The Impact of “Social Networking+” Technology on the Social Inclusion of People With Mobility Impairments in China

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Abstract
This study examined whether “social networking+” technology can facilitate the social inclusion of people with mobility impairments. Based on the modality, agency, interactivity, and navigability (MAIN) model of uses and gratifications theory, we conducted a survey on WeChat use among people with mobility impairments in China. We identified 16 gratification factors and tested their associations with social participation, service access, and societal relationships. The linear regression results indicated that instrumental gratifications can more significantly enhance the social participation and service access of people with mobility impairments, whereas non-instrumental gratifications have a greater impact on their social relationships. An analysis of social background and media use revealed that social networking has a greater impact on the social inclusion of people with mobility impairments from superior social backgrounds, especially in the social participation domain.

Keywords
WeChat, MAIN model, social inclusion, uses and gratifications theory, social participation, service access, social relationships

Introduction
Individuals with disabilities have been traditionally regarded as “impaired” and are othered, often facing discrimination and stigmatization. In early academic disability studies, there were three theoretical models—medical, charity, and individual models—that regard disability as a private issue and define people with disabilities as those needing assistance and who gain social respect through their own efforts (Oliver, 2013). Such models view individuals with disabilities as people who are vulnerable and somewhat non-productive members of society at large. These perspectives have resulted in individuals with disabilities being systematically excluded from social activities (Goggin et al., 2003).

In the 1960s and 1970s, disability researchers from Western societies developed a new social model that regarded disability as a constructed social space; in it, disability was defined by mainstream norms, values, and social backgrounds, and the researchers believed that this social model could provide theoretical guidance to facilitate the social integration of people with disabilities (Barnes & Mercer, 2010; Shakespeare & Watson, 2001). If provided with suitable environments (e.g., barrier-free), people with disabilities can participate in society (Huang, 2008). In fact, the emergence of information communication technologies, especially the disruptive ones, has facilitated social inclusion processes for this population.

Disruptive information technology is defined as an innovative technology that can change the behaviors of consumers, industries, and enterprises. This type of technology can greatly improve the living conditions of people with disabilities (Hwang & Christensen, 2008; Xiang et al., 2015). Information technologies are generally characterized by novel instruments that can bridge the gap between mainstream society and marginalized groups (e.g., people with disabilities) so as to create a more inclusive social environment (Halewood et al., 2015; Raja, 2016), with popular

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forms of this technology including artificial intelligence, the Internet of Things, e-finance, and social networking.

In China, one of the most significant disruptive information technologies for people with disabilities is social networking, mostly because it empowers people with disabilities by providing them with platforms that facilitate their digital inclusion (Donoghue, 2016; Lin et al., 2019). According to some previous scholars, such as Cox (2014), social networking originally configured a social structure comprising individuals who were joined by a common interest. For example, the Chinese WeChat application was originally designed as a social networking platform exclusively aimed at allowing individuals to communicate with one another (Cox, 2014). However, as information technologies have developed, social networking technologies have expanded from simple interpersonal communication platforms to more complicated social structures, connecting services and businesses within its networks (Borgström et al., 2019; Caton & Chapman, 2016). These complex structures are often referred to as “social networking+” technologies.

The connection that “social networking+services” and “social networking+business” brings also delivers new functions for stakeholders in these social networks, such as content services, e-commerce, entertainment services, and shared economic activities (Tokarčíková, 2011). Therefore, the emergence of different social networking technologies has led to the establishment of structured social systems that revolve around them, facilitating the use of information technology by, and the social inclusion of, people with disabilities (Lin et al., 2018).

However, few empirical studies have studied social networking as a disruptive information technology or examined its social inclusion impacts on people with disabilities. Thus, this study analyzed the influence of social networking on people with mobility impairments (PWMIs) in China. We aimed to answer the following research questions. What type of gratifications does social networking bring to PWMIs? Can these gratifications promote the social inclusion of PWMIs in China? Are there any constraints to such social inclusion? This study contributes to the literature on new media and social change by addressing these questions and analyzing how “social networking+” (hereafter, referred to simply as “social networking”) affects PWMIs.

**Literature Review**

**Social Networking and the Digital Inclusion of People With Disabilities.** There are 24.72 million PWMIs living in China, most of whom are socially excluded owing to institutional constraints (Lin & Yang, 2018; Zhao et al., 2018). Information technology has been regarded as an enabler that reduces barriers in a disabling environment and as an instrument to promote the social inclusion of PWMIs (Borg et al., 2011; Roulstone, 1998). Thus, we examined whether and how social networking can provide PWMIs with a space for communication and opportunities to engage in society, can change their daily lives, and can reshape their societal interactions.

Most previous social inclusion studies on social networking and PWMIs examined the social aspects of social networking, including how information technology can influence a PWMI user’s social relationships. For example, Gruzd and Haythornthwaite (2013) showed that social networking has changed the traditional use patterns of certain communication mediums (e.g., the telephone, emailing, and instant messaging), enabling people with disabilities to now send/receive information on cell phones/computers/tablets and create/manage online communities through social networking platforms. Thus, PWMIs now have more tools by which they can freely express their opinions, share their emotions, and participate in online communities alongside their peers (Wu & Adamic, 2014).

With the development of information and communication technologies and the emergence of “social networking+services,” a plethora of new services has arrived, including media content, travel planning, and entertainment (Kapoor et al., 2018; Smits & Mogos, 2013; Yellow, 2019; Zimmerman & Ng, 2015). Through this innovative technology, PWMI users can now more easily read articles and news, search/find information (e.g., health care information), request car-hailing services via third-party apps on social networking platforms, and even participate in activities hosted by charitable institutions and organizations. In addition, the new services have facilitated the consumption of various types of entertainment (e.g., audio files, videos, and games) for PWMIs, promoting a more interesting and independent life for this population.

Moreover, with the creation of “social networking+businesses,” which focus on providing online services and payment options, PWMIs can now more easily shop online and have their products delivered directly to their homes, without venturing out. Moreover, PWMIs can pay their bills (e.g., water and electricity bills) and make various appointments (e.g., doctor appointments) online (Peng, 2019).

Therefore, social networking has been regarded as an innovative and disruptive information technology, one which has led to changes in information flow, interpersonal communication, the media, and business management (Al-Deen & Hendricks, 2011; Donoghue, 2016; Laurell & Sandström, 2016a, 2016b). As a result, PWMIs now have more control of their access to engage in society and outer environments; thus, social networking has the potential to enable a more holistic integration of PWMIs into society (Trevisan, 2016).

The above literature suggests that the Chinese WeChat application can be regarded as a disruptive information technology related to social networking, and thus, it may be able to influence individuals’ behaviors/habits and/or even organizational operations. Originally, WeChat was designed as a mobile social platform. However, the number of Chinese
users in this platform has increased to 1 billion over the past 9 years; in fact, as of 2019, WeChat included more than 1 million third-party apps from over 200 industries and enterprises, including DiDi Travelling, Taobao Shopping Mall, Eleme Delivery, and Dingxiang Healthcare (Peng, 2019; Yao et al., 2020). These apps enable WeChat users to use related services without either leaving the platform or downloading the applications to their devices. Based on these phenomena, describing how social networking can facilitate the social inclusion of PWMIs is a relevant and significant research topic (Lin et al., 2018).

However, few studies have examined how social networking use is related to PWMIs’ supportive social relations, social participation, and service access. To fill this research gap and better understand the impact of this disruptive technology on the social inclusion of the population of people with disabilities, we conduct an empirical analysis of how social networking can meet the specific needs of PWMIs in their social contexts.

**Social Background Factors.** The social model perspective has reframed the term “impairment” as being of a biological nature and the term “disability” as a social construct (DePauw, 1997), and this model enabled researchers to emphasize the material and social barriers faced by people with disabilities in society (Barnes & Mercer, 2003; Oliver, 1992, 2020). Numerous studies on the topic have indicated that social background factors (e.g., barrier-free social environments, family dependence, and education level) influence PWMIs’ social inclusion levels (Gannon & Nolan, 2006; Yu et al., 2019; Zhao, 2018).

In China, by 1989, the government had already implemented the *Code for Urban Roads and Buildings Access for the Disabled*, which aimed to ensure that people with disabilities experienced barrier-free environments nationwide (China Disabled Persons’ Federation, 1989). Then, in 1990, the Committee of the National People’s Congress passed the *Law of the People’s Republic of China on the Protection of Disabled People* (Central Government of the People’s Republic of China, 1990), further confirming that the government would take measures to guarantee PWMIs’ rights. However, although the Chinese government has been attempting to construct a barrier-free environment over the last 30 years, there are three main reasons that demonstrate how the country has yet to resolve the traveling difficulties faced by this population.

First, despite the enactment of laws designed to guarantee PWMIs’ access to facilities, the country has few mechanisms in place to ensure the implementation of such laws. Second, there is an urban–rural divide regarding the development of barrier-free facilities in China. For instance, urban cities, such as Beijing, Shenzhen, and Shanghai, are more advanced in developing barrier-free facilities, whereas rural areas lag far behind (Wang, 2017). Third, although various cities have barrier-free facilities, these buildings still demonstrate various accessibility issues, including steeply raked ramps, vertical elevators that either require maintenance or do not work, and the intrusion into lanes designated for the blind by mainstream society (China Disabled Persons’ Federation, 2018). Hence, the incompleteness of these barrier-free facilities remains a constraint to the accessibility of people with disabilities, limiting their social participation in local communities (e.g., visiting restaurants, shops, entertainment facilities).

One of the more significant manifestations of this incomplete barrier-free environment appears in the educational context (Ma & Peng, 2017). According to the *Report on Education Obstacles to the Disabled in China*, 28% of children with mobility impairments in China cannot access basic elementary education (Kang, 2019). Because of the “unsuitable learning environments” in general schools and classrooms, these children are excluded from traditional elementary education. Moreover, the country has an underdeveloped special education teaching system. This is important, because education level is an important social background factor that influences the social inclusion of people with disabilities (Ma & Peng, 2017; Stein, 2015). For instance, highly educated PWMIs can more easily find a job than those with poor education, are more inclined to accept their identity as a person with a disability, and therefore, can live more independently in society (Lamichhane, 2015). Thus, if PWMIs have no easy access to education, it seems likely that they will continue to experience social exclusion.

This reality demonstrates that Chinese PWMIs who seek access to education face numerous obstacles—and so do their families. In fact, according to the *Report on Education Obstacles to the Disabled in China*, parents of children with mobility impairments must carry their children up and down stairs several times a day, as most elementary schools nationwide do not have elevators, while classrooms and bathrooms are often located on different floors (Kang, 2019). If families do not have the required resources to support their children with disabilities, it is more likely that these children will stay at home and continue to depend on their families to meet their basic needs.

Considering these challenges and social factors, there is a need to examine the impact of disruptive information technology on people with disabilities within their specific societal contexts; we deem it particularly worthwhile to investigate whether and how this technology enables PWMIs to participate in social life.

**The Modality, Agency, Interactivity, and Navigability Model and Gratifications Theory.** The uses and gratifications (U&G) theory is a mass communication theory that has been used to explain media usage (Ruggiero, 2000). According to the U&G theory, media use is goal oriented because it should gratify users’ needs (Rubin, 1983), and this theory has been applied to understand the use of traditional media, such as radio and television (Rubin, 1983; Towers, 1987). Nonetheless, the 21st century has brought forth the rapid development
of information and communication technologies, generating renewed interest in the U&G theory through such questions as how the changing nature of technology impacts media U&G (Ruggiero, 2000). On the topic, Sundar (2008) and Sundar and Limperos (2013) expanded the U&G theory by describing how new technologies created new gratifications, and arguing that the impact of a technology on its users could be classified into four categories: modality, agency, interactivity, and navigability (MAIN).

Modality-based gratifications focus on media presentation and how this presentation gratifies users’ perceptual needs. Sundar and Limperos (2013) later divided these modality gratifications into different categories: realism, coolness, novelty, and being there.

Agency-based gratifications focus on enhancing user initiative, allowing anyone to act as the sender, transmitter, receiver, or gatekeeper of information. Sundar and Limperos (2013) went on to differentiate these gratifications into five types: agency enhancement, community building, bandwagon, filtering/tailoring, and ownness.

Interactivity-based gratifications focus on user activity, allowing users to interact with and through the media (Sundar & Limperos, 2013). The authors went on to differentiate these gratifications into interactivity, activity, responsiveness, and dynamic control.

Navigation-based gratifications focus on users’ ability to move through the medium. According to Sundar and Limperos (2013), these gratifications can be divided into browsing, variety-seeking scaffolds, navigation aids, and play/fun.

Sundar and Limperos (2013) further argued that each technology-based affordance stimulates a unique set of gratifications. The modality-based realism and being there gratifications, for one, are likely to serve an instrumental purpose, whereas coolness and novelty gratifications, for another, are more applicable to the medium use. In addition, agency-based gratifications (e.g., community building and filtering/tailoring) are enabled by new customization and crowdsourcing interfaces, primarily serving as instrumental goals of highly motivated and involved users. Interactivity-based gratifications are related to user activity and system responsiveness, and such gratifications typically serve to meet the social needs of users. Meanwhile, navigation-based gratifications cater to users’ movements in the medium’s space, with play/fun gratifications tending to predominate; this indicates that Internet-based media provide users with a broad range of information and entertain them in ways that allow for relaxation and spending time on related activities.

In summary, Sundar and Limperos (2013) broadened the traditional U&G approach, proposing a theory that focuses on technical forms and information content. Their updated theory seemed to us to be most applicable to the focus of our study: social networking and disability. Thus, based on the suggestions by Sundar and Limperos (2013), we categorized the modality-based realism and being there gratifications and all agency-based gratifications as instrumental gratifications, contending that they serve as complimentary tools that enable the social integration of PWMIs. The remaining gratifications were treated as non-instrumental gratifications.

Research Questions and Hypotheses

Research Questions. The literature review indicated that PWMIs obtain gratifications from engaging with social networking platforms, suggesting that PWMIs can improve their social inclusion level by enhancing their social participation, service access, and social relationships through social networking. In addition, PWMIs may be highly dependent on social networking. Thus, we aimed to address the following three research questions.

Research Question 1: Which gratifications can PWMIs expect to obtain when using social networking technology?

Research Question 2: Which gratifications facilitate the social inclusion of PWMIs, and do their effects differ by domain (social participation, service access, and social relationships)?

Research Question 3: Do users’ social background, media reliance, and the gratifications they experience influence their social inclusion level? If so, how and in which direction?

Hypotheses. We relied on the MAIN model as a theoretical basis to explore whether social networking technology produces changes in PWMIs’ social participation, service access, and social relationships. Accordingly, we tested several hypotheses.

We believe that many PWMIs may regard social networking as an innovative technology to participate in society, and thus, it is rational to consider that their service access and social relationships can be improved accordingly. According to the MAIN model, instrumental gratifications are tools that assist users to partake in social life and access services by enhancing their perceptual system and allowing them to have more control (Sundar & Limperos, 2013). Meanwhile, non-instrumental gratifications promote users’ digital interaction/activities in a medium, being more pivotal for the construction of social relationships. Thus, this study formulated the following two hypotheses. PWMIs’ instrumental gratifications have a greater impact on social participation and service access than on social relationships (H1). PWMIs’ non-instrumental gratifications have a greater impact on social relationships than on social participation or service access (H2).

PWMIs often depend on their families for resources and support. Nonetheless, studies show that, generally, when PWMIs depend less on their families, they may have better education opportunities, a higher income level, more
opportunities to leave home, and more chances to establish better social relationships (Yang, 2020). Therefore, a PWMI’s family dependence and education level can influence their social inclusion. Moreover, considering that China provides incomplete barrier-free environments, PWMIs who have less difficulties with traveling may have higher social inclusion, especially in the social participation domain. Accordingly, we proposed the following hypotheses. Considering all factors, social networking has a greater impact on PWMIs who have superior social backgrounds (H3). Among those who have superior social backgrounds, social networking has a greater impact on their social participation than on service access or social relationships (H4).

**Methods**

In this study, we used the WeChat environment, as we considered this platform to be a type of disruptive information technology that provides an ideal setting for exploring the impacts of social networking on the social inclusion of people with disabilities. Therefore, we developed a survey questionnaire to assess Chinese PWMIs’ WeChat use. The questionnaire inquired about participants’ social networking use, social background, gratifications, and the three dependent variables related to social inclusion (i.e., social participation, service access, and social relationships). We analyzed the survey data using frequency statistics, a factor analysis, a reliability analysis, and multiple regression analysis.

**Survey Sampling**

Given the distinctiveness of the sample we aimed to examine, we relied on non-probability sampling, inviting survey participants from two online PWMI communities. We identified two online community organizers who were part of institutions, namely, the China Disabled Persons’ Federation and a training foundation for those with disabilities. These two individuals had previously received training on disability empowerment. After explaining the study purpose and design, the two online community leaders were asked to join the research team. Then, they assisted in refining the study questionnaire and in selecting qualified interviewees who engaged in social networking among people in their own online community groups. The candidates were not selected based on their disability level, age, or gender.

The selected participants were asked to answer all questions based on their own experiences. The participants who successfully completed the questionnaire received a small financial token of appreciation for their participation, amounting to RMB 30 (approximately 5 USD). A research team member verified that the questionnaire had been appropriately completed before rewarding the participant. After excluding several questionnaires that did not meet the study requirements for various reasons (e.g., users with no mobility impairments, too many missing answers, and same response chosen throughout the entire questionnaire), we included 418 valid questionnaires in the analysis. All study participants provided informed consent prior to their participation.

**Independent Variables**

We used the 57 items suggested by Sundar and Limperos (2013) as the initial pool of items based on which we developed the questionnaire of our study, which aimed to assess the use and gratifications of social networking. Because these original items were not targeted toward a particular technology, contained general statements, and focused on devices (and not specific applications), we rewrote the questions to focus on the WeChat setting used by the Chinese PWMIs in our sample. For instance, the item “It enhances my identity” was rewritten as “I can more easily accept my identity of having a disability.” In addition, we added 12 original items to the scale. For example, to capture the uniqueness of WeChat’s social networking features, we added the following two questions: “If my online friends can help with anything, I will not ask the people around me for help” and “It links my online and offline life, making it more convenient to do things like make payments and travel.”

The final questionnaire included 69 items. Two PWMIs checked the items to evaluate their clarity and meaning. The participants were asked to choose the answer that best described their situation, with each item being rated on a 5-point Likert-type scale, ranging from mostly disagree (1) to mostly agree (5).

Other independent variables included various social networking and social background indicators. Specifically, we used three variables to measure social background: family dependence (from “rarely” to “very high”), independent traveling difficulties (from “very difficult” to “very convenient”), and education level.

We also used three variables to measure social networking: average time spent using WeChat per day (minutes), frequency of WeChat use (from “very often” to “rarely”), and reliance on WeChat (from “must use” to “never use”). Furthermore, we included some control variables in the questionnaire, including age, gender, family income, and disability level.

**Measurement of Dependent Variables**

We included three dependent variables related to social inclusion: social participation, service access, and social relationships. We measured them based on the social inclusion evaluation scales proposed by Hagiliassis et al. (2014). These Australian scholars developed six indicators each for the three dependent variables, totaling 18 items. We modified these items to ensure adequacy between the items and China’s unique social and cultural background. For instance, “going to cafés, bars, and pubs” was adjusted to “going to
restaurants, canteens, and cafés.” Items were rated on a 5-point Likert-type scale, ranging from mostly disagree (1) to mostly agree (5).

**Factor and Reliability Analysis**

We conducted factor and reliability analyses to ensure factor validity. These analyses confirmed 16 U&G factors as valid, and all three social inclusion factors as valid (see Appendix Table A1 and Table A2).

**Results**

**Descriptive Results**

Table 1 presents participants’ social background and social networking use. Regarding disability level, 18.9% of the participants had a Level 1 impairment, 40.7% a Level 2 impairment, 25.8% a Level 3 impairment, and 14.0% a Level 4 impairment. Generally, the participants had low levels of education: 43.5% had only a junior high school education or lower, of which 10% never attended elementary school. Moreover, 76.1% of the participants were either heavily or mostly dependent on their families for daily care, and 52.2% found it difficult to go out alone. One-third of the participants used WeChat for 2 to 4 hr per day, and 84.2% were either heavily or relatively heavily dependent on WeChat. Finally, 64.6% believed that WeChat added great value to their lives.

Regarding family income, 53.2% of the participants reported a monthly family income below RMB 15,000 (approximately USD 2,143), and 37.4% a monthly family income below RMB 10,000 (approximately USD 1,428). However, we did not discuss this variable of income further owing to its lack of significance for predicting the impact of social networking on the social inclusion of PWMIs.

**U&G of Social Networking**

Regarding the first research question, which gratifications can PWMIs expect to obtain when using social networking technology, our factor and reliability analysis revealed the validity of 16 U&G factors: realism, coolness, novelty, being there, agency enhancement, community building, bandwagon, filtering/tailoring, ownness, interaction, interactivity, 

| Table 1. Descriptive Statistics. |
|----------------------------------|
|                                | Frequency | Percentage | Mean | SD  |
| Education level                |           |            |      |     |
| Below elementary               | 42        | 10.0       | 4.19 | 1.83 |
| Elementary                     | 28        | 6.7        |      |     |
| Junior high                    | 112       | 26.8       |      |     |
| Senior high                    | 40        | 9.6        |      |     |
| Specialized school             | 54        | 12.9       |      |     |
| Specialized college            | 108       | 25.8       |      |     |
| Undergraduate                  | 32        | 7.7        |      |     |
| Master’s or above              | 2         | 0.5        |      |     |
| Family dependence              |           |            |      |     |
| Very high                      | 68        | 16.3       | 2.25 | 0.81 |
| High                           | 202       | 48.3       |      |     |
| Average                        | 128       | 30.6       |      |     |
| Low                            | 16        | 3.8        |      |     |
| Very low                       | 4         | 1.0        |      |     |
| Traveling difficulty           |           |            |      |     |
| Very difficult                 | 90        | 21.5       | 2.55 | 1.16 |
| Difficult                      | 128       | 30.6       |      |     |
| Average                        | 100       | 23.9       |      |     |
| Convenient                     | 80        | 19.1       |      |     |
| Very convenient                | 20        | 4.8        |      |     |
| WeChat use time                |           |            |      |     |
| Within 1 hr                    | 40        | 9.6        | 3.07 | 1.16 |
| 1–2 hr                         | 92        | 22.0       |      |     |
| 2–4 hr                         | 142       | 34.0       |      |     |
| 4–8 hr                         | 88        | 21.1       |      |     |
| More than 8 hr                 | 56        | 13.4       |      |     |
| WeChat reliance                |           |            |      |     |
| Very high                      | 164       | 39.2       | 1.89 | 0.90 |
| High                           | 154       | 36.8       |      |     |
| Average                        | 88        | 21.1       |      |     |
| Low                            | 6         | 1.4        |      |     |
| Very low                       | 4         | 1.0        |      |     |

SD: standard deviation.
responsiveness, dynamic control, browsing/variety-seeking, scaffolding/navigation aids, and play/fun. All factors passed the reliability test, with estimated Cronbach’s alpha values higher than .65 (see Appendix Table A1). Thus, responding to the first research question, we observed that the engagement of PWMIs in social networking resulted in different types of gratification. In addition to enabling individuals engage in society, WeChat provided PWMIs with agency, interactivity, and navigability gratifications, which satisfied their needs.

Social Networking and Social Inclusion

Regarding the second research question, which gratifications facilitate the social inclusion of PWMIs, and do their effects differ by domain, we conducted multiple regression analyses to explore the effects of the independent variables on social inclusion. The model that predicted social participation had a significant regression equation, $F(13, 417)=139.92$, $p<.000$, and an $R^2$ of .34; in other words, PWMIs were more likely to have higher social participation when certain activity-based gratifications (agency enhancement and community building) and an interactivity-based gratification (dynamic control) were higher. However, the modality-based gratification of coolness showed a negative impact on social participation. Hence, PWMIs seemed to be inclined to use WeChat to engage in social activities.

The results from the model that predicted service access, $F(13, 417)=121.21$, $p<.000$, $R^2=.29$, indicated that PWMIs were more likely to have better service access when a modality-based gratification (realism), an interactivity-based gratification (responsiveness), and a navigability-based gratification (play) were higher. The realism gratification had a particularly significant impact on service access ($p<.001$).

The model that predicted social relationships also had a significant regression equation, $F(13, 417)=152.93$, $p<.000$, with an $R^2$ of .37. When demographic and social networking variables were controlled for, we observed that the three interactivity-based gratifications (activity, responsiveness, and dynamic control) were positively related to social relationships. Moreover, the modality-based gratification of coolness had a negative impact on social relationships. The

| Table 2. Prediction of Social Participation, Service Access, and Social Relationships Based on Social Backgrounds and Social Media Use (β). |
|---------------------------------|-----------------|-----------------|-----------------|
| Social background factor        | Social participation | Service access | Social relationships |
| Traveling difficulty            | 0.186***         | -0.028          | 0.186***        |
| Education level                 | 0.108*           | 0.112*          | 0.027           |
| Family dependence               | -0.089*          | -0.017          | -0.026          |
| $R^2$ change                    | .081             | .015            | .082            |
| Media use                       |                  |                 |                 |
| WeChat use time                 | 0.202***         | 0.024           | 0.195***        |
| WeChat reliance                 | 0.151***         | 0.134**         | 0.127**         |
| $R^2$ change                    | .083             | .031            | .077            |
| Gratification factors           |                  |                 |                 |
| Mobility-based gratifications   |                  |                 |                 |
| Realism                         | -0.034           | 0.277***        | -0.025          |
| Coolness                        | -0.165**         | -0.035          | -0.166**        |
| Activity-based gratifications   |                  |                 |                 |
| Agency enhancement              | 0.142*           | 0.041           | 0.029           |
| Community building              | 0.151*           | 0.021           | 0.095           |
| Interactivity-based gratifications |                |                 |                 |
| Activity                        | -0.003           | 0.079           | 0.175*          |
| Responsiveness                  | 0.078            | 0.261**         | 0.196*          |
| Dynamic control                 | 0.278**          | 0.117           | 0.200*          |
| Navigability-based gratifications |             |                 |                 |
| Play                            | 0.062            | 0.226**         | 0.068           |
| $R^2$ change                    | .173             | .246            | .208            |
| Adjusted $R^2$                  | .315             | .269            | .347            |
| Explained uncertainty           | 58.0%            | 54.0%           | 60.6%           |

* $p<.05$. ** $p<.01$. *** $p<.001$. 
remaining gratifications were not significantly related to social relationships.

When comparing the results for the three domains of social inclusion, we observed that the predictive power of instrumental gratifications (i.e., realism, agency enhancement, and community building) was higher for social participation and service access than for social relationships. Therefore, H1 was supported.

Non-instrumental gratifications obtained from social networking had a stronger impact on social relationships: three non-instrumental gratifications (activity, responsiveness, and dynamic control) were positively related to social relationships. However, only dynamic control was positively related to social participation, and only responsiveness was related to service access. In other words, the non-instrumental gratifications had a stronger impact on social relationships than on social participation and service access. Therefore, H2 was supported.

In addition, the results indicated that the modality-based gratification of coolness was negatively related to all three domains; in other words, this gratification harmed the social inclusion of PWMIs. We believe this may be due to the ritual feature of coolness potentially serving as a reminder for participants that they are reliant on social networking to facilitate their social inclusion. This may lead them to think that they face greater hindrances to connect socially than do people without disabilities.

**Impact of Social Background on Social Inclusion**

Regarding the third research question, do users’ social background, media reliance, and the gratifications they experience influence their social inclusion level, our regression analysis revealed that the social background predictors—family dependence, independent traveling difficulties, and education level—and social networking significantly influenced social inclusion in all its domains.

Table 2 shows that PWMIs with higher education, lower family dependence, fewer traveling difficulties, and higher WeChat use and reliance showed higher social participation. Moreover, participants with a higher education level and a higher reliance on WeChat had an increased level of service access. Furthermore, fewer traveling difficulties and higher WeChat use and reliance were significantly related to a higher level of social relationships. We also observed that the control variables of disability level, gender, and age were not significantly related to any social inclusion domain.

When considering all predictors, we observed that social networking was a powerful predictor of social inclusion for those from higher social backgrounds. In addition, social networking exerted more influence on the social participation of PWMIs than on their service access or social relationships. Therefore, H3 and H4 were supported.

Overall, the adjusted $R^2$ showed that the current predictive model explained much of the variation in the three dependent variables. Specifically, the adjusted $R^2$ values of .32, .27, and .35 mean that this model explained approximately 58% of the variance in social participation, 54% of the variance in service access, and 60.6% of the variance in social relationships, respectively. Nonetheless, this finding suggests that our study design is of high quality.

**Discussion and Conclusion**

In the field of new media and society, scholars have conducted empirical studies to better understand the impact of new media U&G on certain social domains (Rathnayake & Winter, 2018; Vaterlaus et al., 2018). The literature has already explored some influencing factors of social inclusion in PWMIs, including media use, gratification factors, education, family dependence, and independent traveling difficulties. Despite these contributions, the depiction of these influencing factors is scattered across different studies, and there is a lack of research with an overarching empirical design that integrates these findings into one model. A particularly important gap in the literature concerns whether PWMIs’ inclusion into society can increase through social networking technology. To address this gap, our study empirically investigated the effects of social background and media reliance on social inclusion, exploring how these influences vary across the three domains of social inclusion. We drew three major conclusions from our analyses.

First, reliance on social networking technology can increase the social inclusion of PWMIs. Second, the social inclusion of PWMIs may vary based on the instrumental and non-instrumental gratifications that they experience through social networking technology. For example, the modality-based gratification of realism serves to provide users with a tool with which to enter a service situation, while the interactivity-based gratification of responsiveness provides users with a non-instrumental tool that they can use to provide feedback to others—and they influence social inclusion differently. Third, social background factors—education, family dependence, and independent traveling difficulties—were shown to be significant predictors of social inclusion in Chinese PWMIs. Specifically, PWMIs with higher education levels, lower family dependence, fewer independent traveling difficulties, and greater dependence on social networking technology were shown to extract greater benefits from social networking regarding their social inclusion. Therefore, social networking seemed to significantly influence the social inclusion of PWMIs, who often rely on such technologies to engage in society.

This study provides empirical evidence on how new media technology affects the social inclusion of a PWMI, meaningfully contributing to research on media and disabilities. However, we also show that access to digital technology might affect social inclusion differently depending on PWMIs’ social backgrounds, with PWMIs from higher social backgrounds having shown greater
chances to benefit from social networking for their social inclusion. Meanwhile, those from lower social backgrounds may come to experience deeper social exclusion in China through the use of social networking if we consider that the country has yet to offer robust barrier-free facilities, social support systems, and legislative mechanisms to assist them. Thus, for social networking to provide generalized promotion of social inclusion, there is a need for governmental and societal stakeholders to remove the social barriers in the disability environment and to improve the social status of PWMIs nationwide. This, of course, requires a comprehensive legal system that supports their daily living and effective digital applications that serve as disruptive technologies and break through the multiple barriers experienced by PWMIs.

This study has some limitations. For example, the study design did not include the perceptions of PWMIs regarding non-social networking technologies. In addition, participants were selected only through existing social media groups in WeChat, and the study excluded those not using WeChat. Moreover, this study did not consider finance-related dependent variables; this is an important aspect of social inclusion, because PWMIs may be able to use various types of software or new media technology to participate in technology-related work, contribute to the economy, and experience social inclusion. Finally, this study’s context is specific to China; thus, the findings might not be generalizable to international contexts. Follow-up studies and future empirical tests could use our improved research design to test these findings in other contexts.

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References

Al-Deen, H. S. N., & Hendricks, J. A. (2011). Social media: Usage and impact. Lexington Books.
Barnes, C., & Mercer, G. (2003). Disability: Key concepts. Polity Press.
Barnes, C., & Mercer, G. (2010). Exploring disability. Polity Press.
Borg, J., Larsson, S., & Östergren, P. O. (2011). The right to assistive technology: For whom, for what, and by whom? Disability & Society, 26(2), 151–167.
Borgström, Å., Daneback, K., & Molin, M. (2019). Young people with intellectual disabilities and social media: A literature review and thematic analysis. Scandinavian Journal of Disability Research, 21(1), 129–140.
Caton, S., & Chapman, M. (2016). The use of social media and people with intellectual disability: A systematic review and thematic analysis. Journal of Intellectual and Developmental Disability, 41(2), 125–139.
Central Government of the People’s Republic of China. (1990). Law of the People’s Republic of China on the protection of disabled people. The Press of Chinese Law.
China Disabled Persons’ Federation. (1989). Code for urban roads and buildings access for the disabled.
China Disabled Persons’ Federation. (2018). Annual statistical bulletin on the development of the disabled.
Cox, S. A. (2014). Managing information in organizations: A practical guide to implementing an information management strategy. Macmillan International Higher Education.
DePauw, K. P. (1997). The (in)visibility of disability: Cultural contexts and “sporting bodies.” Quest, 49(4), 416–430.
Donoghue, K. (2016). Social media news as disruptive technology. https://pdfs.semanticscholar.org/ee7c/b204c5ae396f87b6ec7c1263876f647efe6.pdf
Gannon, B., & Nolan, B. (2006). The dynamics of disability and social inclusion. Equality Authority and National Disability Authority.
Goggin, G., Newell, G., & Newell, C. (2003). Digital disability: The social construction of disability in new media. Rowman & Littlefield Publishers.
Grzuza, A., & Haythornthwaite, C. (2013). Enabling community through social media. Journal of Medical Internet Research, 15(10), e248.
Haglialallis, N., Wilson, E., Campain, R., McGillivray, J., Caldwell, M., Graffam, J., Bink, M., & Korittas, S. (2014). Measuring social inclusion of people with intellectual disability in Australia: Initial evidence about a new tool. Australian Society for Intellectual Disability.
Haglialallis, N., Wilson, E., Campain, R., McGillivray, J., Caldwell, M., Graffam, J., Bink, M., & Korittas, S. (2014). Measuring social inclusion of people with intellectual disability in Australia: Initial evidence about a new tool. Australian Society for Intellectual Disability.
Halewood, A. M. K., Sabino, M., Sudan, R., & Yadunath, D. (2015). Six digital technologies to watch. http://documents.worldbank.org/curated/en/896971468194972881/310436360_201602630200216/additional/102725-PUB-Replacement-PUBLIC.pdf
Huang, J. (2008). A brief introduction of western social exclusion theory. Theory and Modernization, 6, 97–103.
Hwang, J., & Christensen, C. M. (2008). Disruptive innovation in health care delivery: A framework for business-model innovation. Health Affairs, 27(5), 1329–1335.
Kang, L. (2019). Report on education obstacles to the disabled in China. Development report on the cause for people with disabilities in China. China Social Science Press.
Kapoor, K. K., Tamilmani, K., Rana, N. P., Patil, P., Dwivedi, Y. K., & Nerur, S. (2018). Advances in social media research: Past, present and future. Information Systems Frontiers, 20(3), 531–558.
Lamichhane, K. (2015). Disability, education and employment in developing countries. Cambridge University Press.
Laurell, C., & Sandström, C. (2016a). Spotting industry change through social media: The case of Tesla. Ispim Innovation Summit.
Laurell, C., & Sandström, C. (2016b). Analysing Uber in social media—Disruptive technology or institutional disruption?
International Journal of Innovation Management, 20(5), Article 1640013.
Lin, Z., & Yang, L. (2018). Denial of disability discrimination by disabled people in China. Disability & Society, 33(5), 804–809.
Lin, Z., Yang, L., & Zhang, Z. A. (2018). To include, or not to include, that is the question: Disability digital inclusion and exclusion in China. New Media & Society, 20(12), 4436–4452.
Lin, Z., Zhang, Z. A., & Yang, L. (2019). Self as enterprise: Digital disability practices of entrepreneurship and employment in the wave of “Internet+ disability” in China. Information, Communication & Society, 22(4), 554–569.
Ma, H., & Peng, Z. (2017). Study on law of barrier-free environmental construction in China. In W. Strielkowski (Ed.), Proceedings of the 2017 International Conference on Education, Culture and Social Development (ICECSD) (pp. 220–223). Atlantis Press. https://doi.org/10.2991/icecsd-17.2017.49
Oliver, M. (1992). Changing the social relations of research production? Disability, Handicap and Society, 7(2), 101–114.
Oliver, M. (2013). The social model of disability: Thirty years on. Disability & Society, 28(7), 1024–1026.
Oliver, M. (2020). Understanding the social model of disability: Past, present and future. In N. Watson & S. Vehmas (Eds.), The Routledge handbook of disability studies (2nd ed., pp. 14–31). Routledge.
Peng, Y. (2019). The gratification of the third-party applets: An empirical study based on WeChat. Management, 38(32), 236–239.
Raja, D. S. (2016). Bridging the disability divide through digital technologies. http://pubdocs.worldbank.org/en/123481461249337484/WDR16-BP-Bridging-the-Disability-Divide-through-Digital-Technology-RAJA.pdf.
Rathnayake, C., & Winter, J. S. (2018). Carrying forward the uses and Grats 2.0 agenda: An affordance-driven measure of social media uses and gratifications. Journal of Broadcasting & Electronic Media, 62(3), 371–389.
Roulstone, A. (1998). Society: The case of employment and new technology. In T. Shakespeare (Ed.), The disability reader: Social science perspectives (pp. 110–128). Cassell.
Rubin, A. M. (1983). Television uses and gratifications: The interactions of viewing patterns and motivations. Journal of Broadcasting & Electronic Media, 27(1), 37–51.
Ruggiero, T. E. (2000). Uses and gratifications theory in the 21st century. Mass Communication & Society, 3(1), 3–37.
Shakespeare, T., & Watson, N. (2001). The social model of disability: An outdated ideology? In S. N. Barnatt & B. M. Altman (Eds.), Exploring theories and expanding methodologies: Where we are and where we need to go (pp. 9–28). Emerald Group Publishing.
Smits, M., & Mogos, S. (2013). The impact of social media on business performance. ECIS, 125, 1–12.
Stein, N. (2015). A society disabled: State of the right to education for people with disabilities in China. https://nyujilp.org/wp-content/uploads/2015/11/NY1209.pdf.
Sundar, S. S. (2008). The MAIN model: A heuristic approach to understanding technology effects on credibility. In M. J. Metzger & A. J. Flanagin (Eds.), Digital media, youth, and credibility (1st ed., pp. 73–100). The MIT Press.
Sundar, S. S., & Limperos, A. M. (2013). Uses and Grats 2.0: New gratifications for new media. Journal of Broadcasting & Electronic Media, 57(4), 504–525.
Tokarčíková, E. (2011). Influence of social networking for enterprise’s activities. Periodica Polytechnica Social and Management Sciences, 19(1), 37–41.
Towers, W. M. (1987). Radio listenership and uses and gratifications: A replication. Communication Research Reports, 4(1), 57–64.
Trevisan, F. (2016). Disability rights advocacy online: Voice, empowerment and global connectivity. Routledge.
Vaterlaus, J. M., Tulane, S., Porter, B. D., & Beckert, T. E. (2018). The perceived influence of media and technology on adolescent romantic relationships. Journal of Adolescent Research, 33(6), 651–671.
Wang, T. (2017). The barrier-free facilities constructions in the rural area of China. Construction Standards, 8(6), 16–17.
Wu, S., & Adamic, L. A. (2014). Visually impaired users on an online social network. In M. Jones & P. Palanque (Eds.), Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 3133–3142). Association for Computing Machinery.
Xiang, Z., Magnini, V. P., & Fesemmaier, D. R. (2015). Information technology and consumer behavior in travel and tourism: Insights from travel planning using the internet. Journal of Retailing and Consumer Services, 22(8), 244–249.
Yang, L. (2020). Us in the sunshine: The life stories of Chinese disabled women. China Social Science Press.
Yao, J., Liu, J., & Wang, W. (2020). The service platform of WeChat. Modern Marketing, 32(1), 56–65.
Yellow. (2019). Yellow social media report 2018. https://www.yellow.com.au/wp-content/uploads/2018/06/Yellow-Social-Media-Report-2018-Consumer.pdf.
Yu, H., Goggin, G., Fisher, K., & Li, B. (2019). Introduction: Disability participation in the digital economy. Information, Communication & Society, 22(4), 467–473.
Zhao, L., Li, X., & Jian, Y. (2018). Real time system design of motor imagery brain-computer interface based on multi band CSP and SVM. AIP Conference Proceedings, 35(1), 53–60.
Zhao, W. C. (2018). “Internet +” environment, social work intervenes in poverty alleviation for people with disabilities. Modern Economic Information, 40(20), 1–2.
Zimmerman, J., & Ng, D. (2015). Social media marketing all-in-one for dummies. John Wiley & Sons.

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### Appendix

**Table A1. Use and Gratification Item Measurements and Factor Analysis Results.**

| Items                                                                 | Means | SD  | Factor loading | Cronbach's α |
|-----------------------------------------------------------------------|-------|-----|----------------|--------------|
| **Realism**                                                          |       |     |                |              |
| Communication on WeChat is similar to real-life experiences           | 3.60  | 0.85| 0.86           | .84          |
| When seeing some scenes on WeChat, I feel that I have personally     | 3.39  | 0.99| 0.78           |              |
| been there                                                            |       |     |                |              |
| When communicating with friends on WeChat, I feel that we are        | 3.80  | 0.90| 0.78           |              |
| talking face-to-face                                                  |       |     |                |              |
| I can enjoy life on WeChat                                            | 3.61  | 0.88| 0.87           |              |
| **Coolness**                                                         |       |     |                |              |
| Compared with other social platforms, WeChat is unique                | 3.72  | 0.87| 0.82           | .85          |
| WeChat is the most important communication tool                       | 3.95  | 0.88| 0.84           |              |
| WeChat is a fashionable communication instrument                      | 3.96  | 0.83| 0.82           |              |
| WeChat is more convenient than other apps                             | 4.15  | 0.72| 0.83           |              |
| **Novelty**                                                          |       |     |                |              |
| WeChat is the latest social platform                                  | 3.64  | 0.95| 0.80           | .81          |
| It is technologically innovative                                      | 3.80  | 0.79| 0.84           |              |
| Its interface is simple and unique                                    | 3.89  | 0.78| 0.78           |              |
| It is very convenient                                                 | 3.67  | 0.90| 0.79           |              |
| **Being there**                                                      |       |     |                |              |
| WeChat allows me to see parts of the world that I have not been      | 3.68  | 0.91| 0.91           | .88          |
| able to experience before                                             |       |     |                |              |
| WeChat gives me a chance to understand a lifestyle that I have not   | 3.76  | 0.83| 0.89           |              |
| experienced before                                                   |       |     |                |              |
| WeChat makes me feel like I can also gain more life experiences      | 3.72  | 0.82| 0.90           |              |
| It gives me a chance to make my voice heard and say what I want to   | 3.92  | 0.72| 0.86           | .84          |
| I can more easily accept my disability identity                      | 3.66  | 0.96| 0.79           |              |
| It gets more people to understand my ideas and opinions              | 3.82  | 0.78| 0.80           |              |
| On WeChat, I am more confident when communicating with others        | 3.74  | 0.89| 0.85           |              |
| **Agency enhancement**                                               |       |     |                |              |
| I can connect with others                                            | 4.18  | 0.67| 0.78           | .77          |
| It allows me to expand my social network                              | 4.05  | 0.79| 0.83           |              |
| I can join disabled communities; it helps me realize that I am part of| 3.99  | 0.72| 0.74           |              |
| a community                                                           |       |     |                |              |
| It allows me to build social capital                                 | 3.93  | 0.71| 0.73           |              |
| It allows me to review the opinions of others before I make decisions| 3.71  | 0.84| 0.83           | .79          |
| It comforts me to know the thoughts and opinions of other people     | 3.82  | 0.80| 0.84           |              |
| It allows me to compare my opinions with those of others             | 3.90  | 0.74| 0.86           |              |
| **Bandwagon**                                                        |       |     |                |              |
| It allows me to set my preferences                                   | 4.02  | 0.69| 0.83           | .73          |
| I can block people or groups that I do not like                      | 3.94  | 0.71| 0.72           |              |
| It allows me to sort through information and freely share it with    | 4.0   | 0.68| 0.87           |              |
| others                                                                |       |     |                |              |
| **Ownness**                                                          |       |     |                |              |
| I can subscribe to my favorite WeChat public accounts                | 4.19  | 0.69| 0.75           | .80          |
| It features disability-related content that is a true reflection of  | 3.77  | 0.84| 0.81           |              |
| myself                                                                | 3.78  | 0.87| 0.79           |              |
| It allows me to gain knowledge and make it my own                    | 4.01  | 0.75| 0.81           |              |
| I feel that it is speaking and communicating with the outside world  |       |     |                |              |
| as part of me                                                         |       |     |                |              |
| **Interaction**                                                      |       |     |                |              |
| WeChat group members often interact with each other                  | 3.82  | 0.76| 0.86           | .85          |
| I often participate in WeChat group interactions                      | 3.63  | 0.83| 0.81           |              |
| I prefer to state my own needs and preferences in WeChat groups      | 3.74  | 0.87| 0.86           |              |
| I prefer to interact with other disabled members in WeChat groups    | 3.82  | 0.82| 0.79           |              |
| **Interactivity**                                                     |       |     |                |              |
| I can do many things in WeChat communities                           | 3.79  | 0.85| 0.82           | .84          |
| I am more active in WeChat communities than in the offline world     | 3.87  | 0.84| 0.81           |              |
| I am very positive when communicating with other WeChat community    | 3.78  | 0.81| 0.83           |              |
| members                                                               |       |     |                |              |
| I can cooperate with WeChat group members on work tasks              | 3.88  | 0.77| 0.84           |              |
| The other members of my groups may respond to my remarks             | 3.76  | 0.72| 0.86           | .85          |
| Their responses are helpful                                          | 3.61  | 0.75| 0.83           |              |

(Continued)
Table A1. (Continued)

| Items | Means | SD  | Factor loading | Cronbach’s α |
|-------|-------|-----|----------------|--------------|
| Social participation | Having a social life | 3.29 | 0.97 | 0.83 | .91 |
| | Going to restaurants, bars, or pubs. | 3.33 | 1.02 | 0.82 | |
| | Having social contact with other people | 3.47 | 0.89 | 0.85 | |
| | Participating in art and cultural activities | 2.87 | 1.11 | 0.87 | |
| | Participating in sports or recreational activities | 2.78 | 1.12 | 0.86 | |
| | Visiting local shops | 3.38 | 1.07 | 0.84 | |
| Service access | Accessing disability support services | 3.22 | 1.19 | 0.81 | .89 |
| | Accessing physical health services | 3.04 | 1.16 | 0.79 | |
| | Getting help from services when needed | 3.26 | 1.05 | 0.80 | |
| | Accessing medical services | 3.38 | 1.10 | 0.85 | |
| | Accessing government services | 3.30 | 1.12 | 0.83 | |
| | Accessing education services | 3.37 | 1.09 | 0.75 | |
| Social relationships | Being accepted by others | 3.55 | 0.81 | 0.90 | .95 |
| | Being treated with respect by others | 3.61 | 0.80 | 0.89 | |
| | Getting help from family and friends when needed | 3.85 | 0.76 | 0.92 | |
| | Having someone who gives important advice | 3.56 | 0.91 | 0.92 | |
| | Having access to support in times of crisis | 3.65 | 0.79 | 0.91 | |
| | Feeling valued by society | 3.26 | 1.03 | 0.86 | |

SD: standard deviation.

Table A2. Social Participation, Social Access, and Social Relationship Factor Analysis Results.

| Items | Mean | SD  | Factor loading | Cronbach’s α |
|-------|------|-----|----------------|--------------|
| Social participation | Having a social life | 3.29 | 0.97 | 0.83 | .91 |
| | Going to restaurants, bars, or pubs. | 3.33 | 1.02 | 0.82 | |
| | Having social contact with other people | 3.47 | 0.89 | 0.85 | |
| | Participating in art and cultural activities | 2.87 | 1.11 | 0.87 | |
| | Participating in sports or recreational activities | 2.78 | 1.12 | 0.86 | |
| | Visiting local shops | 3.38 | 1.07 | 0.84 | |
| Service access | Accessing disability support services | 3.22 | 1.19 | 0.81 | .89 |
| | Accessing physical health services | 3.04 | 1.16 | 0.79 | |
| | Getting help from services when needed | 3.26 | 1.05 | 0.80 | |
| | Accessing medical services | 3.38 | 1.10 | 0.85 | |
| | Accessing government services | 3.30 | 1.12 | 0.83 | |
| | Accessing education services | 3.37 | 1.09 | 0.75 | |
| Social relationships | Being accepted by others | 3.55 | 0.81 | 0.90 | .95 |
| | Being treated with respect by others | 3.61 | 0.80 | 0.89 | |
| | Getting help from family and friends when needed | 3.85 | 0.76 | 0.92 | |
| | Having someone who gives important advice | 3.56 | 0.91 | 0.92 | |
| | Having access to support in times of crisis | 3.65 | 0.79 | 0.91 | |
| | Feeling valued by society | 3.26 | 1.03 | 0.86 | |

SD: standard deviation.