“Pursuit of Happiness:” Mapping Undergraduate Social Support Systems at The Ohio State University

Kaitlyn Davis, Amanda Konet, Dr. Yvette Shen, Meghana Yechuri, Shasha Yu

Abstract— Many undergraduate students at Ohio State struggle with stress, anxiety, depression and other mental health issues but are often unaware of the multitude of resources available to them both on campus and within their own personal social networks. Such social support systems are essential for students to avoid feelings of isolation that may amplify said mental health issues. This project aims to create visibility of the on-campus services available to undergraduate students via an interactive web application. This web application offers a multi-faceted design that allows students to create a stress portrait that will identify a personalized social support network consisting of on-campus resources and personal connections that may be most beneficial to them.

INTRODUCTION

The Ohio State University has a large campus equipped with a wealth of resources for students to utilize. Such resources include, but are not limited to, Counseling and Consultation Services, Wellness Coaching, the Dennis Learning Center, and Financial Services. Though Ohio State does their best to market these resources to their future and current students, many remain unaware of their existence as well as the services that these resources provide. Additionally, in times of stress it can be easy to lose sight of our own social support systems, which can cause feelings of isolation. Thus, it is important to remind students of personal connections they have that fulfill different roles, such as emotional, appraisal, instrumental, and informative support. In order to tackle these issues, Dr. Yvette Shen conceptualized an interactive web application that will assist distressed students in locating the most useful campus resources for them. This simple, interactive and user-friendly tool will allow students to select their stressors and fill in their personal social support network. This information will then be used to create a “stress portrait” — a compilation of the chosen triggers for a specific student. These chosen triggers are then mapped to specific on-campus resources that have services aimed at providing support for said triggers. This interactive web application will display one’s personalized stress triggers along with links to the resources to deal with those said issues. Ideally, this tool makes the process of finding support much easier and emphasizes the idea that students are not alone. This interactive web application will also incorporate fourteen “positive psychological strategies” [1] such as gratitude journaling, goal writing, and motivational quotes to promote positive thinking and behavior.

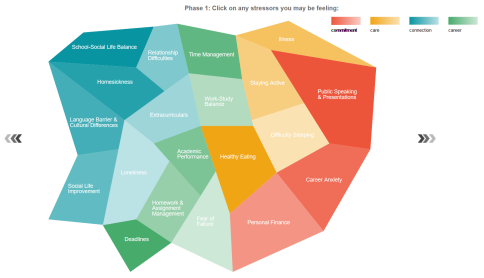

Figure 1: Stress Portrait (Prior to a student’s personal selection)

- *Kaitlyn Davis. Email: davis.@osu.edu.*
- *Amanda Konet. Email: konet.5@osu.edu.*
- *Dr. Yvette Shen. Email: shen.1049@osu.edu.*
- *Meghana Yechuri. Email: yechuri.1@osu.edu.*
- *Sasha Yu. Email: yu.2116@osu.edu.*

1 RELATED WORK

1.1 Goals and Research Questions

Through building this personalized social support network, there are a few research questions we may be able to answer. First, how can we map specific stressors to more general stress categories so that we can provide the most accurate and useful resources to students? For example, there may not be an entire resource dedicated to helping students who are struggling with deadlines, but there may be a more general academic services resource. Broadening the stress category will help us more easily identify a resource on campus that students can then be directed to. Additionally, how can we display social support networks in a way that is informative, inviting and user-friendly? If the web application is difficult to navigate or students do not feel comfortable using it, then the purpose of the project is not fulfilled and the design must be reconfigured. The design must be user-centric so that students are easily able to navigate the application and ultimately contact the resource centers suggested. Lastly, we must decide if it will be useful to students if the application saves the information so they may view it later. Perhaps students may only want to view this information once, or perhaps they would like to revisit it if their stress resurfaces.

1.2 Illustrative Figures

The following are illustrative figures of our design. The design features five screens: the landing page, the stress portrait, selected stressors, positive psychology strategies, and social support network. The landing page provides a brief description of the project and instructions. The stress portrait (Figure 1) depicts all 20 of the possible stressors and allows users to click on them. Clicking on a stressor turns it a light grey color, as seen below in Figure 2.

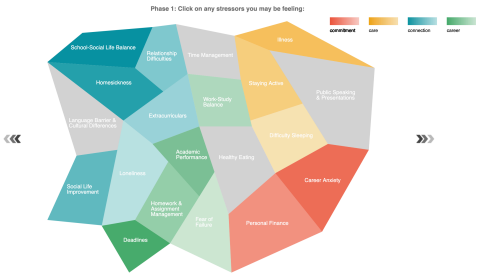

Figure 2: Example of a user selecting specific stressors.

On the next screen, the user will see the stressors they specifically selected. This screen also allows the option of clicking on additional

stressors, as all unselected stressors are greyed out, as seen in Figure 3 below.

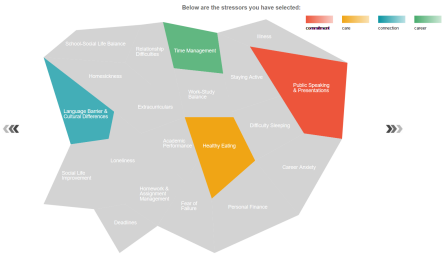

Figure 3: Selected stressors only, with all others greyed out.

The next screen displays positive psychology strategies (Figure 4) with only the user's selected stressors in the middle. The positive psychology strategies are depicted with pictographs and a static label. Additionally, hovering over each pictograph reveals a brief description of each strategy.

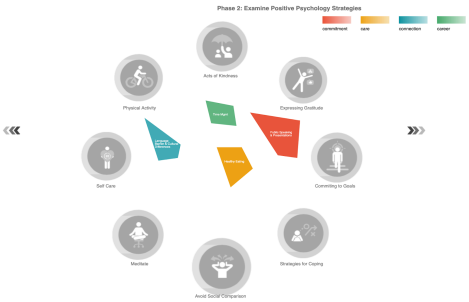

Figure 4: A student's personal stress portrait embedded within positive psychology strategies.

The last page is the social support network (Figure 5) and allows the user to input personal connections. The resources mapped to each stressor appear on the screen, as well as the inputted connections. Note that these will be mapped to the type of support (instrumental, informational, appraisal, and emotional) via a connecting line in the final implementation.

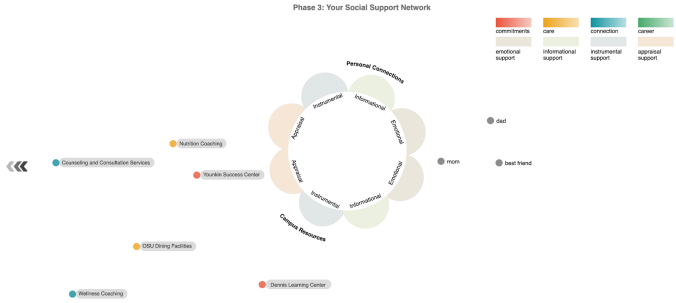

Figure 5: A student's personal social support network containing personalized on-campus resources and personal connections.

1.3 Exploratory Study

After completion of the prototype implementation, we met with Dr. Shen and Shasha Yu, the designers of the web application, to discuss progress of the implementation and to ask for feedback to improve for the final implementation. Dr. Shen and Shasha were impressed with our progress but offered a few suggestions for improvement. One suggestion included implementing a hovering feature on the positive psychology page as well as the social support network page. The first hover would display a short description of the positive psychology strategy, and the latter would do the same for resources. Additionally, she suggested adding static labels for the positive psychology strategies. The idea behind these improvements is that these hovers will allow for a more informative design. After our prototype presentation, we were also given some suggestions by Dr. Chen to implement before submission of our final implementation. These suggestions included adding legends to allow for the categories of stressors to be easily distinguished on each screen, displaying un-selected stressors on the next screen after selection, adding correct labels under the positive psychology strategies pictograms, replacing on-campus resource colored bars with gray bars and a colored object next to each, and creating an arrow button on each page so users can navigate between panes in both a backward and forward direction.

2 Design Goals

The goal of this project is to develop a multi-layered interactive web application. As previously mentioned, the second page will encourage students to select their personal stressors from an array of polygons. Once a stressor is selected, the polygon containing that stressor will become grey. For example, a student may indicate that they feel the following stressors: academics, work-study balance, social life improvement, and language and cultural differences, so the polygons corresponding to those stressors would be colored gray (see Figure 2). The stress portrait was intended to appear "unique" to each student who uses the tool, so that it is both memorable and special to the student. On the following page, these stressors will then be displayed in their abstract polygon shapes (see Figure 3), where a combination of hue and intensity is used to encode the broader category of stress a specific stressor falls under, which perhaps encodes an emotion. The next screen will display only the user's chosen stressors, and will be encircled by positive psychology strategies they can act on (see Figure 4). On the last screen, the selected stressors the student chose will be linked to an on-campus service that provides support for that particular stressor (see Figure 5). Additionally, students will be prompted to enter the people they feel fulfill different support roles in their lives such as emotional, appraisal, informational and instrumental support. A social support network will then be created to showcase the inputted personal connection(s) each user has access to during times of difficulty. The goal of this last page is perhaps encapsulates the goal of the entire project: to show students that they are not alone both in their personal lives and at Ohio State. This design was meant to be intuitive and inviting, hence the lack of visual clutter and use of vibrant colors.

3 Design Method

3.1 Task Abstraction

Our goal was to build an interactive web application that can help students easily identify their stressors and also learn what resources are available to deal with those stressors. Hence we first built our stress portrait which is a combination of multiple unique shapes consisting of common stressors college undergraduate students suffer from. This allows the user to recognize the wide array of stressors that are common in people their age. Then the user can filter out the stressors to choose what resonates with them the most. This helps narrow down the stressors, and enables them to focus on what is an issue for the user. After looking at their personal stressors, the user is directed to a page which showcases their chosen stressors along with some self-help strategies they can implement in their day to day life to improve their overall well-being. Finally, they are directed to the page which maps their stressors to the resources available on campus for them to make use of. Here, they are also able to enter personal connections. We wanted the application to be very personal for each user along with being easy to use and informative. Shapes are used to grab users' attention, and to make the visualizations unique, while

color is used to represent the categorical data to make the information easy to remember.

3.2 Data Abstraction

The primary data used for our project comes from a survey produced and distributed by Dr. Shen. This survey was given to around 100 undergraduate students at The Ohio State University and asked them to input any areas in their life they are struggling to navigate. For example, these things could include difficulties with personal relationships, physical limitations such as difficulties sleeping or eating, or academic struggles, among others. The 20 most common stressors given in the survey were used to define the stress portrait, and each of these stressors was placed in one of four categories: connection, commitment, care, and career. These stressors represent categorical data. Another source of categorical data was compiled from a list of on-campus resources, which were carefully mapped to the possible stressors. A final source of data comes from the personal connections feature. This categorical data is directly input by the user and displayed on the screen.

3.3 Design Considerations

As previously mentioned, the Pursuit of Happiness project was conceptualized and designed by Dr. Shen and Shasha Yu. Their goal was to create a user-friendly, memorable application that students can use to visualize their social support network and be made aware of on-campus resources. While we mostly followed the initial design, there were instances where we were able to add our own input to the design. For the stress portrait, Dr. Shen's main goal was to make it memorable for the user. Due to this, she designed a stress portrait that had distinctive shapes and vibrant colors such that each user's own stress portrait would feel unique and personal to them. We created the categories and grouped the stressors as appropriately as we could. The shapes of the polygons have no inherent meaning other than being used for memorability purposes, however we were provided the colors, and we did our best to map the categories to the colors that made the most sense. Connection was colored blue, as we felt blue best encapsulated the feelings of social isolation. Care was yellow, as yellow is often a color associated with physical activity and mental health, which is what the care category consists of. Career was coded as red, because often times career anxiety can be the hardest to deal with as it is the anxiety most out of our control. Lastly, commitment was coded green. The positive psychology strategies were depicted as pictograms, and we suggested to also include a text label and a brief description of each. Lastly, the social support network ended up remaining close to the initial design, though there are still elements of that initial design we are working on. Here, we suggested to include a brief description and direct link to each resource. We feel that these are both crucial elements of the design, as the overall goal of the project is to help students navigate the vast, and often overwhelming, collection of resources available to them.

4 Implementation Methods

The initial design was conceptualized by Dr. Shen and Shasha Yu and a mockup was created using Adobe Illustrator. The base of the interactive web application was coded using the traditional web page building languages HTML, CSS, and Javascript. In order to add the creative and aesthetic elements of the design, we made use of the open-source Javascript library D3. The stress portrait, positive psychology strategies, and social support network pages were all implemented using D3. There are still elements of the design we have not yet implemented, such as a header that can be used to switch from page to page, that will also be implemented using web page building languages and D3.

5 Results

In the evaluation, Dr. Shen and Shasha Yu suggested two main additions to our design at the time, both of which we have implemented. As previously mentioned, the changes were both related to adding additional information to the positive psychology and social network pages. These features were implemented in the design and will allow users to access additional information. Below are the current implementations of these features, which will likely be changed to better fit the design aesthetics in the future.

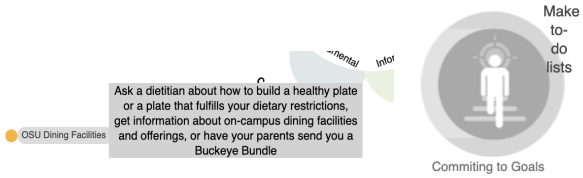

Figure 5 (left): Hovering over an on-campus resource brings up a brief description about what that resource can do for a student. **Figure 6** (right): Hovering over a psychology strategy gives an example of an action one can take.

We also implemented Dr. Chen's changes, which can be seen in the images provided under the Illustrative Images section. Lastly, it is important to note that Dr. Shen and Shasha Yu are planning on designing an extensive user-study over the summer that is to be carried out during the Autumn 2019 semester. This will provide us with valuable feedback on the design from users and will help us to pinpoint any necessary implementation changes.

6 Conclusion and Future Work

One potential impact of the Pursuit of Happiness project is further exploration into the balance between the usability of the design and how visually pleasing it is to the user. The end goal of this project is a product that allows students to connect with necessary on-campus resources. However, the design should be visually pleasing and easy to read. The social impact of this design is perhaps the part of this project that will have the most impact. As previously mentioned, many students at Ohio State are unaware of the multitude of resources that are provided to them by the University. This tool will ideally create awareness of these resources and ultimately promote their use, thus positively impacting mental health at The Ohio State University.

6.1 Future User Study

To measure how user-friendly the application is, we could email students who sign up for the application and ask them to complete a brief survey. This survey will perhaps ask if they found the app easy to navigate, useful, or will use suggested services now or in the future. We may also explore testing the application out on our personal friends here at Ohio State. We will also take part in developing and sharing Dr. Shen's user study.

6.2 Future Work

In the future, we would like to explore adding a login feature where students could create an account and have their information saved therefore allowing them to access or edit their stress portrait or social support network at any time. We would also like to show connections between the on-campus resources and its associated type of support (emotional, appraisal, informational or instrumental) by linking them with direct lines. This was one feature included in Dr. Shen's design that we were unable to implement in the time given for the project to be completed, but it is something that we fully

intend to implement. Other minor tweaks such as potentially adding more on-campus resources, adding a navigation bar at the top of each screen and making the overall design more fluid and as close to the original design as possible are all things to be implemented in the future as we continue working with Dr. Shen and Shasha Yu.

7 References

[1] "Positive Psychology / PERMA Theory (Seligman)." *Learning Theories*, 4 Feb. 2017, www.learning-theories.com/positive-psychology-perma-theory-seligman.html.