EHR: Secrets of Successful Usability

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[ Intro music ]

Welcome to Macadamian’s audio Podcast - unsalted. Strategic insights on software development and user experience design. We are bringing you snack-sized discussions your brain can munch on. Join the conversation at macadamian.com.

Lorraine Chapman: Hi everyone, I am your host, Lorraine Chapman and I am the Director of User Experience Research at Macadamian. The topic for this podcast is EHRs, secrets of successful usability and this is our part two in a series called Interruption Storyboards. I am joined today by Macadamian’s Director of Design, Jennifer Fraser.

Jennifer Fraser: Good morning everybody.

Lorraine Chapman: Also joining us is Dr. Jeff Belden, a family physician and Associate Professor of Clinical Family and Community Medicine at the University of Missouri, Columbia. How are you Jeff?

Dr. Jeff Belden: Hi, pretty good. That was a mouthful!

Lorraine Chapman: Good. Let’s start with you Jen, can you please tell our listeners what a storyboard is and why it is helpful?

Jennifer Fraser: Sure, a storyboard is one of the tools we can use as a user experience designer to just help articulate, using pictures, scenarios of how a user would be using a
product. A lot of times what happens is that products that do not work well, one of the reasons that is is because people do not take into account the context of use in which the user is actually going to be using the product. A storyboard is a really rich visual way of showing a lot of information in terms of the context of use of applications. This is something that is becoming more and more important especially when we start talking about mobile applications and just really understanding the kind of busy and hectic—it could talk about things in terms of poor lighting or just the amount of people ambient noise and all that kind of thing that would take a really long time to describe with words can be really easily shown on a storyboard which is almost like a cartoon. It is a series of frames telling a story about how somebody is trying to do something with your product.

Lorraine Chapman: Yes, absolutely and as a researcher, I know this is a great tool for building understanding and empathy among our designers and developers and relaying that critical information, so that is great. Can you also tell the listeners where storyboards fit into that overall user experience process?

Jennifer Fraser: Yes, you can use it in different places throughout the process depending on your goals. It could be used at the very beginning if you are trying to help explain to a product owner just about how someone is going to be using the product. One thing we do, as you know Lorraine, we talk a lot about use scenarios, which are kind of the primary tasks or things people want to do with our products. Storyboard is one vehicle to pictorially depict that to somebody who is trying to use the product or what they are trying to do with it.
Lorraine Chapman: Now Jeff, why did you see a need to create a storyboard that captures the interruptions in the physicians’ workflow? Of course, the storyboard we are referring to, we are calling it an interruption storyboard; can you give us a bit of background on that?

Dr. Jeff Belden: Sure, as a family physician and working with a lot of nurses, we see interruptions in our life all of the time and it is really hard to convey how serious it is. It is like when you talk to parents about my child kept me up last night—it is like yeah, yeah, it must be hard. To convey what the reality of it is, I was always frustrated about how you do that and trying to do it in words is too complicated, so a storyboard looked like a nice way to do it. I was looking for empathy from the development team, so workflows are complex, but you can sort of emphasize in a storyboard where the key gains can be made. Maybe there are two or three frames in the story where we should focus our effort.

Lorraine Chapman: Okay, great. Why do we not use this opportunity now to get you to talk us through the sample that we have provided for our listeners and focus on any special aspects that we should concentrate on or focus on?

Dr. Jeff Belden: In the first four frames you have a primary care doctor getting ready to go in the room to see somebody with several chronic problems and we are probably going to handle four or more of those today—say diabetes, high blood pressure, high cholesterol, depression and more. In order to take care of somebody, you really need to get their story in your head first. In the second frame the doctor is kind of reviewing the person’s med list, problem list, allergies and recent labs; then getting ready to go into the room. Right about then, in the third frame,
they get interrupted. The nurse walks up with a simple question like, ‘The last person you saw, do you want me to give him a pneumonia vaccine?’ and you say, ‘Yeah’. Then, you think, well wait a minute, I am not sure. Then you go look in that person’s chart, in the fourth frame, to figure out the answer. In the fifth frame, we are kind of looking up the last patient and in the next frame a series of navigating to the windows we need and see that they had the shot a couple of years ago, they do not need it again because the other criteria does not match. Then, in the eighth frame here, we go back to the previous patient to kind of catch up where we were again. About that time, we have started to wrap our head around this patient, we get interrupted again; the beeper goes off and it is a phone call from the pharmacy. It is kind of urgent and I have to drop everything to look up about a patient that I saw maybe a couple of days ago. They are getting their prescription filled and it is not qualifying under their insurance plan. I have to get prior authorization or find a substitute. So, then I have to navigate under their chart and by this time, I am getting frustrated and upset. In the final frame, it is like how do I pick the pill and I am thinking really hard to figure out my alternatives. By the end of the day I am getting pretty tired, so I need to emphasize to the development team how can you help me in my work to make this more interruption-tolerant? If I do get interrupted, how can I quickly recover, how can I save partial work and how do I not have to backtrack so much?

Jennifer Fraser: So, as you can tell, there is a lot going on in this story. You can see there is a lot of information you managed to simply convey through the storyboard. From our
discussion with Jeff, one thing that was really important was to give the reader of the storyboard some sense of the amount of effort or focus the physician has because they are distracted and there is a lot going on. The physician is thinking about one patient when he is interrupted about the other patient. You see how we are using kind of focus to just help illustrate how decisions are made and various amount of focus is affected by the number of interruptions physicians have and how it gives you that look inside their brain.

Lorraine Chapman: Right.

Jennifer Fraser: So developers can really understand how distractions affect their ability to easily understand what is being shown to them on the screen and the impact that has on the decision-making process of the person using the software.

Lorraine Chapman: The other think I like in this example, too, is the different modes and how they are switching between different modes. We’ve got a tablet, a desktop and then just also processing it in their own mind, so this is fabulous. We have talked a lot about how this tool can be used during the design process specifically targeted to healthcare application vendors or people who are creating applications that will go into the healthcare environment, but how might this tool benefit hospital administrators or hospital informatics groups? How can they use something like this, Jeff, do you have any thoughts about that since you do work in the medical environment?

Dr. Jeff Belden: Yes, I think we have a long way to go with getting usability awareness in the hospital on the implementation side because we may not have the resources—
people who are trained on usability, so when we configure pic lists or add additional fields to a screen, we are adding complexity and making the user’s job harder. The storyboard can at least convey that you have nurses working in this environment, here is where they are getting interrupted and we have to ensure we make it as simple and safe as possible in this part right here.

Jennifer Fraser: Just like when somebody is developing a program, they kind of look at their application isolation. Similarly, I imagine when institutions are looking at perhaps purchasing or implementing new tools. Again, they are looking at a very isolationist way. They are looking at a specific tool for a specific thing and may not be looking at it within the broader context of the flow of all of the different things that the end-user is going to have to do in a day. The storyboard, again, helps you place that one tool within the context of all the other things and I know, Lorraine, you have seen it yourself, when you go into hospitals how they will have sticky notes all over the place as kind of short cuts to remind themselves to do different things with different tools. If you could take a more holistic approach and look at how a new tool application fits within a broader workflow, you can end up creating a better solution for everybody.

Lorraine Chapman: Exactly, I was thinking this would be fantastic to help with that deployment so they understand what the implications are on other processes, systems and tools within the hospital environment.

Jennifer Fraser: Absolutely.
Lorraine Chapman: Just one more question for everybody, what are the outcomes that software teams can expect from using such a tool?

Dr. Jeff Chapman: You know, I think this tool could be a nice information radiator either with a development team or the implementation team that’s configuring things where you have got these pictures on the wall, you sort of highlighted the ones you are going to focus on on this round and it can be a conversation reminder. I have been in meetings where if we made on sketch or diagram on the wall that really helped the team over subsequent meetings to come back and say, yes, this is our focus, let’s get back to that.

Jennifer Fraser: It also helps illustrate, as we talked about earlier, just the mental load of the physician and by just depicting how much mental work the physicians are having to do with different parts can open up a new discussion about how could be help them with the application through that decision-making process in a better way. Just to reduce that amount of load the physician has to take on for themselves.

Lorraine Chapman: Well, Jeff, if listeners would like to reach you, if they have any questions, how can they do so?

Dr. Jeff Belden: You could e-mail me at jeffbelden@gmail.com or you could go to my blog, toomanyclicks.com and post a comment there.

Lorraine Chapman: Great, Jen, how can listeners reach you?

Jennifer Fraser: People can reach out to me at jennifer.fraser@macadamian.com.
Lorraine Chapman: Okay and listeners, if you have any questions about our discussion today or if you would like to discuss how Macadamian can support your software creation needs, then please call us on our toll free line at 1-877-779-6336. Thanks for listening and have a great week.

[Closing music]

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