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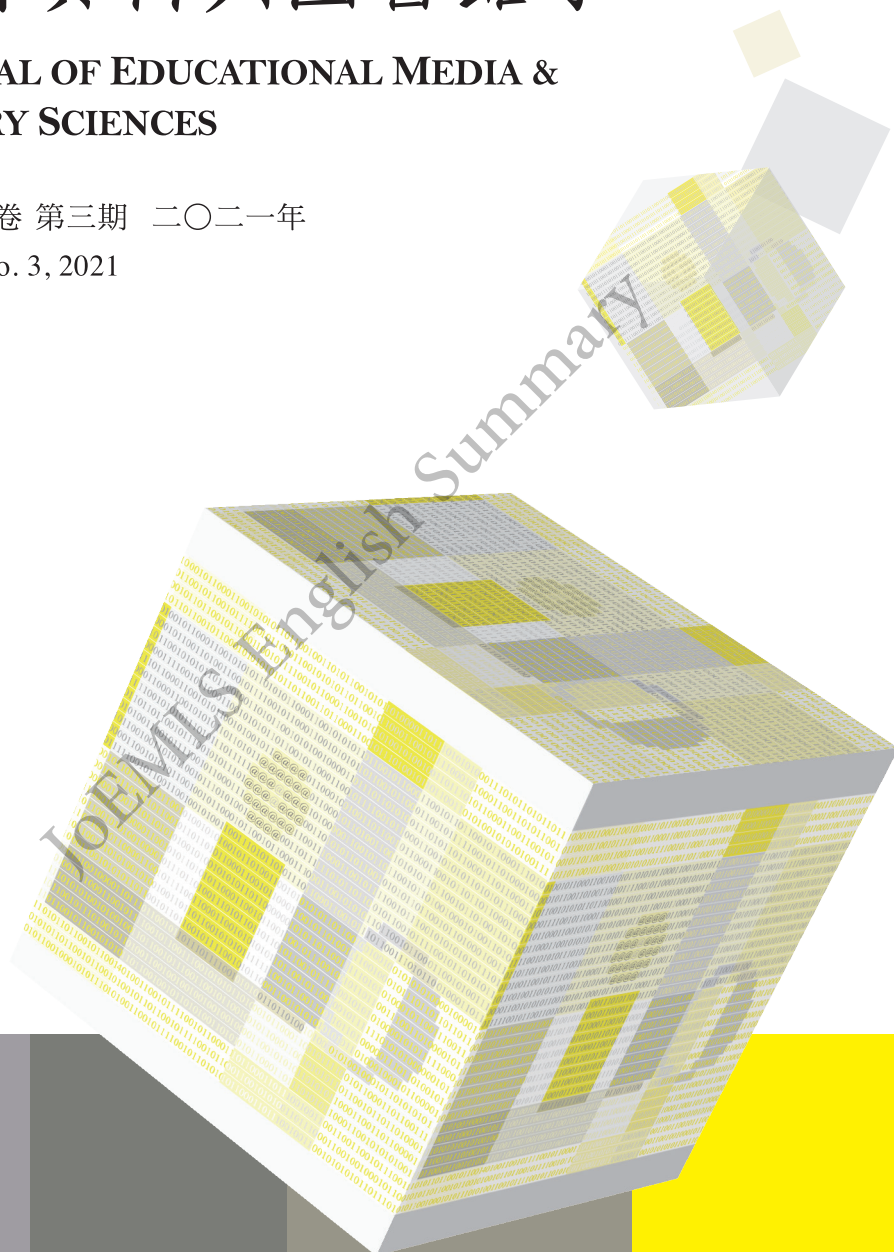
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教育資料與圖書館學，始於1970年3月創刊之教育資料科學月刊，其間於1980年9月更名為教育資料科學，並改以季刊發行。自1982年9月起易今名。另自2016年11月起，改以一年出版三期（3月、7月、11月）。現由淡江大學出版中心出版，淡江大學資訊與圖書館學系和覺生紀念圖書館合作策劃編輯。本刊為國際學術期刊，2008年獲國科會學術期刊評比為第一級，2015年獲科技部人文社會科學研究中心評定為教育學門專業類一級期刊。並廣為海內外知名資料庫所收錄(如下英文所列)。

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L (Librarianship); I (Information Technology); B (Bibliophile and the Book trade)

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- (3) published source must be acknowledged with citation.



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## EDITORIAL

# Views on the Design of Anonymity in “Open Peer Review”

The operation of the Open Peer Review (OPR) has been one of the greatest revolutions in scholarly communication. In recent years, our journal has also embraced this revolutionary trend and has established our own specific norms and model of operation. The reform and innovation of the peer review process is an extremely difficult task, as it involves many human factors: perceptions, logic, habits, policy challenges, etc.

In fact, under the so-called OPR system, it is not an absolute or primary standard of OPR whether the reviewer's name should be concealed throughout the entire process (for example, before and after the review process, and after the official publication), but it is often misunderstood by scholars as such. In terms of the challenges to some existing journal evaluation systems, if the name of the reviewer is disclosed in the post-publication review report, does this OPR system still constitute a design that “overrides” or “negates” the traditional double-blind peer review system? In Taiwan, TSSCI's inclusion policy, which dominates the reputation of scholarly journals for quality, continues to embrace this “dual-anonymous” (double-blind) review as one of the key elements of censorship, as many international standards recognize. This restriction was and is a necessary condition for quality control, but in the age of diverse and interactive technologies, it lacks flexibility and tends to discourage the drive for innovation. Nevertheless, these issues that old ideas hinder are often the striking features of OPR.

In addition, the Committee on Publication Ethics (COPE), an international organization that has a strong influence in the ethics of the academic publication environment, has formulated many guidelines to regulate publication activities. In 2013, the COPE issued a warning and recommendation for journal peer reviewers, which stated that they should politely decline invitations to peer review models that disclose the names of reviewers, in order to avoid the parties concerned having hesitations and difficulties in expressing their review opinions.<sup>1</sup> The COPE's argument, which took shape eight years ago, falls far short of its understanding of the recent innovative developments and the true meaning of OPR, so it has yet to be updated or reinterpreted. This phenomenon also highlights the awkwardness of the emerging system of OPR.

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<sup>1</sup> Committee on Publications Ethics, “COPE Ethical Guidelines for Peer Reviewers,” 1st ed., March 23, 2013, <https://publicationethics.org/files/Peer%20review%20guidelines.pdf>.

In the light of the above, is it necessary for academics and academic publishers to carefully reflect on the “norms” of OPR in the future, so that the OPR system will have more good examples and gain support, and continue its innovation and development within a manageable range? This is a topic of considerable interest for the future and will be a meaningful indicator for the OPR development of this journal. If such a development does occur in the future, the subsequent results will seem more unpredictable, as overly “restrictive” conditions will render the OPR to lose its saltiness and will not be able to prevent corruption either (academic misconduct and fraud). It also does not contribute to the promising innovative development of OPR. A restricted OPR system may become rigid and not contribute to the substantial reform and innovation of the system.

I would like to emphasize once again that the OPR system adopted by the *JoEMLS* is still based on “double anonymity”, and that the reviewers’ names are only consulted after the review process is completed and the decision to accept the manuscript for publication has been made, which is a design that respects both rights and obligations equally. We will also continue our efforts in making the OPR of our journal more relevant and progressive, so as to align with the significance of the times in the scholarly publishing environment.

Finally, in this Issue 3 of Volume 58, 19 manuscripts have gone through the review process, we have accepted three manuscripts and rejected six. Ten manuscripts were rejected at the internal review process, with a rejection rate of 84.2% (16 out of 19). Several manuscripts are still in the review process. The three manuscripts published in this issue include “Exploring the Information Behavior of Primary Caregivers for Children with Autism Spectrum Disorder: An Information World Mapping Approach” by Chen-Hsuan Tai and Tien-I Tsai; “Digital Curation of Local Historical Research Data: Use ‘Two Ancient Forts of Keelung and Tamsui’ as an Example” by Sinn-Cheng Lin and Kai-Ting Fan, and “An Overview of Scholarly Communication, Research Data Management and Digital Scholarship Services in American Academic Libraries: An Empirical Study from Five University Libraries in the States of Massachusetts and Missouri” by Yuan-Ho Huang. We would like to thank these scholars for their excellent contribution and generous permission for making the peer review’s comments and rebuttal open.

Jeong-Yeou Chiu  
*JoEMLS* Chief Editor



# Exploring the Information Behavior of Primary Caregivers for Children with Autism Spectrum Disorder: An Information World Mapping Approach<sup>ψ</sup>

Chen-Hsuan Tai<sup>a</sup> Tien-I Tsai<sup>b\*</sup>

## Abstract

*This study aims to explore the information needs of primary caregivers of children with autism spectrum disorder (ASD) when caring for the autistic children, and to identify the relationships among people, items, and places in the information world, especially the information sharing behavior. Semi-structured in-depth interviews were conducted with the information world mapping visual-elicitation method. Seventeen primary caregivers of children with autism between 6 and 12 years old were interviewed. The current study found that medical information needs, parenting information needs, education information needs, moral support information needs, and everyday-life information needs are the five major information needs of the primary caregivers of children with ASD. Caregivers tend to obtain information through referrals from and among different people, items and places according to different information needs. The typical relationships among people, items, and places include starting from consulting people, back-and-forth between physical and virtual locations, and multiple referrals. As to information sharing, caregivers would only have time to share information with others when having sufficient self-confidence and being in a stable state. And information sharing is more likely to occur somewhere caregivers stay for a long time or visit regularly. While caregivers share information with professionals and families for self-interest, they share information with other caregivers on social media for altruistic purposes. Based on the findings of the current study, practical suggestions for library and information institutions, medical institutions, education institutions, and social welfare institutions are provided.*

**Keywords:** Autism spectrum disorder, Primary caregiver, Information behavior, Information world mapping

<sup>ψ</sup>This article is based on Chen-Hsuan Tai's master's thesis entitled "Exploring the Information Behavior of Primary Caregivers for Children with Autism Spectrum Disorder: An Information World Mapping Approach." The authors presented an earlier version of this work at the "Education Research and Industry Conference 2021" held by Fu Jen Catholic University, Taiwan.

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## **SUMMARY**

### **Introduction**

Autism is a lifelong developmental disorder believed to be caused by abnormal brains and nervous systems. Autistic people often have social communication disturbances and stereotypic behaviors accompanied by emotional management disorders, slower cognitive development, or sensitive sensory systems. In 2007, the United Nations designated “World Autism Awareness Day” to raise global awareness regarding autism and promote the understanding and research of autism. With increasing awareness, many more individuals were diagnosed on the autism spectrum at an early age.

Autism is a wide-ranging disorder with vastly different impacts on different persons. Some autistic people may not be able to care for themselves and will need to be cared for by others throughout their lives. However, most caregivers did not know much about autism when their child was initially diagnosed with autism. Yet, when taking care of the autistic child, caregivers may need, in response to the special needs of their child, to acquire a wide range of knowledge on medical treatments, emotions, special education, and so on. This need for additional specialized knowledge may impose tremendous physical and psychological pressure on caregivers and even affect their own quality of life. Relevant literature revealed that early awareness and high-quality information were beneficial to the caregivers and the autistic child. Possession of such knowledge and awareness is likely to offer better opportunities for improving the development of autistic children and for alleviating the pressures of caregiving. However, little is known regarding the information behavior of autistic children’s caregivers. In library and information science, relevant literature mostly introduces library resources and services available to the autistic population.

To depict the information behavior of autistic caregivers, this study investigates the following research questions:

1. What types of information needs do primary caregivers of autistic children present in their information worlds?
2. What elements (i.e., people, items, and places) are included in their information world maps (IWMs)? What are the relationships among the above elements? And how do the above elements help meet different types of information needs?
3. What types of information-sharing behaviors are presented in caregivers’ IWMs? What people, items, and places facilitate their information sharing?

### **Methods**

IWM, a visual-elicitation method, was proposed and developed by Greyson to investigate sensitive health information practices. IWM is a visual method



for studying health information practices. By examining the items, places, and relationships, IWM focuses on the social aspects of participants' information practices and the various interactions between people and information, including information-seeking, information use, and information sharing.

This study examines the information practices of autism caregivers, emphasizing information-sharing behavior in caring situations that may involve the disease severity of autistic children, family relationships, psychological conditions, and other personal issues. Therefore, the conversations in the interviews could be somewhat sensitive. IWM was used to collect data in this study.

In this study, the primary caregiver was required to have been a family member over 18, living with the autistic child and spending the most time caring for the autistic child. Semi-structured in-depth interviews were conducted with 17 primary caregivers of autistic children between 6 and 12 years old. The average ages of the caregivers and the autistic children are 42.5 and 9.2 years, respectively. Most of the autistic children had been diagnosed with mild autism; only one with severe autism.

Participants were asked to describe the typical day and week spent taking care of the autistic child. Following this descriptive work, the interview then addressed the information needs and sources consulted in these contexts, especially the people, items, and places involved. Information-sharing experiences were also asked. After the major conversation ended, the participants were asked to draw their IWM. Follow-up questions were asked to clarify their drawings and further capture their experiences.

The unit of analysis is each primary caregiver, and situational analysis was used for data analysis. Personal narratives and the IWMs were examined together at an individual level. Situational analysis was used to analyze the data. It is suitable for analyzing data collected from multiple sources and data containing complex situations. This study focused on the social aspects of participants' information practices; various interactions between people and information; and participants' perspectives on the items, places, and relationships within their IWMs. We examined people, items, and places, as well as the relationships among them in various situations when primary caregivers take care of autistic children. We then identified primary types of relationships formed by caregivers with important people, items, and places.

## Findings

When caring for autistic children, caregivers' primary information needs were usually medical, parental, educational, moral-support, and children's everyday-life information needs (e.g., economic subsidies, policies, and

employment). To meet these information needs, caregivers typically obtain information from various sources, including search engines, official websites of specific organizations, social media, personal connections, and so on.

During the information-seeking processes, caregivers typically prefer using local sources to obtain local information. Information referrals are also important in the information-seeking processes and help form relationships connecting people, items, and places in caregivers' IWMs. Specifically, three major types of relationships were identified: (1) information referral and information-seeking behavior tend to begin with people; (2) caregivers often travel back and forth between physical and virtual places; (3) caregivers may consult multiple sources and go through multiple referrals to obtain quality information to meet their needs.

As to the characteristics of information-sharing behavior, caregivers usually use one-way or two-way arrows in their information world map to represent the directions of information sharing and information exchange with others. Specifically, one-way information sharing typically expresses caregivers' sharing information with others without other interactions. Two-way information exchange typically involves caregivers' sharing information with others and getting feedback from those others. More interactions and discussions also happened more frequently in two-way information exchange. Most caregivers share information with other caregivers who are in similar situations. Some also share information with their relatives or partners and with schoolteachers and therapists. This study also found that information sharing usually occurs when caregivers and their children are in good condition, especially when the caregiver has sufficient self-confidence and the child is stable.

This study further identified two types of intrinsic motivations for information sharing: self-interest and altruism. While caregivers generally share information with professionals and family members for self-interest, they share information with other caregivers on social media for more altruistic purposes. For instance, caregivers' information sharing for self-interested purposes is typically directed toward helping their autistic children get better care or coping with their own emotions. In these above situations, caregivers usually share information with schoolteachers, therapists, other professionals, relatives, friends, and other caregivers. For instance, most caregivers hope to share information about the children's current state with teachers and therapists so that their children can receive the best care and treatment. When sharing information with relatives and friends, caregivers may also hope others will better understand their children or may be trying to cope with their own emotions.

When further examining the external conditions that facilitate information sharing in caregivers' IWMs, we found that information sharing is more likely

to occur in places where caregivers stay for a long time or regularly visit (either physically or virtually). In particular, it is easy for caregivers to have intensive interactions with professionals (e.g., doctors, therapists, schoolteachers) and family members at the hospital, clinic, school, or home. Hospitals or clinics may be a place for caregivers' mutual support, thus facilitating the exchange of information among caregivers. Finally, social media platforms functioning as virtual spaces can provide caregivers easy access at any time in any location and facilitate information sharing and exchange.

## Conclusion

Overall, the information-seeking process of caregivers can be complicated. Information referrals from and among different people, items, and places can be vitally important to meet caregivers' various information needs. A wide range of professional organizations appears in the caregivers' IWMs. While medical institutions, educational institutions, and other agencies provide helpful information to the caregivers, some caregivers pointed out challenges during the information-seeking processes. Nonetheless, based on these findings, this study suggests that medical institutions successfully promote general health education information on autism. Educational institutions can increase the visibility of internal information on special education information and help consolidate external information. Non-government agencies and social welfare institutions can work together to facilitate accessible information for the caregivers.

As to future research, since caregivers' information needs may become more diverse as autistic children age, future research can examine the information practices of caregivers of adolescents with autism. Additionally, this study aims to explore all potential sources consulted by the caregivers; therefore, participants in this study all reside in the cities in Taiwan, which provide the most resources. This study, as noted, also found that caregivers prefer local information. Therefore, future research might investigate caregivers who reside in areas where resources are scarce. Such a study could help further depict the information practices of caregivers with different backgrounds.

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JoEMLS English Summary



# Digital Curation of Local Historical Research Data: Use “Two Ancient Forts of Keelung and Tamsui” as an Example

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## Abstract

Taiwan has been developing local historical studies for more than 30 years, and there have been problems such as the research data cannot be effectively preserved, added value, reused, transformed, and promoted. Based on the concept of digital curation, this paper proposes a digital curation model of local historical research data, and uses the two ancient forts of Keelung and Tamsui left over from the Spanish-Dutch period in northern Taiwan in the 17th century as examples. We start with the relevant historical material, collecting, screening, and compiling literature data, carry out field surveys and digitize the collected materials for processing and preservation. Furthermore, consider the subsequent access, presentation and reuse of digital content in order to transform it into popular science content suitable for public viewing. Finally, through the development and presentation of 3D models, the actual experience of VR virtual curation, plus the production and broadcasting of videos, the integration of virtual and real is carried out. In addition, this research also promotes online curation in response to the Covid-19 epidemic. The benefits can be learned from the analysis of online viewing data that digital curation does have the effect of not being restricted by time and space.

**Keywords:** Local historical studies, Studies of local knowledge, Data curation, Digital curation, Digital humanities, Covid-19

## SUMMARY

### Research Background

“Local historical studies” focuses on understanding, investigating, studying, and examining a specific area, with the intention of knowing all aspects of a

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local place, including its history, cultural, social norms, economy, folklore, arts and architecture, etc. Providers of research data in this field might be cultural and historical researchers, the local elderly, researchers and scholars from the academia. Since research data come from a variety of sources, the data source is diverse in nature and with all kinds of looks and forms; at present, an effective method of managing, sharing, and reusing is lacking, yet needed. On the other hand, in the field of data management, the goal data curation (digital curation) is exactly on preserving and managing research data. It covers the life cycle of handling research data from the beginning to the end, which includes processing, saving, preserving, curating, sharing, and reusing. The goal of the study is therefore to apply the life cycle model originated from digital curation and develop a model of data curation for managing research data of local historical studies.

To propose a model of data curation for local historical research data, the research team used two ancient forts of Keelung and Tamsui (aka Fort San Salvador and Fort San Domingo) from the Spanish-Dutch period in northern Taiwan in the 17th century as the research target. The process included collecting historical materials, filed studies, system development, and data analysis; the research results were preservation of related digital content in the form of a designated website, a 3D model reconstructing the ancient forts, exhibitions of virtual reality (VR) showcasing the historical sites, video clips sharing local knowledge. In addition, the research also promoted research results through online curation in response to the Covid-19 epidemic.

### **Research Question and Research Methods**

The ultimate goals of collecting and transforming research data originated from local historical studies is for the general public to better understand our local histories, thus bonding a stronger community that shares common values. Local memories are promoted and preserved with such efforts. Based on the goal of promoting local memories of the two ancient forts Keelung and Tamsui through digital curation, this study instigated the following research questions:

1. What are the critical research data that need to be collected, filtered, and transformed so that the general public would better understand the complicated historical events happened during the four-hundred years the two ancient forts went through?
2. What is the external look and shape of the no longer existed Poultry Crate (aka Keelung)? Where was it located at the time? Would field works and local historical documents help us understand the historical sites?
3. How could we integrate related digital contents for future use?

4. How could we reconstruct the two ancient forts? How could we rebuild the historical sites?

5. With the impact of Covid-19, how could we promote local histories to the general public? What would be the effect of the promotion?

To answer the above research questions, the study adopted the following methods:

1. Literature review: The team reviewed related literature and historical documents in order to understand the changes of the exterior shapes and locations of the two ancient forts.

2. Field works: The team carried out field works on the actual sites of the two ancient forts to understand the current situation and collect related materials. The researchers did field works by foot, by boat, and by drone to take photos from the land, sea, and sky, so to fulfill the gap of the literature. The data collected through multiple methods were later used in generating digital contents.

3. System design: The team designed and built a website to incorporate related digital contents generated by the research, which includes 3D models, VR, and video clips. All these digital contents share the same goal of reconstructing the past and to promote local knowledge to the general public.

4. Data analysis: The team analyzed the research data with a focus on data curation and effectiveness of the digital curation.

## Research Results

Based on the research results and the nature of local historical studies, the researchers proposed a “Digital Curation Model for Local Historical Studies” that covers the entire life cycle of local historical studies. According to concepts of supply chain, the study of local history could be categorized into three phases: upstream, midstream, and downstream. Upstream covers the scholarly activities of collecting, generating, and building dataset; midstream covers processing, analyzing, and preserving data; the last phase, downstream, covers retrieving, demonstrating, and reusing the data. Applying the model to digital curation of the study, the research results were as follows:

1. Through literature review and data analysis, the researchers were able to clarify critical events over the four-hundred years of history of the two ancient forts and generate a historical timeline based on regime shifts. This work fulfills the information needs for the general public in a way it helps users understand the historical context; the timeline also met one of the goals of digital curation.

2. By examining historical maps, local materials, and related literature, the look of the exteriors of Poultry Crate (aka Keelung) was formed. The exact location was identified with field works and photos collected from the land, sea,



and sky of current sites. All these data collection techniques contributed to better understanding of the past and present situations. The Fort San Domingo at its present location was also compared and contrasted to reveal and confirm details of related events.

3. The “Digital Curation Model for Local Historical Studies” proposed by the research was effective in integrating all digital contents into a digital humanities preservation system.

4. 3D modeling techniques were used to reconstruct the look and shape of two ancient forts; VR techniques helped rebuild the historical sites.

5. Due to the impact of Covid-19, in addition to the scheduled VR exhibitions, the research team produced video clips and shared them through a variety of channels, such as online exhibitions and social media. Data analysis revealed these promotions and exposures were fairly effective, with the number of viewings reached 16,000 times within 128 days.

#### **ROMANIZED & TRANSLATED NOTES FOR ORIGINAL TEXT**

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# An Overview of Scholarly Communication, Research Data Management and Digital Scholarship Services in American Academic Libraries: An Empirical Study from Five University Libraries in the States of Massachusetts and Missouri<sup>ψ</sup>

Yuan-Ho Huang

## Abstract

*The core task of academic librarians are to support academic research. The recruitment for the following librarians' positions including scholarly communication librarians, research data management librarians, and digital scholarship librarians is popular in American academic libraries. Few university libraries provide in-depth digital scholarship services in Taiwan. In order to learn experiential knowledge about digital scholarship services of American academic libraries, qualitative interviews were applied in this research. The interviewees include four scholarly communication librarians, three research data management librarians, two digital scholarship librarians. The research results were stated as the following items: core job descriptions, multiple skills including communication and challenges, the personal traits of good librarians and their passion, the roles and tasks in digital age. Several suggestions were provided in this study, including prioritizing tasks for future work, proposing plans for most challenging works, flexible organizational structure, and developing librarians' competencies and skills. The research results are helpful to propose a plan for the practical work required of digital scholarship professionals and services in university libraries in Taiwan.*

**Keywords:** Academic libraries, University libraries, Scholarly communication librarians, Research data management librarian, Digital scholarship librarian, Core competence

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## **SUMMARY**

### **Introduction**

The main roles of academic librarians are to support academic research. Recruiting scholarly communication librarians, research data management librarians, and digital scholarship librarians is popular in American academic libraries. However, few university libraries provide in-depth digital scholarship services and no job titles of the three types of librarians can be found in academic libraries in Taiwan. Therefore, it is helpful to examine the roles involved, competencies and skills of the aforementioned librarians from the related literatures as well as to investigate their practical work, to gain empirical knowledge from them.

The patterns of scholarly communication have changed a lot in the digital age. The open science movement facilitates more freely available research and librarians need to provide services related to the openness of scholarly work in each stage of research life cycle. Librarians manage not only the research output, i.e., publications, but also the raw research data. Therefore, Calarco et al. (2016) provide a comprehensive information about roles involved, competencies and skills, representative job titles for scholarly communication librarians. North American Serials Interest Group (2017) describe five potential areas of emphasis for scholarly communication librarians, including institutional repository management, publishing services, copyright services, data management services, assessment and impact metrics. Schmidt and Shearer (2016) also provide thorough guide for librarians' competencies for research data management. M. King (2018) examined the skills and competences for digital scholarship librarians and showed that collaborative skills, knowledge of digital scholarship and approaches are important capabilities. Pontika (2019) analyzed the information of job advertisements relating to open access, repositories and research data management and concluded that the open research services is complex and librarians need to obtain a variety of general and subject specific skill sets and more than one area of expertise. In addition to reviewing the above literature to acquire a clearer picture of librarians' work for providing open research services, an empirical study is necessary to help us further understand their practical work experience.

In this study, research questions are as follows: (1) what are these librarians' roles involved? (2) What are the core competences and skills? (3) Are there any difficulties or challenges when providing services? (4) What kind of soft skills that good librarians should have? (5) What are the future development of academic libraries and expectations to librarians in the next generation?

## Research Method

In order to learn experiential knowledge about digital scholarship services of American academic libraries, qualitative interviews were applied in this research. The interviews were conducted from August to October, 2019. The interviewees include four scholarly communication librarians, three research data management librarians, two digital scholarship librarians. These librarians work in different university libraries, including one university in Rolla, Missouri and four universities in Boston, Massachusetts. The scale of libraries range from 15 to 800 librarians, seven interviewees have master's degree in library science or information studies, and two digital scholarship librarians own Ph.D. degree in history and humanities computing.

## Research Results and Suggestions

The research results could be categorized as two parts, one looks at the roles and competences in professional work, while the other category looks at soft skills. From the first category, several findings are as follows. (1) Librarians help researchers to deposit researchers' publications into the repository in order to comply with the public access policy from the funding agency. They provide the copyright, fair use and open access advice, as well as help researchers to find proper the journal to publish in, while being cautious not to submit papers to predatory journals.

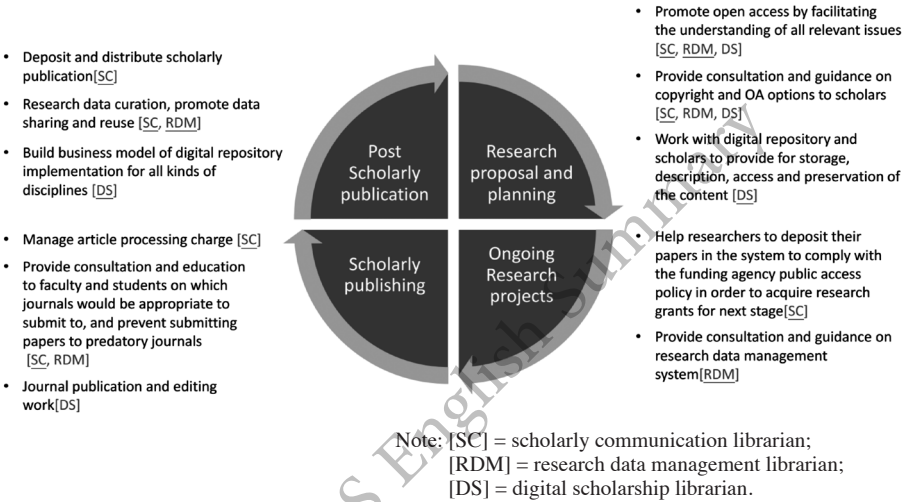
(2) Librarians advocate and support for managing data collections and provide data reuse services. The willingness of scholars to share data in different discipline are not the same. If the research data management plan is necessary for a research proposal required by the funding agency, then it will raise the awareness of researchers to share data. Librarians should understand this diversity and provide consultations according to patrons' need. (3) Librarians collaborate and brainstorm with researchers and this introduces both internal and external opportunities to develop digital scholarship projects. These collaborations also provide advice to build up customized content management systems.

To sum up, the professional work involved in scholarly communication, research data management, and digital scholarship librarians as shown in Figure 1, indicating that their services are included in different stages of the research life cycle.

From the second category, regarding to the soft skills, research findings are as follows. (1) Librarians often collaborate with both internal and external stakeholders. Communication skills are very important. (2) Librarians often offer different topics of consultations and teach in a variety of workshops. Teaching is a very vital skill. (3) Librarians encounter with several kinds of challenges, including how to promote the number of participants in every activity, how to educate researchers of open access issues, how to raise awareness of sharing data

among the research community, how to build up an effective and sustainable business model for research data management. (4) Librarians face new tasks quite often, they need to acquire new knowledge all the time. They continue to educate themselves by attending workshops or seminars, learning by doing, or pursue a second master’s degree. In addition, they also join professional forum or alliance, i.e. Research Data Alliance, to learn from professional members from other institutions.

**Figure 1 Services and Consultations of Three Types of Librarians during Research Cycles**



In terms of the personal traits of good librarians and their passion, many librarians mentioned having curiosity and willing to acquire new knowledge, possessing good communication skills and a nature capability to collaborate well with people. Because librarians often encounter new sets of responsibilities and uncontrollable situations, they need to adapt to change all the time, and think systematically and exercise strong project management skills. In addition, librarians’ passions come from the followings, satisfaction in serving for the public good and having the greater impact on society. Librarians express feeling great reward after acquiring positive feedback from patrons who begin to discover new knowledge through the tours and services provided by the library.

The important issues of the expectations to librarians in the future were raised as the followings. (1) Always communicate with patrons and meet their needs. (2) Education and playing the role of shepherd to lead patrons toward their data/information needs. (3) Make use of modern technology and combine with information services. Think about how data/information will be used in the context of human use, instead of computer use. (4) Consider ways to help scholarly publishing transition to open access scholarly communication models.

Several suggestions were provided in this study as the follows. (1) Prioritize scholarly communication, research data management, and digital scholarship services for future work, and propose plans for most challenging works. (2) Apply matrix organization, to develop flexible organizational structure for new work design, assign tasks for new project team when initiating new services. (3) Develop librarians' competencies and skills. Encourage librarians to attend different topics of workshops and social community to broaden their mind. (4) Explore the mechanism to promote the morale of librarians, such as positive stories about "librarian of the year" and celebrate other good success stories. (5) Recruit more librarians with PhD degrees to provide high-quality information services. (6) Consider curiosity, passion of acquiring new knowledge, and good communication and teaching skills as the criteria when recruiting future librarians.

The research results are helpful to propose a plan for the practical work required of digital scholarship professionals and services in university libraries in Taiwan.

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