Person in Context Assessment

Project Description and Clarification

WSU Psychology Clinic



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# Introduction

Mental health has become one of the most pressing issues worldwide, with the World Health Organization listing mental health issues as the leading cause of global disease burden. Whether it is depression, anxiety or other mood disorders, these issues have a profound impact on individuals' daily lives, work productivity and interpersonal relationships. As people's awareness of the importance of mental health continues to increase, more and more technological solutions are being used to help individuals better manage and monitor their emotional health. According to the Global Mental Health Market Study, the demand for digital mental health solutions is expected to grow rapidly in the next few years, driving further development of mental health interventions around the world.

The combination of technology and mental health interventions provides individuals and clinicians with unprecedented opportunities to obtain real-time, personalized feedback and use data-driven approaches to improve treatment outcomes. However, there is still a lack of research on how personality affects treatment response. Although some studies have shown that patients' personality or temperament may affect their response to treatment, more specific evidence is needed to support this claim. Therefore, our team is committed to further verifying this hypothesis through this project - taking patients' personality traits into account can help develop more targeted treatment plans, thereby improving treatment effectiveness.

We aim to enhance the user experience by further developing and integrating two existing applications. The first is a web survey based on Qualtrics that generates personalized psychological assessment feedback for users. The second is a mobile application that allows users to self-monitor emotional events. Our goal is to optimize these apps so that they not only provide clear and timely feedback, but also improve the contextual recommendation capabilities of self-monitoring apps through more sophisticated algorithms. Ultimately, our team aims to integrate these two systems into a more comprehensive mental health support platform that helps users better manage their emotions and behaviors while providing clinicians with deeper insights.

# Background and Related Work

Before we assess current industry researchers in our domain, we need to establish the domain in which our project is going to operate. We define the domain as “interactive personality assessments and self-monitoring tools used for clinical therapy.” The conceptual foundation of this project is based on serval key studies about personality assessment.

The Person in Context Assessment (PICA) provides the project’s main structure and is the first foundational work. PICA is an application of social cognitive theory, specifically Cervone’s model. PICA evaluates personality traits in the context of social interactions, focusing on variables like beliefs, goals, self-schema, and temperament. The Qualtrics survey report and web-based app are structured with PICA as the framework [1].

The Relational Self-Schema Measure (RSSM) is the second piece of relevant work. RSSM looks at how people describe themselves with the four or six most important or frequently interact or think about. PICA does not directly integrate RSSM but utilizes the concepts of RSSM to understand what relational context impacts a person’s self-concept. The project’s depth of personality evaluations is further enhanced by incorporating relational schema concepts. The project provides personalized feedback not just based on the individual but also considering the relation of key figures in the individual’s life [1].

Finally, the BIS/BAS scales, which measure behavioral inhibition and behavioral activation respectively, is the third piece of key influence. Both scales regulate how people respond to potential incentives and punishments. This makes both useful for understanding motivational systems. The principles of BIS/BAS in the feedback that it generates are shown though the web-based application, keeping track of participants’ daily emotional events and assists them in understanding how their personality traits influence their responses to different stimuli [1].

Although PICA serves as the core personality assessment model in our project, the additional insights derived from RSSM and BIS/BAS help us better understand overall personality and behavior. This gives us and clinicians a clearer picture of how different people behave and manage their emotions.

Several technical skills and tools will be required to complete this project. Python is the main language used to power the core functionality of the Qualtrics survey report generator and web-based monitoring app. Furthermore, since the project has been deployed on Python Anywhere, we will need to continue using and managing the web application using that platform. In order to manage the potential vast amounts of personality and behavioral data that our app collects, we will need to be skilled in MongoDB. As for the frontend, we will need proficiency with the relevant knowledge and technology related to web application development. Finally, integrating AI-driven clustering approaches using ChatGPT will require the learning of building applications with generative AI, which will improve the app’s ability to provide users with even more personalized insights and suggestions.

# Project Overview

There are many different types of psychological treatment for those with mental health issues and it can be difficult to figure out what treatment best suits each person. One way to approach finding the best treatment for a patient is by factoring in the person’s personality and looking into how their temperament affects their thoughts, emotions, and behavior in different contexts. The WSU Psychology Clinic is trying to utilize this personality-based approach and investigate a patient’s temperament and responses to everyday situations and try to build the best treatment based upon those results. Through this project, the WSU Psychology Clinic can adopt a more evidence-based approach and show how a person’s personality effects how well they respond to different types of treatment.

This is where the Person in Context Assessment (PICA) comes into play. The focus of this project is split among two separate Qualtrics surveys used to collect more information about a patient’s temperament. The first survey is one that asks questions about if the user has any goals in different areas of their life such as work, relationships, and personal health as well how much the user is working towards that goal and how happy they are about it. Then the results of the user’s temperament are calculated, and a PDF of the results are sent to the email. Our first course of action will be to fix the previous Python code that emails the PDF results to the user. Right now, the user must go into PythonAnywhere to be able to fetch their results, but we want to make sure that their results can be emailed to them. As well, we will be looking into editing the format of the PDF and changing the graphs and results to make sure that it is understandable to the user and looks visually appealing.

The second survey that is used in PICA is one that is used by the patient daily. The user will input their experiences that day and then will also fill in their thoughts, feelings, goals, and actions for the event. Then, emotionally similar events are grouped together and then the clinician can look at both the patient’s temperament as well as how they reacted to these events and use that personality-based data to give a more personalized mental health treatment plan. With this second survey, we want to work on integrating the first survey so that the user would be able to see their original PICA results inside of this daily survey. The clinician should be able to enter the patient’s PICA results into the daily survey and have the user be able to see the PDF of their results in the daily survey app. As well, the daily survey should be able to tailor questions to the user based upon their temperament results and better predict how they may react to daily situations.

Finally, with the daily survey we will be looking into creating a more complex clustering algorithm. We need to be able to group a user’s experiences based upon how similarly the patient thought or felt during the event and that is done based upon what feelings the patient fills in on a checkbox list. Any events that have over 50% shared feelings will then be categorized as the same. We want to either move towards using more complex math to group the different experiences more accurately or possibly investigate utilizing the ChatGPT API to cluster the data. The user can fill in the checkboxes for how they were feeling but they can also write any specific thoughts or emotions into a textbox. The current simpler clustering algorithm does not factor this text box in when clustering so the patient or clinician would have to go in themselves to the survey and read the text box and manually cluster the events if they see the need to. By utilizing AI and ChatGPT, we would remove the need to manually read and cluster those events that have information stored in the text box and instead the AI could read the text boxes and suggest which events should be clustered.

# Client and Stakeholder Identification and Preferences

Our primary customer is the Washington State University (WSU) Psychology Clinic, where the project will be used to help clinicians better understand their patients' personality traits and provide personalized treatment recommendations. Our mentors, Dr. Scott and Belinda Lin, are the primary contacts for the project and will provide guidance on how to optimize the personality assessment feedback and self-monitoring applications. The project will ultimately be used by clinical graduate students and clients at the WSU Psychology Clinic as a tool to assess the relationship between patient personality and treatment response. In addition to WSU, we have established potential partnerships with the Portland Psychology Clinic, where clinicians are also interested in using this system to help their patients.

Potential customers include the Portland Psychology Clinic and other psychotherapy institutions. To attract the interest of these institutions, our software project needs to ensure easy integration and use processes. The interface of the personality assessment report and self-monitoring application must be clear and easy to use, report generation and data processing must be efficient, and the feedback content can directly support clinical decision-making. To further promote application, the project should have cross-platform compatibility so that these institutions can easily deploy the system into their existing technical infrastructure.

Finally, all stakeholders in the project will benefit from a system with a clear structure, concise code, and easy extensibility. This will help clinicians better integrate these tools into their daily work and provide a solid foundation for future system improvements. Our development team will prioritize the needs of Dr. Scott's team, but throughout the design and development process, we will also pay attention to how to meet the needs of other potential customers and institutions to ensure the broad applicability and sustainability of the project.

# Glossary

# References

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| [1] | W. D. Scott, S. Paup and C. Kirchhoff, "Clinical Application of Social Cognitive Theory: A Novel Personality Assessment Procedure and a Case Study of Personality Coherence," *European Journal of Personality,* vol. 36, pp. 371-390, 2022. |