Towards Equitable Online Participation: A Case of Older Adult Content Creators' Role Transition on Short-form Video Sharing Platforms

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Short-form video sharing platforms (SVSPs) have seen a significant surge in older adult content creators in recent years. This emerging trend adds evidence to challenge the conventional perception of older adults as later technology adopters and passive online recipients. To investigate the reason behind the trend, we conducted semi-structured interviews with 13 older adult content creators on two of the most popular SVSPs in China, DouYin and KuaiShou. We found that our participants were initially attracted to SVSPs because of perceived ease of participation and the enjoyment they found. However, what kept them engaged was the attention and support they received there. SVSPs offered a low-barrier and equitable platform through their near-automatic use and relatively equal opportunities for recommendations, allowing everyone to reach audiences. Motivated by their passion for performance and the viewers' support, our participants actively acquired new skills for better performance and became more deeply involved on the platforms. Based on the findings, we reflect on how SVSPs' technical affordances support older adults in the transition from lurkers to contributors. We advocate for participation equity and supportive environments to promote more inclusive social media platforms.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**; **Empirical studies in collaborative and social computing**.

Additional Key Words and Phrases: older adults, social media, online participation, online content creation and sharing, video sharing platforms, recommendation algorithm

1 INTRODUCTION

While older adults have often been portrayed as later technology adopters and passive consumers of online services [71], a growing body of evidence suggests that many of them engage online because they can derive a meaningful sense from the activities (e.g., blogging [17, 45], and crowd works [16]). Nevertheless, mainstream social networking sites (SNSs) still tend to fall short of

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meeting older adults' needs for meaningful social interactions [33, 39, 47]. It is widely reported that older adults find communication on SNSs to be superficial, meaningless, and devoid of the reciprocity they value [33, 39, 47]. As a result, designing better social technologies for older adults remains an important issue in HCI and CSCW.

HCI and CSCW research has long focused on older adults' existing social relationships when designing social technologies for them (e.g., family members) [23], as people tend to show a stronger preference for staying connected with existing strong social ties during aging [20]. However, an increasing amount of work suggests that many older adults will be interested in fostering new social ties if the activities involved provide a sense of self-value (e.g., self-expression and sharing content useful to others) [17, 31, 45, 48, 59]. This area of work shed light on new opportunities to support older adults' social well-being by supporting them in developing online social ties. However, little research interrogated how older adults change their perceptions of social media, and how they transition from lurkers to contributors. Diving deeper into the process may thus open up new design opportunities, as older adults' technology use is often an evolving process with shifting goals and challenges that need stage-based support [67].

The present study seeks to better understand **older adults' role transition in online participation through a case of older adult content creators on short-form video sharing platforms (SVSPs).** We focused on SVSPs because they have been increasingly popular among older adults across the world, e.g., TikTok [13, 25]. In China, DouYin ("抖音")[1], the Chinese version of TikTok, had 400 million daily active users as of January 2020, with about 8% of them being over 50[2] [7, 12]. Many older adults in China are actively creating and sharing videos on SVSPs, including those living in rural areas or small towns [8]. Moreover, their videos often display sophisticated skills and creativity (e.g., special effects, background music, and creative performance) [13].

To understand why older adults become contributors on SVSPs, we conducted semi-structured interviews with 13 older adult content creators on two of the most popular SVSPs in China, DouYin and KuaiShou ("快手")[3]. We found that our participants were initially drawn to SVSPs because of perceived low barrier to participation and fun, but they chose to stay mainly due to the attention and support they received from their viewers. SVSPs were perceived not only as easy to use but also inclusive for sharing because these platforms allow every video to have a chance to be shown on the homepage via a decentralized recommendation system. The wide range of performance quality and types of videos made our participants realize their competency in content creation, as well as the potential of using the platforms for fun. Moreover, the decentralized algorithm also brought them large audiences, making them realize the value of their content. As a result, our participants became highly motivated to stay on the platforms and actively acquired new skills for better performance. With these findings, we highlight the importance of participation equity and a supportive environment for more inclusive social media platforms[4].

To summarize, this work made two-fold contributions:
1) We contribute to the empirical understanding of why older adults become online contributors through a case of older adult content creators on SVSPs in China. We provide a detailed analysis of how SVSPs' technical affordances encourage and support their online participation.
2) We provide design implications to make social media platforms more equitable and supportive, not only for older adults in this study but also for numerous other people who may have less

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[1]https://www.douyin.com/. See Appendix A.
[2]We operationalized "older adults" based on the current legal retirement age in China, i.e., 60 for men, 55 for female civil servants, and 50 for female workers [80].
[3]https://www.kuaishou.com/. See Appendix A.
[4]We are aware that the term "equity" may have different interpretations. In this study, we use the term to emphasize that everyone can receive a certain level of attention and support on SVSPs.

power in shaping online norms. More specifically, we suggest designers recognize diverse forms of contributions, help people construct and develop norms they value, and support both light and heavy forms of support.

2 RELATED WORK

This study was informed by literature on older adults' online participation, online video creation and sharing among older adults, and user member lifecycles in online communities.

2.1 Older Adults' Online Participation

Research found that many older adults are resistant to new technologies mainly due to attitudinal factors rather than incapability [43]. For instance, it is widely reported that many older adults reject SNSs because they perceive communications on SNSs are meaningless, superficial, and trivial [33, 39, 47]. Mainstream SNSs often fail to meet older adults' needs and values for communication, such as media richness and reciprocity [33, 39, 47]. Older adults may also perceive SNSs as a threat to their valued face-to-face communications [32]. Therefore, HCI and CSCW research has long been interested in designing and building better social technologies for older adults to enrich their social opportunities [4, 23, 73, 74].

HCI and CSCW research usually focused on older adults' existing social ties when designing social technologies for this population [23], as connecting with family members is often the primary reason for older adults to use social media [4, 33, 38]. As held by Socioemotional Selectivity Theory, people tend to shift social goals from future-oriented socialization to emotion regulation when they perceive time as limited [20]. Therefore, research often found older adults prefer to stay connected with people they already have a strong connection with (e.g., [33]).

Nevertheless, older adults' online activities are not limited to their existing social networks. For instance, recent works on older bloggers suggest that older adults may derive a strong meaningful sense in using blogs for self-expression and sharing [17, 45]. Brewer and Piper found that older bloggers treat blogging as a serious form of "work," which provides them with a sense of purpose after retirement [17]. In particular, they found that older adults value the depth of thought in expression, which, however, is usually not supported by short-form expressions on mainstream SNSs [17]. Older adults also tend to appreciate the value of their contents to others [17, 47, 59]. Li et al. presented a case of how older adults actively exchange opinions and support with people from different generations online in r/AskOldPeople, a sub-forum on Reddit centered around people who are Generation X (i.e., people who are born between 1965 and 1981) or older [48]. This line of work suggests that designers should not ignore older adults' social opportunities outside of existing ties. Additionally, it is crucial to consider older adults' values when designing social media platforms.

2.2 Online Video Creation and Sharing Among Older Adults

Research on older adults' use of user-generated video (UGV) sites presented quite mixed results. In a study with 32 older adults using YouTube, Sayago et al. found most of their participants were not interested in uploading videos because they perceived no benefit from it; they also seldom read or made comments on YouTube [62]. On the other hand, based on a case of a 79-year-old male video blogger on YouTube, Harley and Fitzpatrick argued that older adults would be highly motivated to share videos online when social contact is their ultimate aim [31]. Ryu et al. similarly found that older adults would be interested in creating and sharing videos online if they perceive it as beneficial, easy and enjoyable [61].

SVSPs are a recently emerging type of video sharing platform which are featured by videos within minutes and they often integrated live-streaming services. As a typical SVSP, TikTok has recently become the fastest-growing social media application of all time [24], especially among

younger generations [41, 75]. Although younger people are the primary users of SVSPs [75], SVSPs have also attracted a large number of older adults worldwide [25]. Ng and Indran showed how older adults on TikTok consciously fight against stereotypes about aging through video creation and sharing [54]. SVSPs have also become an active space for intergenerational communications [55]. In China, SVSPs have even become one of the most popular applications among older adults, and the usage time and rate are still fast-growing [6, 9, 10]. Moreover, SVSPs have attracted many older adults in rural areas with lower formal educational backgrounds [8], who as a population received relatively little attention in the HCI and CSCW literature. These emerging trends present valuable chances for a closer examination of older adults' online participation.

2.3 User Member Lifecycles in Online Communities

This study was also informed by HCI and CSCW literature on user practices in online communities, as SVSPs are typical platforms built on user-generated content (UGC) where people establish relationships around the content [46]. We built our understanding of people's user trajectory in online communities based on two dominant models used in CSCW: *reader-to-leader* framework [58], and *Community of Practice* (CoP) theory [44].

Reader-to-leader framework proposed by Preece and Shneiderman is one of the dominant models used in CSCW to understand user member lifecycles in online communities [58]. The framework describes how people in online communities evolve from a lurker or reader, to a contributor and collaborator, and eventually to a community leader. This process is well supported by empirical evidence in different forms of online communities, such as online health communities [85] and Wikipedia [19].

CoP is another well-adopted framework in CSCW to understand how people become contributors in online communities [44]. Lave and Wenger proposed the framework to emphasize that learning is distributed across the individuals in communities. In CoP, old-timers define and disseminate knowledge to newcomers, while newcomers gradually become senior members of the community through legitimate peripheral participation (LPP). That being said, people begin by performing low-level but necessary activities at the periphery of communities, but they may take on more crucial roles with growing experience. As a typical study using the framework, Bryant et al. used it to analyze how the design of Wikipedia supports people from making light contributions that they have confidence in, to becoming leaders who maintain the community [19].

However, few studies have paid attention to how older adults become contributors in online communities. Older adults are often described as lurkers on online social platforms [14], and they tend to only interact with familiar people such as family members and friends in online settings [33]. Although research has increasingly paid attention to older adults as online contributors (e.g., [17, 18, 31, 45]), little looked deeper into how older adults change their attitudes toward social media and evolve into contributors. Prior research on older adults' use of online communities usually focused on the benefits that older adults can receive (e.g., social support [37]), their practices in online communities (e.g., collective actions to fight against ageism [45], exchanging support [36]), or factors that are important for older adults to make online contributions (e.g., perceived value to others [17], identity development [17, 35]). Our study aims to fill the research gap with an empirical case of how older adults become content contributors on SVSPs.

3 BACKGROUND: SHORT-FORM VIDEO SHARING PLATFORMS

We chose DouYin and KuaiShou as our research sites because they are two typical and among the most popular SVSPs in China. Both platforms offer short-form video sharing and live-streaming as core services. Similar to mainstream video sharing platforms such as YouTube, DouYin and KuaiShou are centered around UGC, allowing people to create, share, comment, and "Like" videos.
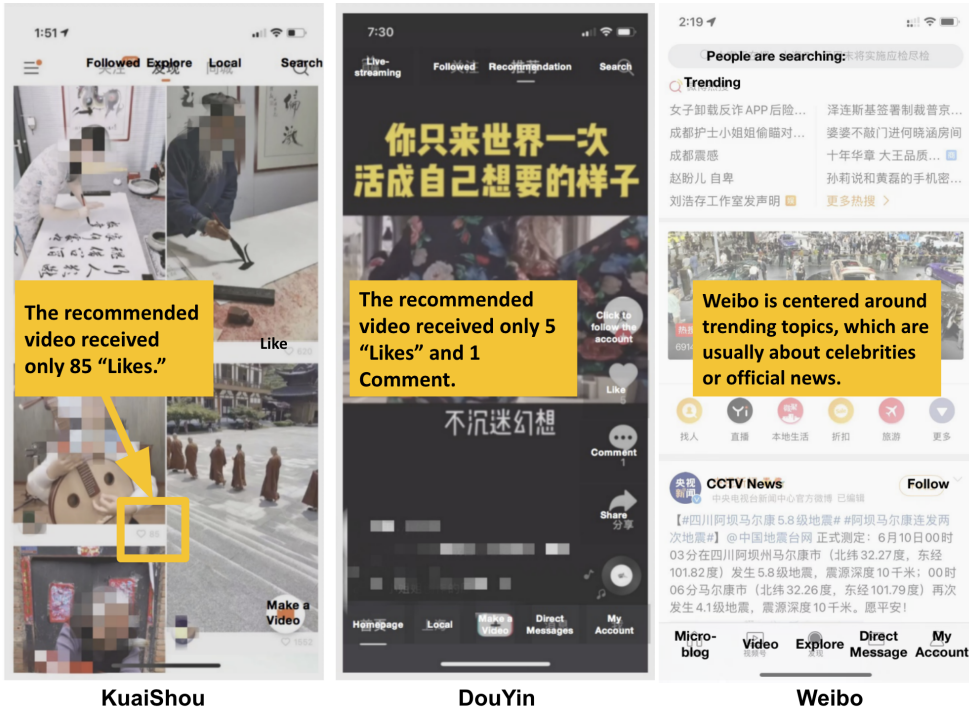
Fig. 1. The recommendation page of KuaiShou, DouYin, and Weibo. KuaiShou and DouYin similarly adopt recommendations as their homepage, and both adopt a decentralized recommendation system, i.e., every video, regardless of popularity or performance quality, has a certain chance to be recommended on the platforms. The decentralization strategy differs from many other mainstream social media that mainly promote the most popular and influential content on the site (e.g., Weibo).

However, most videos shared on these platforms last only a few seconds or minutes. DouYin and KuaiShou also offer a variety of tools and video templates to facilitate video making, such as special filter effects [82], lip-sync songs [68], and act-out memes backed by music and sound clips [56]. Besides video sharing, it is typical for SVSPs to provide live-streaming services; people can hold live-streaming to make real-time interaction with their audiences, as long as they meet the basic requirements (e.g. over 18 years old). During live-streaming, viewers can send "Likes," comments, and digital gifts to the streamer.

Taking "Explore" or "Recommendation" as the homepage is one of the defining features for both platforms (Figure 1). DouYin's homepage is an endless video feed driven by a recommendation system. People can watch videos by scrolling down or by waiting for the next video to appear after the current one, without following any account. Similarly, KuaiShou users can click to watch recommended videos and scroll down to see more. Although neither platform has revealed the inner workings of their recommendation algorithms, people have attempted to deduce the inner mechanism and formed folk theories about the algorithms [60, 70, 84]. On the surface, these platforms adhere to a decentralized approach mediated by users' preferences, which allows every video, regardless of popularity or performance quality, to have a certain chance for recommendations.

The decentralization strategy differs significantly from traditional recommendation algorithms that favor popular and high-quality content (Figure 1) [1]. For instance, Weibo, a major social media

platform in China with micro-blogging as its core service, is built around trending topics. The trending topics represent the most popular and influential content on the site, which usually comes from recognized accounts (e.g., celebrities, influencers, and official agencies) [88]. By contrast, many videos on the homepage of SVSPs come from lay people rather than professionals.

4 METHOD

Our method involved in-depth interviews with 13 older adult content creators on DouYin and KuaiShou, and iterative analysis of the data.

ID	Sex	Age	Occu-pation	Formal Education	Loca-tion	Primary Content Category	Years of Use	# of Following/ Followers	Plat-form	Live-strea-ming
P1	F	54	social worker	middle/high school	city	singing & dancing	1	4683/9048 (0.518)	D	
P2	F	53	farmer	primary school or below	rural area	cooking, singing	1.5	844/1022 (0.826)	K	
P3	M	60	part-time security guard	primary school or below	city	harmonica playing	0.5	1484/880 (1.686)	K	
P4	M	62	teacher	middle/high school	town	Erhu playing	2	1470/2778 (0.529)	K	✓
P5	M	69	farmer	primary school or below	rural area	Erhu playing	0.5	1500/996 (1.507)	K	✓
P6	M	56	unemployed	primary school or below	rural area	personal life, chatting, comic dialogue	3	753/13,000 (0.058)	K	✓
P7	F	60	farmer	primary school or below	rural area	singing & dancing	1.5	1362/981 (1.388)	K	
P8	M	59	retiree	middle/high school	city	Chinese painting	1	1034/9680 (0.107)	K	✓
P9	F	55	university dormitory attendant	middle/high school	city	singing & dancing	1	4574/4312 (1.061)	D	
P10	M	62	not disclosed	primary school or below	town	Erhu playing	<0.5	1479/750 (1.972)	K	✓
P11	M	63	farmer	primary school or below	town	Chinese opera	>0.5	1500/1151 (1.303)	K	✓
P12	F	55	university dormitory attendant	middle/high school	city	singing, personal life	1	4900/4900 (1.0)	D	
P13	M	67	grocery owner	middle/high school	town	Erhu playing, travel	0.5	721/1281 (0.563)	K	

Table 1. Demographic information of the participants. 'K' stands for "KuaiShou." 'D' stands for "DouYin." ✓ stands for live-streamer. The education levels in the table include the equivalent ones.

4.1 Participant Recruitment

We operationalized "older adults" by using the current legal retirement age in China: 60 for men, 55 for female civil servants, and 50 for female workers [80]. We set the following inclusion criteria for participants: 1) being over the legal retirement age in China, and 2) creating and sharing videos on SVSPs on their own rather than for the benefit of others (e.g., working for a commercial company).

To find potential participants on DouYin and KuaiShou, we first searched for accounts of older adults using age-related keywords, such as "50后," which means "born in the 50s" in Chinese. After discovering the seed users, the platform recommended more older adult users to us. We sent recruitment messages to hundreds of candidates through direct messaging. In the message, we explicitly stated our intention and personal background. We continued talking with people who were willing to share to check whether they met our inclusion criteria.

At last, 13 qualified older adults participated in our study (5 female, 8 male; age: average=59.62, median=60, SD=4.98), including P12 who was introduced by P9. Their demographic information is presented in Table 1. All participants published videos at least once a week. We recruited most participants from KuaiShou because the response rate there was higher, probably because KuaiShou users often come from rural areas or small towns [28] and they may appreciate the platform as a way to connect with others. We noticed that many KuaiShou users explicitly stated their willingness to make friends in their profiles. We stopped recruitment after we believed a theoretical saturation had been reached for our research question during analysis. Although we offered gifts as compensation for our participants' time (e.g., university goods), all were willing to participate as volunteers. This study was reviewed and approved by the Research Department of the institute the lead author was in when this study was conducted.

4.2 Semi-structured Interviews

From May to July 2019, the lead author conducted semi-structured interviews with the participants through online chats on WeChat[5] or direct messaging on DouYin or KuaiShou (all but P1, P9, and P12), audio calls (P1) or in-person chats (P9 and P12), based on the participants' preferences. Interviews conducted through online chats were based on both text and voice messages. All interviews were conducted one-on-one in real time. The interviews lasted from 40 minutes to 2 hours. We asked our participants about their personal backgrounds, how they knew the platform they were using, why they use the platform, how they make videos, how they interact with people on SVSPs, how they perceive these platforms, etc. All interviews were conducted in Mandarin. The interviews conducted via audio calls or in-person chats were audio-recorded upon informed consent of the participants and transcribed by the lead author.

4.3 Data Analysis

We adopted reflexive thematic analysis for our qualitative data analysis [15]. The lead author conducted open inductive coding on the transcripts and discuss the result with the research team. Initially, we focused on our participants' adoption and use of SVSPs on the surface level to familiarize us with the data. Example codes in the initial stages included: 'low entry level', 'active performance', 'social support', 'attention from others', 'reciprocity in support', 'skill practice', etc. During the analysis, we started thinking about why our participants became content contributors on SVSPs and constantly compared our data with theories about user trajectory in online communities, i.e., *reader-to-leader* framework [58] and CoP [44]. We began to identify themes with deeper meaning, including 'perceived competency in content creation', 'equal chances for recommendation', 'opportunities for interest development', 'lack of entertainment infrastructures in rural areas', etc. The whole research team reached a consensus on the themes. All quotes used in the paper were translated into English by the lead author and checked by the co-authors.

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[5]A multi-purpose application with instant messaging as the core service in China. See Appendix A.
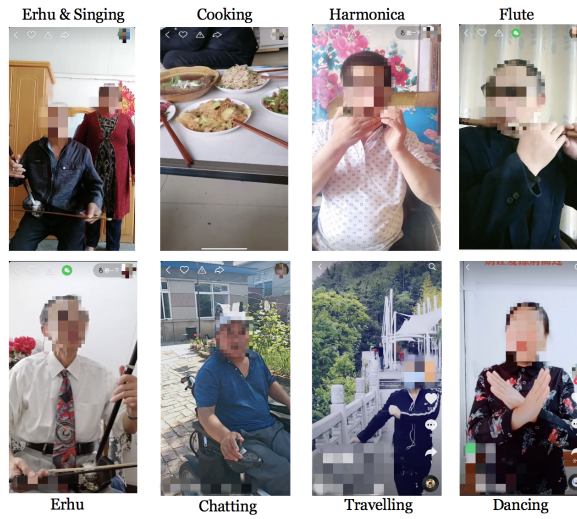
Fig. 2. Typical videos shared by our participants.

5 FINDINGS

We found that the use of SVSPs has become a daily routine for all of our participants. According to our observation of their accounts, all of them posted videos at least once each week, and some even posted videos almost every day. As informed by our participants, they had a lot of spare time because they were retired or not working, and their adult children were usually not around. Having fun on these platforms has then become their favorite way to pass the time, and they usually spend the time they used to spend on traditional entertainment, e.g., TV, Mahjong[6], karaoke, public square dancing ("广场舞"), chess, and card games, on the platforms. While the videos they created usually focused on a specific category (e.g., music performance; see Table 1), they watched and enjoyed a wide range of videos, including life hacks, news, travel, and other forms of performance on SVSPs.

Through deeper conversations with our participants, we found that SVSPs were not only a place for them to simply have fun, but also a valuable stage where they could develop their interests, showcase their talents, and connect with like-minded people. These opportunities, by contrast, were hard for them to find in real life or on social platforms dominated by youth culture. As a result, many of them expressed great appreciation for SVSPs. We detail their user trajectory on SVSPs next.

5.1 From Lurkers to Initial Contributors: A Low-barrier Start for Participation and Fun

People often start their involvement on social platforms by navigating the basics and engaging with content posted by others [58]; our participants are no exception. We found that our participants were initially attracted to SVSPs mostly because they perceived these platforms as having a low barrier to participation and fun. The majority of them said that using SVSPs for basic tasks such as video watching and creation is quite simple since it is near-automatic – users only need to scroll up or down to watch the never-ending video flow on the homepage or wait for videos to appear one after the other [69]. They are also comfortable with video-based content creation, especially when compared to text-based ones such as blogging. Moreover, SVSPs were perceived as having an encouraging environment for sharing as they allow less popular videos to appear in

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[6]A game of Chinese origin played by four persons.

recommendations. The diversity in performance quality and content categories of recommended videos offered our participants much confidence for sharing and also made them see the potential of using the platforms for fun.

5.1.1 Perceived Low Barrier to Participation. Most of our participants (N=7/13) quickly learned how to use SVSPs when introduced to basic usage (e.g., video watching and creation) by family members or friends, as it is almost automatic. They also had much experience using smartphones for activities such as news reading and microblogging. Participants who were less experienced with smartphones (P2, P5, P7, and P13) initially hesitated to use SVSPs due to their assumed difficulty in learning new technology. However, they still decided to give it a try with encouragement from family or friends and found it easy in subsequent use. Take P7 as a typical example,

> *"My daughter downloaded KuaiShou for me. I told her my literacy level is not high. How can I use the application? But she said, 'Don't take it seriously. Just use it for fun!' I then started to use KuaiShou and I found it was not as difficult as I assumed."*

As reflected by this quote, although P7 had assumed it was difficult to use KuaiShou, she soon felt comfortable.

Our participants also gained confidence in using SVSPs due to perceived ease of video creation, which only requires a few simple clicks on SVSPs. The advantage of video creation is especially evident when compared with text-based platforms such as microblogging. Three participants said it is difficult for them to type words or express themselves through text because of their low formal education level (P3, P9, and P10). We found that all participants who had previously used Weibo, a microblogging application (Figure 1), eventually left the platform (P1, P9, and P10). P9 used to use Weibo and maintain a blog at the same time, but she gave up both. She explained her disuse,

> *"I tried to write microblogs and blogs before, but it was not easy for me. You know, writing requires editing and polishing. It is not as straightforward as video making. Everyone is free to express themselves with DouYin. I once showed the application to my father-in-law, who was 88! He can't read or write, but he can watch and create videos...He is quite satisfied with the use of DouYin, too."*

On the other hand, perceived ease of use may not be enough for people to start sharing content. We found that perceived low quality of performance in recommended videos is particularly important for some participants to begin creating and sharing content. When we asked P8 why he decided to share his paintings on KuaiShou, he said, *"I noticed that many people's paintings on KuaiShou are not better than mine. Why not share my works?"* P3 is another typical case. As he said,

> *"I was very passionate about performing harmonica on KuaiShou at first because I found my performance was not bad compared to others."*

However, his passion for performing reduced slightly when he found a professional player on KuaiShou after using it for a period of time. He told us, *"I feel a little embarrassed to show my performance lately because the professional player plays much better than me."* Some participants also compared Weibo to SVSPs based on their experience with content sharing. P11 explained why she prefers DouYin to Weibo,

> *"Weibo is all about variety shows and celebrities. How can I be interested in these kinds of stuff? They have nothing to do with me. Also, they are too perfect. I can learn to create similar ones on DouYin but I can't on Weibo."*

As reflected in this quote, although the trending content on Weibo may be popular and influential on the site, it can make some people feel irrelevant and even discourage them from participating. Similar to P11, P6 told us he found it hard to create original videos, but he could imitate or adapt others' videos on KuaiShou. P8, P9 and P11 also told us that they imitated a lot of videos on SVSPs.

As such, SVSPs provided our participants with many opportunities to participate in content creation in relatively easy ways (e.g., responding to existing videos and parodying popular genres).

5.1.2 Rich Potential for Fun. While the low entry level facilitated our participants' adoption of SVSPs, it was the rich content on SVSPs that truly captivated their attention. Thanks to the diversity in recommended video categories, our participants could quickly find content or people of their interest after a few days of random use or trying to search by keywords.

Many participants were intrigued by the potential to use SVSPs for fun (e.g., P3, P6, P7, and P10) because they had nothing special to do in their daily lives. For example, P7 told us there was nothing for fun in her village, *"I thought the platform was pretty intriguing when I first used it [KuaiShou]. It seemed to be able to reduce my loneliness. To be honest, I was quite bored at home."* It is worth noting that six of our participants have specific interests (all but P1, P2, P3, P6, P7, P9, and P12), but they have few opportunities to develop them offline due to lack of resources and like-minded peers. As a result, they were ecstatic to see the large number of videos related to their interests. Take P8 as a typical example,

> *"I was extremely excited when I came across videos about Chinese painting after a few days of using KuaiShou. I had no idea that there are so many painting lovers!"*

Similarly, although P4 is a member of a local band in his town, he was still excited to *"see different styles of Erhu[7] performance on KuaiShou."* On KuaiShou, he *"has the chance to access many new songs performed by younger people"* which he *"never heard before."* Overall, the content on SVSPs left a positive impression on our participants. Most of them said they rarely came across annoying content while using SVSPs. This is likely because Chinese state authorities have strictly regulated content on SVSPs since April 2018 in response to critics [11].

5.2 Transitioning into Sustained Contributors: An Equitable Stage with Supportive Audiences for Stay

Feedback and support from audiences are often crucial for UGC creators to continue contributing content [26]. Many of our participants also stated that they stayed on SVSPs mainly because of the support they received from their viewers (e.g., P1, P3, P4, P10, P11, and P13). They told us it is quite easy to get attention and support on SVSPs, especially compared to Weibo, which is centered around trending topics. Many of them further offered the support they received in return to reflect their value for reciprocity. As such, a virtuous cycle of support has been formed among them and their viewers.

5.2.1 Easy to Receive Attention and Support. Many participants told us that receiving comments and "Likes" on SVSPs is quite simple, and overall the feedback they received was quite positive. Many participants attached a serious meaning to the "Likes" and followings they received. They frequently used words such as "respect," "appreciation," "recognition," "comfort," and "thanks" to describe their feelings when they received "Likes" or followings, or their perception of these features. Take P5 as a typical example,

> *"I'm very pleased with the response I received because it indicates that people enjoyed my performance and recognized my abilities. People without talents are unable to receive 'Likes' from others. Even if some of them may not approve of my performance, it demonstrates their respect for me."*

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[7]A two-stringed musical instrument in China.

Many participants told us they had never thought of the possibility of being followed until they received one. They were extremely excited when they were paid attention to. P3 shared his feelings with us this way,

> "I never thought people would give my work a thumbs up. Even seemingly professional players sent 'Likes' to me. I felt wonderful and kept posting videos since then."

Weibo was again mentioned for comparison, where attention is hard to achieve and communication is limited. P1, P4 and P10 all emphasized the difficulty of getting feedback on Weibo. Take P4 as an example,

> "I used Weibo before, but I soon gave it up due to the lack of interaction there. On KuaiShou, once you post your videos, you will receive a 'Like' very soon. You see, I have 3,000 followers right now."

Based on our observations of DouYin and KuaiShou (Figure 1), as well as online reports such as [60, 70], the difference may again be attributed to the recommendation strategy of SVSPs. Since every video on SVSPs has a certain chance to be recommended on the homepage, everyone will be assigned a certain number of audiences. When we asked P1 why she had so many followers on DouYin, she also expressed curiosity,

> "To tell the truth, I don't know. The number of my followers is gradually growing. DouYin probably recommended my account or videos to others. My followers seem to be mostly people my age. I used Weibo before, but no one viewed my posts."

The existence of audiences is especially meaningful for participants living in rural areas or small towns, as they have little chance to meet like-minded people or perform for others offline in reality. P5, an Erhu lover, could only go to a public square in a town far away from his home if he wanted to play music with others, as there is no space or infrastructure for performances in his village. However, the number of audiences in the public square was still limited, especially compared to KuaiShou. Now he *"can perform for people nationwide instead of only people in the town."* P13 also reported difficulty connecting with like-minded people offline, stating that *"no one in our place plays Erhu. I could only play Erhu by myself before using KuaiShou."* The isolation in rural regions may be even worsening as more individuals, particularly the young, leave rural areas to work in cities, making it even more difficult for older people to meet people with similar interests offline. P7 told us she used to organize a dancing group in her village, but many younger people left, and the group cannot be maintained anymore. She was bored a lot before she used KuaiShou because there were so few people to have fun with. As a result, she greatly appreciated the fun KuaiShou brought her.

5.2.2 Value for Reciprocal Support. Consistent with prior findings about older adults' value for reciprocity [33], many of our participants actively offered others support in return because they value mutual support. Nine of our participants told us they would give feedback and support in a reciprocal manner. Many said that, to be polite, they would follow back when others followed them. As P11 noted,

> "I will follow them back if someone follows me. KuaiShou is a platform for communication, so we should show our support to others."

The 'Like' feature, which stands out on the video page (Figure 1), was widely used by our participants as a symbol of support. We found several participants actively and extensively used the 'Like' feature to show their support to others, rather than based on their preferences or a reflection of performance quality. P5, who 'Liked' every video he watched, said:

> *"I will 'Like' every video I watch, regardless of its quality. I want to encourage people, even if they don't do a good job. Unlike those who only send 'Likes' to high-quality videos, I want to show my support to every creator."*

Similarly, P9 would 'Like' a video even if she perceives the quality as not very good because she understands how hard it is to produce good work. She told us,

> *"I practised many times before posting, so I know that it is hard to make a good video. For example, it is very difficult for two to make a duet dancing video. They need to practice many times to be uniform. Even if the video looks not good, I know the person put a lot of effort into it, so I will send a 'Like' to them."*

The reciprocity was not limited to light support such as "Like." Some participants would tailor their videos with consideration of their audiences. P1, for example, informed us that she used to primarily create videos documenting her life, often featuring her sadness due to her son's severe mental illness. However, she chose not to post sad videos now because of her viewers,

> *"I used to post a lot of sad videos, but as my followers grew, I realized it was more important to share happiness, so I stopped doing so. I was aware that I should share more cheerful videos when I received a comment asking why I was so upset."*

Similarly, when asked why he did not post videos about his personal life, P3 said, "*My personal life is boring and useless to others. Nobody would like to watch me eating.*" As another example, P5 said he "*used to only post videos about Erhu,*" however, he "*started to share the view of his hometown and played harmonica*" after he had a large number of followers because he wanted "*them to have fun.*"

The appreciation towards followers also provided some participants with strong motivation to overcome difficulties in using SVSPs. As P11 noted,

> *"Though it was not easy for me to use the smartphone, I continued because of my followers. I will try my best to meet their expectations and bring happiness to the people supporting me. The difficulty is not a big deal. My followers will comment that they want to see my new work if I haven't posted my videos for several days. So I will prepare my new videos carefully to show my appreciation for their support."*

As seen from this quote, the support from his followers is the major motivator for P11 to continue performing on SVSPs.

5.3 Established as Contributors and Collaborators: Deeper Involvement through Active Learning and Practice

UGC creators often show desires to improve their content creation skills when they become more deeply involved on a site [26], and they often develop relationships with other content contributors during the process [58]. We found that our participants were also motivated to acquire and practice new skills for better performance when they more deeply engaged on SVSPs, and the learning activities they engaged in often entailed social opportunities that they perceived as meaningful – with SVSPs, they can pursue their passions with like-minded people, rather than doing activities they do not enjoy (e.g., playing card games, and gossiping).

5.3.1 Active Learning and Practice of New Skills. Our participants were commonly motivated to learn and practice a variety of skills because they want to develop their interests and/or their performance on SVSPs. Although basic video creation was perceived as relatively simple, they often needed to put in a lot of time to learn and practice new skills if they want to perform better. Many participants told us that making a fascinating video requires many skills, including skills directly related to performance (e.g., playing musical instruments, make-up, lip-syncing, and dancing), communication (e.g., oral expression, speaking Mandarin instead of dialects, and

making eye contact), video-making (e.g., adding captions, background music, and special effects), and live-streaming (e.g., rehearsing and practising strategies to improve interactions with viewers).

As mentioned, participants with specific interests were particularly excited about the learning opportunities related to their interests because they are hard to come by in offline reality (e.g., P3, P4, P5, P8, P11, P12, and P13). For example, P13 told us, "*I tried to look for a school to learn about Erhu. However, I did not find any from ZhangYe to LinZe[8].*" Similarly, P8 told us he used to learn Chinese painting at a school for older adults, but the teachers there only taught basic skills. Now, he can learn more about Chinese painting on KuaiShou, as a large number of excellent painters share videos on the platform. According to him,

> "*At that school, I only learned basic painting skills. However, by watching videos shared by skilled painters on KuaiShou, I have come to realize that painting requires many high-level skills, such as selecting colors, composing, and choosing subjects. For instance, if I plan to paint flowers now, I'll go out to take pictures of real flowers as a reference.*"

P7 told us that, thanks to videos from other female users on KuaiShou, she started enjoying doing makeup, something she had always wanted to do but was generally regarded as strange in her village. She told us this way,

> "*I have always wanted to learn to do makeup since I was young. However, people in rural areas usually think it is strange for women to wear make-up. I am impressed by the beautiful women on KuaiShou. I feel more open about doing makeup after watching their videos. I use the lipstick my daughter gave me every day now, and I feel better about myself.*"

As reflected by P7's experience, the diversity of people online presents opportunities for people to embrace their passions.

As SVSPs provide many tools to facilitate video making, learning to use these tools is also a subject for learning. Although some skills related to video making (e.g., editing and cutting) were perceived as relatively complicated due to the lack of instructions on the platform, our participants were still motivated to pick up new skills to make videos in their favored style. When they watched a nice video with advanced skills such as special effects or editing, they were usually curious about how to make similar ones. To learn related skills, they would send direct messages to the creator, or ask their family members or offline friends. During the interview, P9 showed us many videos she was interested in and asked us how to make similar ones. She even joined a QQ[9] chat group where people actively shared video-making skills to learn related skills.

Live-streaming requires even more skills than video making. Four live-streamers among our participants (P4, P5, P6, and P13) told us that they encountered many challenges during their live-streaming, especially at the beginning, but they eventually figured out how to do it. For example, many of them were nervous the first time they live-streamed, but with the support of their audiences, they continued and became more comfortable with the growing experience. P4 shared his live-streaming experience,

> "*I was extremely nervous when I live-streamed for the first time. I thought I was not good enough to perform in real time. However, I am not nervous anymore because of the practice and encouragement of my followers. Now, I practice for half an hour to one hour before every live-stream.*"

P6 told us that at first, he talked too much and felt tired, but now he has reduced the frequency of his live-streaming and learned to interact with his audiences in a way that allows him to talk less.

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[8]Both are nearby cities from where he has lived.

[9]An instant messaging application in China. See Appendix A.

5.3.2   Learning-oriented Socialization. We noticed that the learning our participants engaged in often entailed many valuable social opportunities, both online and offline. Many of our participants sought support from a variety of sources when they faced challenges in using SVSPs, and people also asked them for help because they were quite experienced with the platforms. Many participants placed a high value on this type of learning-oriented socialization, as it was usually related to perceived meaningful social activities (e.g., interest or skill development, communication with family members or like-minded people, and offering others support). As a result, many of them wrote in their profile that they were "*willing to make friends on the platform.*"

For many participants, learning how to use SVSPs and perform better has created a new topic for intergenerational conversations. For example, P3 told us he had almost nothing to talk about with his son before using KuaiShou, as they did not have shared interests, but it changed now,

> "*I will ask family members for help when I have difficulties in using KuaiShou. Some of them are also using KuaiShou and are familiar with the application. They are willing to offer help.*"

Similarly, P1 said many of her younger colleagues were creating videos on DouYin, and they often came to ask her for advice on how to look better in the videos. She was happy to share the same interest with these younger people. P6, a relatively popular live-streamer with over 10,000 followers, told us he took several students, who are willing to learn live-streaming related skills from him. As he said,

> "*A guy from Shanxi even visited my home. He enjoyed my live-streaming and asked me for advice on how to live-stream. He often watches my live-streaming and chats with me. When he faces difficulties during live-streaming, he asks me for help. I am happy to assist him because he shows respect and regards me as his teacher.*"

As reflected by these experiences, our participants actively engaged in mutual learning during the use of SVSPs. Similarly, as a typical music lover among our participants, P4 appreciated the chance to exchange advice and learn with other Erhu players. He often sent music scores to other music lovers on KuaiShou and talked with them about Erhu. P3 was eager for advice from professional players on KuaiShou. P9 and P11 put a lot of effort into teaching others how to use the platforms, and they were glad people can have fun with their help.

Many participants further told us that using SVSPs has made their retired life more substantial and meaningful than before. Improving their performance on the platforms has become one of their favorite topics in daily conversations (e.g., P1, P5, P7, and P9). Some told us that before using SVSPs, they could only gossip or talk about nonsense with others to kill time (e.g., P5, P7, and P9). P7, who lives in a rural area, told us,

> "*The only theme of conversation for people living in rural areas is gossip, which is nonsense and boring to me. After using DouYin, I can talk with others about my videos on the platform.*"

P7 also told us that she used to use QQ for group chat, but people in that group mainly gossiped, so she quit the group. As another example, P5 used to kill time by chatting or playing card games or chess with his neighbours. However, he did not find these pastimes particularly enjoyable. Although he still visits his neighbours because his wife enjoys these activities, P5 has become less involved in their conversations and instead plays KuaiShou on the side. Similarly, P3 told us that after using KuaiShou, he spent less time chatting with friends on WeChat because he can find more people who share the same interests as himself on KuaiShou, and he can learn a lot through communication with them. As shown in these examples, many of our participants have derived a strong sense of

meaning from participation in SVSPs, and learning how to perform better on them has become an integral part of their lives.

6 DISCUSSION

This study aims to understand why older adults become online contributors through a case of older adult content creators on SVSPs in China. The role transition revealed in this study fits well into *reader-to-leader* framework, i.e., from lurkers to contributors and collaborators [58], which highlights older adults' online participation as an evolving process with changing motivations. Next, we discuss why our participants were attracted to SVSPs and how SVSPs' technical affordances facilitated their transition from lurkers to contributors. We end by discussing how to make social media platforms more equitable and supportive.

6.1 Helping Older Adults Develop Sense of Meaning in Online Participation

Our findings support the idea that researchers and designers should consider the potential of fostering new social ties when designing social technologies for older adults [17, 31, 59]. As the Socioemotional Selectivity Theory suggests, people lean towards emotionally meaningful relationships as they age [20]. However, as both previous studies and our findings support, emotionally meaningful relationships are not limited to existing strong ones but also include new social ties that can provide a sense of self-value (e.g., peers who can support interest or identity development [17, 59] and intergenerational sharing [17, 31, 48, 87]).

Our participants derived a strong sense of meaning from participation in SVSPs because these platforms offered valuable opportunities for interest development and meaningful socialization, which, however, are hard for them to obtain in offline reality and on other social platforms they used. SVSPs may even be the only source of entertainment for those living in rural areas of China due to the lack of infrastructure [65] and isolation resulting from an aging and declining population [50]. Therefore, SVSPs served as an important channel for our participants to express themselves and explore their hobbies, which eventually led them to incorporate SVSPs into their daily lives and improve their digital skills. As research from ICTD showed, people's quest for leisure often motivates them to go online and develop digital literacy [3].

The deepening meaning of SVSPs in our participants' lives highlights the value of an open-ended approach when designing for aging. Typically, the goals of design for older adults are often functional and pre-defined in HCI and CSCW (e.g., physical health, and social well-being) [71], while less attention was paid to hedonism and playfulness [30]. However, people often explore technologies through a casual phase before using them for other purposes [3]. At first glance, short-form videos may not be suitable for affording the same depth of thought as blogging [17] and writing [33] because video production is often more associated with fun and passing time than text-based creation [64]. Our participants also initially used SVSPs for leisure. However, as the activities they participated in became intertwined with their sense of self-worth, they started taking on a more serious meaning. As Chirumamilla and Pal argued, researchers should take seriously the desires expressed in people's entertainment and leisure, if they are to envision their work as having deeper meaning and integration into people's lives [22]. Our findings add evidence to support this argument in the context of design for aging.

6.2 Supporting Older Adults' Transition from Lurkers to Contributors through Design

This study contributes to the empirical knowledge of how older adults deepen their engagement on social media. Our analysis reveals the role that interface design can play in the process (Figure 3). As suggested in the findings, the near-automatic use of SVSPs largely facilitated our participants' adoption of the platforms, while the content and audiences distributed by the recommendation
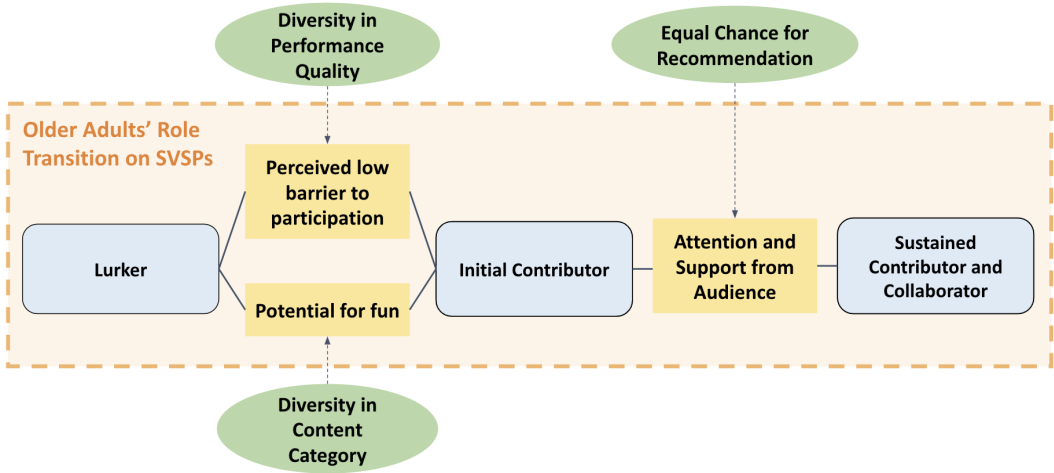
Fig. 3. Our participants' role transition on SVSPs.

system played a significant role in their shift to initial contributors, sustained contributors, and collaborators.

Our findings confirm that perceived ease of use and fun are crucial factors for older adults to become initial content contributors [61]. Furthermore, the findings reveal the importance of perceived competency at this stage. As our findings show, the diversity in performance quality of recommended videos helped our participants realize their abilities in content creation. The videos also provided opportunities for social learning [44], allowing older adults to learn how to create similar videos through imitation and offering them confidence. As prior research suggested, people are more willing to make contributions if they feel that the value of their contributions is above the average level on the site [21].

The diversity of performance quality also made adapted videos a legitimate form of creativity. As Karizat et al. argued, people may perceive content recommendation algorithms as a system that assigns value and attention to certain types of videos [40]. Therefore, the videos of lower performance quality can be seen as legitimate peripheral participation (LPP) in CoP [44], i.e., peripheral but valuable contributions to an online community. These low-level but productive tasks gave our participants confidence in content creation and sharing, as well as in the acquisition of new skills.

On the other hand, similar to younger UGC creators, attention and support from others is the key to our participants' sustained contributions [26]. Prior research also indicated that being useful to others is a significant motivation for older adults to make online contributions [17, 31, 59]. However, our participants' experiences on Weibo reveal that it is often challenging for older adults to recognize their value on social media, as younger adults are often the dominant user groups that shape online norms [47, 48, 51] (e.g., Reddit [48, 51]). Weibo, which is centered around the most influential topics on the site, only had 4% of users over 50 years old in 2020 [63]. Consequently, older adults may have little influence over the trending content on Weibo. As seen from our findings, many of our participants stopped using it largely due to a sense of irrelevance and marginalization. In contrast, SVSPs stood out because of the ease of receiving attention and support. Prior research similarly suggested that a lack of shared interests and social responsiveness can be major reasons

for older adults to reject a social application for fostering new social connections [5, 74]. With these findings, we emphasize participation equity and social support when designing social platforms for older adults. We detail design opportunities below.

6.3 Towards More Equitable and Supportive Social Platforms

The role transition process revealed in this study supports older adults' value for responsive audiences [73] and reciprocity [33] in online communication. Moreover, our findings extend the literature by highlighting the importance of participation equity as an important structural issue for older adults' online participation. As suggested by our participants' experience on Weibo, older adults may easily be pushed to the periphery on social platforms dominated by youth culture. Prior research supported that older adults often perceive SNSs as places mainly for younger people, and they may resist complying with norms set by younger people [47]. Based on our findings, we provide the following design implications for designing more equitable and supportive social platforms for older adults. These implications could potentially facilitate a change in power dynamics within online environments, thereby benefiting numerous people who have less power in establishing online norms.

6.3.1 Recognizing Diverse, Even Minor Forms of Contributions. We suggest designers highlight or promote diverse values of online contributions (e.g., recommending videos about intergenerational sharing [31]) so that older adults can perceive their possible influence over the platform. As Xie et al. found, older adults' perceptions of social media can be changed if they are informed of its value [83]. Designers can help older adults start with different light yet important activities (i.e., LPP in CoP [44]) to be aware of their potential and build confidence for online participation.

Diversifying contributions could be one way to reshape online power dynamics, and thus benefit a wide range of people who have less power in establishing online norms. For example, research found that emphasizing certain types of contributions may lead to gender disparity in making contributions on Question & Answer sites [29]. Indeed, social stigma or assumed judgement from others was often reported as a barrier to online participation among people from marginalized groups (e.g., rural female [66], disadvantaged college students [53], and second-generation rural-urban migrants [72]). Similar to our participants, younger people with lower literacy may be ashamed of sharing content because of perceived high quality of reviews on book review sites [72]. Along with this line of work, we suggest designers include features (e.g., presentation of role models) to help people realize their strengths and value of their possible contributions, such as sending "Likes" and providing instructions to others.

6.3.2 Helping People Construct and Develop Norms They Value. Prior research suggested that intentional spaces such as sub-forums and group chats are valuable for people to set boundaries, develop community norms and construct collective identities, especially for people who may not conform to dominant norms or interests on the site or in society [27, 48, 86]. For instance, Reddit re-distributed power relations between minority and dominant user groups on the whole site by allowing people set sub-reddits [27, 48]. Therefore, niche interests are well represented on Reddit.

Although SVSPs do not support forming communities with clear boundaries as on Reddit, they enable people to curate communities with flexible boundaries by helping them reach out to audiences and like-minded people through algorithms [52]. As shown in the findings, our participants have developed norms they value with others via the help of recommendation systems, e.g., exchanging support with each other out of value for reciprocity. These interactions helped to reduce their sense of marginalization and provided them with strong motivation to use the platforms. Our findings also show the potential of setting intentional spaces for older adults to develop social learning, e.g., exchanging instructions and learning from each other.

Designers can leverage rich insights in CSCW regarding the establishment and maintenance of online communities to support older adults' participation in collaborative practices. For example, considering older adults' value for reciprocity, designers can encourage senior members of the community to volunteer and help newcomers become familiar with the practices and attitudes of the community [34].

6.3.3 Supporting Both Light and Heavy Forms of Support. While prior work usually emphasized older adults' value for heavyweight forms of communication and support (e.g., with dedication and deep thoughts [17, 49, 57]), our findings show that the boundary between heavy and light support may be blurred. Although "Like" and "Follow" only require simple clicks, our participants interpreted them seriously as symbols of recognition and respect. Moreover, perceived ability to provide support may be crucial for older adults to achieve reciprocity in online communication. As Kim and Feng found, while older adults self-reported a lower level of online reciprocity than younger adults, this age group disparity in online reciprocity disappeared or decreased when perceived ability was controlled [42]. Meanwhile, SVSPs still provide additional ways for heavier forms of support, such as direct messaging, which our participants used for exchanging advice and deeper communication. The live-streaming service further provides them with opportunities to interact with their audiences and receive feedback in a heavier yet still direct way. Given these findings, we suggest designers pay attention to both light and heavy forms of support when considering social support for older adults.

6.4 Limitations

This study has a few limitations. First, we acknowledge that the data used in this research was derived from a limited sample. Our participants are likely among the most active contributors on SVSPs. We do not claim to generalize our findings to all older adults on SVSPs. Besides, older adults' online engagement may include invisible actions (e.g., intentional non-clicking) [18]. Future studies can be conducted with more diverse older adults on SVSPs to provide a more comprehensive understanding of older adults' user experience on SVSPs. Second, this study was based on our participants' retrospective experiences, and people may attempt to justify their behaviors out of social desirability [2]. Future studies can employ observation-based methods to understand older adults' practices on SVSPs. Third, DouYin and KuaiShou did not disclose the inner workings of their algorithmic systems to the public. The descriptions of the recommendation algorithms employed by SVSPs are all based on our observation and online reports from mass media or users' folk theories.

7 CONCLUSION

We present a qualitative study based on semi-structured interviews with 13 older adult content creators on SVSPs in China. The findings reveal how they transition from lurkers to contributors under the influence of SVSPs' technical affordances. SVSPs offer the older adults valuable opportunities for interest development and meaningful socialization that are hard for them to achieve offline or on social platforms dominated by youth culture. We highlight the role of the decentralized recommendation algorithms employed by SVSPs in promoting participation equity and social support on the platforms. Based on these findings, we suggest promoting participation equity and a supportive environment to achieve more inclusive social media platforms.

A   APPLICATIONS SPECIFIC TO THE CHINESE CONTEXT

ID	Application	Introduction
1	WeChat ("微信")	A multi-purpose application with instant messaging as core service [78]
2	DouYin ("抖音")	A short-form video sharing mobile application; the Chinese version of TikTok [76]
3	KuaiShou ("快手")	A short-form video sharing mobile application with a strong user base among users in countryside and rural areas in China [77]
4	Weibo ("微博")	A microblogging application similar to Twitter [81]
5	QQ	A multi-purpose application with instant messaging as core service [79]

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