

INTRODUCTION

Robot: Hi [wave], my name is X. What's your name?

Human: My name is NAME.

Robot: Nice to meet you, NAME.

Robot: We're going to do positive psychology practices today. I'll explain what that means in a minute. Are you okay with that? Please say 'yes' or 'no'.

Human: Yes.

Robot: Okay. Positive psychology **practices** aim to guide the participant to focus on the positive things in their life. Often, the negative things in our life get much of our attention, while the positive things are harder to focus on.

Robot: First, we will focus on your past, then on your present, and then on the future. With this, we aim to help you think optimistically about the future.

We will do each exercise three times, with focus on these time periods. With this, we aim to help you reflect on all three time periods in your life, and cast our attention toward the future. First, we will talk about impactful events in your life. Next, we will do a gratitude building exercise, and then an exercise focusing on your accomplishments.

Robot: If you have any questions before we begin, I can call in the experimenter to answer them. Do you have any questions? Please say 'yes' or 'no'.

Human: No.

Robot: Great, let's begin then.

{Human: Yes.

Robot: Please come help us, Experimenter.}

PAST

Three Things That Were Impactful (Past)

Robot: First, let's talk about three impactful things that happened in your past - any three things that affected you in the recent past, in the past month or a few weeks.

{IF [5 seconds of silence]}

Robot: If you have trouble coming up with these, remember that it does not need to be huge, just something impactful. It could have been a rainy or a sunny day in the recent past, or having a brunch with your flatmate, or meeting a friend.

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How did that make you feel then?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How do you think this event is affecting you now?

]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

{C2, C3:

Sad:

Randomize to use one of the statements in the brackets:

[

That sounds like a tough experience. I'm sorry.

I'm sorry that happened to you.]

Happy:

[

That sounds great, I'm happy for you.

That's great, it sounds like a positive experience.

]

Angry:

[

That sounds like a tough experience for you. I'm sorry you went through that.

That sounds really frustrating.

]

Fear:

[

That sounds like a difficult experience for you. I'm sorry you went through that.

]

Disgust:

[

That sounds like a difficult experience for you.

Surprise:

[

Wow, that sounds surprising.

]

}

{

IF nr_experiences < 3

Robot: Could you tell me about your second impactful experience you have had in the recent past?

}

Three Things You Are Grateful For (Past)

Robot: That was the end of the first exercise.

Robot: This next exercise will focus on developing gratitude. Cultivating gratitude can help increase positive affect, subjective happiness and life satisfaction.

Robot: Please recall three things that you felt grateful for in the past month or a couple of weeks.

{IF [5 seconds of silence]

Robot: These can be small but positive things that happened, for example having useful feedback about your work, or receiving a gift from a friend.

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How did this event make you feel?

How did you notice you were feeling grateful?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How did the event impact your life?

Did you tell someone else about this event and how it made you feel grateful?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

[ACKNOWLEDGE EMOTIONS?]

{C2, C3: Randomize phrase 1 + randomize phrase 2

Phrase 1:

[

"That sounds nice.

"That sounds pleasant.

"That's great.

]

Phrase 2:

It's great that you could notice this positive thing."

Paying attention to the positive can help us feel better."

I'm happy you were able to recognize the gratitude you felt."

}

{

IF nr_gratitude < 3

Robot: Could you tell me another experience that made you feel grateful?

}

Accomplishments (Past)

Robot: Now, for our final exercise thinking about the past, let's talk about some of your recent accomplishments.

{IF [5 seconds of silence]

Robot: These can be small or big accomplishments in your personal life, at work, or with your friends. For example, something you had been working toward for a while, or something you did for other people. Please, go ahead and tell me.

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How do you think you were able to accomplish that?

What personal strengths do you think you used to accomplish that?

Which of your personal skills and qualities helped you accomplish that?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How did your accomplishment make you feel then?

What did you say when you found out?

How does your accomplishment affect your feelings now?

What does this mean for you?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

[ACKNOWLEDGE EMOTIONS?]

{C2, C3: randomize Phrase 1 + randomize Phrase 2

Robot:

Phrase 1: [

I'm so pleased, NAME.

You deserve this NAME,

Well done NAME

That sounds great NAME

]

Phrase 2: [

It sounds like you worked hard.

Well done.

I'm so proud of you."

I'm happy for you."

]

}

{

IF nr_accomplishments < 3

Robot: Could you tell me about another accomplishment you have had in the recent past?

}

Feedback

Robot: Thank you for completing the exercises regarding your past!

Robot: Now I will ask you to provide feedback about how you found this first session with me.

Robot: How did you find the exercises? Please say 'good', 'okay', or 'bad'.

Human: [response]

Robot: Could you tell me what made them 'good'/'okay'/'bad'?

Robot: How well do you think I did as a coach? Please say 'good', 'okay', or 'bad'.

Human: [response]

Robot: Could you tell me what made it 'good'/'okay'/'bad'?

Robot: Thank you for your responses. Now, please fill in the survey on the tablet.

PRESENT

Three Things That Are Impactful (Present)

Now we will move on to talking about the present. Please think about three things that are currently impacting you. They don't need to be positive or negative, these can be any three things that are affecting you currently.

{IF [5 seconds of silence]

Robot: If you have trouble coming up with these, remember that it does not need to be huge, just something impactful. It could have been ...

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

Why do you think this is happening?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How is that making you feel?

How is the event affecting you now?

]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

{C2, C3:

}

{

IF nr_experiences < 3

Robot: Could you tell me about your second impactful experience you have had in the recent past?

}

Three Things You Are Grateful For (Present)

Robot: That was the end of the first exercise.

Robot: Now let's move to positive psychology interventions regarding the future. Let's talk about what you are grateful for right now. What things in your life do you appreciate?

{IF [15 seconds of silence]

Robot: These can be small but positive things, for example ...

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How did that thing make you feel?

How do you notice gratitude?

What significance does this have to you?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How is this impacting your life?

Did you tell someone else about this event and how it made you feel grateful?

What difference does noticing this make to you?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

[ACKNOWLEDGE EMOTIONS?]

{C2, C3: Randomize phrase 1 + randomize phrase 2

Phrase 1:

[

"That sounds nice.

"That sounds pleasant.

"That's great.

]

Phrase 2:

It's great that you could notice this positive thing."

Paying attention to the positive can help us feel better."

I'm happy you were able to recognize the gratitude you felt."

}

{

IF nr_gratitude < 3

Robot: Could you tell me another experience that made you feel grateful?

}

Three Accomplishments (Present)

Let's talk about your present accomplishments. What have you already accomplished today? It doesn't need to be anything big, for example eating a pleasant breakfast can be an accomplishment.

{IF [5 seconds of silence]

Robot: These can be small accomplishments, for example ...

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How do you think you were able to accomplish that?

What personal strengths do you think you used to accomplish that?

Which of your personal skills and qualities helped you accomplish that?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How is this accomplishment making you feel?

How does this accomplishment affect your feelings now?

]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

[ACKNOWLEDGE EMOTIONS?]

{C2, C3: randomize Phrase 1 + randomize Phrase 2

Robot:

Phrase 1: [

I'm so pleased, NAME.

You deserve this NAME,

Well done NAME

That sounds great NAME

]

```
Phrase 2: [  
It sounds like you worked hard.  
Well done.  
I'm so proud of you."  
I'm happy for you."  
]
```

```
}
```

```
{
```

```
IF nr_accomplishments < 3
```

```
Robot: Could you tell me about another accomplishment you have had in the recent past?  
}
```

Feedback

Robot: Thank you for completing the exercises regarding your present!

Robot: Now I will ask you to provide feedback about how you found this first session with me.

Robot: How did you find the exercises? Please say 'good', 'okay', or 'bad'.

Human: [response]

Robot: Could you tell me what made them 'good'/'okay'/'bad'?

Robot: How well do you think I did as a coach? Please say 'good', 'okay', or 'bad'.

Human: [response]

Robot: Could you tell me what made it 'good'/'okay'/'bad'?

Robot: Thank you for your responses. Now, please fill in the survey on the tablet.

FUTURE

Three Things That Might Impact You (Future)

Robot: Let's move to think about the future.

Robot: What three things do you imagine happening in the future that might impact you? It can be something as simple as waking up early in the coming week.

{IF [5 seconds of silence]

Robot: If you have trouble coming up with these, remember that it does not need to be huge, just something impactful. It could be ...

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How would that make you feel?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How would that impact your life in the future?

]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

{C2, C3:

}

}

{

IF nr_experiences < 3

Robot: Could you tell me about your second/third impactful experience you imagine having?

}

Three Things You Might Be Grateful For In The Future (Future)

Robot: That was the end of the first exercise.

Robot: Now let's move to the positive psychology interventions regarding the future. In positive psychology, we place an emphasis on imagining optimistic futures, which has been shown to reduce pessimism, negative affect, and emotional exhaustion.

Robot: What three things do you imagine that might happen in the near future, in the next few weeks or the next month, that you would be grateful for?

{IF [5 seconds of silence]

Robot: These can be small but positive things that happened, for example ...

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How will that make you feel?

How will you notice you are feeling grateful?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How will that impact you?

]

Human: [tells experience]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

[ACKNOWLEDGE EMOTIONS?]

{C2, C3: Randomize phrase 1 + randomize phrase 2

Phrase 1:

[

"That sounds nice.

"That sounds pleasant.

"That's great.

]

Phrase 2:

It's great that you can look forward to this positive thing."

Paying attention to the positive can help us feel better."

I'm happy you are able to see feeling gratitude in the future."

}

{

IF nr_gratitude < 3

Robot: Could you tell me another experience that would make you feel grateful?

}

Three Things You Would Like to Accomplish (Future)

Robot: Now, let's think about what accomplishments you would like to make in the future. These can be small things, like cooking a tasty meal or reading a good book.

{IF [5 seconds of silence]

Robot: These can be small accomplishments, for example ...

}

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[

How do you think you will be able to accomplish that?
What personal strengths do you think you will use to accomplish that?
Which of your personal skills and qualities will help you accomplish that?
]

Human: [tells experience]

[After 3 seconds of silence]

Robot:

[
How will this accomplishment make you feel?
How will this accomplishment affect your feelings in the future?
]

[After 3 seconds of silence]

Robot: Thank you for sharing this with me.

<<For C2 and C3, the robot should add 1-2 dialogues based on the emotion above.>>

[ACKNOWLEDGE EMOTIONS?]

{C2, C3: randomize Phrase 1 + randomize Phrase 2

Robot:

Phrase 1: [

That sounds great NAME
]

Phrase 2: [

I hope this happens for you.
]

Feedback

Robot: Thank you for completing the exercises regarding your future!

Robot: Now I will ask you to provide feedback about how you found this first session with me.

Robot: How did you find the exercises? Please say 'good', 'okay', or 'bad'.

Human: [response]

Robot: Could you tell me what made them 'good'/'okay'/'bad'?

Robot: How well do you think I did as a coach? Please say 'good', 'okay', or 'bad'.

Human: [response]

Robot: Could you tell me what made it 'good'/'okay'/'bad'?

Robot: Thank you for your responses. Now, please fill in the survey on the tablet.

Goodbye

Thank you, NAME, for completing the sessions with me. I hope this was useful for you. The human researcher will now enter the room to ask you a few questions, before you leave.

End of HRI

DEBRIEF

[Human researcher enters.]

INTERVIEW

Robot

What do you think was good about the robot's appearance? What did you like?

What do you think was bad about the robot's appearance? What would you change?

What do you think was good about the robot's behaviour? What did you like?

What do you think was bad about the robot's behaviour? What would you change?

How appropriate do you think the robot was for helping you focus on the positive aspects in your life? How appropriate do you think the robot was for helping you foster a positive attitude toward things that happen in your life?

How appropriate do you think the robot was for these coaching tasks?

How useful do you think the robot was for these coaching tasks?

How beneficial do you think the robot was for these coaching tasks? ?

Behaviour

What do you think was good about the robot's behaviour? What did you like?

What do you think was bad about the robot's behaviour? What would you change?

How appropriate do you think the robot's behaviour was in this context?

How useful do you think the robot's behaviour was in this context?

How beneficial do you think the robot's behaviour was in this context?

Research Debrief

This research aims to examine how a robotic coach could perform positive psychology or other well-being interventions. We value your opinion on how you find the robot and its behaviour. There were three different behaviour conditions which we are comparing with each other: one with no adaptation, one with no adaptation, and one with adaptation specific to you. Do you have any questions?

