Papers

**J Med Internet Res 2021;23(1):e17828**

{ <https://www.jmir.org/2021/1/e17828/> }

**Study Findings: Thematic Analysis**

**Theme 1: Usefulness**

* Chatbots are considered highly useful for:
  + Practicing conversations in private.
  + Learning and implementing skills in daily life.
  + Preparing for interactions, such as job interviews or healthcare discussions.
  + Boosting self-confidence and readiness for tasks.
  + Improving memory recall.
* Features like real-time feedback, diaries, weekly summaries, and psychoeducation were particularly appreciated.
* Some users doubted the effectiveness for specific applications, like smoking cessation.

**Theme 2: Ease of Use**

* Many users found chatbots easy to learn and navigate, though some noted navigation challenges.
* Technical issues included screen freezing and limited response options.
* Suggestions for improvement included adding voice-based responses for convenience.

**Theme 3: Responsiveness**

* Mixed feedback on chatbot responses:
  + Positive aspects included friendly and empathetic interactions.
  + Criticisms focused on repetitive and slow responses.
* Users suggested improvements like faster, more flowing responses, and a friendlier tone.

**Theme 4: Understandability**

* Verbal interactions were often rated highly for understanding, but issues arose with misspelled words, unexpected answers, and nonverbal cues.
* Suggestions included better recognition of varied user inputs for enhanced interaction.

**Theme 5: Acceptability**

* Concerns were raised about eye-tracking and camera-based data extraction.
* Transparency about chatbot purposes was recommended to increase user acceptance.

**Theme 6: Attractiveness**

* Improvements were suggested for better controls and more engaging virtual agent designs.

**Theme 7: Trustworthiness**

* Chatbots were often seen as trustworthy due to their anonymity, confidentiality, and objective nature.

**Theme 8: Enjoyability**

* Many participants found interacting with chatbots enjoyable and fun, though this perception sometimes diminished over time.

**Theme 9: Content**

* Users appreciated engaging content such as videos, games, and visual progress summaries.
* Criticism focused on overly simplistic or overwhelming information.
* Suggestions included offering more customizable and therapy-oriented activities.

**Theme 10: Comparisons**

* Users often preferred chatbots over traditional methods due to their interactive nature.
* Embodied chatbots were favored for empathy and sociability compared to text-based ones.
* Real-time feedback was highly valued during interactions.
* Preferences varied between chatbot and human interactions, depending on the task and context.

**Features to Add:**

1. Voice-based Responses
2. Real-time Feedback
3. Diaries and Weekly Summaries
4. Psychoeducation
5. Customizable Activities
6. Engaging Visual Content
7. Embodied Chatbot Design
8. Improved Progress Tracking
9. Varied User Input Recognition

**Issues to Handle and Address:**

1. Navigation Challenges
2. Technical Problems
3. Repetitive Responses
4. Slow Response Time
5. Misspellings and Unexpected Answers
6. Transparency about Data Collection
7. Overwhelming or Simplistic Information
8. Trust and Ethical Concerns