

The Importance of User Insights in Digital Product Design

Gathering user insights should be a key part of any medical device development. Understanding your user's context of use, behaviours and views can allow you to design a solution that meets actual user needs. As society continues to weave digital devices and solutions into every aspect of our lives, it is essential that we understand what our user's will expect from our digital products and how they will fit into their existing routines, in order to provide the best user experience possible.

What are the benefits of digital products in medical?

As highlighted by the FDA,¹ digital technologies are providing a multitude of innovative ways to help people monitor their health and well-being. From medical apps to cloud connected devices, digital health technologies can help users better adhere to their therapies, understand their condition(s), make more informed decisions and manage their health overall away from a clinic setting. For health care providers and other stakeholders, digital products offer a wealth of user data to help track the efficacy of their therapies, understand user behaviours, reduce inefficiencies and provide a more personalised solution for the patient. Clearly, there are many benefits to digital products, but in order for these to be fully realised, the essential step is ensuring your product both adds value to its users and motivates and engages them to use it. This is where gathering detailed user insights both before and during your digital product development can be invaluable.

Why Should You Gather User Insights?

Although the goal of most healthcare products and services is the improvement of patient outcomes, the most common mistake a digital health company can do is forgetting their users. According to statistics, most digital health start-ups do not survive long, despite having sufficient users and investor funding. Forbes suggests that 98% of digital health startups face severe challenges, and many are already viewed as dead.² A key cause of this failure is not taking into account the needs of patients, caregivers and healthcare professionals.³

Without understanding patients' preferences and needs, it is impossible to create valuable solutions that will offer the best user experience for them. In any medical device development, the user should be included from the very start to identify unmet needs and challenges, even before any design ideas hit the paper.

Due to the complex nature of healthcare and MedTech, there can often be a blurred line between the users, end users and decision makers. For example, in the case of a telemedicine app, the end users may be the patients and/or their caregivers. However, the patients' doctors may also have input, as will insurance providers who may have the final decision on whether to implement the solution. By considering all the various stakeholders around a digital product, we can maximise the chances of success.

When we undertake user insights research to inform our digital product design, we are attempting to understand the bigger picture and consider not just how a user physically uses the product, but also to think about how this new digital product will fit into the way they manage their health and their life in general, including any other products (digital or otherwise) they may be using. Failing to consider the bigger picture can result in you missing vital things that will really make a difference to the patient and what will ultimately lead to a more successful digital product.

Which Resource Techniques Can We Use?

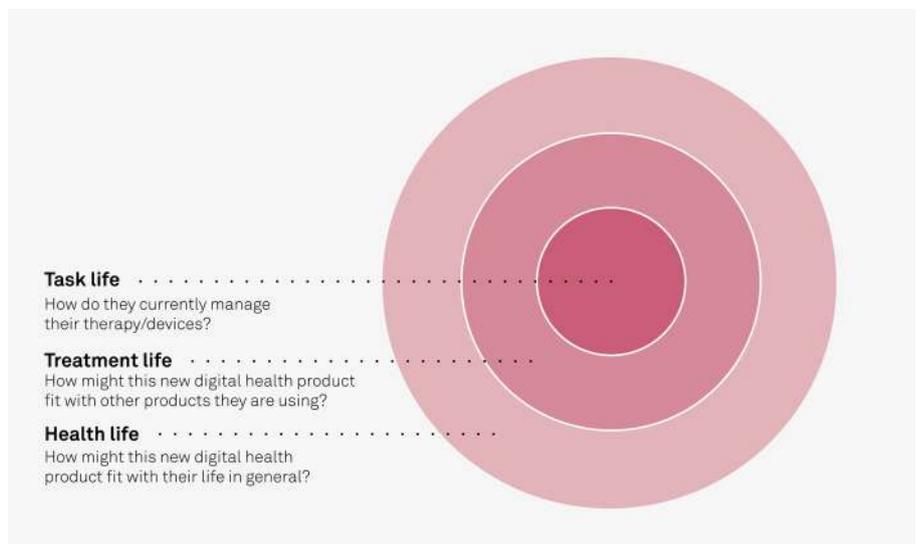
User insights research, or User Experience (UX) research, is different from traditional market research techniques, in that rather than consulting large groups of people in search of the truth, the number of participants tends to be smaller. The aim here is to uncover rich insights to drive and inform the design of our digital solution.

Whereas traditional market research will typically provide statements of fact such as '37 out of 100 people said they did not own a mobile phone', user insights research provides detail, context and a richer understanding of the challenges people are facing. It immerses us as medical device developers more deeply in the patient's world, highlighting specific challenges and opportunities that we can address in our designs.

The objectives of our research are to gather rich insights and a deep understanding of:

- Context of use
- What it's like to live with a condition
- Unmet needs, behaviours and motivations
- Challenges and opportunities for digital innovation
- The real value and benefit of digital features and functionality

By shifting our focus away from just the task in hand to also encompass the bigger



picture we can begin to fully understand where our new digital solution can really add value.

There are several research techniques we can employ to carry out this user research. These include the more commonly known focus groups and in-depth interviews, alongside cultural probes, observations in context and online communities.

In-depth Interviews

Whether face to face or remote, in-depth interviews involve exploratory conversations conducted one-on-one with individuals. They are typically 30–90 minute discussions with the participant to explore and understand the challenges they face in managing their health, what they perceive their behaviours and motivations to be, as well as where digital health could add value. It's worth noting that it can however be challenging to gain other contextual information from just a conversation.

Focus Groups

Focus groups also involve exploratory conversations, however this time with multiple participants at the same time, typically four to eight. They also offer a valuable way of determining where digital health might add value, as well as different participant's digital literacy levels and attitudes to digital health solutions. While this can allow for group tasks and dynamic discussions, with participants building on each other's experiences, it's important to be wary of 'group think', whereby some participants influence others.

Cultural Probes

The aim of cultural probes is to provide users with activity workbooks and pre-interview tasks, designed to capture insights into: 1) the context in which a digital solution might be used and 2) the emotional aspects of managing a medical condition. This might include photos of where and how they administer their therapies, as well as any other products they are using to manage their health (digital or otherwise) and what their experience is with those. We can also ask participants to create a model of what it's like to live with the medical condition or undertake other tasks which help us understand the factors affecting their behaviour, their personality type and how they may respond to different behavioural 'nudges'. Cultural probes tend to provide a much deeper understanding of the emotional side of managing a condition, helping to immerse you in their world. While this requires more time and effort to prepare,

the results can also help a moderator to prepare a tailored follow up interview with the patient.

Observations in Context

While remote interviews and tasks can get us so far, there's nothing quite as impactful as seeing someone's context of use and behaviours first hand. These observations can take many forms, from visiting patients in their homes to observing procedures in clinics. The aim here is to understand the workflow, or 'day in the life', to identify where an intervention could be useful. The observation typically covers the process, purpose, people, products, and places involved around the management of their condition. These approaches are typically more costly and involve time and travel, however they can provide rich, first-hand insights, which a patient may have neglected or forgotten to say in interview. Such insights can help a design team to work out, where digital health applications, such as dose reminders, might be useful in a patient's day-to-day life.

Online Communities

In addition to individual interviews and observations, online communities can provide a valuable snapshot across a period of time. These platforms encourage users to carry out set tasks in their own time, uploading photos, videos and written entries over a longer period, with the flexibility for participants to engage individually or chat with each other in a 'forum-style' setting. This remote approach allows researchers to explore participants' experiences over a few days or weeks, and can be used for gathering context of use information, uncovering unmet needs and challenges and gathering rich, emotional insights. It does not however, allow for direct observation meaning we are limited to what the user chooses to share with us.

How to Analyse User Insights

Once you've captured your user insights, you need to then turn your findings into meaningful insights. User journey mapping and personas are strategic UX research tools that can help provide an in-depth understanding of who your users are, what they need, and every touch point they will have with your product. These tools can be used to then identify pain points and opportunities for digital innovation across all your user's touch points. These exercises can also be critical for immersing your digital design teams in the world of the target users, allowing them to gain empathy for their challenges and ultimately create a more successful digital solution to address their needs.

Personas

User personas are archetypal users whose goals and characteristics represent the needs of a larger group of users. The descriptions include behaviour patterns, goals, skills, attitudes, motivations and background information, as well as the environment in which a persona operates. They also often include a few fictional personal details to make the persona a more realistic character, such as quotes from real users, as well as context-specific details. Personas can provide a constant reminder for the design team about who the digital solution is intended for, putting the user at the heart of the subsequent product development.

User Journey Mapping

A user journey map is a very in-depth and detailed process that explores a user's journey and the touchpoints and interactions they have along the way. This could be from their first symptoms, through to an initial diagnosis, treatment, therapy and follow up. Exploring each stage is an effective way



to form the basis of research conversations. It can also be used to identify pain points and opportunities for innovation, which you may not have been aware of. The end result is a visual and holistic view of what you need to know and think about with your digital solution, from all angles, and from the viewpoint of different stakeholders.

Translating Insights into Design Challenges

Analysis and coding of our user insights can lead us to solution agnostic problem statements around which to innovate with our digital solution. Key themes can be drawn from this research, based on multiple real-use scenarios and experiences. These themes can then be translated into specific design challenges. To further steer the subsequent innovation activities, it can be helpful to prioritise the design challenges to understand which are essential to be addressed with the digital solution and which will have negative impacts for the product if not addressed, as well as which are more of a nice to have. This can be amalgamated in a table, as shown in Figure 2.

#	Design challenge	Votes					Total
		Daphne	Simon	Kate	Anthony	Lady W	
1	... help parents track their children's medication?						0
2	... motivate and encourage the use of a companion app?		2				2
3	... enable quick and easy set up and onboarding?	5		4			4
4	... create a reliable, engaging user experience?	4	5	2	5	1	18
5	... ease the burden of clinical trials?	2	4			4	12
6	... allow the user to manage their condition - not just the therapy?				2		4
7	... create a premium unboxing experience?						0
8	... provide accurate feedback to the user on competence?				1		1
9	... allow users to track and distinguish between multiple children?						0
10	... encourage adherence with the therapy?					2	2
11	... allow users to monitor dose and time of dose?			3	3	5	11
12	... provide benefit and reward to the user?	3					3
13	... accommodate different user personas / behaviours?	1	3	5	4	3	16
14	... etc. etc.						0

Figure 2

Designing, Testing and Optimising Your Solution

Once you have identified your design challenges, implementation is key. How your digital ecosystem, UI design and workflows are implemented, will determine the success of your solution. As well as gathering initial user insights, it is equally important to then continue to test your digital solution with real users throughout the prototype and design stages. The following are some key research techniques used to gather feedback on digital health solutions from your users.

Contextual Research

Contextual research at this stage of the process, involves exploratory testing of prototype digital health products with users in their context of use. Such research provides valuable insights into the user's reactions to the full digital health ecosystem,

including the packaging, device, app, web portal and anything else. Moderators can also gain an understanding of how the solution fits into the user's environment, as well as their digital literacy levels and how easily they interact with the product features, workflows and UI designs.

Eye Tracking

In this case, eye tracking glasses or software are used to track and show where, and how long someone is looking at different aspects of the UI. This technology offers a valuable way of understanding what draws a user's focus and how they read and scan text, which can be especially useful on larger screens or web pages. Whilst eye tracking has some limitations as it is only assessing one element of the digital product ecosystem – it can provide valuable feedback on the implementation of your UI – a very important part of your solution.

5 Second Test

Another great tool for assessing the implementation of your UI, is the 5 second

page, who they think it is intended for and which elements they can recall after.

Conclusion

Digital health technologies can have real benefit for both the health and care system, as well as the patient, caregiver and health care professional. For your product to be successful, it is crucial to put the user at the centre of your digital health solution. User insights offer a valuable way to immerse medical device developers and their digital design teams in the world of all their potential users, helping them to understand their specific needs, challenges, motivations and behaviours, and lead to a digital health solution that adds real value. For this process to be successful, it is essential to continuously test early solutions with your users and use their feedback to evolve your ideas. This will lead to a digital health solution that is well implemented with good UI design and flow – ultimately leading to a more successful product.

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