Digital Health Coalition

At the recent DHC East Coast Summit, Robert Palmer, Chief Innovation Officer of HCB Health, took a group of expert panelists through a discussion on chatbots. While Wikipedia defines chatbots as "a computer program which conducts a conversation via auditory or textual methods. Such programs are often designed to convincingly simulate how a human would behave with a conversational partner.", in healthcare chatbots are coming into their own as highly effective and engaging marketing tools. This panel explored how healthcare marketers can take advantage of sophisticated innovations in chatbot technology, from voice-activated interactions that are driven by Artificial Intelligence to highly engaging and "intelligent" written conversations. We are happy to provide that exchange here. And stay tuned for continued analysis on this topic through DHC interviews and events.

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Robert Palmer:

John, I'm going to start with you. So you founded emojiHEALTH as a messaging chat bot for teens, and what's really interesting is that one of your key employees, and actually the person that I understand came up with the idea, was your 18 year old daughter, which is pretty interesting. What was your motivation? How does the use of emojis and visual intervention into text messaging help?

John Reeves:

Sure. Who here loves emojis? Oh yeah, everyone, okay. So when did emojis first hit the scene? Does anyone remember the year that happened? It was 1999, which was actually the year my daughter was born. She's a true emoji native. Emojis are the world's fastest growing language, so anyone who uses emojis is actually multilingual. There's something very powerful about emojis. They're very emotional, and they're very efficient at what they do. When I saw my first emoji I thought, wow, jeez, something magical happened in the space at some point, and so I reserved emojiHEALTH.com many, many years ago.

Over the last couple of years, when my daughter went into her last year of high school, I've listening to her in the back seat with her friends. I noticed that by the time we got home, every one of the girls in the car had diagnosed themselves with a brain tumor, because no matter what a teenager does, they do all their healthcare research online. That's where

it's going to end up. Then as I asked a few further questions a little bit later. She told me that one of her best friends was diagnosed with anorexia, and if you go online and start doing some research about anorexia, I've got to tell you, it's shocking stuff. It's not about treatment; it's all about how to get better at it.

One of the things you start to realize very quickly is that if you're a teenager, and you go online, it doesn't work for you. Last year my daughter was going down to an accelerated program here in the US; we're from Canada. Sending her down here to Chicago, San Francisco, and New York for a number of weekends for accelerated learning was a bit nerve-racking. I said, "Alexandra, here's something called emojiHEALTH. Go down there and figure out the problems or resolve the problems that you've been facing online. By the way, create a start-up that will actually pay for your university." That was her challenge, and she came back with this concept called emojiHEALTH. It wasn't what I thought it was going to be. I thought it was going to be app-based. She actually sent me an emoji one day saying, "Dad, you're not even anywhere near where teenagers need to be." That comes back to that point of co-creation. If a teenager isn't building the solution for a teenager, it's just not going to work.

She came back, and she said, "Dad, it's all going to be about messaging. Apps are dead. Too much friction. That's what we're going to build." She very quickly took those and accelerated it through, took it down to a number of different pitch competitions that she won, brought on some pharma sponsors all by herself, and then of course, she's gone off to a university now. She's at Stanford, and she said, "Dad, you've got to carry this forward." Having gone through the digital and the app horizons of digital, when you start diving into chat bots, and messaging, and AI, and machine learning, it's kind of shocking. It's as simple as you want it to be, or as complex as you want it to be. As a physician, all of the issues I ever faced at point of care, trying to work with patients, can be resolved through this new conversational model, and for me, that's the exciting part of it.

Robert Palmer: *Okay, great. Alec and Harry, I know you're both working on chatbots. You're both selling them to clients in one form or another. Are they another shiny object, or what do you think the message is, the usefulness is as far as deeper engagement? How can they really get us – our messaging in a more effective way?*

Harry Starvou: I think that chatbots really aren't shiny objects, as in new shiny objects. They're very topical, if you will, but they've been shaping marketing for a while, essentially. Healthcare is lagging behind as we typically do but chat bots can really become a functional, practical tool that you could use to schedule events and schedule treatments. That's just on the patient's side. On marketing side, depending on how much AI we integrate into the chat bot or how complex it could be, it could really help evolve the overall

marketing spectrum, honestly. I can keep going for a long time on this, but I think I'm going to get ahead of myself here.

Alec Pollak: I think they're a little shiny. I don't think that's a bad thing necessarily. We all know chatbots have been around for 50 years now. I created actually my first chatbot in 1999 for a Billy Crystal-Robert De Niro movie, *Analyze This*, I think it was, where we created a chatbot that mimicked the actual psychiatrist that Billy Crystal played. I worked with Jeffrey Zeldman to create that. It was a lot of fun. That's what it was at that point. It was a lot of fun, and it was no one you wanted to go to for actual psychiatric help at the time. Again, we've come a long way since then.

In terms of actually providing something that can be useful and can offer a lot of, I think it was mentioned earlier, humanity. Humanity in terms of the kind of messaging that we wanted to deliver and humanity in terms of format that that messaging was delivered. Again, I think it's very similar to what's happening in virtual reality. VR has been around for many number of years, but the technology has caught up with the vision a little bit more. That adds to the shininess to it now and today, where we can see some of the dreams realized.

Harry Stavrou: Just one thing I want to add there. I mean, it's all about search, as we were talking about. It's about search and how you can communicate with your audiences. I think chatbots really allow marketers to prescribe information, right to their audience, exactly targeting information to their audiences. That's a field that I think we need to tap into overall.

Robert Palmer: *Very good point. Let's talk about voice enabled chatbots, which I think could be extremely useful, especially for people who are challenged with dexterity and that sort of thing, and because everybody has a smartphone these days. When you think about Siri, you think about Alexa, you think that they can definitely be programmed through L rhythms. If you swear at Siri, she's going to recognize the term and she's going to say don't do that again or something like that, right? It's difficult, but it's possible. What do you think of voice-enabled chatbots and what application do you think they would have? Are you doing anything with them at this point? I know you're thinking about them.*

Alec Pollak: Yeah, we're having a lot of conversations about them. We were very excited by Merck's participation with the Alexa Diabetes Challenge, which was really exciting because you've got something that can work with a patient to actually help them along their journey as a partner and as remote care, for example. We also worked in partnership with HCV on a hackathon a couple of years ago, where the winning entry was a voice-enabled creation that helped someone make that transition from hospital to home. Again, there are a lot of possibilities out there. As far as we've been talking

with our client, there's still a lot of hesitation to dive in because of the regulatory issues that you mentioned.

Harry Stavrou: Voice enabled is really about allowing more people access to this information. There are proactive chatbots and reactive chatbots. Obviously, proactive chatbots are more text-based, SMS-based. There are features on certain devices that you can activate so text-to-speech recognition, things like that, that can really give you that dialog, that back-and-forth with your device. There are certain home devices coming out now, Google Home and Alexa, that are more reactive. While they're the forefront of communication, they're more reactive in that they cannot yet push messaging out to your target. I'm pretty sure that's going to change soon in a few years.

Robert Palmer: *Then, there are devices such as scales, where you step on it and it talks to you. It's a little alarming but it talks to you about your weight. It can help with things like diabetes. John, I know you've experimentally thought about this. What are your thoughts on voice activation?*

John Reeves: Voice emoji? I think there are a couple problems with it. One is that I think patients are probably – if you're in a room and you're talking to a voice-enabled device, are you the only one in the room? These are always the kind of issues were going to face early on, but I think we'll resolve that. I think from then I would say from the marketing communication side is whether it's through voice or whether it's through text, fundamental comes down to a conversation, creating that structured conversation. How you deliver it, I don't think, isn't the super critical thing here. I would say that certainly there is a power to the voice because it brings more humanity to the interaction. There can be massive persona in a text-based chat but even more when it's voice-based.

Robert Palmer: *Alec and Harry, what are the concerns that pharma brings up when you mention chatbots or you try to sell them to them? Besides the general regulatory issues there, as a marketing tool, what your concerns?*

Alec Pollak: A lot of time, we all get into the habits of what media we're using. When we've got something like this that is new media, there's a lot fear as to where's the money going to be spent, how we're going to be showing ROI. Once it becomes a conversation, it becomes a lot more data and lot more information to wade through. I think once that becomes a little more standardized, I think it'll help out and assuage some of the fears that some of the folks have been having on the client generally in the industry.

Where we've found some success has been utilizing the chat-based UI to introduce things like wizards and conversations that can help guide you through a path that may not be using natural language processing but can

still accomplish tasks with a lot more humanity. That seems to be at least a step in that direction, if not totally creating a health assistant.

Harry Stavrou: I completely agree with everything you're saying on smaller scale, but also more ground level scale, what we're experiencing essentially is a cost thing. It's not just oh, my chatbot's expensive, but if you consider the brand level, what is the market team looking at? They're looking at essentially creating a platform that can engage patients and physicians in an entirely different way. As a brand marketer, I have to create this platform for my whole organization that's going to talk to my brand, and that brand, and that brand, and that brand. It feels daunting. It feels really daunting at the brand level. That's something we continuously run up against and no matter how well we explain it, no matter how future-forward we're communicating, that always seems to be the issue.

Of course, all the legal requirements, all the issues we have there, not only the fact that how do we program this thing? What is our approach? What decision tree logic do we have to make at the simple level as opposed to AI? There's also the fact that my legal team isn't familiar with this. How am I going to get this through the entire system? I can see back and forth and back and forth, which again would blow my brand money. Essentially it just becomes complicated and daunting. I think the way around that is to really approach this at a high level, at a franchise level really, franchise or company level.

From an agency perspective, typically there are access issues there. Again, initiating those conversations are great when you're able to talk to the right person on the client's side. They have the same issues, but at least it could be a global solution that can really be amortized across brands.

Alec Pollak: You're talking about accessing the right people to have these conversations with. We had utilized chatbot functionality to actually deal with access issues in terms of payment, which is another great use for it in the ACP side. Again, it's a matter of finding the right use for the technology in the market.

Robert Palmer: *John, based on your experience with emojiHEALTH, what are some of the key UX lessons you've learned, just as far as designing goes?*

John Reeves: Definitely one of the beautiful things about chat I think is the fact that is it's not that massive reliance on design because the experience for all of us is the same, right? It's a conversational text that you're going through, which makes it very easy for the user. We're not putting the money there. We have to put the money really on the other aspects of which is really around the conversations. How do you create compelling conversations, which means you have to understand the persona that you're building? Who's the

audience? Is it one persona? Is it multiple personas? Ultimately, it all comes down to how do you structure? In our world, what we do because we have taken it from emojiHEALTH to now launching lots of emojiDIABETES, lots of condition-based ones and taking into adults as well.

Really it comes down to structured conversations. That's how you get around all the legal issues you're going to face, and I always ask how many conversations could you have with the patient with, let's say, for example, diabetes? How many would you think would be important? People always say it's like millions of conversations. Well, that's not the reality. If you're in practice and you see a thousand diabetics, over time you realize that it rationalizes itself to – I hate to say it – it sounds like a big number because it's not that big I think once you dive in. It's really like around 500 conversations. There's 100 you must have conversations, which we push. You're not going to let a patient not have the information. The other 400 you have allow patients to type those questions in through an LP or an AI you'll understand and match it up with a conversation. If you could actually create these conversations to match up with those 500, you can literally resolve almost every patient concern. Each one of those can be done in a very regulatory-friendly way. I think it's the key learning I would take. It's all about creating great personas focusing in on those conversations and the trees.

By the way, if you're working with teenagers, you have to have a high focus on entertainment, I would say. You have to select a video and integrate all those of those things into it, capture their attention. Of course, one of the biggest issues, because as a healthcare practitioner, I thought well, if I got this new channel I am literally going to push three messages a day to my teen patients and I have to drive all this stuff. Very quickly they tell you, listen, it's one a day, maybe one every two days. Keep it short, keep it entertaining. By the way, throw a quiz in. Give me some kind of reward from time to time. Let me compete. All these things, which I think traditional knowledge that you would have in the more common industry, you have to respect with chat.

Alec Pollak: It's still a medium. The principles of UX have to do with humanity, humans and the human side of things so a lot of the basic heuristics are still going to be there. I need to know what I can do. I need to know where I can go and how can I interact. I make mistakes, things like that that you're going to have to have to do no matter what medium you're dealing with.

Robert Palmer: *The reality of the very sophisticated chatbots being developed from Microsoft, Google, and Siri, etc - they're using artificial intelligence to a degree, to a large degree, and they're using natural language processing. That is a whole other thing you have to worry about with healthcare because it becomes unstructured, basically, and so it's a problem.*

However, we all know that in digital, your last bit of experience becomes the one that you expect. How do you think that can evolve?

Alec Pollak: Again, starting small is going to help us all in terms of taking steps. I think a lot of the health chatbots that you see out there do try to structure things a lot more, whether it's by isolating the conversations that we're going to have and building towards those and getting those through regulatory, or again trying to just limit and maybe not offering national language processing right out of the gate for every interaction. Having multiple choice answers is definitely a way we can go to keep conversations going down a particular path and regulatory-friendly, before we head into that world that isn't as structured. Once we have the ability to actually natural language processing that can, again, understand the contracts that we were talking about before and really being able to process them and take everything into account and be able to be regulatory agents in and of themselves.