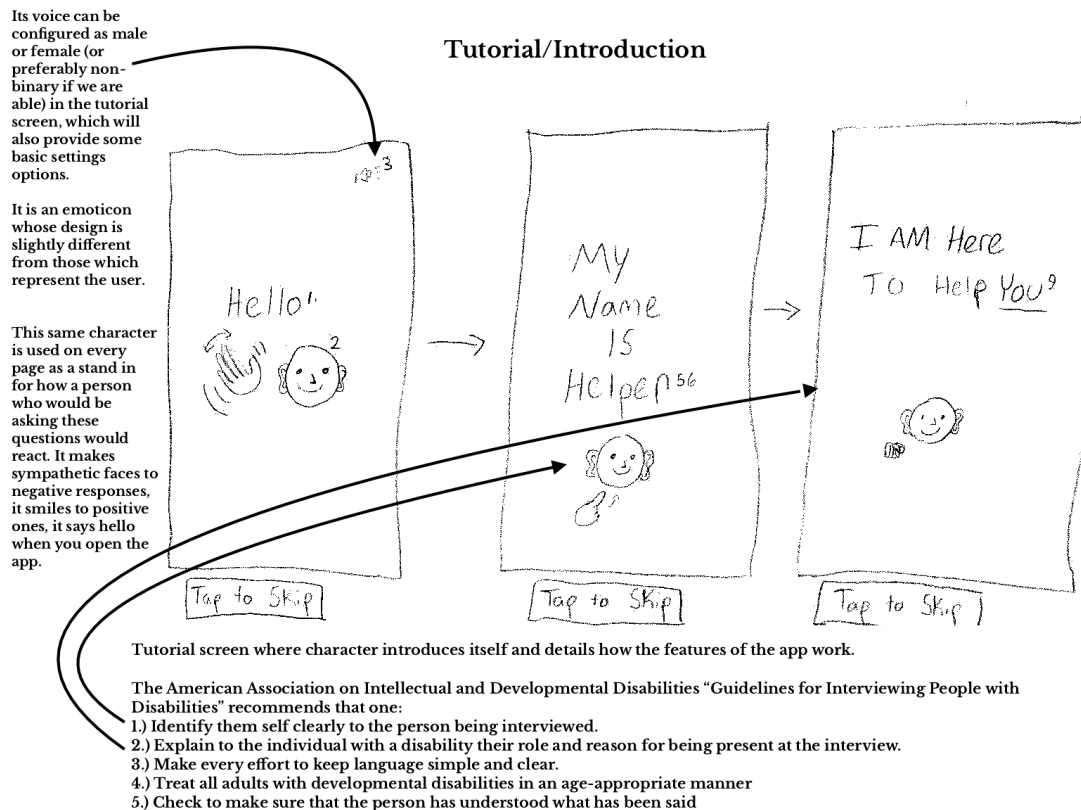


I.D.D. Abuse Reporting App: Design Features and Concepts

By Dani Warren

General App Features



- The app opens up to two options – call for help now or continue into app.
- If the latter is chosen, the page switches to a brief tutorial screen where a character introduces itself and details how the features of the app work.
- The settings options will give the user the option to insert their name, to choose a voice (as mentioned),¹ and other similarly easy inputs which can be changed later.

Principle

Human emotion is extremely vulnerable to dysfunction. In a large number of psychiatric and neurological conditions (I.D.D and autism, for example), emotions change in ways that interfere with a person's executive functioning capacity. **Emotion Dysregulation** is the inability to

¹ There currently do not seem to be any common non-binary voice assistants on the market right now, but there is one and our team could email them to ask about a collaboration: <https://www.genderlessvoice.com/>

manage the intensity and duration of negative emotions such as fear, sadness, or anger². When one is struggling with **emotion dysregulation**, strongly felt emotions will make it hard to recover from difficult situations. The effects of these prolonged negative emotions can be physically, emotionally, and psychologically draining. To avoid these effects, humans have adapted three general strategies for regulating their emotions- **response modulation**, **cognitive reappraisal**, and **attentional control**. **Response modulation** involves altering emotion expressive behavior, while **cognitive reappraisal** involves reframing the problem or thinking about it in a different way, and **attentional control** involves focusing one's attention away from an emotion-eliciting stimulus.³ These strategies were the basis of consideration for what features were considered important for the coping component of my designs for the abuse reporting app.

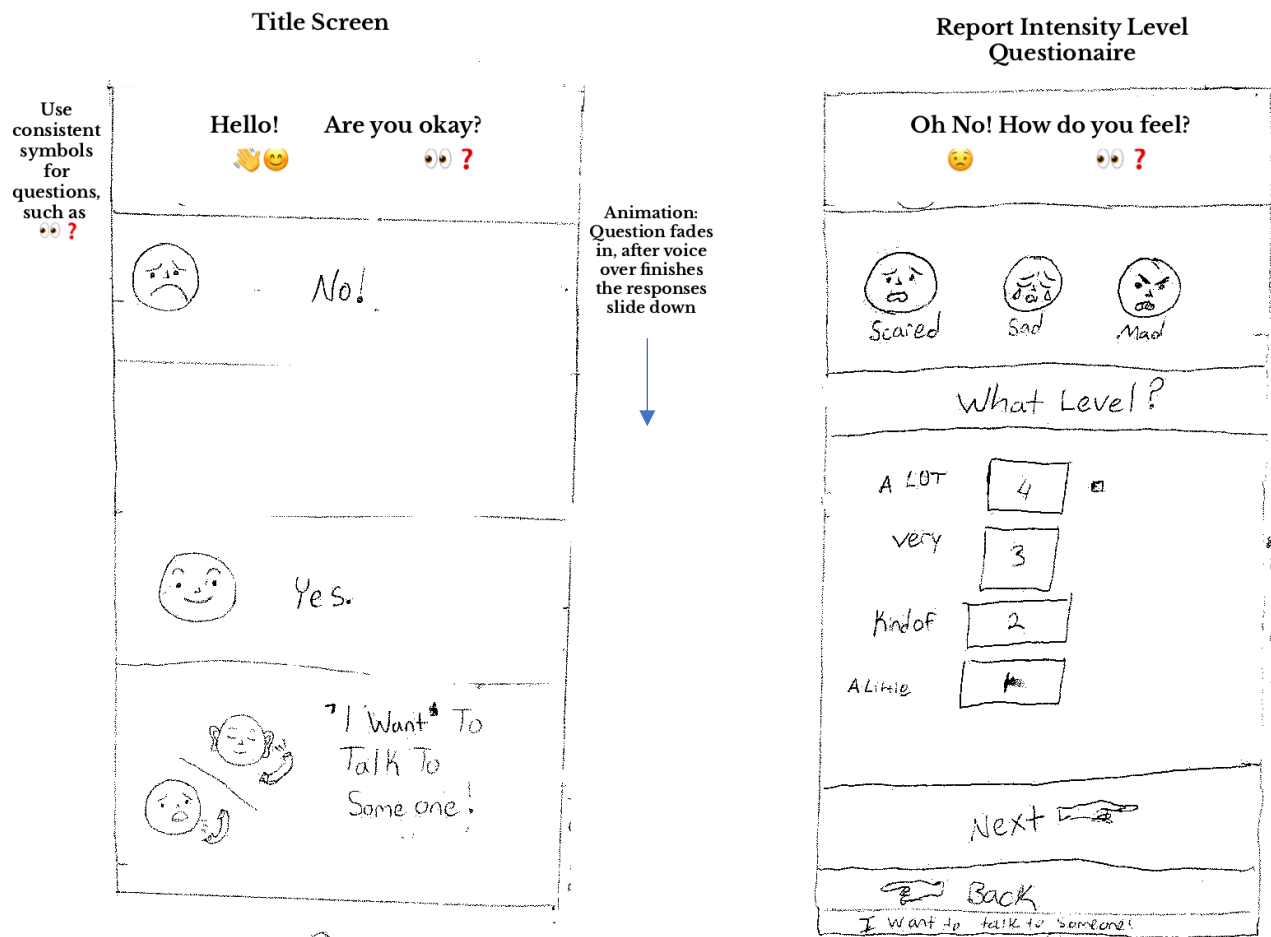
Engaging in emotion regulation allows people to use their cognitive abilities when forming an emotional reaction. This can be very useful as people can thus incorporate more information into their decisions and not just rely on learned stimulus associations. However, cognitive processes alone can become overwhelmed when presented with too many choices. When this happens, a person's brain relies on **somatic markers** to help make a decision⁴. **Somatic markers** are associations between stimuli and the physiological reactions they induce, which unconsciously influences a person's behavior based on past experience with that stimulus. The relationship between somatic markers and emotion regulation is a very significant one for the development of an app centered around breaking cycles of abuse, as it is important to teach IDD individuals to surmount their learned somatic responses and report when they have been treated poorly.

² Franco, 2018

³ Aday, 2017

⁴ Sturm, 2016

Design 1



- On every page there is a button which allows the user to immediately call for help
- Following the title screen in this option, the app opens to a yes or no question – are you okay?
 - If yes, then the user is given access to all of the features of the app. These features focus primarily on cognitive appraisal.
 - There is a section where the user may learn about sexual abuse, helping them reframe what they are capable of doing in these situations and how they deserve to be treated.
 - There is an option to take a questionnaire to record their mood and look at the results later. This helps the user to remember better times when they feel they are at an all-time low and also gives them the option of showing their health professionals a record of their experiences.
 - If no, then the app immediately launches into a questionnaire that allows the user to send it to the DPPC as a report after they are finished.

- The questionnaire would ask questions such as what type of abuse they had experienced, who had hurt them, how recent was it, and how they are feeling and to what intensity. The app could also link to the phones location services to make it easier for distressed users to share their location quickly.
 - The questionnaire would allow for the filing of non-offense abusive treatment (e.g. name calling), and these options would lead to a screen which does not offer the option to send it to the DPPC, and instead offers the user the option to learn more about their situation and how they might improve it or get help.
 - If the treatment they report is offense grade, the questionnaire stops in order to explain to the individual why the offender was wrong to have done what they did, comfort them that it wasn't their fault and that help will be on the way.
 - These dialogue options are skippable so that it doesn't interfere with urgent reporting.
- After filling out everything, the user then has the option to either send it to the DPPC, save it to their phone, and/or delete it.
 - Pros of this layout: by saving these reports to their phone individuals with IDD have something concrete to refer to in regard to past abuses, and their health professionals can analyze for the frequency of abusive treatment and can check to see if some medical/mental health ailment the individual with IDD is suffering from is correlated with a recent abuse.
 - Cons: risks abusers gaining access to report history. Also risks the deliberate manipulation of these features by abusers to make it seem that the individual has not experienced abuse.
 - Pros of this layout: Makes it easier for users with different types to make the full use of the features of this tool.
 - Cons: probably complicates the interface and makes it confusing for users, which is not helpful when they are already distressed.

- After the user decides what they want to do with their report, they are then asked if they would like to participate in an **attentional control** activity. The activity they are presented with is based on what level of emotional intensity from 1 to 4 they had described themselves as experiencing on the questionnaire.⁵

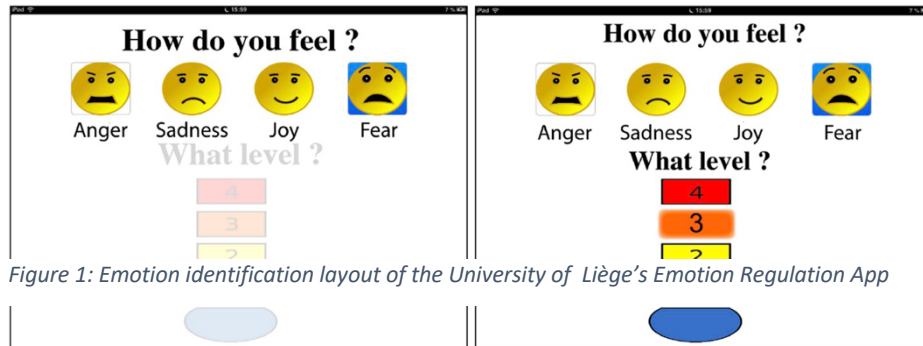


Figure 1: Emotion identification layout of the University of Liège's Emotion Regulation App

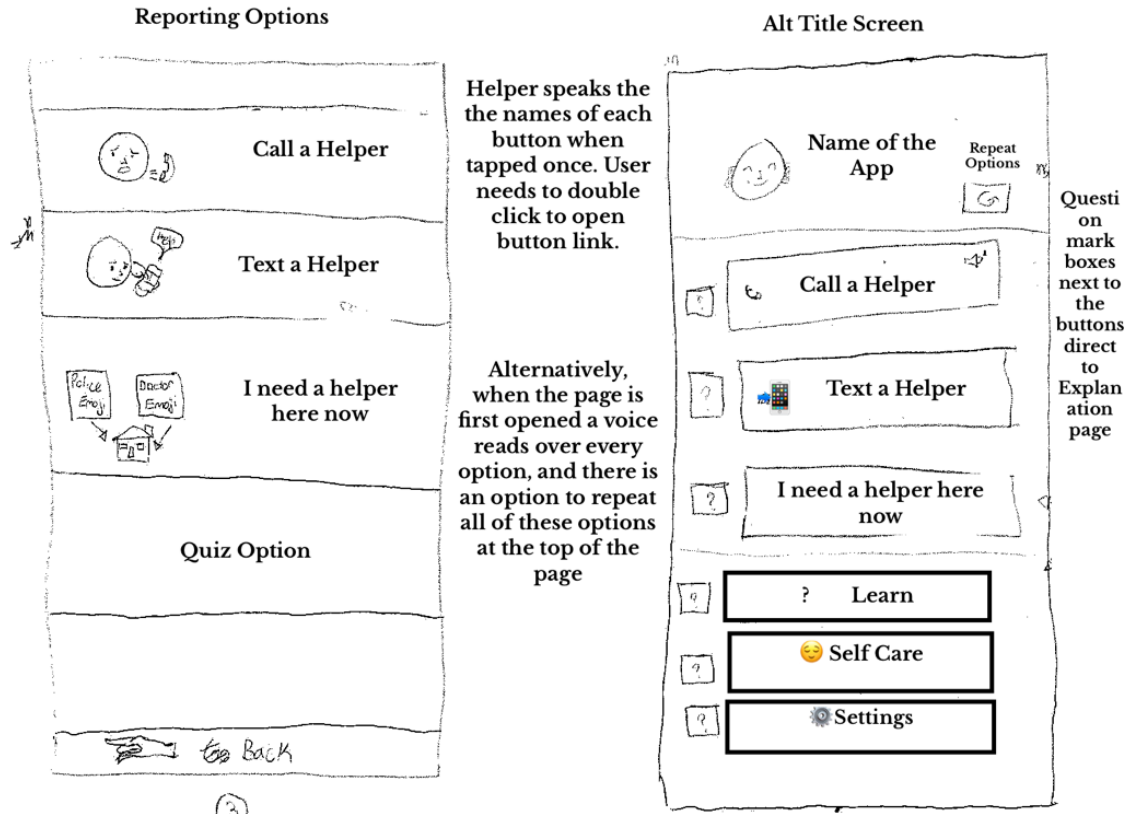
- Level 1: using breathing exercises to engage in response modulation. Executed through a slideshow where every step is illustrated by a textual statement and a picture.
- Level 2: attentional control strategy that consists of displaying a library of photos of things that sparks joy in the individual.
- Level 3: a more intensive attentional control strategy which involves the user watching a video of themselves doing an enjoyed activity or relaxing in a familiar environment.
- Level 4: This intensity level goes a bit beyond the capacity of this app as individuals whose emotional dysregulation has escalated to this degree no longer really benefit from emotion regulation techniques.
 - Regulatory strategies that occur later in an emotional cascade (eg, suppression) can actually accentuate emotional experience and autonomic reactivity.⁶
 - The best interventions are primarily physical and environmental, such as moving the individual to a location with minimal sensory input or placing deep pressure items on them, which we cannot help with.
 - That said, the app could provide an action plan for helping these individuals through emotional cascades (or meltdowns). Maybe we could do this by creating a sort of mix and match visual plan blocks that users can combine to form their own strategy for dealing with these situations,

⁵ Fage, 2015

⁶ Aday, 2017

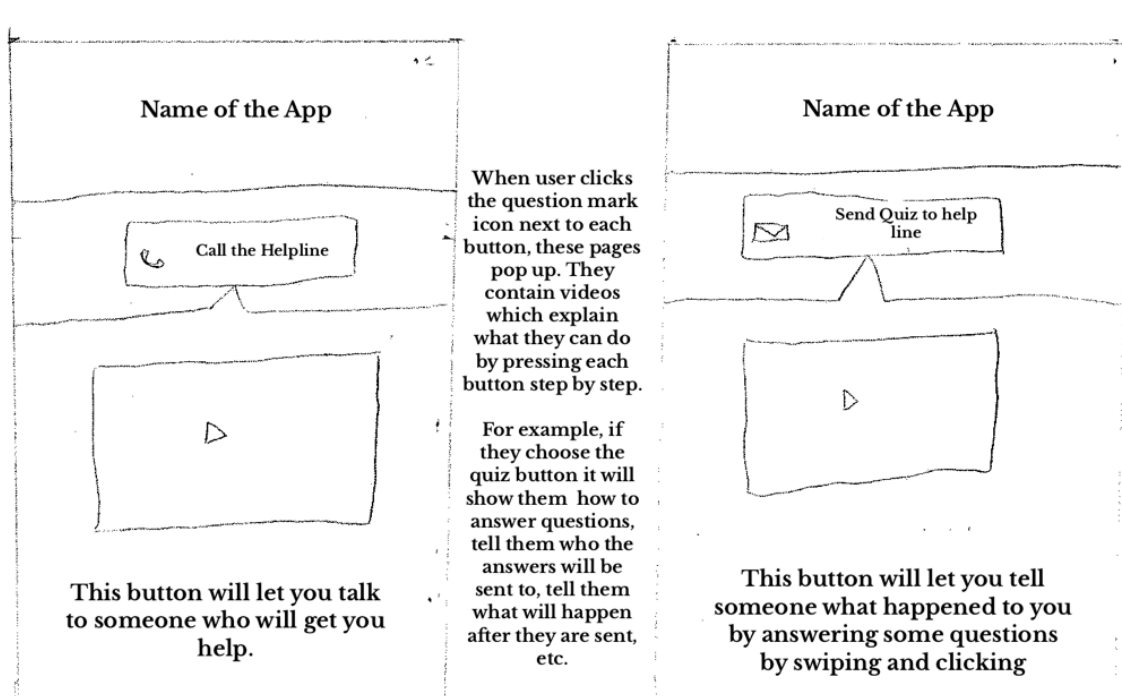
which they can do during times when they are not using the app for reporting purposes.

Design 2



Some modifications were made to *Design 1* based on criticisms of its complexity regarding execution and user interface. As such, instead of opening with a question and forcing the user to follow a certain path, Design 2 has a straight forward layout with all of the app's contents accessible within the home screen. It offers users greater maneuverability within the app at the cost of the structured nature of Design 1, which was designed to walk users through the executive functioning challenges they might have as a result of their emotional distress.

Explanation Screen



References

1. s, V. E., Haase, C. M., & Levenson, R. W. (2016). Emotional Dysfunction in Psychopathology and Neuropathology. *Genomics, Circuits, and Pathways in Clinical Neuropsychiatry*, 345-364. doi:10.1016/b978-0-12-800105-9.00022-6
2. Aday, J., Rizer, W., & Carlson, J. M. (2017). Neural Mechanisms of Emotions and Affect. *Emotions and Affect in Human Factors and Human-Computer Interaction*, 27-87. doi:10.1016/b978-0-12-801851-4.00002-1
3. Franco, F. (2018, August 09). What Is Affect or Emotion Dysregulation? Retrieved from <https://psychcentral.com/blog/what-is-affect-or-emotion-dysregulation/>
4. Fage, C. (2015). An emotion regulation app for school inclusion of children with ASD. *ACM SIGACCESS Accessibility and Computing*, (112), 8-15. doi:10.1145/2809915.2809917
5. American Association Intellectual and Developmental Disabilities. (2009). *Supports Intensity Scale: Guidelines for Interviewing People with Disabilities* [Pamphlet]. Washington, DC: American Association on Intellectual and Developmental Disabilities.