experienced by a user who has little or no previous knowledge about the search topic, whereas a user with a conscious topical information need is familiar with the topic and needs updated information to expand, update or review his or her knowledge of the topic in question.

The users' information needs are to be satisfied in the context of digital information searching of information systems, here in the form of the three archives. Within library and information science there is a long tradition for the development of end-user information systems from the early OPACs (online public access catalogues)[6] to current library discovery systems,[7] and therefore also a long tradition of user studies of how people search for information, their information needs and how these information needs are satisfied. A variety of frameworks for information searching and seeking behaviours have been developed in the past 50 years,[8] which in summary address the recognition of an information need, the acceptance of the information need, the formulation and searching of the information need, and the overall user-system interaction as part of the searching process. That said, information searching has with the advent of the Internet become an everyday activity for most people,[9] which may let information searching be seen as an easy or even trivial activity, and further let the users think they master information searching.[10] Research on information search strategies of digital information searching includes analysing the actions, e.g., searching, scanning, and link-following necessary to perform search[11], how to perform efficient searching, which includes the order in which to perform the search activities, the selection of terms and synonyms, the combination of Boolean operators and other advanced query features,[12] and strategies for coping with information overload.[13] A related research area is the study of the factors that influence search success and search failure among ordinary

end-users. Such factors include, but are not limited to, the task at hand,[14] time,[15] and domain knowledge and search experience.[16]

3 Related Work

3.1 Information Needs and Audio-Visual Materials

Given our focus on scholars' interaction with digital audio-visual archive material, it is of course relevant to address previous studies. In the field of media studies there are examples of studies of the use of archival material for television production. Hagedoorn and Agterberg have investigated the use of digitised audio-visual archive material by television broadcasters in the Netherlands and 'reflect on the tensions of preservation, re-using archival material and the 'opening-up' of archives'.[17] There exist several older information need studies related to audio-visual materials.[18] But as Kirkegaard Lunn[19] (who later changed name to Lunn) points out, though the studies provide important knowledge about the problems associated with the indexing of moving images, it is worth noting that the studies are conducted in non-digitized collections, do not involve user interactions, and consequently focus on the static representation of the information needs in the form of the user's requests. Hence, the studies cannot explain searching behaviour in terms of how users express their information needs, and the search strategies applied for searching moving images.

However, the study by Kirkegaard[20] is relevant for the present work in that it focuses on the information needs of academic users using television broadcasts for research purposes. The overall purpose of his project is to provide empirically based recommendations and guidelines for the development of a retrieval system for television broadcasts. A prerequisite for that is knowledge about the users' information needs. He obtains that knowledge via web questionnaires and in-depth interviews with the actual academic users. The web questionnaires are used to gather initial information about the respondents' information needs. The interviews reveal that broadcasts are needed by the scholars as objects of analysis in their empirical research. Further, four fundamental types of information need are identified: 1) known item; 2) factual data; 3) known topic or content; and 4) muddled topic or content. These information needs correspond to Ingwersen's three types of information needs, with Kirkegaard's first and second information needs being encompassed by the verificative information need of Ingwersen. Furthermore, Kirkegaard finds that the interviewees' information needs consist of four phases: 1) getting an overview of transmitted broadcasts, 2) identification of borderline exemplars, 3) selection of specific programmes, and 4) verification of facts.

3.2 User Archive Studies

Huvila[21] notes that little attention has been given to user perspectives in archive and record management studies. An interesting exception is the study by Duff and Johnson,[22] who interviewed ten historians and found that the historians made use of four types of information-seeking activities in archives: '(1) orienting themselves to archives, finding aids, sources, or a collection; (2) seeking known material; (3) building contextual knowledge; and (4) identifying relevant material'.[23] These four activities resemble the four information need phases identified by Kirkegaard Lunn.[24] The study by Duff and Johnson also shows that help from archivists is important for retrieving relevant material from the collection and that the researchers prefer to start their search with manual rather than online finding aids, since the former is better at giving a 'sense of the whole collection'.[25] In addition, they report that using names of persons and organisations to find known material is a common strategy and a 'number of the historians' expect that online systems facilitate known material retrieval as archive databases are digitised.[26] In a methodological study investigating the use of diaries to study information behaviour in archives, Toms and Duff[27] also find examples of historians who prefer to receive help from archivists in their information searching.

User expertise and its effect on information searching has been a popular topic within library and information science research,[28] but less so in archival studies. Yakel and Torres have examined the effect of expertise among archive users and found that this can be divided into three areas; domain knowledge, artefactual literacy, i.e., 'the ability to interpret records and assess their value as evidence', and archival intelligence: the researcher's knowledge about 'archival principles, practices, and institutions; strategies for reducing uncertainty and ambiguity; intellective skills'.[29]

Rhee's[30] literature review of North American archival user studies includes studies of 'information seeking' in archives, which is 'the most popular topic' in this domain. Rhee summarises information seeking studies as studies of "the archival material that users seek as well as their access tools, access problems, strategies for locating archival materials, interactions with archivists, preferred format of information sources and materials, and information-seeking activities".[31] The large majority of the studies reported by Rhee stem from the early 2000s and investigate the use of 'finding aids'[32] and other strategies for archive material retrieval and the effect of digitization of collections.[33] Zhou[34] observed and interviewed undergraduate students who used archives to write a paper on history, and found that the students' interaction with the archives resembled the information-seeking process identified by Kuhlthau[35] signified by six stages: task initiation, topic selection, exploration, focus formulation, information collection, and search closure. Allison-Bunnell, Yakel, and Hauck report on a study of users' information needs when deciding on material for digitization in the US Northwest Digital Archives consortium. Nineteen users, who represented academics, genealogists, administrators, amateur researchers, and students, were interviewed. Amongst their findings were the users' wish for online access to material and functionality resembling their on-site experience and metadata on geography, scope/content, subject, date, copyright and type/genre.[36] An interesting study is by Treat and Judkins[37] who interviewed ten filmmakers about their information-seeking behaviour in moving image archives. They find that the filmmakers prefer to establish direct contact with archivists and librarians rather than using formal finding aids, which confirms the findings by Duff and Johnson,[38] and that new, i.e., previously unused, film is the most desirable material. Through the use of simulated work task situations,[39] Hagedoorn and Sauer[40] demonstrate the use of DIVE+, which is a linked data browser that facilitates explorative search[41] of digitised Dutch cultural heritage collections including news broadcasts from the Netherlands Institute for Sound and Vision.

4 Methodology

Six semi-structured interviews were conducted between November 2021 and April 2022 with scholars using the three archives, two from each of the archives (the Netherlands Institute for Sound and Vision, the French Institut national de l'audiovisuel (INA), and the film and photography collections at the Pitt Rivers Museum, Oxford, UK). The interviews were conducted in English, online, and were audio-recorded and transcribed by one of the authors. The interviews lasted between 25 minutes and one hour. The questions asked in the interviews (cf interview guide in Appendix 1) concerned the scholars' information search behaviours, their information needs, their search strategies, and what factors make their searches succeed or fail.

The interviewees were recruited via the archives' websites and by directly approaching users of the archives. The interviews were analysed using thematic analysis[42] based on the following six phases: (1) familiarising with the data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) producing the report. The author conducting the interviews also transcribed them, and the other two authors did the thematic coding and analysis. One coder used an inductive – i.e., data-driven – approach, whereas the other coder had a theory-driven approach, where the research questions were used to guide the analysis in a deductive way. The two coding authors used a text editor system to manually code the interviews. Searching and reviewing themes (phases three and four) involved analysis of the coded data at the broader level of themes, i.e., sorting the different codes into potential themes as well as collating all the relevant coded data extracts within the identified themes. In phase five the two coders decided on the naming and definitions of themes. In the current paper we have reported on results related to the following themes: 'information needs', 'search strategies', and 'search challenges'. We refer to the interviewees as participants 1-6, in short P1-P6. Below follows a short introduction of the six participants.

5 Results

5.1 Introduction of the Participants

The participants all have several years of search experience and experience with archives, and their foci of research are varied.

P1 and P3 both search the INA in France. P1 studies video content documenting how North African immigrants' memories are portrayed online, concerning the Algerian war. Whereas P3 investigates the colonial past of Marseille by looking at the representation, the speeches, and the public use of the colonial past of the city of Marseilles in the media (television, radio, and the web).

P2 and P6 search the Sound & Vision archive in the Netherlands with P2 focusing on the content of the archives, and how the archive records' metadata represent views and opinions on past times. P6 is interested in Indonesian Gamelan music and cultural performances as well as images of Suriname and Indonesia, and how music, sound, and images are used as part of news reports.

The scholars P4 and P5 both search the Pitt Rivers Museum's film and photography collections and work on a joint project where they study three prominent and quite different British anthropologists: Beatrice Black Cold, Ursula Graham Bauer, and Frederick Chapman Spencer. The focus is on the Western gaze as depicted via the British anthropologists and their meeting with colonised people in the 1920s-1940s.

5.2 Information Needs

The analysis of information needs shows that the scholars' archive-oriented information needs are identifiable and applicable within the information need framework of Ingwersen.[43] The scholars' information needs are primarily of the type conscious topical information need, pointing to their familiarity with their research topics, but all three types of information needs appear. Hence our findings complement the findings by Kirkegaard,[44] who also uncovered the characteristics of the three types of information needs among academic archive users who requested broadcasts.

An illustrative example of a conscious topical information need is seen with P2 who investigates how people talk:

> "It's either looking at a historical question so, how did we talk? Uh, you know, how did the Netherlands talk about a subject? For example, right? […] Also, things like word choices in the metadata. So not just the archival record itself, but literally, what the metadata tells us about the institution, about the people that were labelling the document itself" (P2).

In this citation we see that P2 is familiar with the topic and knows how to approach it from different angles, e.g., the word choices of metadata and the labelling of the document by former archivists, in other words the indexing practice and policy in the archive. Thus, it also reveals how P2's archival intelligence[45] affects the formulation of the information need. Another example of a conscious topical information need is given by P4 who explains how 'the western gaze' of the anthropologists is identified by studying the same films over and over again: 'I tend to see the films many times because every time I look at them something new comes up'. In this case we also see how the type of information need is closely related to the actual search behaviour.

The following example of an information need from P6 can be categorised as either a muddled topical or conscious topical information need depending on the level of prior knowledge of the topic in question of P6:

> "And then you know, what I'm looking for sort of the different ways that music is used, different kinds of music and the effect that it might have on viewers to sort of shape the narratives of, of the news and of history, looking at them as historical objects as well" (P6).

From the quotation, we see how the focus is on the role of music, hence a topical focus, but we do not know how familiar the scholar is with this approach, i.e., the effect of P6's domain knowledge,[46] and thus whether to classify the need as conscious or muddled. P2, however, provides a clearcut example of a muddled information need pointing out how they search for coffee and chocolate to learn what is to be found in the archive:

> "…we've been looking to see what there is about coffee and chocolate. Because those are colonial products that very often have colonial images attached to them" (P2).

P4 and P5 both demonstrate verificative information needs. For P4 it is seen by how the search for photos is used to document the identified western gaze in the films: '…[my aim] is really to find some photographs that relate to the same kind of Western gaze that we have seen in the films'. Whereas P5 is very much oriented towards 'known item search', hence categorised as verificative information need, which is illustrated by the following excerpt:

> "We decided the anthropologists beforehand. So, what I did is just, I looked for a clear, with a simple control F search, the name of the anthropologists and, you know, I, so […] to identify the movies I was interested in, and then I was looking at the movies" (P5).

This nicely complements the findings by Duff and Johnson[47] in that the search for person names is a commonly applied search strategy in information-seeking in archives when searching for known material.

5.3 Search Strategies

The scholars' search strategies share some similarities, but the scholars do also adapt collection-specific strategies. In general, keyword searching is used by all scholars, often they plan which keywords to use, e.g., P6 states 'I guess, I started out just thinking about keywords that might bring up colonial contexts or problematic, or sort of controversial aspects of history'. P1 explains:

> "So, I write a list keyword list and I also for each research I make. Uh, I note all the keywords I have used and all the results I have […] I have to write something like 10 keywords with Boolean operators" (P1).

Above, we see an example of competency in using advanced query techniques by P1,[48] just as P6 demonstrates how domain knowledge[49] is applied to identify relevant keywords. Though the scholars tend to plan their keyword searching in advance of searching, we do also see cases of the opposite. For example, P4 explains that no planning of searching is needed for the small collection of films at Pitt Rivers, because they know the collection so well, but that planning is necessary for the searching of the much larger collection of photographs.

P4 and P5's familiarity with the small collection of films is also manifested in how they approach the collections by bypassing the website and directly access the relevant films as illustrated in the following quote from P4: 'I normally go straight into the film collection because that's what I'm looking at at the moment, so I don't go into the website and you know, I've got the link already set up'. Further, P4 and P5 compile search terms from the film metadata to use for searching of the collection of still images in the archive: 'you can get to the archive, the photographic archive, via the

knowledge that you have acquired on the field. In my case from the film collection' (P4). This shows how P4's archival intelligence[50] influences the search strategy. The search behaviour of P4 and P5 is also an illustration of the searching of a verificative information need as pointed out in the previous section on information needs.

The scholars who search large archives often perform explorative,[51] trial and error-based searching. P2 explains it in the following way:

> "Usually, I try to start with a really broad query and see what gets me, and again, it's that sort of narrowing down. So then what I'll do is usually start with a broad query look into one or two documents that are clearly relevant to what I'm looking for and […] I will notice some words that leap out that are really relevant that I wouldn't have known to use as a search term and then I use those" (P2).

P2 continues:

> "In other cases where I've just been curious to see what there is, and that's sort of a keyword search a lot, and it's usually a matter of trying out several different keywords and seeing what shows up" (P2).

Both cases by P2 demonstrate the artefactual literacy of the scholar, which Yakel and Torres[52] point out is a typical area of expertise of archive users.

Another example of search strategy is seen by P1 who has a critical approach and does cross-referencing and checking of information, hence demonstrating both searching of verificative information needs, and search activities that match those of seeking known material and building contextual knowledge.[53] The participants 4 and 5, who in their joint project are dealing with a relatively manageable collection of films, provide the best example of scholars who match the four information need phases of Kirkegaard Lunn[54] (1) getting an overview of transmitted broadcasts, 2) identification of borderline exemplars, 3) selection of specific programmes, and 4) verification of facts) and the four information-seeking activities identified by Duff and Johnson[55] (1) orienting themselves to archives, finding aids, sources, or a collection; 2) seeking known material; 3) building contextual knowledge; and (4) identifying relevant material). While P6 exhibits a case of starting up the research project, becoming familiar with this particular archive and developing the acquired artefactual literacy:

> "So when I first started looking at the archive, I was searching problematic terms specifically, so terms that we wouldn't use anymore. To see what they bring up in terms of history" […] There's actually a useful publication. That's called Words Matter put together by several Dutch institutions, with the theme of kind of decolonizing cultural heritage. That was really useful for starting out with this project to take what others have marked as sort of controversial terms or problematic terms. And then over time, I've sort of added to that list from my own knowledge of Dutch history" (P6).

5.4 Search Challenges

The scholars meet different kinds of challenges when trying to find information in the archives. Some are related to the complexity of the search system. This is illustrated by two examples from P1 and P5, who explain the challenges in building their archival intelligence:

> "Yeah, uh, first thing I have to say is that web archives are very specific. To find information in Web archive is a methodological challenge and uh. It's a kind of research question [in its own right] in a way" (P1).

P5 comments on the difficulties in performing location-based searching: 'I believe, there are several like location or geographically related fields that are not necessarily clear because some with dropdown closed options, like you have continent and then country'. On one hand, we see how the archive user requests geographical metadata for searching, which is in line with the findings of Allison-Bunnell, Yakel, and Hauck.[56] On the other hand, we also see how the request is not fulfilled owing to less intuitive and transparent information system layout, hence causing a challenge of information searching.

Another type of challenge pointed out by P5 is the very 'time-consuming process' of interacting with films, which is also noted by P4, who says, 'I tend to see the films many times because every time I look at them something new comes up'. P2 has even come up with a strategy to cope with this challenge:

> "So you actually bypass the archival metadata and go straight into the transcript itself. Which is great 'cause you can pinpoint literally specific instances of people saying something. So if there's a term of phrase you want, you can go straight to the moment in the broadcast where they're using that phrase. Because one of the peculiarities of working with audio-visual material specifically is that it's extremely time-consuming to actually sit down and watch and or listen to. You know, sometimes it'll be an hour-long document, and if you're looking for something this big. So one of my search strategies is to avoid that at all costs. And well, not to avoid it, but avoid it until I absolutely have to do it" (P2).

This is an example of how the user meets the search challenge and in response develops a search strategy and procedure to make searching less time-consuming.[57] The act of bypassing or short-cutting is also seen by P4 and P5, who previously informed us that they as part of their search strategy access the films directly via a special setup link, and not via the Pitt Rivers Museum's website.

P4 also addresses how the quality of metadata can either improve information searching or impede it. In the case of the small film collection, which has recently been digitised, the quality of metadata is high compared to the much larger collection of photographs: 'Yeah, the quality of the metadata on the photographic collection I, I don't think it's great'. The following quotation demonstrates how dealing with the photographic collection is more demanding and may require the domain knowledge, the artefactual literacy, and the archival intelligence of the user:

> "[O]ne of the things that are being more kind of complex in terms of archival research is the photographic research. Photographic search, because the photographic search in Pitt Rivers, you need to have much more knowledge is it's kind of a bit easier to go to the films because you know, we're talking billions [of photographs]" (P4).

From a library and information science point of view it is also worth noting how the records' metadata is not only a means for retrieval by providing access points for the scholars, but also a source for research information or the actual study object of research for the scholars, which add to the scholars' perceptions of search success and failures. For example, P4 explains how the film collection in some cases contains notes from the anthropologist under study, which provides unique insights:

> "Well, that's interesting because the very film that I was telling you about the Stone Age people in the metadata there is actually the writings of the anthropologist Beatrice Blackwood herself, and not particularly just descriptive writings about what the films contained. And it's interesting because the third part of the metadata which is about the footage of the celebration of the Empire she kind of write to them descriptively, without reflecting in spite of the fact that she had the reputation of being a little bit anti-colonial. So there are all sorts of contradictions arising out of, you know, the metadata which is interesting for me then to connect up with the film and the anthropologists and so on" (P4).

As a sidenote, the above quote about 'Stone Age people' is an example of the type of problematic linguistic term that the PICCH project researches. Here it is found in the institutional metadata used to catalogue an anthropological film about New Guinea.

The research of P2 and P6 are examples of how the metadata is a study object itself as illustrated by P2:

> "Also, things like word choices in the metadata. So not just the archival record itself, but literally. What the metadata tells us about the institution, about the people that were labelling the document itself" (P2).

P6 further elaborates by suggesting to include metadata about metadata, or what we may refer to as 'metadata provenance':

> "Yeah, I think with this collection, with the NISV archives and the media. It's not always clear exactly where the metadata comes from. So there is metadata there for each object, but it's not clear when, or by whom it was created because that institution has a history of gathering a lot of other collections, like from the broadcasting stations or other institutions it's not always clear where along that journey, the metadata came from. So I think. There almost, could be like meta-metadata about where and how the metadata is created. And how it's maybe changed over time or you, so you get information about the object, but you don't get necessarily information about how that information was created and I think in some cases that would be very useful, especially. In this kind of archive you, when you search, you get the results are objects, not collections. So to understand a bit more how collections fit together and the history of those collections in you'd often have to turn to external sources to learn more about the broadcasting stations and how they operated or what the specific context was for creating something. I, I don't think. They're there in the current metadata. The metadata that is there is about describing the individual objects in their content. So doing a historical project and especially one focused on metadata, I think that there could be more information there about exactly what you're getting and in and where it came from" (P6).

The reported challenges are a result of asking the scholars about partly their search successes and search failures and partly the search strategies they apply. When asking about reasons for search success and failures it became apparent that the scholars are not consciously aware of the reasons for either success or failure, but rather focus on the outcome. For example, several scholars reply that to them search success is retrieving relevant material in a short time (P2, P4). P6 provides a rare example of articulation of search failure by pointing to the cause of too broad search formulation: 'So I think, I think search failures are the ones that are just too broad and that then you have too many results to really be able to process them in any way'. This is indeed a rare case, because most of the scholars do not consider search failure explicitly, despite the many examples of adapted search strategies to accomplish successful searching. The scholars acknowledge the difficulty in searching the archives, their expectations regarding search success are low, and search failures appear to be the result of the desired material not to be digitised, hence not searchable, and as such not a search failure when desired material is not retrieved.

5.5 The Need for Help

To overcome the challenges and to get access to not (yet) digitised material, many scholars seek help from archivists, e.g., P3: 'I have to talk to the documentalist in Marseille because the principal office of the INA is in Paris, but I am working in Marseille'. P2 has been working with the archivists and 'discovered that there are very few people actually at the institution, who have a really good overview of what's in the collection. There are one or two people'. P1 also collaborates with archivists, stating:

> "I am also working on different projects and in collaboration with web archivists. […] Sometimes they also share with me data and metadata. For instance, I have metadata of 3000 videos related to the Maghrebi struggle during the 2000 and they had sent me the database in an Excel file, so it's another way to search inside" (P1).

This confirms the importance of accessibility to, and help from, archivists as addressed in previous research[58]. It also reminds us of how the scholars use or develop additional tools to access and manage the archive. The latter is also addressed by P2 concerning how the scholars use supportive software to handle the archive. P2 mentions the TV guide from BBC – 'BBC Genome' and Clariah's Media suite. The Media suite, Excel, and a devised list of terms (the **"Words Matter"** list) are also used by the other Dutch scholar (P6) to interact with the archive content. Though the scholars adapt to the archival systems and try to work the systems independently and on their own, they still need – and highly appreciate – the help from archivists.

6 Summary and Concluding Remarks

With this study we provide a rare insight into six scholars' information searching of digital archives for audio-visual material as part of their research projects. The objective has been to uncover and identify the scholars' information needs and how they achieve the fulfilment of their information needs, including the challenges they face in this regard.

We have successfully managed to adopt the information need framework by Ingwersen[59] to archival information needs, and we are hence able to conclude that all three types of information needs are present also in archive settings, with the conscious topical information need being the most dominant. Further, the study clearly demonstrates the complexity of searching archives for information. This is seen by the existence of the multiple information need phases,[60] the numerous information seeking activities,[61] and by how demanding searching is with respect to requiring domain knowledge, artefactual literacy, and archival intelligence.[62] The scholars in this study are challenged in various ways, whether that be by the search functionality, or by how time consuming it is to search audio-visual material. Hence, we see how they adapt to the system and develop short-cut procedures as well as tools for managing search content and the actual searches. The study also provides an increased understanding of the scholars' use of metadata and the need for indexing that may improve searchability. Last but not least, the study confirms the findings of previous research[63] about the importance of accessibility to, and help from, archivists.

Studies like this fulfil a need for insights about how to understand and improve information searching in archives and also make it obvious that a call for further studies is in place. The scholars in this study have years of experience of searching information in archives, and nevertheless they still struggle and do not master the archives. Or as participant 2 formulates it: 'So I know the collection. …Every time I do a search, I learn a little bit more about the collection'.

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Notes

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Appendix 1 Interview guide

1. What have you been working on recently? (Please describe your typical processes for looking for information in the archives.)
2. What are you going to find information about? Related to job, studies, hobby or other interests?
3. What are the sources of information you are going to search for?
    - How did you know about the collection? (What prompted you to use the collection?)
    - Why do you search this collection? The only one, or more alternatives?
4. Why are you interested in this information?
    - Could you give a recent example or the most memorable incident?
        - Specific objective or information gap?
        - Archive footage in documentary films?
        - Emotional power archival information can generate?
        - Fact finding, material finding, specific form, known item?
5. Is it the first time you search the collection, or are you a regular user? If regular user, then how often do you search the collection?
6. Do you plan how to search in advance of searching? If yes, what is your plan?
7. How do you search the archive?
    - Simple, advanced?
    - Interaction strategies (systematic top-down, systematic bottom-up, systematic interrogation, unsystematic)
8. How do you experience the quality of the search results? (Implying success or failure in searching, related to expectations of museum/archive visits)
    - Original order or relevance ranking
9. What are your experiences with successful searches versus search failures?
    - What do you consider are the reasons for successful searches?
    - What do you consider are the reasons for searches that fails?
    - Can you give an example of a recent search that failed?

10. What makes an information search a successful search?
    - Ease of use, low cognitive load, transparency, search facilities, visual layout of search results, seamless searching across collections, access to material?
11. What are you going to use the information for?
    - Problem solving? Decision making? Giving pleasure? (If yes for one of the options, ask the participant to give a recent example or the most memorable incident.)

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