User Burden Scale

The User Burden Scale (UBS) is a validated instrument for understanding and measuring user burden in computing systems. "User burden" is defined by all aspects of a system that can negatively impact a user, which includes issues with usability, user experience, and individual preferences. UW ALACRITY projects have administered this scale to assess user burden for implementation strategies beyond computing-based solutions. UBS consists of 20 statements that cover 6 constructs: 1) difficulty of use, 2) physical, 3) time and social, 4) mental and emotional, 5) privacy, and 6) financial. Refer to the Suh et al. paper for definitions of these constructs.

The UBS may be adapted based on project needs. Each statement has a good alpha value, so the research team may prioritize statements more relevant to a project. The Suh et al. paper also includes more statements that did not make the final list of 20 statements. Statements omitted from the final 20 item scale may be of interest to a project.

Suh et al. advise that UBS should only be administered to users familiar with a system. It is intended to be used to evaluate later stage prototypes that are ready for deployment rather than for evaluating lower fidelity prototypes. However, experience in the UW ALACRITY Center has been that asking about anticipated burden for lower fidelity prototypes or concepts can help identify concerns that will be important to address as design and implementation plans move forward. UW ALACRITY Center affiliated projects have used UBS to assess user burden for a digital asynchronous remote community approach for behavior activation and digital mental health tools used by essential workers and people unemployed due to COVID-19.

To administer the UBS, have participants fill out the questionnaire on the implementation strategy. Participants should assign a score from 0 to 4 to each statement, where 0 reflects "not a burden". The minimum score is 0 and the maximum score is 80. If a participant is unsure on how to rate a statement or feels that a statement is not relevant, they should assign a 0. To calculate the UBS, add up the scores for each category. Reviewing scores by construct allows the research team to understand and prioritize issues to address.

Developing and validating the user burden scale: A tool for assessing user burden in computing systems. Suh H, Shahriaree N, Hekler EB, Kientz JA. *In Proceedings of the 2016 CHI conference on Human Factors in Computing Systems* 2016 May 7 (pp. 3988-3999). https://doi.org/10.1145/2858036.2858448

Example ALACRITY publications using the UBS:
Lessons learned from designing an asynchronous remote community approach for behavioral activation intervention for teens. Jenness JL, Bhattacharya A, Kientz JA, Munson SA, Nagar RR. *Behaviour Research and Therapy*. 2022 Apr 1;151:104065. https://doi.org/10.1016/j.brat.2022.104065

Mental health and the perceived usability of digital mental health tools among essential workers and people unemployed due to COVID-19: cross-sectional survey study. Jata-Greve F, Johnson M, Pullmann MD, Friedman EC, Fillipo IG, Comtois KA, Arean P. *JMIR Mental Health*. 2021 Aug 5;8(8):e28360. https://doi.org/10.2196/28360

[User Burden Scale]

Questionnaire for Participants

Reflect on your experience with [X] and indicate how frequently you felt the following statements.

	0	1	2	3	4
1. I need assistance from another person to use [X].	Never	A little bit of the time	Sometimes	Very often	All of the time
2. [X] demands too much mental effort.	Never	A little bit of the time	Sometimes	Very often	All of the time
3. It takes too long for me to do what I want to do with [X].	Never	A little bit of the time	Sometimes	Very often	All of the time
4. [X] has made me feel physical pain.	Never	A little bit of the time	Sometimes	Very often	All of the time
5. Use of [X] is too physical demanding.	Never	A little bit of the time	Sometimes	Very often	All of the time
6. I use [x] more often than I should.	Never	A little bit of the time	Sometimes	Very often	All of the time
7. [x] distracts me from social situations.	Never	A little bit of the time	Sometimes	Very often	All of the time
8. Using [x] has a negative effect on my social life.	Never	A little bit of the time	Sometimes	Very often	All of the time
9. [X] requires me to remember too much information.	Never	A little bit of the time	Sometimes	Very often	All of the time
10. [X] presents too much information at once.	Never	A little bit of the time	Sometimes	Very often	All of the time
11. Using [X] makes me feel like a bad person.	Never	A little bit of the time	Sometimes	Very often	All of the time
12. I feel guilty when I use [X].	Never	A little bit of the time	Sometimes	Very often	All of the time
13. [X] requires me to do a lot to maintain my privacy within it.	Never	A little bit of the time	Sometimes	Very often	All of the time
14. [X] is hard to learn.	Not at all	A little bit	Somewhat	Very much	Extremely
15. Using [X] too much creates physical discomfort.	Not at all	A little bit	Somewhat	Very much	Extremely
16. I spend too much time using [X].	Not at all	A little bit	Somewhat	Very much	Extremely

For more details, see Suh et al. "Developing and validating the user burden scale: A tool for assessing user burden in computing systems." ACM CHI 2016.

17. I am worried about what information gets shared by [X].	Not at all	A little bit	Somewhat	Very much	Extremely
18. [X]'s policies about privacy are not trustworthy.	Not at all	A little bit	Somewhat	Very much	Extremely
19. [X] is too expensive.	Not at all	A little bit	Somewhat	Very much	Extremely
20. The upfront cost to using [X] is too high.	Not at all	A little bit	Somewhat	Very much	Extremely

Scoring Template for Research Team

Difficulty of use					
1. I need assistance from another person to use [X].	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
2. [X] demands too much mental effort.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
3. It takes too long for me to do what I want to do with [X].	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
14. [X] is hard to learn.	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)
				CONSTRUCT TOTAL	

Physical					
4. [X] has made me feel physical pain.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
5. Use of [X] is too physically demanding.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
15. Using [X] too much creates physical discomfort.	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)
				CONSTRUCT TOTAL	

Time & Social					
6. I use [x] more often than I should.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
7. [x] distracts me from social situations.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
8. Using [x] has a negative effect on my social life.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
16. I spend too much time using [X].	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)

					CONSTRUCT TOTAL	

Mental & Emotional

9. [X] requires me to remember too much information.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
10. [X] presents too much information at once.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
11. Using [X] makes me feel like a bad person.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
12. I feel guilty when I use [X].	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)

					CONSTRUCT TOTAL	

Privacy

13. [X] requires me to do a lot to maintain my privacy within it.	Never (0)	A little bit of the time (1)	Sometimes (2)	Very often (3)	All of the time (4)
17. I am worried about what information gets shared by [X].	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)
18. [X]'s policies about privacy are not trustworthy.	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)

					CONSTRUCT TOTAL	

Financial

19. [X] is too expensive.	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)
20. The upfront cost to using [X] is too high.	Not at all (0)	A little bit (1)	Somewhat (2)	Very much (3)	Extremely (4)

					CONSTRUCT TOTAL	

					UBS TOTAL	

[User Burden Scale]

For more details, see Suh et al. "Developing and validating the user burden scale: A tool for assessing user burden in computing systems." ACM CHI 2016.