

Describing a Usability Issue

Across the [University of Washington ALACRITY Center \(UWAC\)](#), we want to identify recurring usability issues with evidence-based practices and the services and systems designed to support or implement them, and to identify effective patterns for addressing those issues.

The purpose of this guide is to support UWAC researchers in identifying and communicating usability issues for clinical interventions and implementation strategies (CIs/ISs) to the Center. This guide may also be useful to other researchers in systematically unpacking barriers and facilitators to existing and redesigned CIs/ISs.

What is **usability** and what are **usability issues**?

Usability—the extent to which a system or service can be used by specific people to achieve specified goals with effectiveness, efficiency, and satisfaction within a specified context of use ([ISO 9241-11:2018](#))—is a core outcome tracked at all stages of the design process by UWAC projects. An underlying outcome of HCD, a key UWAC hypothesis is that intervention and implementation strategy deployment is enhanced by addressing **usability issues** that address user issues.

The UWAC has adopted the following **definition of usability issues**: *Aspects of the intervention and/or a demand on the user which make it unpleasant, inefficient, onerous, or impossible for the user to achieve their goals in typical usage situations* ([Lavery, Cockton, & Atkinson, 1997](#)).

What are examples of **usability issues**?

During the first iteration of UWAC, [12 categories of usability issues with mental health CIs/ISs emerged from a cross-project analysis](#). Table 1 lists all 12 usability issue categories with example issues.

These examples are based on the [projects affiliated with the center](#), and the categories may not be exhaustive. In other words, while this set of categories may inform the design of usability studies, do not let it overly narrow the kinds of usability issues project teams look for and report.

Usability Issue Category	Definition	Example(s)
Complex and/or cognitively overwhelming	The intervention or implementation strategy is too overwhelming to the user or the interventionist.	In Problem Solving Treatment (PST), if the problem identification step results in problems that are too complex, patients and therapists can find the next steps intractable,

		<p>causing the session to get stuck or the patient to disengage.</p> <p>Participants describe the tool as having too much information, too many words, too busy charts, and not enough visual or audio help to interpret the information provided, culminating in the onset of information overload.</p>
Required time exceeds the available time	The intervention or implementation strategy demands more time than is available.	As designed now, shared decision-making takes 30 minutes to complete the protocol. Clinicians do not have time in their current diagnostic to do all components of shared decision-making.
Incompatibility with interventionist preference or practice	The intervention or implementation strategy is not compatible with how the interventionist prefers—or has been trained—to work and deliver interventions.	<p>In PST and Engage, therapists want to know what the client can accomplish on a weekly basis, which can take them several weeks to understand. Therapists want to know the client's context, skills and abilities to decide on a problem. Some therapists took several sessions (or a long portion of one session) to build client background or did not feel that PST focused enough on learning client background.</p> <p>When therapists do not know enough information about the client, the goal they set with the client might not be an adequate scope (might not fit the skills and abilities of the client), as a result clients may not accomplish the goals.</p>
Incompatibility with existing workflow	The intervention or implementation strategy is not compatible with the interventionists' existing workflows.	Successful behavioral activation (BA) treatment requires setting an agenda in session and sticking to it. Providers need a dedicated time to discuss and review progress and action plans, but when therapists also have other supportive duties and knowledge (e.g., financial or transportation support) and patients have complex needs and demands, then the session becomes fragmented and time is spent on addressing these other needs. In

		<p>patients with cancer and depression, we saw that BA therapy is given by social workers that provide a wide range of services including navigational support (e.g., transportation, housing, financial) such that the time scheduled for therapy is often used by patients' navigational needs rather than being dedicated to BA treatment.</p>
		<p>Within the integrative care model, case managers (CM) have a variety of tasks and cannot focus exclusively on supporting therapists in treatment (because they are also providing health education and resources to patients). As a result, CMs are not always used at the top of their license and therapists tend to take on tasks and cases that the CM could perform instead. This leads to inefficiencies as therapists handle more cases at lower levels of severity.</p>
<p>Insufficient customization to clients or recipients</p>	<p>The intervention or implementation strategy cannot be tailored to client/recipient needs or does not provide enough guidance for interventionists and clients/recipients to customize it.</p>	<p>In the original comprehensive self-management intervention, the content is presented as a written workbook and taught during in-person sessions. Because access to skill demonstrations was limited to synchronous delivery by a provider, users were unable to review skill demonstrations at their own pace and were frustrated with the intervention, causing them to disengage.</p>
<p>Intervention buy-in (value)</p>	<p>Intervention or implementation strategy does not sufficiently build client/recipient buy-in for its value.</p>	<p>The overall therapy perception is not positive for some clients and some therapists. Therapists and clients do not think therapy is helpful to clients. Some clients feel PST is childish or not a therapy. Some therapists feel like talk therapy is sometimes more appropriate, or that PST encourages clients to be avoidant.</p> <p>Avoidance can lead to clients not working on important problems and can lead to clients not returning to</p>

		PSTt therapy due to unmet expectations of wanting talk therapy.
Interventionist buy-in (trust)	The intervention or implementation strategy does not build the client's/recipient's trust in the interventionist.	A core component of promoting first relationships (PFR) is that mothers are videotaped with their infant and that recordings are reviewed and used to evaluate and provide feedback about their interaction. Patients may refuse video recording for personal reasons, such as trauma or simply feeling uncomfortable. As a result PFR cannot be completed as designed, leading to missing a core element of the intervention.
Overreliance on technology	Intervention or implementation strategy relies on technology that creates barriers for some clinicians or recipients or that is not available to all clients or recipients.	The online format of the shared decision making tool may not work for some patients if they're not comfortable with technology, limiting their ability to participate in the process.
Requires unavailable infrastructure	Intervention or implementation strategy requires physical, systemic, or organizational infrastructures that are not available.	RUBIES is designed to be used with Tier 3 students diagnosed with autism in addition to other supports educators are legally required to use as stated in students' individualized education programs. RUBIES needs to be integrated with other supports. This additive requirement creates burden and leads to evidence-based practice fatigue, which makes it difficult to implement and integrate with Multi-Tiered System of Supports in schools.
Inadequate scaffolding for client/recipient	This involves a lack of preparation and support for the client/recipient. The intervention or implementation strategy lacks support for the client/recipient to understand and succeed in the required activities of the intervention.	Some of the core concepts of PST—distinguishing between a problem, goal and a solution—are unclear to patients. Consequently, they may not feel confident using PST on their own in other areas of life or after treatment ends.
Inadequate training and scaffolding for interventionists	This involves a lack of preparation and support for the client/recipient. The intervention or implementation strategy lacks support for the client/recipient to understand and	If clinicians do not have enough training and practice with shared decision making, time and other pressures in the clinic cause them to fall back on what they know and omit

	succeed in the required activities of the intervention.	shared decision making.
Lack of support for necessary communication	The intervention or implementation strategy requires but does not sufficiently facilitate communication between interventionist and client/recipient.	The comprehensive self-management intervention lacks mechanisms for clinicians to be aware of client progress, and so they are unable to notice and adapt when treatment is unsuccessful for a patient.
		Existing practices for delivering BA offer limited in-the-moment support and assessment: Teens often encounter new situations in which they need support between sessions, but, without the therapist as a guide, encounter difficulties adapting and applying what they have learned during sessions to these situations, and also encounter difficulties fully characterizing and describing such situations in their next sessions.

Table 1. Usability issues categories and examples

Across UWAC’s Discover, Design/Build, and Test (DDBT) framework, the following usability issues are typical in each stage:

- **Discover:** issues with unadapted CIs/ISs and mechanisms for delivering them
- **Design/Build, Test:** new issues occurring with redesigns that are responsive to previously identified issues ; new understanding of previously identified issues (e.g., by evaluating design refinements, you learn that the issue is not as originally thought)

How do I begin identifying usability issues?

The first step of identifying usability issues is to determine aspects of the unadapted and adapted CIs/IS that make it “unpleasant, inefficient, onerous, or impossible for the user to achieve their goals” ([Lyon et al. 2021](#), citing [Lavery et al. 1997](#)) This can be based on existing research, usability evaluations, and usability studies. If using existing research to evaluate usability issues with unadapted CIs/ISs, it is helpful to reflect on whether the research reflects the demographics, culture, and context of intended users. Existing research may give you a hint of expected usability issues, and you may want to do supplemental research to validate these usability issues and identify other potential issues for intended users.

In usability evaluations, members of the redesign examine the existing CI/IS and supporting materials to identify possible issues, using approaches like heuristic evaluation of cognitive walkthroughs. In heuristic evaluation, teams examine a CI/IS or supporting material to examine if there are aspects of it that potentially violate guidelines for good usability (“heuristics”). Our previous research identified 12 heuristics for CI/IS design ([Munson et al., 2022](#)), and there are also heuristics for computational interfaces and service design. In cognitive walkthroughs, design team members or other experts work through common scenarios of use to identify potential problems. Usability evaluation can often be a good first pass, but they may miss issues and identify false positives, so it is typically valuable to follow up with usability studies.

Usability studies prioritize engagement with the actual end-users of a service, system, or product. These may be current users or prospective users. Usability studies can leverage different methods such as interviews and scenario- or task-based testing to identify usability issues. A usability study of a new or redesigned CI/IS that unfolds over several sessions can be more challenging; adapting cognitive walkthroughs to present the overall set of user experiences and then dive deep on key components can be a way to address this ([Lyon et al. 2021](#)).

Your initial list of usability issues may be long, but it is easier to identify a more comprehensive list—with sufficient detail to help you prioritize them—and then determine which usability issues should be reported or focused on by the team.

For UWAC teams: What usability issues should I report and when?

All UWAC projects are required to identify and address critical usability issues for un-adapted and adapted CIs/ISs.

How do I decide what usability issues to report?

All UWAC projects are required to identify and address critical usability issues for un-adapted and adapted CIs/ISs. Most teams will identify more issues than they ultimately report to the center. This section discusses how to decide what to report.

For UWAC projects, teams should report usability issues with CIs/ISs that are inherent to the CI/IS design (rather than minor details in the supporting materials) or that interfere with someone’s ability to complete the intervention. For example, if an issue makes a CI/IS so complicated that some people cannot or will not do it, this should definitely be reported! In contrast, a usability issue of a button being too small, resulting in users failing to notice it, is less

important to report to UWAC, unless this issue stops a user from accomplishing a key CI/IS task.

It can be more challenging to decide whether to report issues in the design/build and test phases. In the process of brainstorming and developing prototype designs, it is common for countless usability issues to be introduced and corrected through the iterative design process. In general, teams do not need to report issues that are addressed. However, if the team believes sharing the issue would be informative for other projects and prevent similar issues, then please report it! Additionally, some issues may not be resolved at the end of design/build or only identified in test, and teams should report these issues. Finally, during design/build or test phases, it is not uncommon to learn that an issue is a bit different than was thought during a previous phase: please refine and update this issue based on your evolving understanding.

We recognize the question of “is this usability issue instructive about the kinds of problems that occur with CIs/ISs?” is subjective. We include a few examples below (Table 2), but – overall – if you are unsure, we would rather that you share the issue so that others may learn from it.

Issue	Decision	Rationale
When using the application, internet would be necessary to access and interact with the application. In rural areas, internet can be spotty or drop out, which could leading to not being able to use the application for therapy.	Report	During the redesign process, the team decided to move from a paper worksheet based design to an Internet-connected app. This creates the potential of people not being able to engage with the treatment. Despite this design choice being made with awareness that it might create this issue, the team decided to report it after design/build and to continue to monitor it in the test phase.
When looking at the Review section of the worksheet, the second (most recent) action plan disappeared with the current design. The design does not give equal importance or more importance to the most recent action plan causing the user to want to skip over it.	Do not report	This was an issue introduced, and subsequently addressed, during the redesign process. In discussion, the team decided the issue is not particularly informative regarding issues with clinical interventions and usability strategies and is instead a fairly low-level issue with the interface. Consequently, we decided not to report it.
When patients use the app’s scheduling feature, the design team assumed it was only needed for some activities, it doesn’t include an opportunity to schedule Action plan list items, relying on recall can result in incomplete action plans.	Do not report	We introduced the scheduling feature in the design/build phase, and the first design of it created this issue. We subsequently addressed it. We decided not to report it as it had been addressed and was based on our (incorrect) assumptions about the therapy.
When a session worksheet is complete, the redesign team	Report	This was an issue introduced by moving from paper worksheets to technology support. With

<p>assumed that giving access to the worksheet is enough to support action plan completion and communication between users. However, it was not, which resulted in limited between-session support.</p>		<p>paper worksheets, the client takes the worksheets home with them, which signifies they should continue to use it. However, when co-creating the action plan in technology, the worksheet exists online, and without an explicit handoff of a physical worksheet to the client, they may not realize they should use it between sessions or remember to access it. We decided to report this as other teams creating technologies to support CIs/ISs could similarly, inadvertently remove the communication that people use continue using/referring to the completed worksheet.</p>
<p>When looking at the dashboard under the Patient Activity section, it assumes the therapist will want to look at any documents that have been modified or added by the patient, a therapist may want to view their patient's documents in a different view or organized differently.</p>	<p>Report</p>	<p>The redesign process added this dashboard view – something that does not exist in the paper worksheet view – to support clinicians. However, while it supported one workflow, the design of the system then constrained clinicians to using that workflow, even though it may not be compatible with how they want to work. This seemed like something that could happen in other redesign projects (adding supports but inadvertently reducing customization in the process), and so we decided to report it.</p>

Table 2. Examples of PST usability issues reported and not reported to UWAC

When do I report usability issues?

UWAC teams should report new issues at the end of the each DDBT stage in RedCap, as relevant to your project. UWAC Methods Core will provide feedback on submitted usability issues and work with teams by asking clarifying questions. The methods core is also available to consult on plans for addressing usability issues.

We expect that teams will identify most issues in the discover phase. During the design / build phase or test phases, teams may identify new issues or learn new information that leads to revising a previously reported issue.

How to describe usability issues?

Description of usability issues commonly includes the following elements: (1) Description, (2) Severity, (3) Scope, (4) Complexity, and (5) Evidence (Table 3). These issues may also be linked to (6) known research (e.g., previous documentation in other studies). Teams may also find it useful to describe next steps (e.g., implementing a redesign if one is known, further research if needed, or developing and evaluating prototypes of potential fixes), though for UWAC teams, we ask about redesigns in a separate questionnaire in the design/build phase.

We use these elements as a template for UWAC teams to report issues, though we recommend them for all teams, as they support description and understanding of an issue as well as prioritization of which issues to address. These elements are presented in the table below and then described in greater detail. Elements are based on common ways of reporting usability issues in human centered design of software systems, but we have customized them to better reflect the kinds of issues we will identify in UWAC projects.

Required Elements	
Description	<p>A concise summary of what’s going wrong. Aim for 1-2 complete sentences, using the following structure (explained further below):</p> <p style="text-align: center;">When [PRECURSOR(S)], the [COMPONENT] is / has / is experienced as / results in / etc. [PROBLEM] which [CONSEQUENCE].</p> <p>Do not include or imply a proposed solution in the issue description; describe problems in a neutral way that is generative for a full range of potential design solutions.</p>
Severity	<p>For each identified usability issue, we ask that teams assign a severity rating using the following categories (adapted from Dumas & Redish, 1999):</p> <ul style="list-style-type: none"> ● Level 0 - catastrophic or dangerous; causes harm; high risk ● Level 1 – prevents completion of a task ● Level 2 – creates significant delay and frustration ● Level 3 – has a minor effect on usability ● Level 4 – subtle problem, points to a future enhancement <p>We recommend that, when appropriate, multiple team members independently rate each issue using these categories (see below for additional guidance).</p>
Scope	<p>Usability issues can be considered on a spectrum from local (i.e., confined to one user group or component of an intervention/strategy) to global (i.e., experienced by most/all users and pervasive across components). For this section, articulate:</p> <ul style="list-style-type: none"> ● Prevalence of users encountering the problem (and to which user groups they belong) - All, Most, Some, Few, and any particular user group? If it’s easy for you to add a number, that’s great - otherwise

	<p>categorical is useful.</p> <ul style="list-style-type: none"> • Which components (including content elements, structures, artifacts, and parameters) are affected?
Complexity	<p>Complexity refers to how straightforward (or not) it is to address an issue.</p> <p>An issue might have low complexity if you understand the root cause of the problem and solutions are known (e.g., rewording a worksheet prompt avoids a misunderstanding).</p> <p>An issue may have higher complexity if the root cause is not understood (i.e., more research is needed), if addressing the issue is likely to cause other, downstream problems (i.e., there are interaction effects between the component of the intervention with the issue and other components or the health system as a whole), or if the solution is not well understood.</p> <p>We recommend writing this qualitatively, e.g., “This issue has [low/medium/high] complexity, because...”. Often the <i>because</i> is more important than the actual rating.</p>
Evidence	<p>Describe the qualitative and/or quantitative data that provided evidence for the usability issue and which support - and provide further understanding of - the description, severity, scope, and complexity indicated above. If possible, specify the following...</p> <ul style="list-style-type: none"> • Whether the usability issue was independently <i>observed</i> (e.g., during user interactions with a prototype) versus <i>reported</i> by a user. • Whether the usability issue was <i>experienced</i> by a user versus <i>anticipated</i> based on a hypothetical situation.
Optional Elements	
Related research	<p>If you have seen this kind of issue before in related research, including theoretical frameworks or models that could help us understand what’s going on, we’d appreciate a citation! Similarly, if this is an example of a common heuristic, e.g., Nielsen’s 10, please make that connection.</p> <p>If you don’t see connections, don’t worry -- that’s part of our job in the center core.</p>
Recommended next steps or	<p>If you have not verified a solution, you might recommend that one or more alternative designs be evaluated, or you might recommend that the team work on redesigns. Sometimes you have to recommend further study/usability testing to better understand the issue.</p>

<p>How your team solved the problem</p>	<p>If you have tested and verified that a redesign fixes this problem, you might recommend that be implemented.</p> <p>It's possible you aren't sure what the next steps are, in which case you might seek consultation from the UWAC Methods Core. Alternatively, the issue might be sufficiently minor that you don't plan to address it.</p>
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Table 3. Summary of UWAC usability issue elements to report

Below, we present guidance on each of these areas. Overall, the guidance aims to help researchers and intervention designers prioritize issues and understand them well so they can plan their next steps.

(1) Description

When [PRECURSOR], the [COMPONENT] is / has / is experienced as / results in / etc. [PROBLEM] which [CONSEQUENCE].

COMPONENTS of the intervention should be detailed using the same structure reflected in the DBT intake form, including (1) *content elements* (discrete techniques), (2) *structures* (processes that guide the selection and delivery of content), (3) *artifacts* (tangible, digital, or visual materials), or (4) *parameters* (static properties that define and constrain the intervention or service “space”).

Examples:

PST (intervention):

When treating depression in community settings, clinicians experience the need to exactly follow this seven step process each time as tedious and burdensome, which results in clinician exhaustion or boredom.

Post-training consultation strategy (implementation strategy)

When clinicians are engaged in live consultation (*precursor*), the approach to case discussions (*component [content element]*) assumes that clinicians know how to do a concise case presentation (*problem*). When it's not concise, discussion overflows into other consultation activities (*consequence*).

When writing your description, avoid the following **pitfalls**:

- Don't start with [THE INTERVENTION]...
 - Instead, start with [COMPONENT OF THE INTERVENTION]
 - So, instead of “*Problem Solving Therapy was experienced as....*” start with “*The problem solving processes introduced in PST...*” (content element) or “*The number of sessions*”

required for PST... (parameter)

- Don't focus just on one consequence if there are multiple consequences
 - Different professionals will work with it in different ways, and consequences affect different stakeholders differently.
- Don't be vague in problems or consequences
 - Avoid vague language about "difficulties," "problems," etc..If you don't have the information to be more specific, more user evaluations may be needed and, should then be recommended as a next step.
 - "This takes too much time" is too vague because you don't know what to do next or what the consequences of it taking too long are. It could mean...
 - "The structure of the therapy doesn't allow enough time to get to know to my patients"
 - "Takes more sessions than I have with my patients, since they don't see me regularly"
 - "Takes longer than the session hour, so clinicians and patients don't get everything done in a session"
 - "Takes longer than the session hour, so clinicians often have to take over parts of the therapy that my clients really should be leading"
- Don't presuppose or imply a solution. For example "When mental health services are offered only in-person, potential patients are uncomfortable presenting themselves for care, which results in people not accessing care from which they may benefit" implies that the problem is *only* in person care and that other modalities are necessary. While other modalities may be a great way to address this problem, reframing this issue as "Potential patients are uncomfortable presenting themselves for in-person care because of concerns about seeing people to whom they do not want to disclose their mental health concerns at or near the clinic" leaves the solution space more open, such as designs that create greater privacy when accessing in-person care.
- Don't accept at face value reports from one stakeholder group about usability issues that might be experienced by another group. A stakeholder group (e.g., clinicians) often can describe experiences of other stakeholders (e.g., patients), but they are often only able to recount only an incomplete picture. You will ultimately want to test any assumptions about how a particular user group will respond by engaging in user research with that group.

Additional guidance:

- If indicated, you may reference how the information was obtained in the description of the usability issue (e.g., "clinicians reported...")
- Especially later in a redesign process, usability issues may be described in a way that is *comparative* (i.e., "X is less XXXXX than Y because XXXXX").

(2) Severity

Often, severity is reported here. There are many severity scales, often numeric – give the label, not just the number to avoid confusion. Some teams separately report severity, complexity, and scope either as scales or descriptively.

Severity helps prioritize the fixing of problems and allocation of resources to fixing them. There are various scales, some developed more for interfaces, others that apply more broadly.

Example scales include:

- 3 point: disaster, serious, cosmetic
- 5 point: catastrophic, major, medium, minor, cosmetic

We generally recommend Dumas and Redish's four-level scale, with a modification to account for how some usability issues can cause harm:

- Level 0 - catastrophic; causes harm; high risk
- Level 1 – prevents completion of a task
- Level 2 – creates significant delay and frustration
- Level 3 – has a minor effect on usability
- Level 4 – subtle problem, points to a future enhancement

It offers a reasonable level of precision, without being overwhelming. Additionally, the descriptors are broad apply not to just to screen-based interfaces.

Because there are multiple scales, we recommend reporting the full descriptor or a short name (e.g., “4 - subtle”) rather than just numbers (e.g., “4”).

We recommend that multiple team members rate each issue, if the team has sufficient expertise to do so. Methods of integrating these ratings could include:

- Calculating averages across raters
- Meeting to arrive at ratings via consensus discussions

(3) Scope

To what extent is the problem present in the product or experience? This can refer to prevalence across the system, service, or artifact as well as the prevalence of how many users / stakeholders it affects.

- **Local** – isolated to one page or section; for a particular stakeholder group
- **Global** – throughout the interface or experience; for all participants

We'd love to know number of users and from which groups, if it's easy for you to add that number. If not, estimated prevalence and if issues occur in certain groups is also useful.

(4) Complexity

How difficult is the problem to understand or reproduce? How easy is it to fix? Generally, more complex problems will take more time and resources to fix, often starting with more detailed study of what is going on.

In a **low complexity problem**, it is always present and easily explicable. You know what is happening and why. You likely have an idea for how to fix it.

In a **high complexity problem**, it may be intermittent. People may be making mistakes and you don't know exactly why or when. You may not understand how to fix it, or you may, but know that it is difficult and requires, for example, a reordering of all steps in a service. It may even require rethinking the health system.

(5) Evidence

As a minimum, we ask that you provide exemplary evidence. The goal of this evidence is to help others understand the problem, and the standard should be that it is persuasive and informative to someone who has to redesign the intervention as a result.

Often, the most informative evidence combines data from different sources: e.g., qualitative and quantitative data from usability testing, quantitative data about the number of patients who complete versus drop out of the treatment after certain number of sessions.

As you decide which evidence to include, consider the other categories. Together, the set of evidence should illustrate the component, the issue, the consequences, their severity, and the complexity.

We do not need all of your evidence on an issue here. That said, if you find it easier to present all the evidence, we're happy to work with it.

(6) Related Research

Do you think this problem connects to other research? If so, we would appreciate pointers to the literature. If not, that's where our work as a center will pick up.

(7) Next Steps / Redesign

What next steps should another team working in this area do? Do you have a fix? Do you have a fix that has been validated? If so, that's great. If not, what are the next steps to creating a fix? It is common for an issue to need more study before a team is ready to redesign a service, product, or intervention.

As projects move from stage-to-stage, we anticipate that you may revisit and revise these. For example, during testing, you may confirm that a proposed solution works. Alternatively, you might identify new information that indicates the usability issue was not what your team first thought. Please keep us updated as you learn!