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CS 447

Individual Assignment 1

Based on the 17 sustainable development goals provided by the United Nations, I brainstormed five potential project ideas that will respond to a range of human issues and could make a meaningful impact on the individuals and communities involved. All five of these ideas are significant, having the ability to significantly improve the lives of the individuals targeted, they are practical since my group and I have the ability to recruit members of the groups involved on short notice for user research, and they are centered on a human point-of-view; the ideas are intended to examine real human problems and explore the design space before actually attempting to solve these issues with the design of a product.

The first project idea to explore is how we can curb prejudice and systemic racism embedded in our social institutions. In the United States alone, although not obvious to everyone, systemic racism against minority groups is embedded in various social institutions, ranging from the criminal justice system to health care. This project idea is intended to find a way to minimize and even eliminate structural racism in at least one social institution in the United States. The potential user group for this project is someone who identifies as a minority and has experienced any form of racism within a social institution in the United States, whether it be in school, an encounter with a police officer, or at the doctor's office. Relevant stakeholders would be people who are involved with the social institution we decide to focus on; for example, if we were to choose to focus on the people negatively impacted by the structural racism of the healthcare system, the relevant stakeholders would be doctors, nurses, health administrators, etc. The potential problem confronting the user group of this project is that the systemic racism they face

in a given social institution prevents them from comfortably accessing and using that institution, which could be detrimental to their well-being, both mentally and physically. If we were to choose to focus on health care, an example of this would be racist practices in hospitals cause doctors to ignore the pain of their patients who are minorities because the doctors believe they can “tolerate” more pain. I’m excited about helping the group in connection to the social institution we choose because this has the potential to alter their lives for the better. Systemic racism has plagued this country since it was founded, and I think focusing on an issue like this can inspire enough change and awareness in people to reduce inequality in our communities. Depending on the institution we choose to focus on, the project can improve the lives of our user group by allowing them to comfortably use the social institution without being afraid of encountering racism and/or discrimination that can jeopardize their well-being and safety. For example, if we chose to focus on the criminal justice system, our project could minimize the racist practices of the system and fewer minorities would suffer from unjust laws and policies, unfair criminal sentences, and police brutality. Ideally, we would choose an institution like health care or education because we have the best chance to find 10-20 individuals affected by those institutions in the Harrisonburg community. We could use convenience and snowball sampling to find our participants, and we could start with JMU students who identify as a minority and have experienced racism within a particular social institution. I believe we could send out emails to JMU students using a listserv and put up fliers in different JMU buildings in order to recruit students who may be interested.

My second project idea is to reduce food waste by composting, which could then be used to grow your own vegetables and fruit in a home garden and will further reduce food waste. Because organic waste in landfills generates methane, which is a potent greenhouse gas,

composting food that is meant to be thrown out has the potential to significantly reduce methane emissions if a significant amount of people were to do it. Composting can also reduce and even eliminate the need for chemical fertilizers and can promote agricultural yields which may encourage people to start their own home gardens. There are endless benefits to getting more people to start composting their food waste. The potential user group for this project would be people who throw away organic waste at their homes and who are willing to help protect and save the environment. It might be easier to target younger people, such as students, since they are more likely to want to participate, and homeowners with space like a backyard to compost their food waste. The relevant stakeholders of this project idea are agricultural and fertilizer companies, local landfills, farmers, and elected leaders concerned with saving the environment. The problem confronting this user group is most people throw away organic waste and it ends up in a landfill where it will rot and produce a large amount of methane; methane is one of the most powerful greenhouse gases and significantly contributes to global warming. I'm excited about helping this user group because I believe composting can be tremendously beneficial to both the users and the environment; people who start to compost tend to throw away less trash, they might feel good about themselves for contributing to the fight to mitigate global warming, and they have the opportunity to start their own home garden, which can reduce their food costs and allow them to eat fresher food. More importantly, composting is beneficial to the environment in numerous ways, such as preventing soil erosion, promoting healthier plant growth, reducing waste, conserving water, and combating climate change. I believe this project has the potential to impact users financially, mentally, and physically. If users begin to compost, the soil they use will be ultra-fertile and will allow them to grow their own fruit and vegetables. When one grows their own food, they save on buying expensive produce from the store, and the food is sourced

naturally, thereby promoting better health. I think the project will also have a big impact on users' mental because they can proudly say they are actively combating climate change in an easy and rewarding way. I believe this project would be feasible because there are plenty of students at JMU who want to help save the environment and would be willing to start composting, given the proper knowledge and tools. Composting can be done both indoors and outdoors, so it doesn't matter whether a user lives in an apartment or house. There are also plenty of homeowners and families in the Harrisonburg community whom we could interview to get data on their ability and willingness to compost food waste. I think it would be best to post fliers around JMU and the Harrisonburg community and to use snowball sampling.

My third project idea revolves around Harrisonburg being a hub for refugees. I want to explore how we can help new refugees in Harrisonburg integrate into the community and get a head start with their new lives by getting a job, education, becoming a citizen, etc. The potential user group would be new refugees who immigrated to Harrisonburg less than a year ago and are struggling to fit into their new lives. Some relevant stakeholders would be companies/non-profits that assist with refugee resettlement in Harrisonburg, such as Church World Service, family members of the refugees living either here or abroad, and local/federal government agencies that assist in refugee resettlement like the Office of Refugee Resettlement (ORR). The potential problem with this user group is that most, if not all, refugees who are resettled in the United States need help to start their new lives. Our culture, customs, practices, language, and beliefs can be completely different from their own countries, which makes it difficult for them to get acclimated in a short period of time; most refugees need to begin work right away, get their children into school, apply for citizenship, etc and need guidance on going through this process. I'm excited about helping this group because I am currently in a professional society called Delta

Phi Epsilon Foreign Service; we do this exact type of work by mentoring refugee students at Harrisonburg High School and volunteering at food drives, soup kitchens, etc., so I am already passionate about this issue. I am a first-generation American, and I understand the hardships immigrants in this country must go through, having watched my parents struggle firsthand, so the issue is close to my heart. I believe this project has the potential to significantly impact the lives of refugees in the Harrisonburg community. Helping them get accustomed to the way of life here, find a job, get their kids into school, and apply for citizenship will set them up for success and change their lives for the better. I believe this project is feasible because Harrisonburg is a hub for refugees, and we can access refugees to interview through either Church World Service (which directly works with resettling refugees in Harrisonburg) or through my professional society since we directly work with refugee children at the high school.

My fourth project idea is to promote nutrition and exercise knowledge among college students. College students have incredibly busy and stressful lives, so they tend to neglect their physical and mental well-being by eating poorly and not getting enough exercise. I would like to implement a project that teaches students how to fit eating healthier and exercising more into their lifestyles and daily routines. The potential user group for this project is college students who don't have time to exercise and eat healthy enough. Some relevant stakeholders are nutrition and fitness coaches who work at a college's recreation center, grocery stores, college dining halls, and college gyms. The problem confronting this user group is many students don't have time or the knowledge to eat healthy, so they will often eat out; this increases one's intake of unhealthy sugars and fats and also harms one's mental health. Many students don't have time and/or the proper knowledge to exercise often, which is again not beneficial for their physical and mental well-being. I'm excited about helping this group because this issue is something I can

relate to personally. I also struggle with my time management and will also eat out and not exercise when I have a lot of assignments to do; however, I'm passionate about helping other students realize that eating better and getting more exercise will actually make them more productive and overall improve their academic performance. I think this project can significantly impact college students by teaching them to live healthier lifestyles, which will benefit them for the rest of their lives. I believe this project is feasible because we can easily find students to interview at JMU; we could recruit them by sending out emails asking if anyone is interested in participating, posting fliers around JMU's campus, and by word of mouth. We could also directly ask students if they would be interested in participating by going to certain locations on campus, such as UREC and the dining halls.

My last project idea has to do with providing adequate and personal mental health access to students. A lot of students, including myself, sometimes struggle with their mental health. It can be difficult to manage all of the responsibilities and stress that come with being a student, which can lead to worse mental health. Even if a college provides mental health resources, they can be difficult to access because there is usually a small supply but a large demand for them; it's important to be able to provide personal and in-person mental health resources to all students at a college. The user group for this project is students who struggle with their mental health and want to seek out help. Relevant stakeholders might include mental health providers, college therapists, and universities in general. The problem with this user group is the students in it need access to personalized mental health resources but cannot access them due to high demand and short supply of them. I'm excited about helping this group because I can relate to the group members' struggles and how life-changing talking to someone who wants to listen to you can be. I would love to help students feel better about themselves mentally while pursuing a challenging

college education. I believe this project has the potential to significantly improve students' mental health while at college. Having access to immediate and personalized mental health resources can make one's life so much better and it can even save someone's life. I believe this project is feasible because I know there are many students at JMU who struggle with their mental health. We could recruit these students for a user study through fliers/posters, emails, and going to JMU's counseling center (with consent from JMU).

For my project idea on curbing discrimination and racism in social institutions, I chose to explore a virtual reality game built by researchers at MIT that simulates discrimination. This product is related to minimizing and eliminating structural racism from a particular social institution in the United States. The VR game developed at MIT is played with a virtual reality headset. It portrays xenophobia against a Malaysian American woman on a plane and allows players to take on the role of different characters with different backgrounds, in order to gain new perspectives on their understandings of cultural differences. The user is whoever puts on the headset, their goal with using this product is to minimize their bias on understanding different cultures, and it would be used by someone who wants to learn how to eliminate their bias, prejudice, and discrimination against people from different backgrounds. In terms of usability dimensions, the VR headset used to run the game is designed to look like a headset a user would put on their head. It has two lenses to indicate the user should be looking through them and straps that go around your head to hold the headset in place. The VR headset also comes with two handheld controllers that have joysticks to be moved around and wrist straps to secure the controllers to your wrists. The headset is designed to allow the user to move around in the VR game with its joysticks. The user can also look around in the game because the headset tracks the user's eye and head movement to properly adjust their view in the game. A user will see the

game respond to their intended actions by the movement of their view in the game. The game and headset follow physical conventions as in if the user wants to move forward with the joystick and pushes it forward, they will move forward in the game as well. The VR headset constrains the user from doing anything with it besides putting it on their head and playing the VR game. It can't be used for anything else because it doesn't look like or have any features to do anything other than simulate a virtual reality game. Once the user puts on the headset, the game itself prevents the user from performing actions not allowed in the game by not responding to any illegal actions the user attempts to make. The game also guides the user through what they should do with dialogue and prompts. The VR game allows the user to restart the game and make different in-game decisions if they make an error. The VR headset used to play this game is consistent across the industry because it has a head strap to secure itself to the user's head, has two lenses for the user to look through, comes with hand controllers, and uses head and eye tracking like all other VR headsets on the market. In terms of UX dimensions, when the user uses the VR headset to play the game, their visual and auditory perceptions are stimulated. The VR headset covers the user's eyes and the user is looking through the lenses of the headset, which are projecting two slightly different images onto their retinas (similar to looking at a computer screen). Their audio perception is likely stimulated either by audio coming directly from the headset or a pair of headphones the user might be wearing in addition to the headset. When the user interacts with the game, they are likely to feel empathetic for the minority passenger who is being targeted and "othered" by the other white passenger for not looking like a "typical" American. It might also trigger the user to feel anxious, embarrassed, or even angry. The game is designed to impact people emotionally by having them either play as the character being discriminated against or as a bystander witnessing the tense conversation happening. It

even allows the user to react to the xenophobic comments made by the white passenger and how the targeted passenger handles those comments. This game can be played either alone or with other people; there is a method to stream what the user is seeing in virtual reality to a laptop so other people who aren't wearing the headset can see what is going on in the game. I believe this game influences the user's social context by allowing them to utilize new perspectives in understanding different cultures and mitigate any in-group/out-group bias they may have. It will ideally change the way they interact with people from different backgrounds. Depending on if the game has officially been released by MIT on the market, this game can be played by anyone who has a VR headset inside their own home. It can be played at any time the user desires, by themselves or with others present, and with a VR headset. It's fairly easy to interact with this game if one can find a VR headset to use because the headset can be used at any time and pretty much anywhere inside (as long as the area is safe).

The second product I would like to explore is related to my project idea of providing adequate and personal mental health resources to college students. It is the TimelyCare mental health app that JMU and many other colleges promote to their students. TimelyCare is an app that belongs to the company TimelyCare, which is a mental health service based in Texas. TimelyCare is a digital student-centered platform that provides students with medical care or mental health support. It offers on-demand, 24/7 mental and emotional support, crisis management by behavioral health professionals, health coaching, scheduled counseling, and many more features. The intended users are college students, although the website does have a tab designated for faculty and staff support. The goal of using this product is to provide adequate and immediate mental health support and medical care to a person in need. It can be used both in the short term, by a student who desperately needs to talk to a mental health professional, and in

the long term (long-term counseling). A student would use this product if they are struggling with their mental health, are depressed, have suicidal thoughts, need medical care, or if they need long-term scheduled counseling. In terms of the usability dimensions, this is a digital product and doesn't really have the ability to communicate what it's intended for based on just the logo. The name of the product, which is part of the logo, lets people know it provides some sort of care. If a potential user were to actually open the app or website, then they could read about the product and all the features TimelyCare offers. If a user were to try and use this product to improve their mental and/or physical health, there are many features listed on the website and app that TimelyCare offers, including "TalkNow", scheduled medical care, scheduled counseling, self-care journeys, health coaching, and psychiatry help. If a user were to select the "TalkNow" or "MedicalNow" feature, TimelyCare promises their response to be immediate since they offer 24/7, on-demand, mental, emotional, and crisis management support. Users also have the ability to select features that require them to make an appointment in the future, so the response won't be immediate. These relationships follow logical conventions. The design features of TimelyCare constrain the user from other actions by allowing them to only select the features TimelyCare can actually provide. The user has no way of selecting a feature TimelyCare doesn't provide on their website or app because the feature simply won't be listed. TimelyCare most likely allows a user to cancel an appointment if they decide they don't want one anymore, and it allows users to close a chatbox if they are done talking to the on-demand mental health and medical professionals. I am not familiar with other digital mental health services, but I believe it is standard for digital mental health products to have on-demand, 24/7 mental health support. The product also allows you to schedule counseling appointments, which is standard among other mental health practices. In terms of the UX dimensions, this product stimulates a user's visual and audio perceptions. It's

a digital product, so the user is looking at it with some type of technology; if a user were to talk to a health professional online, they would be looking at them through a video communication service like Zoom and listening to them talk. I believe interacting with this product can trigger feelings of relief and comfort because a user who is struggling with their mental health will likely be relieved to see they can immediately chat with a mental health professional and get help. A user would most likely use this product alone unless they wanted to do group therapy with other family members or friends. This product is intended to influence and improve one's mental and physical health, so it might influence how the user interacts with others. For example, if someone who is depressed starts using this product to see a therapist online, the therapy might improve their mood and thus might let them be happier and more comfortable around others. This product is intended to be used by college students, from anywhere, at any time, by themselves or others, and with a computer or mobile device. The context of use makes it exceedingly easy for a user to interact with this product; immediate and full accessibility is one of the main goals of this product.