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Rethinking Trust, Reconnecting Us

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GLI Capstone Project Portfolio

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Abstract

Advancements in online platforms can lead to a more widely informed public, but they also create room for false information. Misinformation about the COVID-19 vaccine has become a public safety issue. Our team created a project that contributes to solving this global problem. Our project's mission is to tackle vaccine related misinformation. The project utilizes a human-centered method to design a solution.

Based on our literature review the main problem is skepticism about getting vaccinated. Our solution is to create an online portal targeted at college students, highlighting the benefits of vaccination, examining examples of misinformation, providing trusted sources for vaccinated and unvaccinated individuals and persuading misinformation receivers to improve their media literacy.

Our understanding of the target audience increased via QR code stickers that directed unvaccinated individuals to a survey. This data, alongside student and expert interviews, helped design our platform. The site's tailored to the concerns of those less likely to receive the vaccine due to misinformation. Part of our campaign is to use Facebook to direct people to our website, which has had nearly 433 views since its launch in February.

A stronger future in a virtual world requires sharpening the world's ability to spot misinformation. Our project called upon our target audience to engage in 4 Rs: rethink COVID vaccine information they receive, re-evaluate information by fact-checking, reconsider getting vaccinated so that they can reconnect with their family and friends safely. We built an internationally accessible website, fostered an accepting online environment for education and asking questions to a healthcare professional, increased awareness of COVID-19 misinformation, connected individuals with different perspectives on vaccinations, encouraged young people to improve their media literacy, developed an appealing brand for vaccine-hesitant young people, contributed to research about campaign strategies for reducing vaccine hesitancy, and we've sparked a global conversation.

Introduction

Maisa, a pharmacist in Jordanian was initially vaccine hesitant about the COVID-19 vaccine and worked to convince others not to get vaccinated. Maisa had her doubts about the vaccine and believed misinformation about it, but then she went to informational sessions in Jordan where her questions were answered. She decided to get vaccinated and now helps at the same sessions that better informed her. As quickly as misinformation can spread, addressing concerns and promoting access to factual information can happen just as quickly (UN Resident Coordinator's Office in Jordan, n.d.). This effort to ease vaccine skepticism highlights how trust in misinformation can go unaddressed and how interactive, accurate information can serve to address it. Access to information and effective communication offers a solution to vaccine hesitancy due to misinformed thinking. The COVID-19 pandemic has caused fear in people's lives all over the world. Everyone is affected by the virus and its variants; therefore, it is crucial to discuss how global immunization efforts effectively mitigate the spread of the virus.

Global Context

This GLI group worked remotely with each other across the Atlantic - at the University of Montana in Missoula and at the Technische Universität Dortmund, Germany. In order to incorporate those studying abroad, they talked to classes with native Germans and other exchange students for interviews and to take our vaccine survey. Covid-19 infection rates last winter showed it would be a tough holiday season. Doctors in the country like Alexander Leitner expressed an abysmal view of Germany's COVID situation, saying, freedoms have become the priority for many (Großekemper, 2021).

As vaccine rollout stalled globally last fall, countries looked into measures to get their people inoculated. As of last December, countries such as Austria looked to mandate vaccination by Feb.1 due to a surge that has caused a current lockdown in the country. Other states like France and Italy had shifted toward mandating vaccines for frontline workers, whereas the United Kingdom was planning on doing the same this spring (Ellyatt, 2021).

Case and vaccination data from the New York Times showed that while the United States crossed the 60% threshold for vaccinated citizens last winter, the country was currently experiencing a new wave (New York Times, 2021). Vaccination hesitancy in the United States and abroad can often be attributed to lagging rates of vaccination (Conger, 2021). However, Stanford researchers have found that, "the problem may be less about hesitancy to be vaccinated than about lack of access to vaccine sites and reliable information" (Conger, 2021, para. 8). This was the basis of our project, to not only address vaccination hesitancy but to specifically focus on making our website accessible. These effects are seen directly among college-aged Americans where a significant amount of students are yet to be vaccinated (Mabus et al., 2021).

The University of Montana's own community saw these statistics play out where of the 2,641 active cases in Missoula on Oct. 17, about 18% were people 20 to 29 years old and roughly 17.5% were from people 30 to 39 years old. This made up for about 937, or over one-third, of the active cases in the county. A likely reason for this was that people aged 20-29 in Missoula have the second-lowest vaccination rate at 55.5% as of Nov. 8 (World Health Organization, 2021b). (In the city of Dortmund (as of December 15, 2021), 3,342 people in Dortmund are infected with the virus. There were 2,997 people in quarantine of 571,403 residents (News-Ticker ZUM Coronavirus in Dortmund, 2021). Comparing the statewide statistics between Montana and North-Rhine Westphalia we saw a 15% difference between the

two favoring the German state in the overall percentage of population vaccinated. Indicating the unacceptable lack of an effective approach for Montana residents (Statista, 2021).

However, Germany still had work to do, with only 68% of its population fully vaccinated, making it one of the lower vaccination rates in western Europe (Großekemper, 2021). Herd immunity can be reached if communities vaccinate 85% of their population. 72.8% of the population had received the 1st dose of vaccination (59,511,300) and of those, 69.8% are fully vaccinated (57,101,728) (Ellyatt, 2021). Our target was to help improve these low vaccination rates, by targeting their underlying issues. We see misinformation and lack of access to reliable information a key factor in this problem moving forward, both in the U.S. and abroad.

For this project, we defined misinformation as "false, inaccurate, or misleading information."As false information is a vast global issue, we focused on how misinformation contributes to vaccine hesitancy and what practices effectively correct misinformed thinking regarding vaccination. Without a global effort to increase immunization rates, some experts believe that complete eradication of the virus will be impossible (Stankiewicz, 2021). The insufficient vaccination rates, largely due to false beliefs about the vaccine, directly correlate to our inability to conquer the pandemic. The world is dealing with what's being called an infodemic. A peer-reviewed article from Plos One, has highlighted the "strong association" between individuals worldwide believing COVID-19 misinformation and being hesitant about the vaccine (Singh et al., 2022, para 1). The study included 40 countries, including Germany and the United States (Singh et al., 2022). The infodemic and vaccine hesitancy are global trends our project dives into. Addressing misinformation by educating others on how to discern inaccurate information can be an effective strategy in combating those false beliefs. Intercepting false

claims early on can help fill information gaps before they are filled with misinformation (Centers for Disease Control and Prevention, 2021a).

Through the inspiration phase, we conducted a literature review, interviewed two number experts, and conducted a survey with 82 respondents. Based on our research the problem was tackling fear caused by misinformation about the COVID-19 vaccine that has made college students skeptical about getting vaccinated. The way we contributed to solving this problem was through an online portal where we highlighted herd behavior, examined examples of misinformation and trusted sources for vaccinated and unvaccinated individuals, while persuading misinformation receivers to improve their media literacy.

Our team has incorporated the following throughout the report. In the inspiration portion of our outline we will examine multiple other campaigns, data from inside/outside sources, and other examples surrounding the topic of misinformation. We will also show how Facebook and COVID-19 misinformation are directly correlated with each other by using examples of case studies by credible sources. During our research on the topic of COVID-19 vaccine hesitation we sought outside opinions on the subject. These discussions consisted of interviews with individuals who are hesitant to the vaccine, researchers on the subject of misinformation and vaccine hesitancy, medical professionals, and advertising agencies, which all helped us develop an online portal to help us combat the issue of Covid vaccine misinformation and as well as create advertising to bring them to our site. Finally, we will highlight the key points of progress we made this spring as we launched the site in February and adjusted it with feedback from our target audience before presenting the project on April 22, 2022, at the UM Conference on Undergraduate Research.

Inspiration

Misinformation reared its ugly head during the COVID-19 pandemic. The level of COVID-19 misinformation led to the number of English fact checks going up from under 200 per day in January and early February 2020 to over 1,200 in March (Brennen, 2020). Companies like YouTube and Facebook have attempted to fight against misinformation, specifically about COVID-19, in the last year. Facebook began its efforts against COVID-19 vaccine misinformation by banning false claims about the vaccine in December 2020 (Bond, 2020). YouTube has even gone as far as to ban anti-vaccine content (Reuters, 2021). As Facebook has continued updating its policies, misinformation spreaders have also adapted. According to Yahoo News, in July, anti-vaccine groups on Facebook started using codes like "dinner party" and "pizza king" (Musumeci, 2021, para. 1 and 10).

Facebook is no stranger to misinformation or anti-vaccine content. Research shows that Facebook users engage with misinformation 60 million times per month on average (Allcot, Gentzkow and Yu, 2018). In the anti-vaccination realm, a report published by the nonprofit Center for Countering Digital Hate analyzed anti-vaccine posts from 10 private and 20 public Facebook groups and a sample of about 123,000 anti-vaccine tweets from February 1 to mid-March of this year. Their results showed that 73% of vaccine disinformation posts on Facebook and 17% of those on Twitter, roughly 65% overall, originate from the same 12 sources (Center for Countering Digital Hate, 2021). According to a National Public Radio article, Facebook responded to the report and said it had removed more accounts run by the "Disinformation Dozen." (Bond, 2021). According to the Verge, Facebook has continued to update its policies with a more recent effort of taking down misinformation on vaccines for kids (Roth, 2021). Misinformation about COVID-19, especially the vaccine, is not just online though. Dr. Mary

Bowden, a Texas doctor, resigned after being suspended for spreading disinformation about COVID-19 (Lenthang, 2021). The misinformation about the COVID-19 vaccine is not only a threat to people's health who are unprotected from a virus that's killed over 5.3 million worldwide, according to the World Health Organization, but it's also a threat to countries like the United States reaching herd immunity (World Health Organization, 2021b). Herd immunity is when roughly 80-90% of people have immunity to COVID-19, according to the University of Missouri Health ("COVID-19 Vaccine Key to Reaching 'Herd Immunity,'" n.d.).

As shown above, there is inaccurate information on COVID-19 and the vaccine, so the next question is, why do people believe it? The team looked at what factors are at play in believing online information, even when blatantly false. The cognitive bias phenomenon makes users believe a lot of the information they see online. Cognitive bias is when information is processed into someone's subjective social reality (Cherry, 2020). A type of cognitive bias is the Halo effect, when our entire impression of a person (photo on website) impacts our impression of their character (Cherry, 2020). This involves how we view online information sources. Additionally, false claims online also create large communities that band together for a common idea, which can make their cause more credible to some readers. One study highlighted the power of strangers online, finding that the "social endorsement," such as how many people "recommend" an article, could have more of an influence on it being selected than the source (Messing and Westwood, 2012). Another study found that comments under an article could have more of an effect on people commenting and sharing it than a disclaimer attached to the article (Colliander, 2019). The lack of fact-checking ties into this as well. There are a lot of different factors; the main question is how we can slow down these problems and design our platform as part of the cure. This led to examining herd behavior more.

Some organizations profit from "herd behavior," which leads media consumers to assume that a particularly large group of people can't be wrong. Studies have found that people fact-check less often when they evaluate statements in a collective setting (in a group or on social media) than they do when they're alone (Meng, Jun and Johar, 2017).

It's also been found that people tend to share stories that incite emotion and are more likely to interact with content that has a lot of engagement already, regardless of whether the content is true or false (Martel, Pennycook and Rand, 2020). Misinformation sharing is two-dimensional, including both intentional and unintentional behavior from news sources and consumers. The latter is far more feasible to address with the issue of misinformation. Some individuals seek accurate information and are misdirected by false publications, and others deliberately share false facts to perpetuate their political ideologies.

"Hands-On Social Marketing: A Step-by-Step Guide to Designing Change for Good," highlights social marketing, which is using commercial marketing to promote behavioral change for the benefit of a person or society instead of just to benefit a company (Weinreich, 2011). One key to this is examining what the audience needs to make their desired change vs creating materials that lead to this (Weinreich, 2011). This reading encourages the sale of a behavioral change by examining the attributes and the benefits of the change, while also acknowledging the price (time, emotional aspects) it'll cost (Weinreich, 2011). The text also points out the importance of "place." Weinrich writes, "Ideally, your campaign should reach people in a time and place where they are already thinking about or making decisions related to the behavior." (Weinreich, 2011, pp. 14-16). This helped inspire our idea to place Facebook advertisements for

the portal in a similar manner that misinformation targets people online. These advertisements for the portal will pop up in a place that also has COVID-19 vaccine misinformation.

According to the book, *Stuck,* by Heidi Larson, a significant part of vaccine skepticism is what she calls "dignity and distrust" and people just wanting to be respected and included in conversations about vaccines (Larson, 2020, p. 21). An example was in 2014 when Catholic Bishops in Kenya sparked fears over the HPV vaccine after the church was not consulted about a vaccination campaign. Another example is vaccine-hesitant, soon-to-be mothers who sometimes feel disrespected and their concerns are ignored by medical providers. Another thing to note is that vaccines tend to be promoted by explaining all the benefits compared to the minimal risks, whereas parents are more hyper-focused on the risks because the risk of the diseases seems far away (Larson, 2020). The risks of disease seem remote due to the success of previous vaccines in battling disease (Larson, 2020).

Facebook and COVID-19 Misinformation

According to the Washington Post, researchers at New York University and France's Université Grenoble Alpes found from August 2020 through January news synonymous with misinformation got six times the amount of interaction on Facebook as sources like CNN and the World Health Organization (Dwoskin, 2021). Dwoskin's article (2021) states:

> "Facebook's critics have long charged that misleading, inflammatory content that often reinforces the viewpoints of its viewers generates significantly more attention and clicks than mainstream news. That claim — which has been reiterated by members of Congress has gained significant traction during the pandemic." (para. 13 and 14).

Additionally the article highlighted findings from the Washington Post's COVID States Project, which has conducted surveys of over 20,000 Americans (Lazer et al., 2021). One major finding from the survey in June and July was that 61% of Facebook users eligible for the vaccine were vaccinated compared with 68% nationwide and 71% of non-Facebook users (Lazer et al., 2021).

An Examination of Other Campaigns

In *Switch,* Dan and Chip Heath (2010) explain that behavioral change can be split into three parts. One is to "direct the rider" (our analytical selves), another is to "motivate the elephant" (our emotional selves) and "shape the path" ahead (C. Heath, and D. Heath, 2010, p. 25, 99 and 177). In order to "direct the rider," the bright spots of an issue must be identified. Instead of looking at a solution and becoming overwhelmed by how complex it is, it can be useful to see which people in the community or problem topic are actually doing well, the anomalies (C. Heath, and D. Heath, 2010, p. 28-29). The team also faced this issue with the topic, so we examined other campaigns combating misinformation and vaccine hesitancy to inform our portal further.

The team also examined the Child Safe Traveller campaign through Worldvision that focused on the issue of child-related abuse in tourism. The campaign conducted statistical research of travelers who visited countries, mainly in Southeast Asia, asking questions pertaining to the awareness of abuse in areas they visited. Most travelers said they were aware of some abuse that comes from the media, that reported abuse is often only the high profile crimes like sex trafficking. Most also said they didn't know how to help the children living in these countries. That was the goal of the campaign; to educate the tourists on ways to spot abuse and

how to help the abused children. Through the education provided to the travelers contacted by the campaign, they found significant results showing that not only were the tourists perceptive of the methods taught to them, but that they correctly and effectively applied their teachings. A campaign like this has similarities to what we will be doing in some ways. The fact that the campaign was able to correct a person's misunderstanding of a particular situation the subject thought they knew before is encouraging (Project Childhood Prevention Pillar, 2013).

"Facts Before Rumors" is a campaign to combat COVID-19 misinformation by spreading fact-checked information from countries that have seen false information earlier to regions that have not necessarily seen the same piece of information yet. Countries most affected by the COVID-19 misinformation rapidly encounter false information that is not fact-checked by official sources at the same rate. This is a concern as people are less active in seeking personal health strategies. Unfortunately, it looks like this was a one-time campaign in a polling paper aimed at backing up why the campaign should work (Cha et al., 2021). This made it harder to gain inspiration from this source.

Another campaign is the World Health Organization's "Reporting Misinformation." It launched in August and showed people how to report misinformation to various social media platforms with aims to strengthen global health security and vaccine confidence. The Reporting Misinformation campaign reached millions of people globally and social media messages were shared in 5 international languages, including English, French, Spanish, Arabic, and Russian. At its launch, it became the second most viewed COVID-19 related page on the World Health Organization website (World Health Organization, 2021a). This gets at the human condition of not wanting to be lectured to, and we should be creating the tools to help people digest information from media.

Informational media campaigns are credible, have a clear audience, are accessible, and get people's attention. Credible campaigns include reasonable and feasible ideas and experts. The campaign has to know its specific audience so it can be entirely aimed at that demographic. Our campaign should be easy to find and also share with others, especially through social media. These efforts have to get the target demographic's attention. An effective way to do this is to make it clear what information is being conveyed.

Some ineffective campaigns dealt with the question, "how do you communicate with someone that insists that all public discourse is just a clash of different politicized narratives and that there can be alternative facts, even if all the rational evidence points to a single version of the truth?" This is exemplified in the emotional campaigns of the perils that polar bears face because of climate change and the basic climate change *debates* that have gone on for decades. Conservative news media often emphasized and had a "debate" about climate change (Krishna, 2021).

Survey Analysis

Another way the team gained inspiration was a survey conducted with unvaccinated college students. As of May 10th, the survey had 82 respondents, the vast majority of which are college age individuals. We used the findings to help identify a focus for our project: The survey revealed a possible incentive-based approach for addressing the problem of vaccine hesitancy. This insight was derived from results based on 62 respondents saying they would leave their job if their employer required them to be vaccinated, indicating little efficacy with mandates. Even though 20 respondents said COVID-19 hadn't affected their personal/social activities very much, the vast majority of respondents did. Forty four individuals felt COVID-19's impact on things like remote school, not being able to travel, and not visiting older relatives. This led us back to

utilizing strong positive reinforcement compared with a harsher stand against the unvaccinated seen in mandates or even negative punishment reinforcement. Positive reinforcement includes how the vaccinated have easier travel rules and how the vaccine helps people return to normal life like concerts, travel, restaurants, etc.

Other applicable takeaways included that the most popular answer on each person's most influential source of COVID-19 info was public health officials, which 27 people selected, while 23 saying friends and family. With what information sources people trust, there was a vast divide with 13 people saying no sources and 13 listing a variation of established health sources like the CDC, FDA, WHO and Dr. Fauci. This lends itself to the idea that the target demographic of vaccine-hesitant students may be more receptive to community health officials and other students, which is not only refreshing and a different approach but also a more unbiased one. This is an opening because the most picked choice was friends and family as their most influential source of COVID info. Classmates fall into this category.

Our data reached 59 responses last December thanks in large part to QR code stickers. The QR code stickers doubled our sample size, increasing the responses from our target audience. We used the QR code stickers as a pilot test to gain attention to our survey, the effectiveness was almost immediate. We also had 17 students who were willing to voice their opinions to our group anonymously, who provided their email addresses. This gave us a greater understanding of the perspective of our target audience of unvaccinated college students, thus making our portal strategies more engaging and effective. For instance, we could ask why they chose the responses they did, to see why some responses are more similar. Our group continued to check the survey weekly in case we needed to modify our portal and strategies as we moved forward.

Expert Source: Eric Kaufman

Another source of inspiration was from the team's November 15th conversation with a creative director from the ad agency Deutsch LA, Eric Kaufman. He helped with the ad campaign "Do It For Me," where the Ad Council was Deutsch LA's client to target vaccine-hesitant young people. The unscripted ad campaign showed two people (family members, couples, etc.) sitting down and talking about the skepticism one of them has about the vaccine. Kaufman said the campaign's goal was to strip away any assumptions made about getting the vaccine or not and instead focus on close relationships. Kaufman, who interviewed vaccine-hesitant people, said many seemed to not want the vaccine because of everyone telling them to get it, so the campaign's target was talking to loved ones and getting answers and letting people know that their concerns are being heard. Kaufman admitted that there was a fine line where Deutsch LA had to not show certain people's comments on the COVID-19 vaccine because of concerns it may promote misinformation.

Kaufman said the campaign received 33-35 million views/impressions so far and created a lot of online chatter. In explaining why the agency created the ad in the manner they did, Kaufman said the Ad Council provided them with a lot of research that steered them away from a blunt messaging approach toward the unvaccinated and also revealed that the vaccine-hesitant young people were often doing activities anyway. He said the research provided indicated that the target demographic was more peer-influenced than other groups.

For our project, Kaufman said a blunt approach may work since we know the target audience the best. He emphasized speaking in the target audience's language and figuring out the desired message of the portal, and then working backward to create the portal with information

of what the demographic cares about and their reasons for being unvaccinated. He suggested our Facebook advertisements be disruptive to the intended users and could even be a single line to get a user's attention. He used the example of something as simple as "Not vaccinated?" One specific question we asked Kaufman was if providing locations for COVID-19 at the end of the portal would be effective. His gut reaction was no, that it could risk alienating visitors and give the portal a pro-vaccine label instead of pro information. However, we did include this resource in the portal for reasons explained later in the report.

Expert Interview: Sophia Newcomer

Another expert the team spoke with is Sophia Newcomer, an assistant UM professor on November 10th. Her background includes ten years of vaccine safety work at Kaiser Permanente, and the majority of her pre-pandemic work was in child and adolescent vaccines. She's currently in the early stages of a NIH funded project exploring COVID-19 vaccine hesitancy in rural and Indigenous communities. She said there's a diverse range of reasons why people are vaccine-hesitant in general but three main areas of concern are the risk vs. benefit analysis, vaccines being a victim of their own success, and people trying to get through all the information. She said roughly 75% of parents have some level of vaccine hesitancy, but the majority end up vaccinating their children. She said vaccine decisions are often revisited, and very few minds can't be changed with vaccines. She also said primary care providers are the first line of defense in boosting vaccine rates.

Newcomer gave us some portal-specific advice. She warned us that there's limited evidence that one-way communication is really that effective in addressing parental vaccine hesitancy. "The static website didn't really do much to increase vaccination rates, but the two-

way conversation does," she said. Newcomer said one example of doing this, if UM students are the target audience, is having a way for students to send in questions on the portal that can then be answered by someone like Dr. Jeff Adams or someone else from Curry Health Center. She liked our target audience of college students because, according to her, pre-pandemic people in their late teens and 20s were a lost population with preventative care. She said the portal could even play on the health autonomy amongst this demographic. Newcomer also said the tool of a story can be influential, but the portal ought to avoid the scare factor of what happens if people aren't vaccinated. She emphasized that any efforts to boost vaccination should not minimize that getting vaccinated is a complex decision. She said it's effective to focus on why people are vaccinated and not why people are not. She said people often overstate the risk of COVID and downplay the benefit of the vaccine.

Interviews with Survey Participants

The team interviewed three of the survey respondents from the University of Montana to gain further insight from the survey. These interviews occurred on November 19th and 22nd. The interviews revealed the diverse set of reasons people do not get vaccinated. One male student cited concerns over STEM cells involved in the vaccination process, while a female student cited concerns over a lack of research and said it's her right not to get vaccinated. The other female student said she's not getting vaccinated because she is currently getting health issues looked at, specifically her heart. These students had different circumstances with the number of their friends and family who had received the vaccine and information sources they trusted, but there were some underlying similarities. She cited concerns over some heart-related side effects from the vaccines, which both other students also did. All three interviewed students also chose public health officials as their number one source of information. One interview, in

particular, embodied the importance of positive reinforcement instead of taking a harsher tone with the unvaccinated students. She said even if some of the online claims are far-fetched at least people are questioning the vaccine and not just taking it. "I feel like they may assume a lot and some of their assumptions may be very crazy, but at least they're questioning it. No one's really questioned it. It was just given and everyone's like, 'Ok, come just give me a shot,'" she said. This same student expressed that a mandate would make her less likely to get the shot. The other female student surmised that mandating the shot may create more hesitancy.

To include other perspectives and create a well-rounded picture of how our peers view Covid-19 vaccines, interviews of vaccine-positive students were conducted. Students attending the Technische Universität Dortmund, Germany, reveal insights on their obligation to get vaccinated. Reasons to get vaccinated revolved around a responsibility to their communities and the larger public by protecting themselves. Mary, from Boise, Idaho, got the vaccine "to protect myself and those around me. With the vaccine, I am less likely to be hospitalized and won't be adding pressure to hospital capacity." This is her way to prevent community spread. Another perspective from a Turkish foreign exchange student, Maltepe, focused on economic factors and the impact of family on his decision to get vaccinated. This particular student also has an aunt that had covid, which was a horrible situation for his family. "She didn't breath normally, the coronavirus affected her lungs and after recovering her daily life isn't the same. She struggles with everything." Another patient, 27 years old, was next to Maltepe's aunt when he visited her in the beginning. This young man told the doctor, "I don't want to live anymore, I can't stand this suffering." This created an easily understandable situation for Maltepe, "we don't know the future, but now we need to think about the present. If I didn't get the vaccine, I could die."

Ideation

We intended to achieve our objective through the use of our COVID-19 vaccine-focused website. We did so through information learning and skill-building concerning misinformation. First, we wanted our site to teach our audience to be more easily able to spot misinformation in their day-to-day lives. By being able to autonomously make these realizations themselves they will better trust their judgment, this was supported by our survey results with some stating there are no outside sources they trust on the subject of the Covid vaccine. Along with this, we wanted to inform our audience about the effects misinformation has as well as clear up some of the misconceptions created by misinformation surrounding the vaccine by touching on false beliefs like heart complications in young individuals, chance of causing infertility in women, and its reduced safety based off the speed in which it was created. Additionally, we wanted to let those who are unaware know the benefits of receiving the vaccine. We based this off of our interview with Newcomer who told us to also focus on not just why people don't get vaccinated but why individuals do decide to get the vaccine. Things such as the health benefits, easier access to private business resources, and an easier time traveling. We believed in being a site that is not focused on static facts but by having interactivity like our communication with health professionals we would achieve a high level of engagement. We decided on this because during our talks with Sophia Newcomer she informed us of the importance of not just being a static website and to create something that keeps readers engaged. By giving the readers the ability to increase their own ability to spot misinformation and have open communication about their concerns they were able to wade through the haze of false facts that exists on the COVID-19 vaccine and other subjects in which misinformation is prevalent.

The target audience was unvaccinated college students, which is explained in the global context section. We approached this age group with our website because of the frequency in

which college students are already online. According to the Pew Research Center, from Jan. and Feb. 2021, 48% of people 18-29 reported being on the Internet "almost constantly." The medium to get our message had to be somewhere the target audience visits a lot, which is why we chose a website. Two of our group mates were studying internationally in Germany, so they also implemented our stickers there. This furthered our perspective and data tremendously, our audience from across the world made our portal well rounded. We followed the data closely as time went on to see whether the effectiveness of our QR code transferred overseas.

Our partners included the experts we talked with in the fall like Eric Kaufman, Dr. Sophia Newcomer and Dr. Jeff Adams. After struggling to reach Kaufman this spring, we utilized the expertise of UM's professor of marketing Jakki Mohr and her class for feedback. We kept Dr. Sophia Newcomer in the loop with the project. She is someone who raised the concern of doing more than just providing information, so we consulted her on our interactive tab later, which she provided valuable insight on. Lastly, Jeff Adams, the medical director at Curry Health Center, gave feedback on the website and ended up having a slot on the last tab dedicated to a form where he can directly answer COVID-19 vaccine questions that are submitted.

Website Portal Content

Home

The homepage of our website is the entrance for the viewer. With this in mind, we intended to make it as welcoming as possible and offer quick insight into what the site is about. Here, we address who we are as a team and as the creators. This section gives a face to the organization behind the site and highlights us as individuals. Below the team pictures, we include a mission statement laying out our intention for our site. We find that clarity here leads to credibility. Our home page also establishes an inviting tone for anti-vaccine and vaccine-hesitant

individuals by referring to our target audience as "free thinkers." This language and overall strategy stem from the advice of our expert source, Eric Kaufman.

"Why Get Vaxxed"

Here we show the benefits of being vaccinated and increased vaccination rates. We avoid shaming people for not being vaccinated and instead show the benefits of life after getting the vaccine. There are links to various websites throughout this page to back our claims. The links include an HHS map of hospital capacities and an academic article on the increased risk of long-COVID amongst the unvaccinated. On the website, we wanted to show the benefits of getting vaccinated beyond the health benefits, such as opportunities to travel available for the vaccinated and how it helps us return to normalcy (concerts, travel, restaurants, etc.)

This section of the portal is justified by our pre-website survey results, which found nearly 84% of people said they fact check the information they encounter. This type of person may be more receptive with an incentive-based approach instead of trying to convince them they are not fact checking their info enough. This approach is also justified by the more than 77% of 80 survey respondents who said they would leave their job if their employer required them to be vaccinated, indicating little efficacy toward negative punishment reinforcement. Only about 27% of 73 people in the pre-website survey said COVID hadn't affected their personal/social activities. Whereas over 60% of people had felt COVID's effect with things like remote school, not being able to travel and not visiting older relatives**.** This leads us back to utilizing strong positive reinforcement.

"Information Overload"

The "Information Overload" page addresses the abundance of information online that leads to misinformed thinking. This page also presents the idea that individuals are susceptible to "herd behavior," the societal trend of doing or believing something solely because other people are doing or believing it. Our research shows that herd behavior and other societal pressures have played a significant role in spreading misinformation during the COVID-19 pandemic. Illustrate this connection with the statistic highlighted on this tab, which found that "Between 2 and 12 million people are unvaccinated because of misinformation or disinformation." (Bruns et al., 2021). Presenting this research and the correlation between misinformation and vaccine hesitancy is a necessary and informative part of our campaign.

Through our literature review we found that there is a misconception of what misinformation is due to cognitive bias and it is seen through the COVID-19 vaccine hesitancy. Due to the social media sharing and spreading of misinformation as discussed in the literature review, creates the idea of herd behavior, therefore incorporating this into our portal gives us a platform to educate viewers on this repeating issue.

"It's Your Turn"

Our team wanted to include an interactive piece to the site. With the info given in the previous two pages and a checklist of what to look out for, we turned the learning over to the user. With a collection of screenshots from different sources, the user must differentiate between true and false information. If they appropriately discern the misinformation, a celebration window appears, confirming that they have answered correctly. If they answer incorrectly, a window will pop up offering a brief explanation and an option to read further into it. From our discussion with Dr. Newcomer, we took her insight to inform this page. Through our initial

survey, we heard the diverse opinions on sources for COVID information among unvaccinated young people. We avoided polarizing sources. One news source that we used in a screenshot was the Washington Post. This is one of the few mainstream sources we utilized to avoid turning off our audience. Despite the WP being a mainstream newspaper, we ensured that the context it's used in, informs and appeals to the unvaccinated. The screenshot from the WP states that most people will contract COVID-19, so it acknowledges that a vaccine does not make an individual immune to the virus. This is one of the correct examples in the quiz. It provides accurate information that some unvaccinated people may feel goes ignored by people promoting the vaccine. With this one example we work to gain the trust of our audience, while also promoting media literacy.

The examples included in this tab were also backed by our literature review. For example the tab includes a screenshot of an incorrect Facebook post that overstated the heart risks linked to the vaccine. This example stems from research that found the case of a 15-year-old who passed away within 48 hours of receiving his second dose of the vaccine, which many falsely believed was related to heart complications caused by the vaccine (Nichols and White, 2021). Potential vaccine heart-related side effects was a consistent issue that was discussed by our unvaccinated student interview subjects. While heart inflammation has been documented as a side effect, it is one that is considered extremely rare especially in children and young adults (Centers for Disease Control and Prevention, 2021b). Even with this knowledge the CDC still recommends the vaccine for those ages 12 and up. Rather than ineffectively pointing the finger at website visitors who may believe some of these false claims, this tab provides a space for users to come to grips with false claims on their own in an engaging setting. We believed that by

making our audience better able to spot misinformation individuals, with this tab, it would be an additional nudge to them getting vaccinated.

Resources

Our team wanted to incorporate as much communication into the website as possible. So on the site's last page, we included a forum for asking questions. The questions are automatically emailed to Dr. Jeff Adams, the Director of the Curry Center, every five days. This feature allows our visitors direct communication with a healthcare professional and is another way we implemented the two-way conversation Dr. Newcomer talked about. Along with the forum, we provide links to the Poynter database, a worldwide database of COVID-19 misinformation, and a link to Vaccines.gov, which has nearby vaccine centers. We included this on the final page in case any visitors feel inclined to get vaccinated after exploring our site. The opportunity is there, however, we offer this without any sort of pressure. However, we felt this resource was important so the site provided an opportunity for behavior change.

Finally, we included the opportunity to leave feedback in the form of an exit survey on the last tab. Visitors to the site and participants of our original survey were encouraged to provide anonymous feedback that would help us to further develop our site as well as gauge its effectiveness on inciting behavior change. To incentivize our target audience to check out our website and give feedback, we offered the possibility of winning a $25 gift card if they participated in the exit survey. We developed this strategy based on a study in the journal *Nature* titled, "Megastudies improve the impact of applied behavioral science." The study found that small monetary incentives can promote behavioral changes (Milkman et al., 2021b). The survey

feature added another interactive element to place where visitors can ask questions, explore a database, and contribute to ongoing research.

The website also provided multiple different links to other resources. For example, we provided a link to outside resources, such as the CDC's vaccine website, link to an outside source for information on how and where to get vaccinated, and a form to submit questions to the Director of Health Center Jeff Adams. This is supported by our conversation with Sophia Newcomer and her mention of a portal with two-way communication. She gave a hypothetical of utilizing someone like Dr. Jeff Adams to answer student questions.

Engagement Strategies

One of our engagement strategies was the page dedicated to spotting clear examples of misinformation. This consisted of examples of COVID-19 misinformation that have been examined by our team to spot the common themes used in creating false information. This gave the reader the ability to see what concepts were being used against them to affect their opinion on the subject so they could better address these concepts and learn to analyze the information they receive more effectively in the future.

Another engagement strategy was the section to submit questions under "resources" that sends questions submitted on the site to Curry Health Center's Director Jeff Adams. This was backed by our talk with Sophia Newcomer, a UM professor, who worked for ten years in vaccine safety for Kaiser Permanente, has a background in researching "The static website didn't really do much to increase vaccination rates, but the two-way conversation does." She said if we target UM students it would be cool to have a way that Adams or someone from Curry can answer

questions or interactive components. This would also be backed by our survey results, where 27 or 34% of respondents said their most influential source of COVID info is public health officials.

Additionally, we utilized a monetary incentive to encourage engagement throughout our campaign. Research showed that as little as nine cents can be a significant motivator for people to achieve a desired outcome (Milkman et al., 2021b). We purchased a $25 gift card with the help of Mackenzie to reward a random visitor who filled out our site's exit survey and left their email address.

Marketing Strategies

QR Code Stickers

Throughout our project, the group decided to implement QR code stickers around the University and downtown Missoula and on the TU campus in Dortmund Germany. The design of the stickers is meant to be inviting with the phrase, "Unvaccinated? Take our Survey!" See the photo above. We did see a boost in our survey data, through 7 days and additional 20 responses, and counting. Considering this success, we plan on fine-tuning this strategy on a large scale for our website as well when the time comes.

Advertisements

Our advertisement campaign was critical to engaging our target audience with our project. We needed to get people from across the world engaged with the platform that we had built. We took recommendations from our ad experts and used different marketing strategies to accomplish these goals.

The advertisements are designed to draw the eye with vibrant graphics relating to our issue of vaccine misinformation. Our advertisements addressed our target audience in a non confrontational/neutral manner. The two finals included the dialogue, "Skeptical of the vaccine? Make sure you're not being misinformed." We made a point to not make the advertisements seem like they were telling unvaccinated individuals they were wrong in their choice, only that we were interested in their point of view and would like to provide them with resources that they can choose to use to increase their own media literacy. We believe that by doing so those who access the site will feel less criticized for their choices and open to new information surrounding misinformation and the COVID vaccine.

Newcomer floated the idea of playing on health autonomy with our target demographic of college students. Additionally, our survey results as detailed above indicated a strong distaste for vaccine mandates. On top of that, Kaufman explained that many young people he interviewed prior to the ad campaign seemed even more opposed to vaccination when everyone was telling them to get the shot, which is contrary to vaccine mandates. While the advertisements did not specifically use the word "autonomy" they put the onus on each individual to ensure they are not being misinformed. The advertisements did not approach users with a message of "we" or "us" or an image that reflected such. Instead this tone was saved for the website, while advertisements touched on the health autonomy of those they came across.

Facebook had an audience that seemed to be more susceptible to misinformation. This is evident with how Facebook recently had to crack down on groups spreading false information on their platform last year. (Holzberg, 2021). Facebook advertisements were simple to create and implement onto the platform. We utilized simple and straight to the point advertisements to draw more attention from our audience. (see information above). This saved us time and money when

the advertisements were designed and allowed us to create a wide variety of advertisements to get feedback. Additionally, as discussed in the inspiration, it's effective to reach people at a time or place where they are already making decisions about behavioral change. Social media, specifically Facebook fits this because it houses a lot of relevant misinformation.

The continued use of the QR stickers was justified by their effectiveness in getting individuals to take our survey. A week before the fall semester ended, our group planted QR code stickers in every building on campus. Restrooms, message boards, the food zoo, the gym, etc, all have clear access to the survey. College students are aware of how these codes work, simply scan them with your camera, and you are taken directly to the survey. We wanted to implement them where there is a large amount of foot traffic to boost our chances. There was a lot of growth in 7 days, with almost 20 additional responses, the simplicity of a QR code has shown to work well with our targeted audience. They are relatively cheap and have shown to be effective with college students, the growth in responses was practically immediate. The group ordered a new batch that led our audience to our website once the platform was ready.

Engagement Strategies in Marketing

One thing Eric Kaufman, a creative director at Deutsch LA, said in an interview with us was that it starts with who we are trying to speak to?: Are they people who click on FB advertisements? He went on to say that it's likely that his and our generation naturally block out advertisements. Kaufman explained, "So how do we make it not that? How do we make it something that's more engaging to them? Is it saying something that is potentially disruptive to them or eye-catching to them? Is it something like sort of eye-catching in, 'Not vaccinated?'" This justifies the sticker's text "Unvaccinated?"

Project Implementation

The launch of our website on Feb. 14 was just the beginning. We've come a long way in the development of our site over the last few months. A major part of implementing our project was getting users to it with methods like Facebook advertisements .

In the beginning of March, we officially launched our Facebook ad campaign. We budgeted roughly fifty dollars for the first two weeks of March and set our ad demographics to target all adults in Montana and Germany. We wanted to see the engagement of our target audience in the areas where we launched our project, and this strategy would provide us this information. After these initial weeks, we broadened our scope to target an audience that is younger than 35 living in the entire United States, Germany, China, Portugal and more. The results yielded by this campaign were a success. Roughly four hundred Facebook users visited our website directly from this ad campaign, while the ad reached just over 60,000 unique Facebook profiles. Our ad campaign gave our project a global presence, giving us a chance to make a real impact in the fight against vaccine misinformation.

Iteration

The iteration process resulted in several revisions to our project: we made it so the site could be translated to Chinese and German, and we incorporated more ideologically neutral examples to the interactive portion of the site. We also added a checklist of what to look out for when recognizing misinformation and changed the title of our campaign to the more engaging—"Rethinking Trust, Reconnecting Us."

Each change was very intentional. The addition of the two languages helped enhance the site's global reach by adding Germany, where many users visited from, as well as China where we had surprisingly received some traffic from. The addition of more ideologically neutral quiz examples to the "It's Your Turn" tab were based on the comment of an unvaccinated junior at UM. The site impressed the student however he pointed out that all the examples in the quiz supported a liberal narrative. This is what spurred the addition of the Washington Post Instagram post that quoted a health official in saying that most people will get COVID-19. The factual piece of information helped keep the tab more ideologically neutral and trusted. Lastly, the website's title change helped reflect the open and community atmosphere we took in creating the portal. The ad also changed during the iteration phase. Jakki Mohr and her class stressed how the advertisements should have the same feel as the website. The final advertisements matched the sleeker design of our website and contained some of its colors - yellow and black.

Findings and Analysis

Through these campaign strategies, we were able to get a broad range of people to enter our website. Our team used Wix analytics as well as Facebook Ad analytics to inform the following outcomes. Since launching the website in February, we have received 433 site visits, with 316 of those visitors being unique. These site visits have been from all across the globe. The largest are the United States with 187 views and Germany with 165 views. Not only were we able to reach these two countries but several other countries as well.

With an average session duration of close to five minutes, many of our viewers got onto our site and read through. If our website does not grab the viewer's attention in the first fifteen

seconds of them entering, they will exit the website and not look any further. Having an average screen time this high for a website that some would deem controversial is a tremendous success.

Let us dive into what pages people interacted with most. Our most influential page, 'It's your turn' has a high level of engagement; with an average time of 1 minute and 33 seconds spent on the page. We found this outcome extremely positive because it shows that people are participating in our misinformation quiz and hopefully learning a thing or two about discerning misinformation online.

The majority of unvaccinated survey respondents found the website to be effective and pledged to be more careful when looking at COVID-19 info online. We helped change the views and future practices of these individuals, but we also moved some toward the vaccine. A couple people said they are rethinking their decision on the vaccine. While small, the results of the survey become huge on a global scale. Future campaigns could expand this global impact by extending the period advertisements were up over a longer period of time. If we would have had the funds to do this, the site would have reached more of our target audience, further informing us on how successful the site was in changing behavior.

Conclusion

Over the course of our project we gained valuable insight into individuals who have been exposed to misinformation, sources of misinformation, and developed strategies to combat this issue through the use of our own research, interviewing individuals, and speaking with experts on the subject. Going forward we believe the focus should remain on developing users' media literacy so they can better recognize and avoid misinformation online to prevent the spread of misinformation around the COVID vaccine and misinformation on all subjects across the board.

Partners

This portal had a mix of local and international partners we'd like to acknowledge. Locally, Dr. Jeff Adams from the Curry Health Center provided another interactive element to the portal with his willingness to answer questions from visitors to the site each week. The other local partner was Dr. Newcomer, who was excited about our idea and someone the team consulted again in the spring as the portal was more developed. Eric Kaufman, a national partner, gave us insight from someone who had worked on a similar campaign. His suggestions provided a nice starting point for our advertisements. The iteration phase, specifically with the advertisements added another campus partnership - Jakki Mohr and her class that provided ad feedback in March. An international partnership came from the unique situation of our team. With some members of our team studying abroad in Germany in the fall, we had the opportunity to incorporate their peers in Germany into the survey we conducted. Our goal was to get as broad a demographic as possible to see if concerns surrounding the Covid vaccine were similar in other parts of the world. With their input we were better able to see the spread of misinformation on a global level.

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