Designing for the User

Four years ago, work began on the first major overhaul of Inspire® (Starkey Hearing Technologies’ hearing aid fitting software) in nearly a decade. Starkey Hearing Technologies’ customers had become accustomed to the look of and processes within the program, but the layout of controls, as well as the overall design of the user interface, had become dated. In addition, the background structure of the software didn’t allow for the flexibility that was required to accommodate a new generation of hearing devices and software features. As technology progressed, the limitations of the software architecture had created roadblocks to further development.

With the planned effort to update Inspire, it was important to establish goals that would address challenges and improve the user experience along the way. It was essential to step back and gather input from customers on what was working well and what areas needed improvement. Careful consideration had to be taken as new features were being incorporated into the Inspire workflows. A revised look and feel would better align Inspire with the design of other Starkey Hearing Technologies’ platforms. Overall, Starkey Hearing Technologies wanted to improve the existing product, but not depart from what was familiar — a fresh coat of paint and some rewiring, without rearranging all the furniture.

THE USABILITY PROCESS

Identify
Determine an area of the user interface that needs to undergo change.

Launch
Once a solution that meets all needs has been found, a final design can move to final implementation and launch.

Analyze
Establish a direction that addresses requirements and meets user needs.

Review
Evaluate test results. Determine whether approach is successful or if further edits are called for.

Design
Based on user feedback and analysis of need, a mockup is created to simulate the user interface and workflow.

Test
Vet the design and functionality with an appropriate audience. Feedback and observation reveal areas requiring revision.

Iteration
Design requires changes. Begin process again.
In order to deliver on these goals, it was vital to have the user at the center of the process as the design progressed. By utilizing the principles of usability outlined below and in Figure 1, Starkey Hearing Technologies was able to give structure and focus to design for the user.

**Identify**

As new features are proposed, and areas of improvement within Inspire are identified, projects are added to a backlog and prioritized.

**Analyze**

The initial problem-solving stage addresses the problem at hand and establishes a plan of action. It is important at this stage to consider that the development of new features and design of the user interface in Inspire have to happen hand-in-hand. Starkey Hearing Technologies can’t design a new feature or revise a workflow without thinking about how it will function within the software; this involves collaboration across a number of groups within Research and Development.

**Design**

The design stage brings the solution to life. Creation of a static or functional mockup is invaluable while exploring how new ideas and features can be incorporated within the interface for future product releases. Oftentimes, issues and new directions alike can be identified in a mockup that may not have been apparent otherwise.

**Test**

Ideas need early and continual review. Testing designs and functionality with both cross-functional internal teams as well as usability testing with real users help reveal trouble areas and allow feedback on the user experience to be incorporated before the software is finalized.

**Review**

After testing, it is vital to step back and dive into the results. At this stage, a determination needs to be made if the concept can proceed with minor tweaks or if it will need to have a more substantial rework.

**Iteration**

If it is determined that changes are needed as a result of test findings, a new iteration of the concept is needed. It is important to keep revising the design based on feedback from internal review and user testing as problems are discovered and solved.

**Launch**

Once the concept has progressed through all stages of the usability process and is a satisfactory solution to the integration of new features or improvements, it is ready to submit for final implementation. *(Microsoft Corporation, 2000)*

Application of this iterative, user-focused process ensures delivery of the most intuitive, high-quality experience possible.

There were several screens within Inspire that required a major functional overhaul either through necessity — due to new or revised features — or because of an overall enhancement to the software workflow. Working screen by screen, careful analysis of user need drove the design of initial concepts that were then vetted by an internal cross-functional review team, which was made up of members in Starkey Hearing Technologies’ sales, customer support, education and training, hardware and software product management, hearing aid feature management and marketing departments. This group helped identify problem areas and allowed the development team to review the approach and drive iterations on new concepts that could be presented to customers for additional testing.
To ensure Starkey Hearing Technologies would arrive at the best solution, it was vital to take concepts to actual customers and conduct usability tests to see if the new designs made sense to those who use Inspire day in and day out. Testing scenarios ranged from one-on-one observation sessions to paper surveys, questionnaires and group observations. This comprehensive effort consisted of dozens of rounds of formal and informal usability testing and involved well over 100 customers. Some of the most involved testing was centered on the major functional changes, including the new memories location under the fitting graphs, the User Controls screen and the Simulate Products screens, as well as new features such as the reconfigurable navigation panel and the Music Memory screen. Figure 2 illustrates how one screen, the Quick Fit screen, evolved throughout this process based on the feedback from Starkey Hearing Technologies employees and customers.

Based on findings from customer usability tests, additional iterations were created, resulting in a beta version of the software that was released to 39 customer accounts to preview how Inspire worked in day-to-day business. The testing

Figure 2. These images illustrate the iterative process of usability and the evolution of the Memories bar, as seen on the Quick Fit screen. Shown above are the original designs of Inspire, the following page shows the two iterations that evolved based on feedback and testing and then the final design as it is today.
process revealed invaluable insight resulting in both big and little changes along the way. “It really opened your eyes to how things can seem so easy internally, but could be quite a struggle for some outside users,” recalled Lorrie Scheller, Product Manager for Software Usability and Design.

The usability lessons learned throughout the Inspire X redesign process have carried over to other departments as well. Starkey Hearing Technologies’ mobile team has utilized much of the same user-centered approach for the apps that they produce. With user input, the mobile team has been able to work through some challenging situations and deliver innovative, useful solutions for Starkey Hearing Technologies’ customers and patients.

With the release of Inspire X, four years of design and development encompassing the combined effort of more than 8,000 hours came to fruition. Starkey Hearing Technologies is proud to deliver what’s believed to be the best Inspire so far — but it won’t stop there as they continually work to incorporate new features and improve upon the user interface based on customer feedback. If there is a way to make the user experience more positive for customers, Starkey Hearing Technologies will find a way to do it.

Reference