

Conversational Survey Frontends

How Chatbots Can Improve Online Surveys

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Hello GOR 2017! Hello Berlin!

Somebody there?

Hello, friendly chatbot!

Nice to meet you! We want to talk with you about the future of online surveys. In particular, how **you** can help us!

That sounds great! It's gonna be legen – wait for it! – dary!

It will be... right? 🤔 🤖

Backend

```
374 var nextQuestion = null;  
375 var reactionTexts = [];  
  
376 // Parse all possible reactions and match against answer  
377 if (d.survey[position].answers.reactions) {  
378   // Collect expression terms  
379   var expressions = Object.keys(d.survey[position].answers.reactions);  
380   expressions.some(function(el) {  
381     // Make stopping default  
382     d.survey[position].answers.reactions[el].stop = typeof d.survey[position].answers.reactions[el].stop !== 'undefined' ? d.survey[position].answers.reactions[el].stop : false;  
383     // Match each expression dynamically  
384     var re = new RegExp(el, "ig");  
385     var answer = data.data.answer;
```

Frontend

But ... wait! Why is that even relevant?

Well, let's see...



Well... that's awkward. I feel so naked! 🤯

So, what did you do?

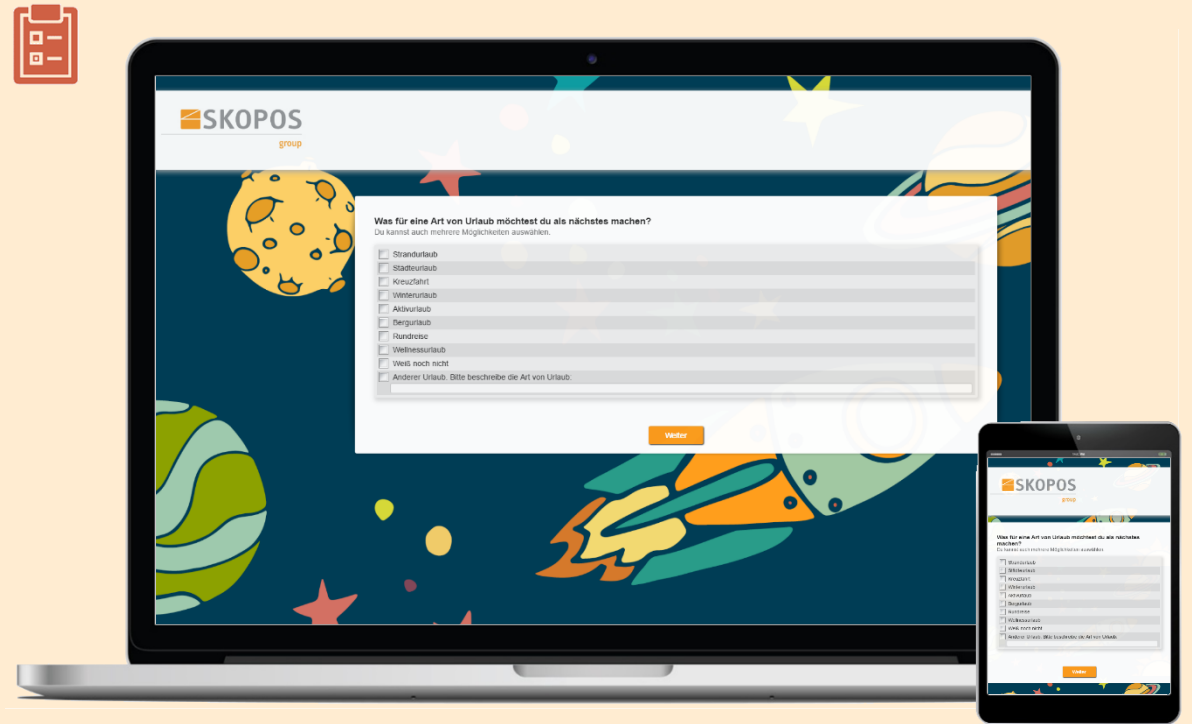
We made a **2x2-design** online study with **762 participants**.

		
	186	199
	191	186
n =	377	385

We even **pre-registered** the study!

Nice! And how did the user frontends look like?

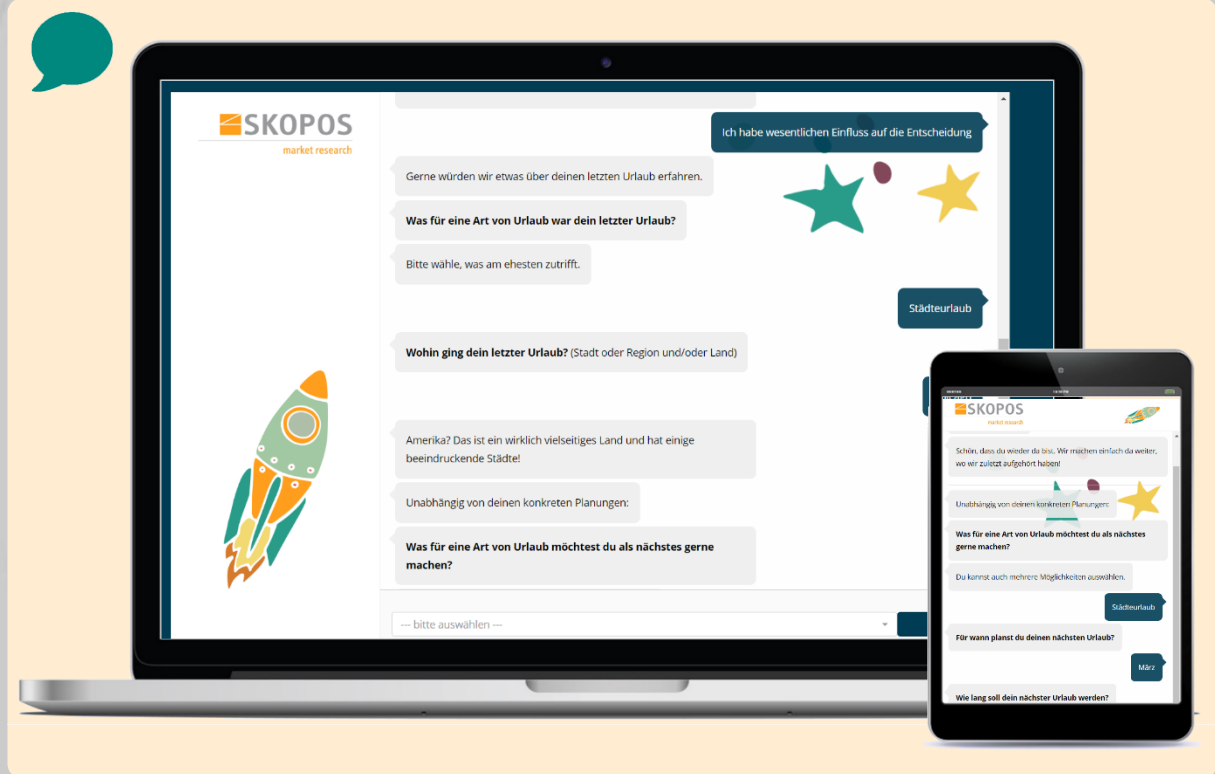
The traditional questionnaire was like this:



Stylish and responsive. #like

And the chat interface?

Does it look familiar to you?



Very cool! But you can see prior answers...

So, I've got a little sister!

But what were your participants asked about?

Several topics, actually:

1. Holiday and travel habits
2. Political Attitudes
3. Nutrition and Supermarkets
4. Social Desirability
5. Demographics
6. Survey Evaluation

This took roughly **15 minutes**.

Okay, now I'm hooked. What did you find out?

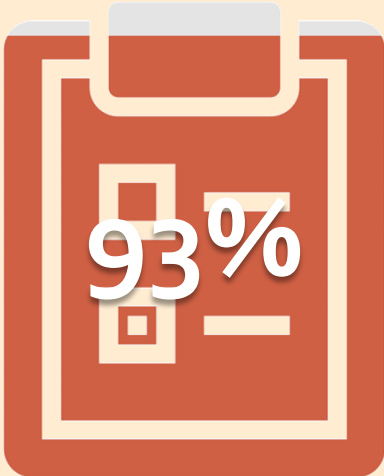
First question:

Do participants with a chat interface have a higher completion rate?

No, surprisingly they did not. On the contrary:



81%



93%

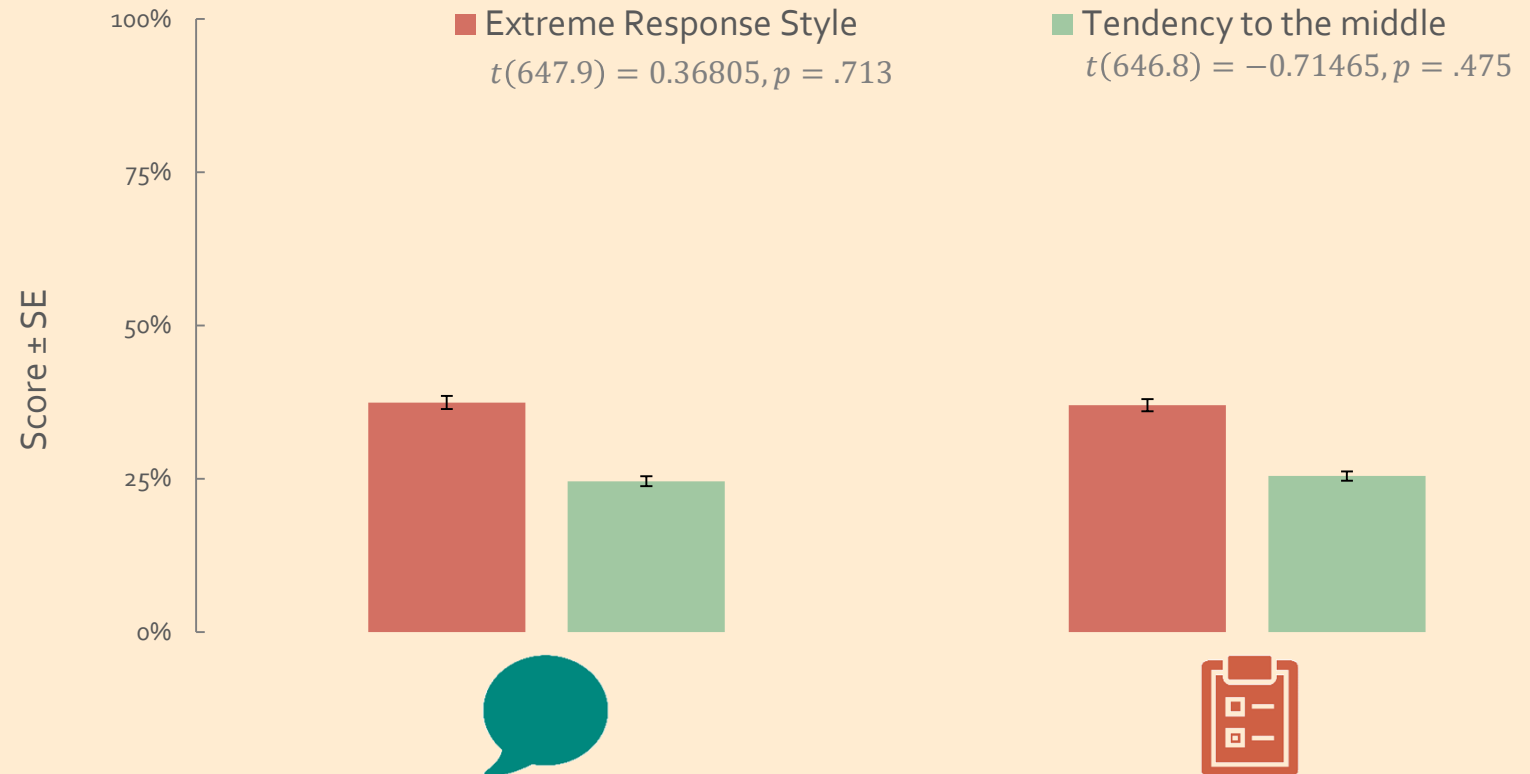
$\chi^2(1) = 23.944, p < .001$

We suspect technical problems as primary reason.

Okay, next, what about **data quality**?

Were there any differences with regard to **response styles**?

No:

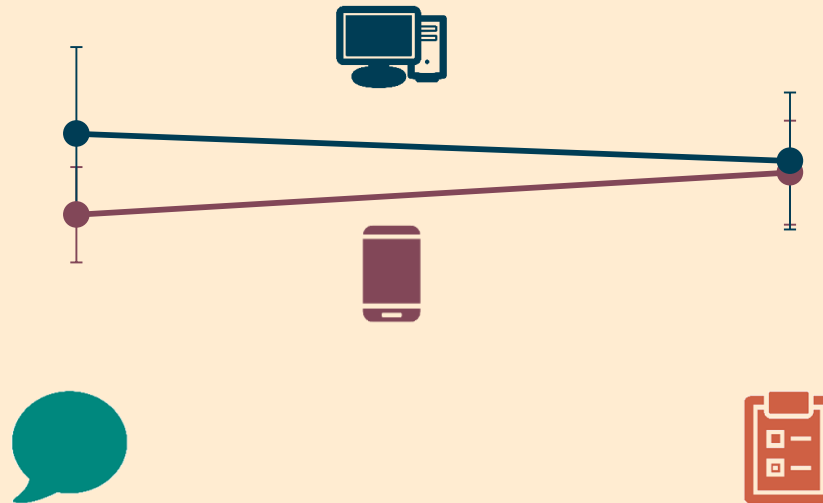


What about the **frequency of giving no answer?**

No differences as well...

Average Number of „No answer“
responses $\pm$ SE

1
0



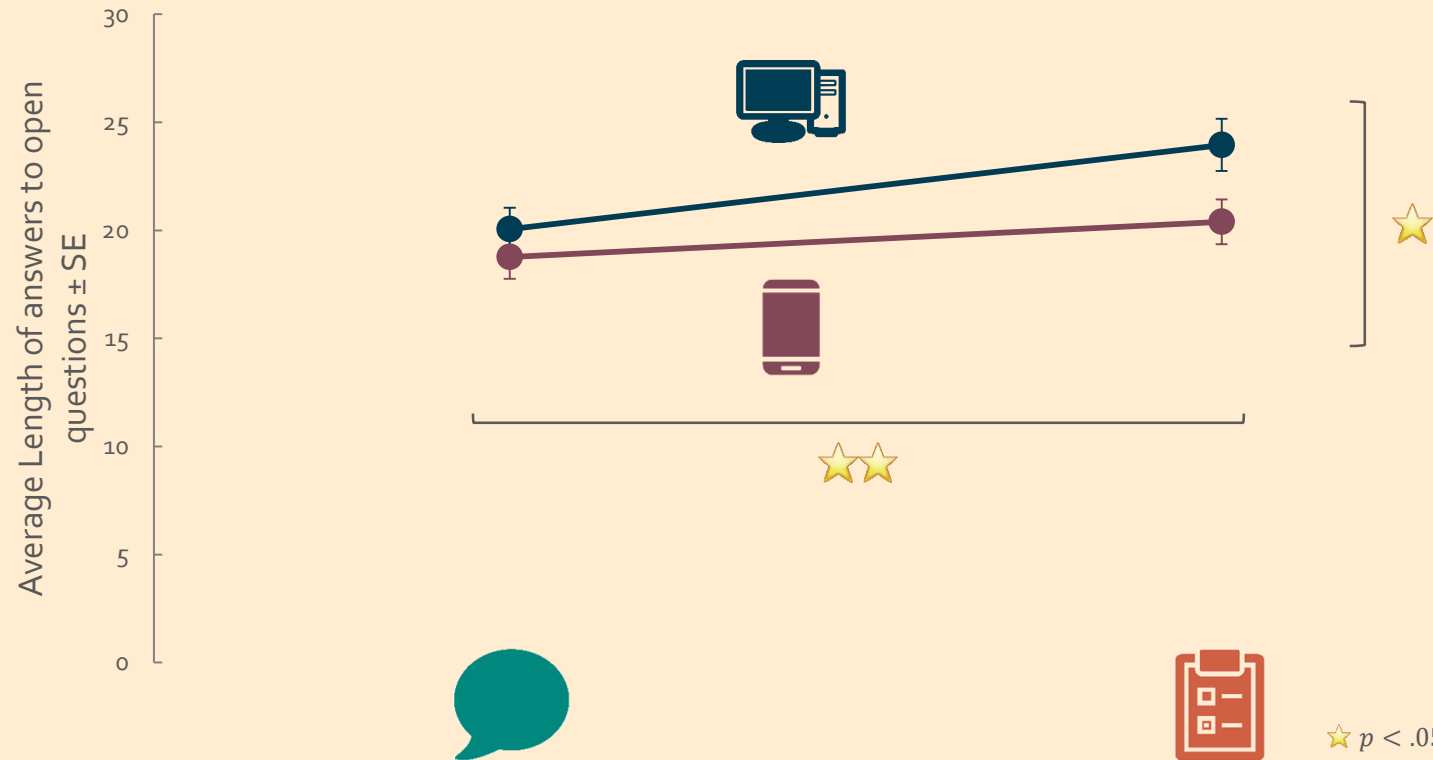
Main Effect Group: $F(1, 661) = 0.007, p = .933$

Main Effect Device Type: $F(1, 661) = 0.423, p = .516$

Interaction Group x Device Type: $F(1, 661) = 0.266, p = .606$

And the **average text length of open questions?**

Main Effect Group: $F(1, 660) = 6.825, p = .009$
Main Effect Device Type: $F(1, 660) = 5.358, p = .021$
Interaction Group x Device Type: $F(1, 660) = 1.078, p = .299$



Differences between devices were expected.

Post-hoc we can also explain the difference between groups: Chat interfaces showed only single-line text fields while the questionnaire had multi-line fields.

Were there any differences regarding **completion time**?

No, no median differences were detected.

779 sec

771 sec

$W = 51942, p = .5895$

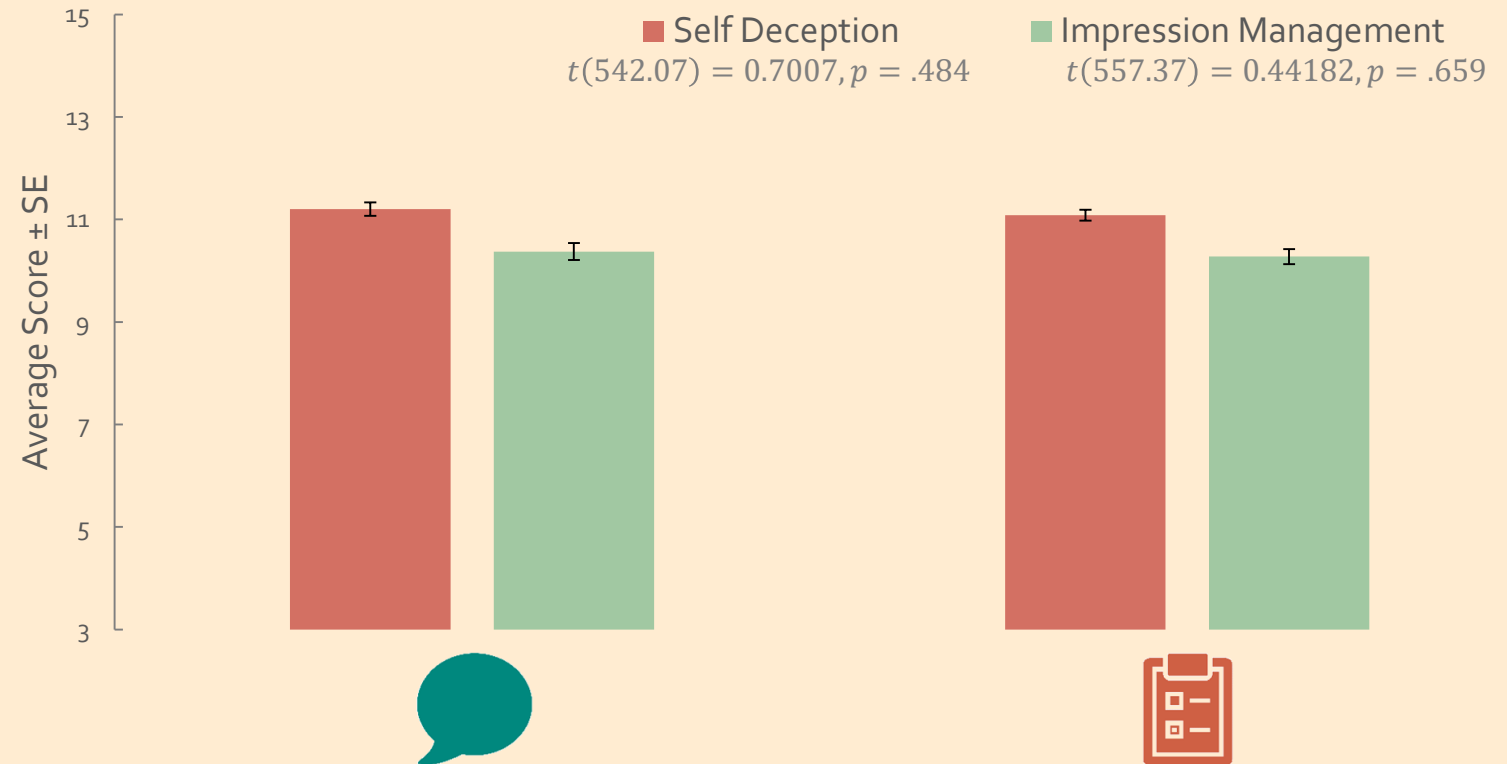
Cool. So, if I understand you puny humans correctly: There are no differences in data quality just because participants answer questions in a chat interface.

Yep. 👍

Here's another thought:

If people feel like they are having a conversation with someone in the chat interface, they might be responding more socially desirable.

Good idea! We've checked that too. No differences though.



Honest humans... more or less... ok!

I wonder what participants think about this way of answering a survey... 🤔

Well... we asked them.

Responses were very positive. In fact, for both groups.

There were only differences regarding the **novelty** of the approach.

In an open question, participants were very positive about the chat frontend. They compared it to a messenger or a conversation. While not clearly visible in the comparative statistics, participants seem to have liked the style.

Hooray! So... that's it?

Now, let's summarize:

Do participants with a chat interface have a higher completion rate?

Nope. 💩

Is the data quality higher for participants in a chat?

Nope. 💩

Does the conversational style influence social desirability?

Nope. 💩

But participants like the survey frontend of a chat?

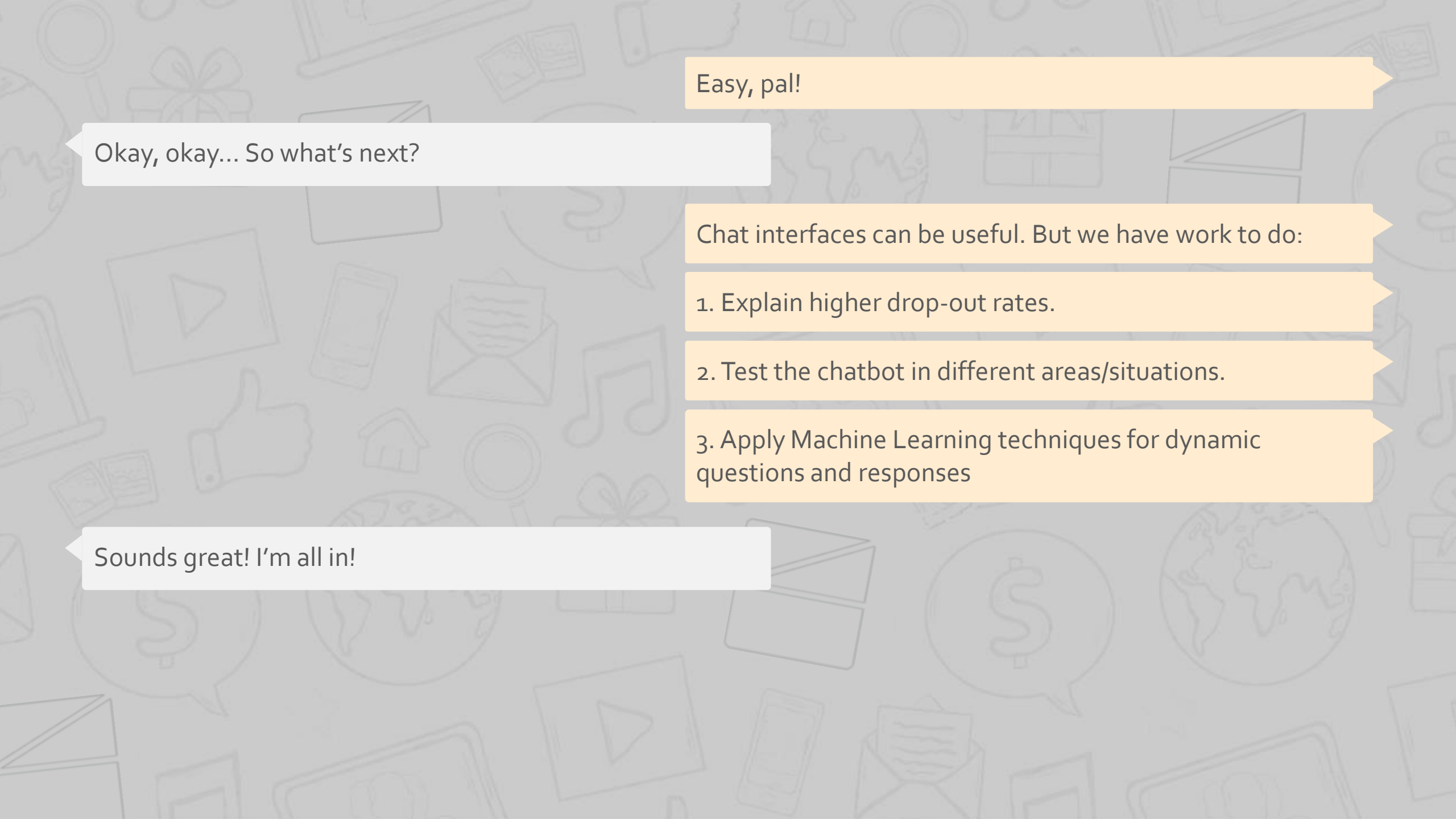
Yep. 🙌

Well, that's great! People fancy me!
Only chatbot surveys from now on until the end of times!

If it is not superior in any way, then **why waste time on the development of such an interface?** Better stick to what is **known, proven and readily available.**

Moreover, participants are **familiar with questionnaires** and **know what is expected** of them.





Easy, pal!

Okay, okay... So what's next?

Chat interfaces can be useful. But we have work to do:

1. Explain higher drop-out rates.
2. Test the chatbot in different areas/situations.
3. Apply Machine Learning techniques for dynamic questions and responses

Sounds great! I'm all in!

And who are you, guys?

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