

Survey of User Needs, SUNspot 1
Use of Mobile Phones by Individuals with Disabilities, 2017-2018

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Introduction

This research brief presents findings from the Rehabilitation Engineering Research Center on Wireless Inclusive Technologies’ (Wireless RERC) Survey of User Needs (SUN) for 2017-2018. We present key findings regarding mobile phone use and satisfaction by consumers with disabilities. A total of 374 respondents, or 96.9%, of users who responded indicated owning or using a wireless device such as a traditional cell phone, smartphone, tablet, or wearable device.

Basic Cell Phone Ownership and Use

A total of 50 individuals, or 13.4%, of wireless device users indicated ownership of a *basic cell phone*. A majority of these users are over 50 years of age, male, Caucasian, and have an income of less than \$25,000 per year. Over half of basic cell phone owners (52%) reported owning their devices for more than four years, while 21% reported owning their devices for more than three years. Interestingly, nearly 32% of basic cell phone users also reported ownership of a smartphone, a tablet (36%), and a wearable device (20%) such as an activity tracker.

Table 1: Demographics Summary (Basic Cell Phone Ownership)

		%	Mean+SD [Range]
Age	≥50 years of age	65%	48±16 [24-100]
Gender	Male	54%	
Ethnicity	Caucasian	62%	
Income	≤ 24,999	65%	
Education	≥AS degree	52%	
Work Status	Retired	32%	

To maintain consistency with previous surveys, respondents were asked to self-identify and select all categories of disability that applied to them. In doing so, some respondents indicated more than one disability. With a range of 0 to 6 and a standard deviation of 1.6 difficulties, the average number of functional difficulties reported by users of basic cell phones is 2.4 difficulties. In rank order, these difficulties include:

1. Mobility (40%)

2. Anxiety (40%)
3. Use of hands or fingers (30%)
4. Cognition (30%)
5. Vision (22%)
6. Use of arms (18%)
7. Hearing (16%)
8. Speech (16%)

With regard to hearing and vision disabilities, separate questions were asked to determine the level of hearing (deaf or hard of hearing) and level of vision (blind or low vision). Ten percent (10%) of users reported being functionally blind, and 16% reported being functionally deaf.

Smartphone Ownership and Use

Among individuals who indicated the use of a wireless device, 328 people, or 87.7%, reported owning a smartphone. A majority of these users are under 60 years of age, female, Caucasian, and have an income of over \$25,000 per year. Some smartphone users indicated more than one disability. With a range of 0 to 6 and a standard deviation of 1.5 difficulties, the average number of functional difficulties reported by users of smartphones is 2.1. In rank order, these difficulties include:

1. Mobility (40%)
2. Anxiety (27%)
3. Use of hands or fingers (26%)
4. Cognition (26%)
5. Hearing (23%)
6. Vision (22%)
7. Use of arms (15%)
8. Speech (12%)

Fifteen percent (15%) of users reported being functionally blind, and 7% reported being functionally deaf.

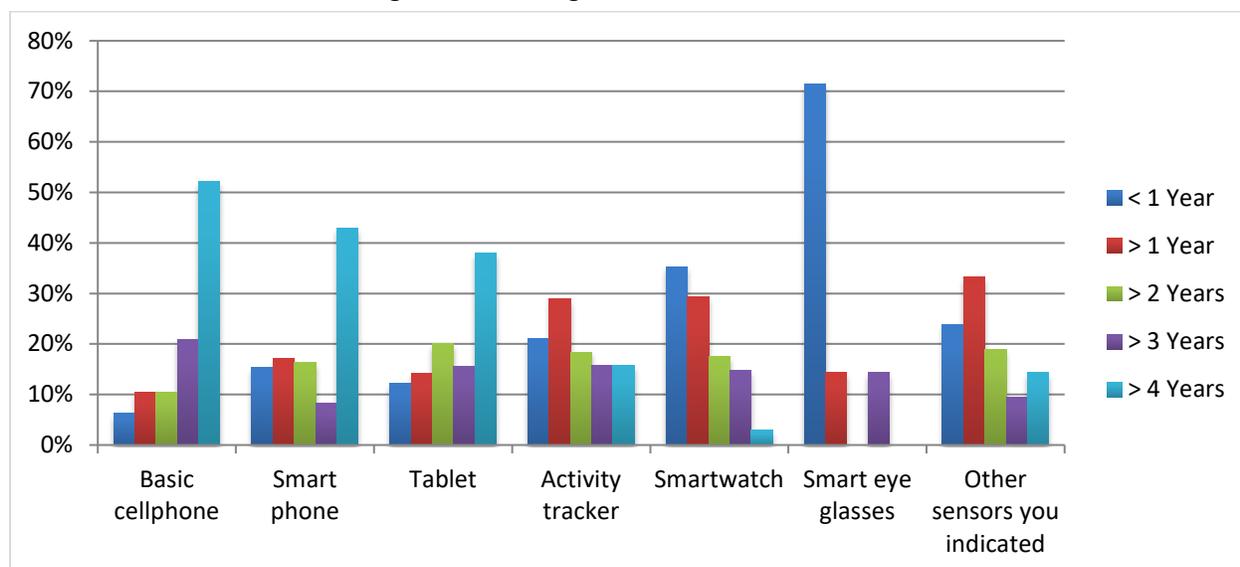
Table 2: Demographics Summary (Smartphone Ownership)

		%	Mean+SD [Range]
Age	≤59 years of age	70%	51±15 [18-100]
Gender	Female	57%	
Ethnicity	Caucasian	62%	
Income	≥25,000	70%	
Education	≥AS degree	71%	
Work Status	Employed	55%	

Regarding smartphone type, **slightly more iPhones (54%) were reported than Android-powered smartphones (46%)**, such as the Samsung Galaxy and Motorola Droid. A total of 10 respondents indicated the use of a Windows-powered smartphone, and three individuals indicated the use of a BlackBerry phone. Interestingly, a significant proportion of smartphone owners (33%) reported ownership of two smartphones, more than the 31% of users who reported owning only one phone. However, it is not clear whether these smartphones are different types of phones (i.e., Android or Apple), used for different reasons (e.g., work, personal), or simply older models that the owner had retained.

Regarding the duration of ownership, 43% of smartphone owners have owned their devices for more than four years, while an additional 8% reported owning their phones for 3-4 years, and 16% reported owning their devices for 2- 3 years. Of the remaining users, 17% have owned their devices for at least one year, while only 15% have owned their devices for less than one year. The following chart shows the duration of device ownership for basic cell phones, with comparisons to other wireless devices queried by the SUN.

Figure 1: How Long Have You Had Your Device?



Ease of Use and Device Satisfaction

Regarding overall ease of use for wireless devices, a majority of users of both basic cell phones and smartphones indicated that their devices were easy to use. Regarding basic cell phones, 29% indicated that they were very easy to use, and 33% indicated they were easy to use, for a total of 64% (rounded up). Of remaining basic cell phone users, 25% indicated they were somewhat hard to use, 4% indicated they were hard to use, and 8% indicated they could not use them without help.

Regarding smartphones, 37% indicated them as very easy to use, and 39% indicated them as easy to use, for a total of 77% (rounded up). Of remaining users, 20% indicated they were somewhat hard to use, 3% indicated they were hard to use, and only one user (0.3%) indicated not being able to use it without help. Figure 2 provides a complete breakdown of responses to the question, “How easy it is to use your device?” with comparisons to other wireless devices surveyed by the SUN.

Figure 2: How easy is it to use your device?

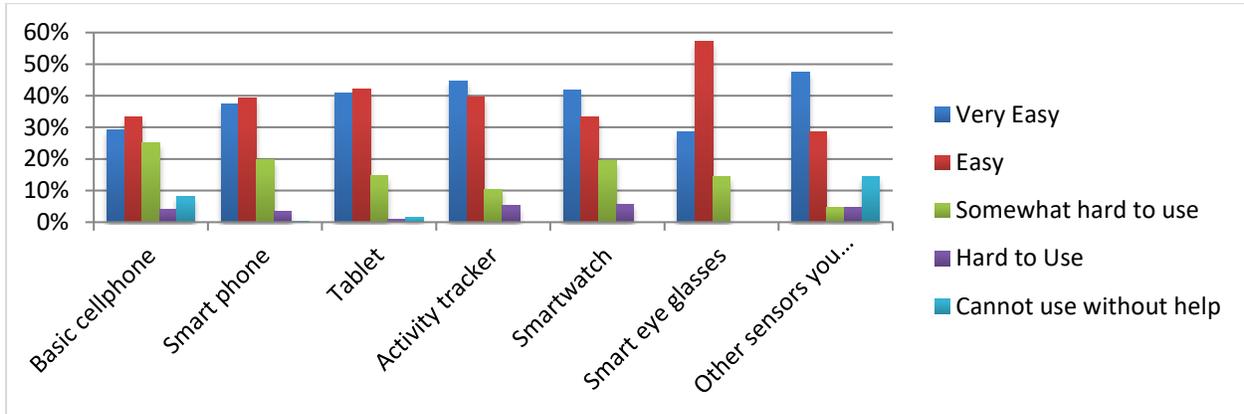
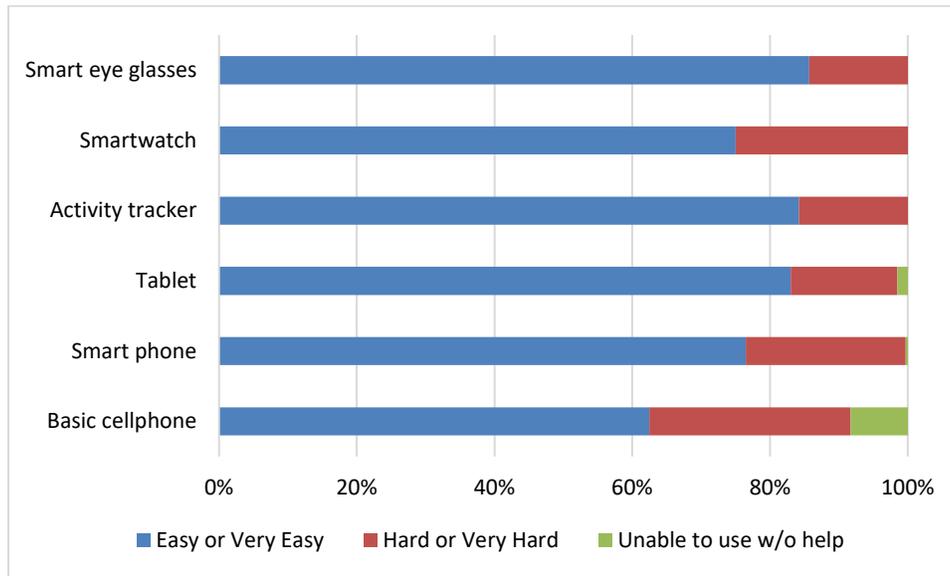
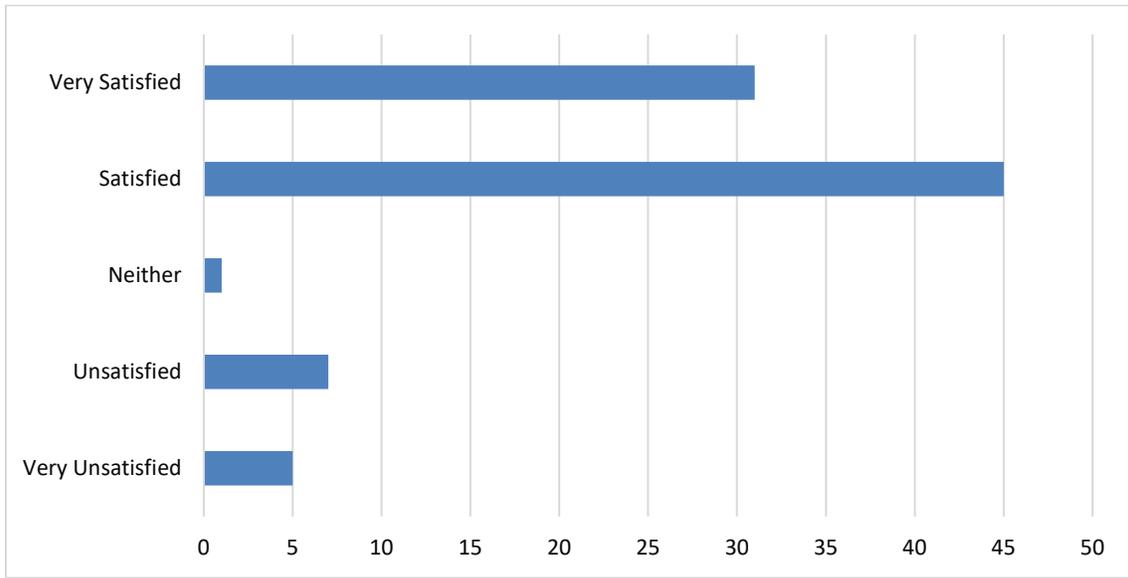


Figure 3: Ease of Use for Wireless Devices



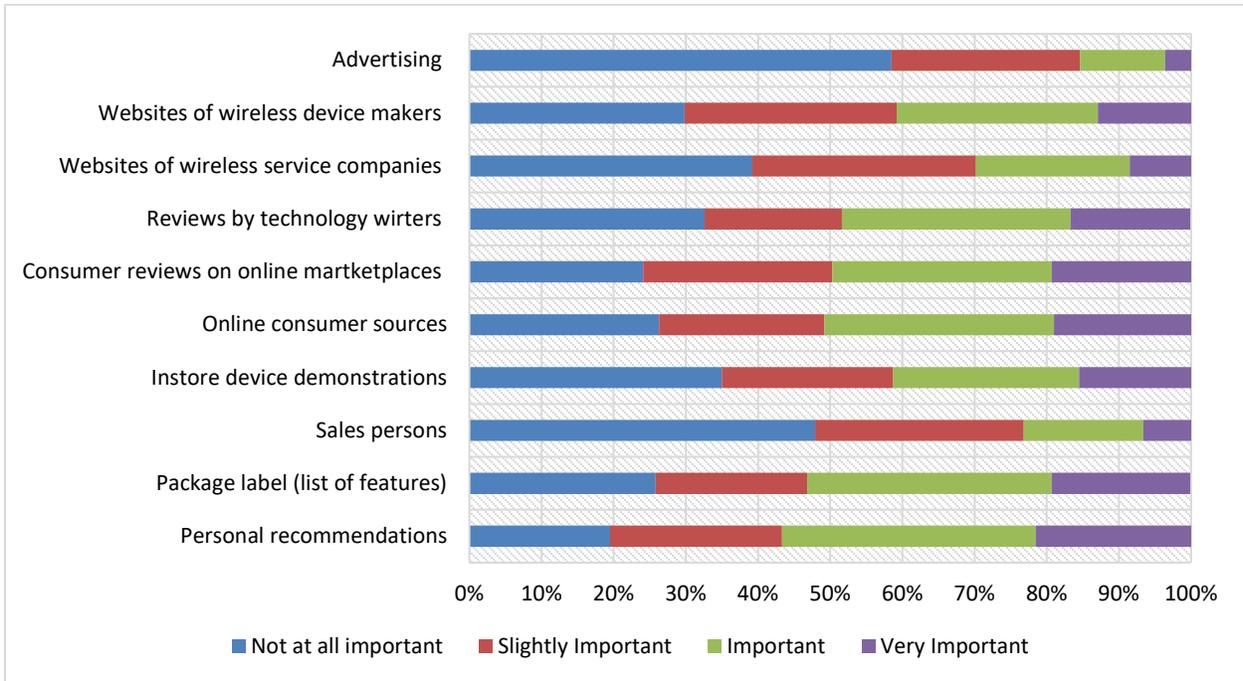
In summary, SUN respondents generally indicated that their devices were easy to use. Regarding device satisfaction, over three-fourths of smartphone users indicated that they were satisfied or very satisfied with their smartphones (Figure 4).

Figure 4: Satisfaction with Smart Phone Technology



Regarding the selection and purchase of devices, personal recommendations were the most important source of information with 57% of respondents indicating very important and important, followed by package labels (53%), online consumer sources (51%), and consumer reviews (49%), comprising either important or very important sources of information.

Figure 5: Influence of Informational Sources on Device Selection



Conclusion

Based upon responses to the Wireless RERC's SUN for Year 2, consumers with disabilities generally report high usability and satisfaction with their mobile phones. Demographics suggest that basic cell phones tend to be owned more frequently by individuals who are older or who report lower incomes, while higher incomes tend to characterize users of smartphones, which aligns with prior Wireless RERC SUN analyses, as well as other national surveys of mobile phone usage among individuals with disabilities. No single indicated functional difficulty seems to explain ownership preferences between basic cell phones and smartphones.

In either case, however, owners of these devices tend to use them for a relatively long duration. This finding suggests the need for additional analysis regarding whether these smartphones have different operating systems or simply older models that are being kept by their owners over time. In all cases, owners of these devices report high levels of ease of use and satisfaction, which suggests increasing levels of usability.

SUNspot 2 will report more specifically on the use of wireless device features, including intelligent personal agents, real-time-text (RTT), and other features. A future SUNspot will discuss adoption and use of other next-generation devices queried by the SUN, including wearables and Internet of Things (IoT)-enabled "smart home" devices.

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About the Wireless RERC

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