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Nomadic life archiving across platforms: Hyperlinked storage and compartmentalized sharing

Yang WANG

Sun Sun LIM
Singapore Management University, sunsunlim@smu.edu.sg

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Yang Wang (iD)
Singapore University of Technology and Design, Singapore

Sun Sun Lim
Singapore University of Technology and Design, Singapore

Abstract

People are today located in media ecosystems in which a variety of ICT devices and platforms coexist and complement each other to fulfil users' heterogeneous requirements. These multi-media affordances promote a highly hyperlinked and nomadic habit of digital data management which blurs the long-standing boundaries between information storage, sharing and exchange. Specifically, during the pervasive sharing and browsing of fragmentary digital information (e.g. photos, videos, online diaries, news articles) across various platforms, life experiences and knowledge involved are meanwhile classified and stored for future retrieval and collective memory construction. For international migrants who straddle different geographical and cultural contexts, management of various digital materials is particularly complicated as they have to be familiar with and appropriately navigate technological infrastructures of both home and host countries. Drawing on ethnographic observations of 40 Chinese migrant mothers in Singapore, this article delves into their quotidian routines of acquiring, storing, sharing and exchanging digital information across a range of ICT devices and platforms, as well as cultural and emotional implications of these mediated behaviours for their everyday life experiences. A multi-layer and multi-sited repertoire of 'life archiving' was identified among these migrant mothers in which they leave footprints of everyday life through

Corresponding author:
Yang Wang, Singapore University of Technology and Design, 8 Somapah Road Singapore 487372.
Email: yang_wang@sutd.edu.sg

a tactical combination of interactive sharing, pervasive tagging and backup storage of diverse digital content.

Introduction

The prevalence of various information and communication technologies (ICTs) today has dramatically changed people's lifestyle and brought revolution in their habits of digital data management. Multi-functional social media platforms, in particular, have promoted an interactive and relational culture in which traditionally private data storage and curation are brought from 'back stage' to 'front stage' (Goffman, 1969), and increasingly being replaced by public sharing and extensive exchange of information among networked others (Marwick and Boyd, 2011; Oeldorf-Hirsch and Sundar, 2015; Turkle, 2011). In this context, while users are able to enjoy unprecedentedly rich connections and information in the networked world, they also face challenges of appropriate self-presentation and navigation of multiple and fluid social roles (Marwick and Boyd, 2011; Vitak et al., 2015). For international migrants who straddle different geographical and cultural contexts, data management is more complicated as they have to be familiar with and appropriately navigate technological infrastructures of both home and host countries.

Previous research has provided considerable insight into the ways in which people manage different types of digital materials via various ICTs, including massive data storage devices or services like mobile hard drive and iCloud (e.g. Fernando et al., 2013; Hashem et al., 2015), specialized online communities or applications such as online video websites (Burgess and Green, 2009; Khan, 2017), as well as social media platforms such as Facebook and Twitter (e.g. Marwick and Boyd, 2011; Pai and Arnott, 2013). However, these studies mostly focus on the role of specific ICT devices or functionality in people's data management routines, while overlooking the collective influence of the different dimensions of the overarching multi-media environment. Moreover, the emotional burdens and dilemmas that may emerge from navigating multifarious technological affordances are hitherto understudied, especially in relation to the multi-media data management of international migrants and transnational households.

This study seeks to consolidate and contribute to extant literature on digital data management through delving into the multi-media routines of digital data accumulation, storage and exchange by a group of Chinese migrant mothers resident in Singapore. Particular focus is placed on how these mothers strategically choose among and cycle through multiple ICT devices or platforms to organize different types of digital materials, as well as the emotional implications of various data management practices for their everyday life experiences. The polymedia theory (Madianou and Miller, 2012, 2013) and theory of emotion work (Hochschild, 1979, 1983) are combined to form an integrated framework for understanding mediated behaviours and emotional undertakings of participants.

Through ethnographic observation, a multi-layer and multi-sited repertoire of 'life archiving' was identified wherein these migrant mothers left footprints of everyday life through a tactical combination of interactive sharing, pervasive tagging and backup storage across various ICT devices and platforms. Archiving, as a method of collecting, accumulating and preserving historical records, has gained new layers of performativity and narrativizing on the burgeoning social media platforms such as Facebook (Banks and Vokes, 2010; McKay, 2010; Zhao et al., 2013). In this article, life archiving is used to describe the hyperlinked, performative and chronological narrativizing of everyday life in mediated spaces, including personal narratives, family conversations and tagging of fragmentary information online. Compared to mechanical and haphazard 'recording' of life experiences, archiving charted the trajectory and milestones of these mothers' transnational journeys, which allowed them to preserve memories and reproduce self-identities over time.

Digital data management with multi-media affordances

Affordance of a media technology refers to potential opportunities it could provide for users to undertake certain tasks, which determine how the ICT should be used, what practices can be performed, as well as what outcomes can be expected (Conole and Dyke, 2004; Mcloughlin and Lee, 2007; Norman, 1988). In this research, the focus of technological affordances is twofold – it on the one hand points to what technologies enable people to do; and on the other hand, also involves how people appropriate the available affordances in a strategic and creative manner to fulfil their heterogeneous goals. In our current multi-media environment, each digital artefact or platform offers different affordances for acquiring, storing, sharing and retrieving data, and can be used to manage different types of digital materials, including but not limited to text documents, videos, images and so on. In general, previous research has delved into three categories of ICT tools which play significant roles in people's digital data management, namely massive data storage devices or services, specialized online communities or applications and social media platforms.

The first category consists of data storage ICTs which afford users a relatively large-scale and reliable 'digital warehouse' for long-term storage, organization and retrieval of massive digital materials. This warehouse role was previously undertaken by tangible digital devices such as home computers or laptops, mobile phones and mobile hard drives. With the growing prevalence of Internet access and proliferation of digital data, these offline devices are increasingly replaced by cloud services like iCloud, Google Drive, Dropbox and so on. Compared with offline devices, networked services demonstrate many advantages such as larger storage space, accessibility of data from multiple terminals and retrievability of version history, while also bringing about potential concerns about information privacy and overreliance on Internet connections (Fernando et al., 2013; Hashem et al., 2015).

Another significant category of data management ICT is specialized online platforms or applications that are designed to collect, record, organize and store specific types of digital materials such as videos, music and diaries. These include platforms such as Blogger, Pinterest and YouTube. These compartmentalized platforms afford users more

customized experiences in which they not only obtain professional gadgets for data curation but also come into contact with people who share similar interests. For example, video websites such as YouTube allow users to seek, subscribe and upload a wide variety of videos, and at the same time engage in discussions on relevant topics with others (Burgess and Green, 2009; Khan, 2017).

The prevalence of multi-functional social media platforms such as Facebook and Twitter has dramatically transformed people's habits of digital data management. In particular, a series of interactive functionalities on social network sites (SNS), such as status posting, liking, tagging and location check-in, combine to encourage a relational-oriented culture in which logging and sharing of digital materials are reduced to mere means of initiating conversations and strengthening relationships (Brantner, 2018; Oeldorf-Hirsch and Sundar, 2015; Pai and Arnott, 2013). The emergence and popularity of mobile camera applications further facilitated the flourishing of interactive sharing practices as they enable the visual engagement with others' life experiences in real-time (Keep, 2014; Van House, 2011). In this networked culture, while users are able to enjoy wider and more extensive connections, they increasingly face challenges of appropriate self-presentation and the navigation of multiple and fluid social roles (Marwick and Boyd, 2011; Vitak et al., 2015).

Although previous studies have elaborated on how users manage different types of digital materials according to the respective technological affordances, so far minimal light has been shed on how users systematically employ a combination of old and new, offline and online, integrated and specialized ICT devices or platforms for effective data management. Moreover, the potential tensions and emotional burdens that may emerge from choosing between, cycling through and complementary use of various ICTs for navigating massive digital materials are hitherto understudied. In view of these gaps, this article seeks to provide insight into the multi-media routines of digital data management by a group of Chinese migrant mothers, and to identify any attendant emotional burdens and dilemmas. Specifically, the following research questions will be answered:

> RQ1: How do Chinese migrant mothers employ various ICT functionalities to manage their growing body of digital materials?

> RQ2: What emotional burdens have emerged from these mothers' data management routines?

Polymedia as a transnational lifestyle

In contemporary society, we are surrounded by an increasingly complicated media ecosystem in which a whole variety of ICT devices, applications and platforms coexist and complement each other to meet people's heterogeneous requirements (Feaster, 2009; Quandt and Pape, 2010). With this ever-evolving multi-media landscape, people are endowed with unprecedented autonomy in strategically choosing among, combining and alternating between multiple ICT innovations based on their social positions and immediate circumstances (Bakardjieva, 2006; Licoppe, 2004).

A suitable framework that could contribute to our understanding of this environment of media multiplicity is polymedia theory (Madianou and Miller, 2012, 2013). This

framework considers media as an integrated environment and provides insights into social, emotional and moral consequences of multi-media navigation on people's life experiences. In particular, each single ICT should be defined in historical and functional relation to all the other ICTs to form a composite structure of affordances. This organic structure emancipates users from limitations of each ICT device or functionality, and allows systematic mobilization of a variety of technologies to appropriately fulfil different tasks. In this context, decisions about what ICTs to use, how to use and with what expectations become emotional undertakings driven by users' subjective desires and preferences rather than physical or economic constraints imposed by limited available resources.

For international migrants and their remote family members, polymedia has become a habitual lifestyle in which they strategically deploy a combination of multiple ICTs to fulfil family responsibilities and reproduce intimacies across vast distances. Mothers in transnational families, for instance, are reported to employ a wide variety of technological devices and applications to stay updated on the well-being of their far-away children on a daily or even hourly basis (e.g. Longhurst, 2013; Madianou and Miller, 2011; Peng and Wong, 2013; Uy-Tioco, 2007). In particular, prolonged video chats with webcam software (e.g. Skype, Facetime) and the frequent exchange of photographs are particularly suitable for intensive 'deep conversations' in which they participate in each other's everyday routines and provide real-time emotional support in a quasi-face-to-face manner (Cabalquinto, 2017; King-O'Riain, 2015; Sinanan et al., 2018). Meanwhile, text-based communications, such as SMS and instant messages, are used as complements for visual and audio interactions to maintain continuous greetings, updates and coordination (Peng and Wong, 2013; Uy-Tioco, 2007). In addition, many mothers also stay in 'ambient co-presence' with their children on SNS like Facebook and Twitter to get a sense of their quotidian bittersweet moments without direct interaction (Madianou, 2016).

Emotion work and feeling rules

ICTs have long been perceived as emotion-laden, mediating not only emotional experiences and expressions but also creating emotional attachments and burdens of their own (Lasen, 2004; Vincent, 2011). In this research, the theory of emotion work developed by Arlie Hochschild (1979, 1983) is employed as a framework for investigating the emotional negotiation of migrant mothers in their daily management of various digital materials.

According to this framework, people's inner emotions are increasingly being regulated and commodified in their outward expression in exchange for certain benefits. Emotion work, as a product of this commodification process, emerges from the negotiation of contradictions between one's authentic emotions and the socially expected ways of displaying (or concealing) these emotions in particular circumstances. In other words, emotion work describes an effort of overcoming the dissonance between 'what one actually feels' and 'what one should feel' in view of one's assigned social role and the specific situation she or he encounters. The socially appropriate norm of emotional expression, or the tacit consensus about 'what one should feel', is referred to as '*feeling rules*', which are largely unwritten moral codes acquired through socialization within

given cultural contexts. For instance, as Hochschild exemplified, flight attendants are required to abide by the feeling rules of being cheerful and friendly to customers even when they actually feel very depressed. Solving this dissonance usually requires a person to intentionally suppress or summon specific inner feelings of oneself in order to create expected emotions in others.

In the context of the mediated world, different digital devices or platforms are characterized by different feeling rules, and hence engender different types of emotional negotiation in people's navigation across various platforms (Lasen, 2004; Vincent, 2011). Mediated interactions that happen between strong-tie and intimate relationships, such as family members, usually imply less effort in emotion work since people involved are usually familiar with and naturally behave according to relevant feeling rules of interactions (Clark, 2014; Longhurst, 2013; Sinanan and Hjorth, 2018). On the contrary, weak-tie relationships are more vulnerable to emotion work as people strategically adjust their emotions and behaviours to cater to the complicated and unfamiliar feeling rules in the given mediated culture (e.g. Köhl and Götzenbrucker, 2014).

Research method and samples

Data presented in this article were derived from a 2-year ethnographic research on ICT domestication by a group of Chinese migrant mothers in Singapore. The mothers being studied are commonly referred to as '*peidu mama*' (literally 'study mothers') who accompany their young children to pursue education abroad while leaving their husbands behind in China to continue working to support this family endeavour (Wang and Lim, 2017; Huang and Yeoh, 2005, 2011). These mothers are products of 'education-motivated migration' in which middle- or upper-middle-class families in East and Southeast Asia make every effort to guarantee their children an education opportunity in more advanced western countries, even at the price of transnational split of the household (Chee, 2003; Huang and Yeoh, 2005; Lee, 2010; Waters, 2002). Venturing the unfamiliar foreign land, the lives of study mothers are known to be tough and fluid, characterized by challenges of transnational householding, economic hardship and undesirable employments, language barriers and so on. In particular, these mothers are deprived of professional careers, and often experience an overwhelming sense of loneliness, helplessness and insecurity due to the loss of financial independence and support networks (Jeong et al., 2014; Waters, 2002). Moreover, as de facto 'single mothers' in the host country, they tend to privilege 'motherhood' over 'wifehood' and 'selfhood', even to the extent of sacrificing conjugal relations and career aspirations in favour of fulfilling maternal obligations (Chee, 2003; Huang and Yeoh, 2005; Jeong et al., 2014). In the face of these multifarious difficulties, these mothers tend to rely heavily on a variety of ICTs to maintain intimate relationships back home and at the same time acculturate themselves to new social contexts of the host community.

For this research, an innovative 'content-context diary' cum participant observation was conducted with 40 study mothers after institutional ethical approval was obtained. Participants were recruited through a combination of convenience sampling and snowball sampling, and selected to ensure diversity in demographic traits (e.g. age of child, years of relocation, type of employment).

In the fieldwork, each participant was shadowed for two full days, one weekday and one weekend day. Each observation lasted for 8 to 12 hours according to the schedule of the participant. Before the observation, the researcher began to establish relationships with and engage in everyday activities with the participants, so as to get them accustomed to her presence. During the observation, participants were told to behave as they usually do, while the researcher accompanied them and observed their behaviours of using various digital devices or platforms. In order to avoid interrupting the natural flow of participants' life rhythms, the researcher tried her best to minimize her intrusiveness into their daily routines, and initiate conversations only when they had free time. A researcher-administered 'content-context diary' was incorporated into the observation to record both contents produced, shared or exchanged during their mediated practices and contextual clues of these practices, such as temporal and spatial settings of information sharing, attitudes towards different technological affordances, cultural norms related to certain contents and so on. Informal interviews were also conducted during the observation process to gather background information and probe into interesting issues.

All the interviews were conducted in Chinese, digitally recorded and transcribed for data analysis later. Diary entries were maintained in English, Chinese or a mixture of both during the fieldwork, and selectively transcribed into English afterwards. Qualitative data in the form of diaries and transcripts were analysed with NVivo through thematic analysis (Boyatzia, 1998) to identify salient themes emerging from participants' routines of digital data management, such as perceived advantages of certain platform for sharing or storing certain type of material, strategies of organizing data from different sources, emotional burdens experienced during data archiving and so on.

Findings

Data analysis reveals that Chinese migrant mothers developed a multi-layered repertoire of 'life archiving' wherein multifarious ICTs in both the Chinese and Singapore contexts were employed to record, store and share different types of digital materials. During this process, they became increasingly familiar with technological affordances and feeling rules of different ICTs, and hence were able to manipulate these digital tools in a compartmentalized and contextualized manner to properly balance the requirements of public presentation and private data management.

Multi-layered life archiving: interactive sharing, pervasive tagging and backup storage

In this study, all the participants, including those who identified themselves as having low reliance on digital products compared to their peers, were fully aware that they were increasingly exposed to and influenced by growing amounts of online information. Specifically, almost all of them reported at least regularly browsing various types of digital materials posted by both acquaintances and strangers across a range of platforms, such as photos and status updates shared by friends on WeChat Moments and Facebook, news and hot issues on *Weibo*, movies and TV shows on YouTube and so on. Apart from passive consumption of digital content produced by others, participants were also found to create

ITEM	CONTENT	CONTEXT
8:50am-1:40pm	Took photos & videos of her son's school activity	At her son's school, during the gourmet festival
	Smartphone B, camera	
	Photos of people, performances, scenes, food etc.	
8:50am-1:40pm	Shared photos & videos with her husband	Same as the above
	Smartphone B, WeChat (account in Singapore)	Photo sharing & conversations on an ongoing basis
	She shared photos taken at the gourmet festival at her son's school (ongoing, about food, performance, scenes etc.) -> her husband joked with her -> she sent photos of her son to her husband -> her husband expressed pride over their son (EMOJIS)	Sent unedited photos & videos as soon as they were taken – e.g., asked the researcher to take photo for her, her son & another Chinese mother -> sent to her husband immediately after the researcher returned the smartphone to her
	Discrete conversations	(Explanation) Her husband was supervising the house decoration and was quite bored that morning, so she 'live broadcast' the festival to keep him company
12:50pm-2:12pm	Shared photos & videos with extended family members	Same as above
	Smartphone B, WeChat (WeChat account in Singapore), family group chat	Photo sharing & conversations on an ongoing basis
	She shared photos of gourmet festival & performances in extended family group -> family members expressed envy & praised her son (EMOJIS)	Sent unedited photos & videos (largely overlapped with those she sent to her husband)
	Discrete conversation	(Explanation) She had very close relationships with her extended family members. They chatted every day, and shared everyday life encounters with each other.
2:31pm-2:37pm	Beautified photos	Same as above
	Smartphone A, *Meituxiuxiu* (photo processing app)	Invited the researcher to help select & beautify photos
		(Explanation) She did not enjoy embellishing photos since it was time-consuming and boring, and sometimes quite difficult for her (self-identified as a 'digital idiot')
		(*Why not just send the original photo? It already looks nice*) She declined the researcher's suggestion of sending the original photo because in the photo she selected, the light was quite dark and the background was a bit messy. Photos posted by other people on Moments were usually much nicer than this. So in her opinion, the photo was not qualified for sharing.
2:37pm-2:38pm	Posted on Moments	Same as above
	WeChat, Moments	
	Text + photos – posted selected photos of the gourmet festival & expressed joy	

*Italic items: retrospective/ self-reported

Figure 1. Ms Yang's sharing behaviours on WeChat.

and share contents of their own, with photos and short posts on SNS among the most frequently mentioned items. To avoid being overwhelmed by and to make the most of such copious information, these mothers developed a multi-locational and multi-layered repertoire which juggles a wide variety of digital functionalities and combined mediated practices of interactive sharing, extensive tagging, as well as backup storage.

These women inhabited a mediated culture that was highly relational oriented, where the public sharing on social media platforms was usually the foremost consideration of participants in their handling of digital materials. Specifically, the moment they have any 'raw data' at hand, whether it was produced by themselves (e.g. photos taken with a smartphone) or encountered online (e.g. a funny video posted by a friend on Facebook), the first thought that occurred to them was the possibility of sharing the information as well as where, when and how to share it. For example, Ms Yang shared photos and videos she took during an activity at her son's school with her husband and extended family members on WeChat, and engaged in animated conversations with them around these posts on an continual basis (see excerpt of content-context diary in Figure 1). The photo-taking and sharing practices happened at almost same time and on the spot, which served as a quasi 'live stream' of life experiences for distant loved ones. Besides extensive sharing with intimate family members, Ms Yang also updated selected photos on social media platforms with larger networks of friends and acquaintances. As soon as she returned home from the activity, she began to select from dozens of photos, and embellished selected ones to post new status on Moments (a social media platform attached to WeChat).

ITEM	CONTENT	CONTEXT
2:33pm-2:46pm	Browsed Moments & subscription accounts -> shared links to her Moments & group chats	Sitting on the sofa in the living room
		After lunch, waiting for her niece to finish lunch
	Smartphone, WeChat	(Observation) She only read the title and first one or two
	Viewed an interesting article about children's education & parent-child relationship which was posted by a friend on Moments -> shared the link of this article on her Moments, a chat group of family members & a chat group of Chinese mothers in Singapore	paragraphs of the article before sharing its link to several sites. After sharing, she did not continue reading the same article, but moved on to other posts on Moments
Italic items: retrospective/ self-reported		

Figure 2. Ms Lin's sharing behaviours on WeChat.

In a similar vein, Ms Lin shared the link of an article about children's education in several chat groups and her Moments updates as soon as she came across the article in a friend's Moments updates and highlighted its potential usefulness to many people in her contact list (see diary excerpt in Figure 2). This sharing practice happened even before she had finished reading the article herself. After sharing, she checked WeChat frequently to view and reply to comments from her friends, which she acknowledged, provided her with a lot of fun in her isolated domestic life.

For both participants, sharing digital contents with a certain range of audiences had become habitual and unconscious gestures in their everyday life. These sharing routines in fact also served as a means of data logging and storage since digital materials being shared were at the same time automatically stored on specific platforms. Participants could easily retrieve them whenever necessary as long as they could remember piece-meal clues of their sharing behaviours, such as keywords, location of sharing and selected audiences.

Another prominent data archiving practice of participants was tagging, which was characterized by the extensive marking of fragmentary digital materials with relevant functionalities provided by ICT platforms such as bookmarks, liking and adding to favourites. Tagging behaviours usually happened along with or directly after sharing, with the purpose of storing useful or interesting contents for their own retrieval. In contrast to the highly relational-oriented sharing practices, tagging was more of a hyper-linked yet private logging behaviour than a public and interactive one. The range of digital sites for tagging was evidently larger than that of sharing, which not only included social media platforms but also encompassed a variety of public forums and specialized websites or applications such as YouTube, blogs and news websites. Some classification functionalities provided by ICT platforms, such as labels attached to specific digital contents, also allowed participants to carry out preliminary data curation while tagging.

In their relatively isolated transnational life, various online platforms and chat groups were identified by many participants as their major source of information. However, information and other resources online were mostly fragmentary and scattered across multiple mediated sites, which made it difficult to remember and retrieve when necessary. In this context, many participants formed habitual routines of systematically tagging different types of information on different platforms. This type of pervasive tagging could happen almost anytime and anywhere as long as they had a smartphone at hand. For example, Ms Yuan, a 46-year-old part-time tuition teacher, reported tagging and saving potentially

ITEM	CONTENT	CONTEXT
10:47am-10:57am	Browsed Moments, articles on WeChat, articles on Sina Blog	On subway, on the way to a student's home
	Smartphone, WeChat & Sina Blog	Talked with the researcher, showed the researcher her Moments page & several frequently browsed blog accounts
	Moments updates of friends – clicked on several photos and links	(Explanation) She had the habit of 'saving' (收藏) articles she came across during daily browsing of WeChat, Weibo, blogs
	Articles in her collections on WeChat – stories adapted from real-world events	and other platforms. As a tuition teacher, she spent a lot of time commuting to students' homes, so she always needed some readings to kill time. Therefore, she would save/ tag/
	Articles on Sina Blog – stock analysis related (articles recommended on her homepage + articles in her collection)	forward all the contents that attracted her (but had no time to read immediately) for later reading during commuting

Italic items: retrospective/ self-reported

Figure 3. Ms Yuan's tagging behaviours on WeChat.

interesting contents for detailed reading during fragmentary free times. Specifically, since she had to spend considerable time commuting to her students' homes every week, she developed the habit of saving articles or videos with intriguing titles or keywords across a range of platforms, including WeChat, Weibo and Sina Blog, and tracing back to detailed contents when she was alone commuting (see diary entry in Figure 3).

Besides extensive sharing and tagging of information across various online platforms, study mothers also engaged in a series of mediated logging and storing practices such as photo-taking and organizing, diary keeping, and recording of logistics. Compared to sharing and tagging which hinged highly upon interactive social networking, backup logging was a purely private gesture that mainly emphasized preserving personal and family life footprints in their transnational life experiences. For example, many participants had the habit of keeping visual records of everything and every moment that struck them, including photos or videos of themselves and their children in various activities, beautiful or unusual scenery they encountered, and even the most trivial elements of everyday life such as food they cooked, products they bought, as well as selfies. Apart from fragmentary sharing of these photos and videos online, as shown in the aforementioned case of Ms Yang, these mothers also enjoyed going through and organizing them together with their left-behind family members during family reunions. For transnational households, these virtual records enabled a vivid preservation and reproduction of fleeting experiences and memories, which made up for their separate time across geographical borders.

Instead of merely storing these 'backup materials' in their mobile devices, participants also reported regularly or at least sporadically storing or synchronizing large amounts of data in massive storage devices or services, including their home computers or laptops, mobile hard drives, iCloud or other netdisks. For these mothers, hard drives or cloud services served as a trustworthy 'backup storage' where all kinds of digital materials piled up, albeit with some semblance of organization, and could be retrieved whenever necessary.

Compartmentalized archiving routines: technological affordances, cultural concerns and potential audiences

In the multi-layered life archiving repertoires developed by participants, each ICT device or platform has different social, cultural and technological features, thus triggering

different implicit feeling rules during the management of digital materials. Faced with this complicated terrain, decisions of what content should be shared, logged or stored, on which platform, to whom, in what form and so on became significant challenges that needed to be tackled through day-to-day trial and error. Participants of this study demonstrated strong capabilities in identifying relative advantages and feeling rules for different ICTs, and strategically compartmentalize their data management practices across multiple platforms. In general, three features of ICTs stood out as major considerations in choosing appropriate platforms and practices for handling digital materials, namely technological affordances, cultural inclinations and potential audiences.

First of all, different technological affordances were emphasized for enacting different data management practices. For instance, for the purpose of backup storage, the prioritized consideration of participants was data security, especially when it came to the burgeoning cloud services. During the research, many participants expressed concerns about the potential information leakage of private data like photos of family members and significant documents. Their vigilance against potential privacy risks of these online services was mostly derived from world-famous accidents of information leakage such as private photo leakage of Hollywood celebrities. In this context, they tended to regard the Internet as an unstable warehouse which was only suitable for storing in the 'cloud' non-private, non-sensitive and memory-intensive contents such as movies, novels, scenic pictures. For content that would be tagged across various platforms, the nature and richness of the content was the foremost consideration in choosing suitable ICT platforms. Typically, participants tended to habitually classify digital materials according to their formats and expected modes of consumption, and compartmentalize them correspondingly on platforms that offered the most effective widgets for data management. For example, during browsing updates on SNS, a participant might download beautiful photos into her smartphone, add links of interesting stories to her collections for later reading, and at the same time search and tag songs recommended by friends on mobile music applications.

In light of the relational-oriented culture inherent in social media, the participants' digital data management was not merely determined by technological features, but increasingly shaped by a variety of sociocultural factors including peers' language preference, explicit or tacit etiquettes of peer interaction, and composition of members. In particular, as international migrants who straddle distinct cultural contexts, these mothers displayed acute awareness of different cultural inclinations and corresponding feeling rules on 'Chinese media' versus 'foreign media'. In the contemporary Chinese context, since many globally popular websites (e.g. Google, Facebook, YouTube, Twitter, WhatsApp) are blocked in China, the Chinese are usually more familiar with and emotionally attached to the Chinese counterparts of these platforms (i.e. *Baidu*, WeChat, *Weibo, Renren*). Among study mothers in this research, some adapted fairly quickly to the media landscape of the host country, while others, especially those who resettle at relatively older ages, tend to remain wedded to their previous habits. Regardless of different levels of adaptation to the changing media landscape, all of these mothers fostered strategies, either consciously or unconsciously, to compartmentalize their mediated life in response to different cultural inclinations.

According to the participants, language was the most salient and fundamental cultural concern in their mediated communication practices across different platforms. Limited

ITEM	CONTENT	CONTEXT
11:14am-11:18am	Sent a post (with photos) on Facebook	Sitting on the sofa in the living room
	Smartphone, Facebook	After lunch, talking with the researcher (suddenly reminded that she planned to upload a post on Facebook)
	Photos of her & her daughter (and several new friends known during travelling) + several sentences about their travels	Confirmed with the researcher about the English translation of two Chinese words
	Tagged several friends who appeared on the photos	(Explanation) She & her daughter had just returned from a two-week travel across Europe. They travelled together with some people who lived in Singapore (several nationalities).
		(When asked about why she only shared on Facebook, but not WeChat or other SNS) She had already updated about a dozen posts on WeChat Moments during travelling. She sent Facebook post so late because she did not have so many friends on Facebook and her English was not so good (so she needed time to compile the post).

*Italic items: retrospective/ self-reported

Figure 4. Ms Lei's sharing behaviours on Facebook.

English proficiency not only constrained the range of contents they could access and exchange but also affected their expectations of and behaviours on different platforms. For example, Ms Lei was found to share her travelling experiences on Facebook and WeChat Moments in different languages and with varying regularity (see diary excerpt in Figure 4). In view of the perceived preferences of English language on Facebook, which she called an 'English media', as well as her difficulty in phrasing English posts, she gradually formed the habit of updating Facebook in a relatively infrequent and brief manner as compared with the extensive mode of sharing on WeChat. Be that as it may, the importance of maintaining social connections with her English-speaking local network motivated her to persist, albeit in a fashion she was comfortable with.

Geographical difference is yet another standard for study mothers to compartmentalize their data sharing, searching and tagging practices. For example, when she sought to search for information about potential American universities and Scholastic Assessment Test (SAT) for her daughter, Ms Mao relied more on Facebook and English forums than Chinese platforms such as WeChat and *Weibo* (see diary excerpt in Figure 5). As shown in the diary excerpt, although she had difficulty understanding complicated English contents, Ms Ma still preferred to resort to these foreign websites over Chinese websites to acquire updated information.

The degree of intimacy and emotional distance with potential audiences is yet another major consideration during the multi-locational archiving process. Specifically, when making decisions about what to share, on what platform, with whom and in what forms, participants evaluated their relationships with potential audiences, and tactically adjusted their practices and contents of sharing according to feeling rules attached to the given relationships. For example, Ms Yang in the aforementioned case sent unadulterated photos of her son's school activities with her husband and extended family members on an ongoing basis, while updating only one post on Moments with elaborately embellished photos after the activity (see Figure 1). This kind of compartmentalized choice had become part-and-parcel of her everyday life, which were taken for granted and remained inconspicuous to her before the researcher asked her about it. Reflecting on her different practices with different audiences, she explained her understanding of 'appropriate' behaviours in the mediated world:

ITEM	CONTENT	CONTEXT
10:15am-10:40am	Home computer, Facebook & education forums (English) Searched for and browsed information about SAT	By the table in the living room Asked the researcher to help reading some posts (because her English was not very good and read very slow) (Explanation) Her daughter preferred university in UK, but she thought that there were more choices in US. She followed some accounts on Facebook and regularly browsed several education forums recommended by other parents to acquire relevant information

Italic items: retrospective/ self-reported

Figure 5. Ms Mao's online information searching.

> With family members, I say whatever I want to say. I show them our [she and her son] real life, good or bad. There is no need to care about my image or whatever . . . On Moments it is different. It is a public place, so you have to follow the trend. Nowadays the ethos is like this, you know, everyone embellishes photos. Actually I'm really lazy about this. But if I don't, I will look strange . . . If you share too much [on Moments], people [friends on Moments] will get annoyed and block you [LAUGH].

Clearly, Ms Yang was keenly aware of the distinct feeling rules that should be followed in different contexts of information sharing. With family members, she was able to entirely 'be herself' and share whatever she liked without concerns about the appropriateness of contents and her sharing behaviours. In the presence of distant acquaintances on social media, she chose to follow the prevalent feeling rule of being a well-groomed and considerate person who was willing to disclose her life experiences yet not inundate her friends with too many personal issues. For Ms Yang and other study mothers alike, 'Chinese platforms' (e.g. WeChat, QQ, *Weibo*) were likely to provide an 'emotion-work-free' terrain for reinforcing intimacy with families and close friends, while 'English platforms' (e.g. Facebook, Twitter, Instagram) indicated more emotional negotiations and thus were more often used to establish and maintain weak-tie relationships.

Emotional labours in nomadic data management: performative self-presentation, context collision and memory chaos

Although the nomadic lifestyle of multi-locational life archiving bestowed many advantages for managing the proliferation of digital materials, it introduced burdens and dilemmas too. In this study, most participants had experienced circumstances where digital data management became an emotional undertaking that took its toll, creating confusion and chaos in their everyday life.

One prominent burden that was frequently brought up by participants was the perpetual pressure of appropriate self-presentation. Specifically, in the midst of a hyperlinked and networked environment, they had to reshape their mediated expressions and behaviours on an ongoing basis to cater to feeling rules of specific platforms and the expectations of respective audiences. As Ms Yang's case demonstrates, although she was actually tired of embellishing photos for Moments posts, she forced herself to conform to the implicit feeling rule of 'sharing only perfect photos', so as to display a well-groomed image in front of networked friends on WeChat (see Figure 1).

Similar emotional burdens of performative self-presentation were also prevalent during information exchange in online chat groups. For example, Ms Chen, a full-time mother who identified herself as an unsociable person, were found to regularly browse conversations happening in several chat groups and provide useful information to others whenever possible. During the observation, she shared her past experience of her US tourist visa application where she saw a discussion about the success rate and difficulties of online registration (see diary excerpt in Figure 6). According to Ms Chen, her participation in such discussions was more of a painstaking effort to gain recognition from peers than a pleasant pursuit of emotional support and companionship. Specifically, she was well aware of the inherent feeling rules of reciprocity within online communities – people should always provide assistance, or at least willingness to help, before trying to seek favours from others. In order to establish this virtuous cycle of information exchange and acquire useful information in the future, she chose to adhere to this feeling rule by performing the role of an enthusiastic friend, even though this could bring about undesirable workloads and burdens at times.

Emotional burdens not only existed in self-presentation on specific digital platforms but also emerged from alternating daily between multiple platforms. As previously mentioned, different platforms have different cultural inclinations and potential audiences, thus engendering different feeling rules of data sharing and logging. In other words, expressions and behaviours that are accepted and welcomed on one platform might be seen as annoying and impolite on another. In this context, people have to familiarize themselves and be prepared to assert multifarious identities on each platform, and at the same time, be able to quickly cycle through various platforms. Many participants encountered moments of 'context collision' (Davis and Jurgenson, 2014) when they got confused about feeling rules of different platforms and unconsciously introduced seemingly inappropriate habits of one context to another.

A typical scenario of context collision was the occurrence of misunderstanding due to the use of unexpected language in particular circumstances. For international migrants like study mothers, decisions about what language to use potentially indicates target audiences of content they presented, which is likely to trigger alienation among other potential audiences. For example, Ms Li expressed frustration and fatigue when her English post on Moments was perceived as 'showy and boastful' by an old friend in China (see diary excerpt in Figure 7). Her English post, which was initially created to conform to language preference of Facebook, served to promote interactions with local friends who are directly relevant to the content of the post. However, the same content backfired the moment it was presented on WeChat, where Chinese was perceived as the 'appropriate language' of information exchange.

Apart from emotional undertakings of identity performance across various platforms, the multi-layered and multi-sited data archiving routines also brought about occasional memory chaos and loss of data among participants. In particular, since different forms of digital materials were stored, tagged or shared in a hyperlinked manner and scattered across multiple technological locations, it was difficult for them to systematically record and organize all the materials for expedient retrieval. As a result, they often fail to locate specific data they had archived when they needed it, even though they could vaguely remember some fragments of clues. In these situations, logging everywhere was no

ITEM	CONTENT	CONTEXT
9:48am-10:22am	Interacted with other members in a study mother chat group	On the bus back home -> at the dining table in the dining room
	Smartphone, WeChat	Having quick breakfast & talked to the researcher
	Several mothers talked about their planned trip to the US in the coming vacation, and discussed the success rate and document preparation of US tourism visa application -> She shared her past experiences of visa application last year, and sent a list of required documents to the group -> several mothers thanked her (*EMOJI*)	(Explanation) She applied for a US tourism visa last year, and her English was very good (especially compared to most of the other mothers in the group), so she was quite experienced with this topic
	Two mothers asked her questions about online registration and interview of visa application -> she replied in detail	(Explanation) She rarely participated in group chats, most of the time would just quickly browse conversations generated by other members and see whether there was anything useful for her. She only chipped in when she saw a topic about something she was very interested or experienced in. She was happy to provide help to others, and regarded this as a mutual support – when she encounters difficulties, she hopes other people can also help her like this.
	Discrete conversations	
*Italic items: retrospective/ self-reported		

Figure 6. Ms Chen's participation in WeChat groups.

ITEM	CONTENT	CONTEXT
1:14pm	Sent a post on Moments & Facebook simultaneously, about the lunch together with friends in a badminton group	In the western-style restaurant
		After lunch, had a rest & chatted
	Smartphone, WeChat & Facebook	(Explanation) Most of the time she posted on Moments in Chinese. She posted in English this time partly because she shared these photos in the badminton group on WeChat and a local friend replied in English, so she used similar words to post on her Moments & Facebook at the same time.
	The post comprised three photos of the lunch (people + food), a short sentence expressing her happiness to have lunch with friends (English), several *emoji*	
4:12pm-4:40pm	Talked to an old friend in China	At the dining table in the dining room
	Smartphone, WeChat	After a shower, talked to the researcher
	Her friend asked her about life in Singapore, and consulted her about children's education in Singapore (she intended to send her son abroad too) -> She explained advantages and disadvantages of education in China & Singapore respectively ->	(Explanation) She sensed strong envy in her friend's words. It seemed that her friend understood her English post as a 'show-off' in front of old friends. She felt wronged and embarrassed. She explained that most of the people who joined the lunch were local people who could all speak Chinese but some of them had difficulties reading Chinese, so she usually tried to talk to them in English. As for today's post, the main audience was intended to be these local friends, so she thought it was fine to post in English. She also admitted that, from the perspective of her friends back home, sharing English content might be taken as less friendly. She noted that she would be more careful about this in future
	Her friend expressed envy of her current life, and insisted that she was different from her peers who remained in China -> Her friend also mentioned her earlier Moment post, and said that she could barely understand it, alluding to the use of English (emphasizing that they were very different now) -> She replied that the English content was copied from others, her English was still not fluent	
*Italic items: retrospective/ self-reported		

Figure 7. Ms Li's sharing on Moments and communication with a friend.

better than logging nowhere since data that could not be retrieved was tantamount to being permanently lost.

For example, during a casual chat, Ms Hu wanted to show the researcher photos of a wedding she attended a month before. She first checked 'collections' on WeChat, where she remembered saving several nicely-shot photos when she browsed Moments updates of the bride. Failing to find the photos in her collection file, she sought to trace back to the source of data, namely Moments posts of the bride, but found that only three days' updates could be viewed. She then searched through the Weibo account of the bride and chat history of a WeChat group since she had a vague impression that she had seen some photos there. Faced with failure in all these trials, she finally had no choice but to show several photos in the album of her smartphone which she had personally taken but

deemed 'not clear enough to reflect the beauty of the bride'. For Ms Hu and other mothers alike, while the multi-platform habit of data archiving granted her the possibility of marking any content with several simple clicks, it also dramatically increased the risk of losing important data due to memory failure.

Discussion and conclusion

In this study, Chinese study mothers being studied were found to engage in a multi-layered and multi-sited 'life archiving' process where they leave footprints of everyday life encounters through a combination of interactive sharing, pervasive tagging and backup storage across various ICT devices and platforms. In accordance with previous research, these migrant mothers relied heavily on ICTs to stay in continuous contact with left-behind loved ones and remain updated on latest news in their homeland (Lim and Pham, 2016; Madianou and Miller, 2011; Uy-Tioco, 2007), at the same time to also forge new social networks and acquire pragmatic information in the host society (Li and Chen, 2014; Lim and Pham, 2016). Instead of utilizing merely one or several specific ICTs, participants tended to systematically deployed a wide range of digital devices and platforms to fulfil heterogeneous needs in their daily engagement with and management of digital contents (see also Madianou and Miller, 2012, 2013). The integrated repertoire of ICTs, each providing different affordances and guided by different feeling rules, created unprecedentedly diverse and copious digital materials for them to manage, while also enabling increasingly convenient and compartmentalized approaches of acquiring, storing, organizing and sharing these materials.

While these nomadic life archiving routines offer considerable dividends in effective digital data management, they also brought about emotional burdens and memory chaos among the study mothers. Previous studies have revealed that people tend to engage in intensive identity work and deliberate self-presentation to seek acceptance and prestige in mediated groups, which is likely to engender emotional labours and tensions in the negotiation of the self (Marwick and Boyd, 2011; Turkle, 2011; Vitak et al., 2015). Similar emotional labours were also identified among participants of this study, but their decisions of performative self-presentation were driven more by pragmatic purposes of long-term information acquisition than the mere pursuit of symbolic status. Moreover, the multimedia environment forced participants into a lifestyle of 'multi-lifing' (Turkle, 2011) in which they had to be familiar with feeling rules of each mediated context and perform a range of social roles. In particular, as international immigrants who straddle technological and cultural milieus of both home and host society, these mothers were vulnerable to context collision and identity confusion when they switch back and forth between platforms of different language preferences, cultural inclinations and potential audiences.

Underlying the prevalence of nomadic life archiving are two general trends in the changing rituals of digital data management. The first trend is the highly hyperlinked and fragmentary habits of accumulating, organizing, storing and retrieving various digital materials. In the past, digital data tended to be regularly classified and stored in its original form on one or several fixed locations for massive data storage (e.g. home computer, mobile hard drive). With the increasing decentralization of digital contents, data management has become a nomadic and networked undertaking across diverse ICTs. Instead of acquiring and storing contents themselves in a tangible device, people are more inclined

to save or mark hyperlinks or clues about possible locations of contents, ranging from traditional storage devices, specialized websites, to social media platforms. Moreover, the previously stable routines of systematic data curation have also been replaced by ongoing and extensive logging and tagging of fragmentary information.

Another trend behind these nomadic archiving routines is the blurring boundary between public and private management of digital materials. With the worldwide prevalence of social media, public sharing of everyday life experiences and practical information with networked friends has become part-and-parcel of people's quotidian routines. For many people, extensive sharing is at the same time a process of data management in which various types of digital contents are logged or tagged the moment they are produced or consumed, and stored on specific platforms for future retrieval. In such circumstances, data management is no longer a private matter, but a public display of the self which is shaped by social discourse and involves a wide range of familiar or unfamiliar audiences. Since digital contents are often deliberately selected and embellished to cater to cultural preferences of specific platforms and their respective audiences, people's memories are also unconsciously formed and reshaped in the process.

Building on previous research on the management of digital data with various ICT affordances, this study provides an in-depth investigation into the multi-media routines of data accumulation, storage and exchange by Chinese study mothers. The innovative ethnographic method of 'content-context diary' cum participant observation served to contextualize participants' mediated practices in their everyday life situations, and therefore effectively capture cultural nuances underlying their strategies, and potential dilemmas of digital data management. A discernible limitation of this method is the relative short period of observation with each participant, which might not be enough for the researcher to comprehensively capture all the contextual nuances in their quotidian ICT use routines. Nevertheless, considering the intrusive nature of ethnographic fieldwork and the relative sensitive topic of research, two full-day observation is already the maximum bonus we could win from ongoing negotiation with participants. Another limitation of this research is its exclusive focus on a special group of Chinese migrant mothers, without referring to data management practices of people with different life experiences. In view of this, further research should pay attention to ICT users of diverse demographic and sociocultural backgrounds, and shed light on their different mediated behaviours and emotional negotiations in managing various digital materials.

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ORCID iD

Yang Wang (iD) https://orcid.org/0000-0002-7781-5641

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Author biographies

Yang Wang is a postdoctoral research fellow at the Lee Kuan Yew Centre for Innovative Cities, Singapore University of Technology and Design. She obtained PhD in Communications and New Media at National University of Singapore in 2019. Her research interests include ICT domestication, transnational communication and social impacts of new technologies.

Sun Sun Lim is Professor and Head of Humanities, Arts and Social Sciences at the Singapore University of Technology and Design. Her research seeks to uncover the intricacies of the relationship between technology and society. She pays particular focus to the factors that influence how people domesticate technology, where her principal work delves into the home setting.